

ALCOHOL USE INVOLVEMENT GROUPS
AMONG TURKISH EMERGING ADULTS:
THE ROLE OF SELF-REGULATION IN GROUP MEMBERSHIP

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DECLARATION OF ORIGINALITY

I, Romina Markaroğlu, certify that

- I am the sole author of this thesis and that I have fully acknowledged and documented in my thesis all sources of ideas and words, including digital resources, which have been produced or published by another person or institution;
- this thesis contains no material that has been submitted or accepted for a degree or diploma in any other educational institution;
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ABSTRACT

Alcohol Use Involvement Groups Among Turkish Emerging Adults:

The Role of Self-Regulation in Group Membership

The goal of the present study was to identify different drinking groups in a non-clinical sample of emerging adults, based on different indexes of alcohol use, and to examine the impact of several self-regulation and contextual indicators on group membership. The study sample consisted of 18-25-year-old emerging adults ($n = 701$) who had consumed alcohol at least once in their lifetime. Three drinking groups were empirically derived. Regular moderate drinkers were the largest cluster (45%), followed by infrequent light drinkers (38.9%), and heavy drinkers (15.5%). Higher sensation seeking, lower self-control, and having a psychiatric diagnosis distinguished primarily between heavy drinkers and the other two clusters at the lower end of the alcohol involvement continuum. As an unanticipated finding, lower negative emotionality was also a significant predictor of heavy drinking. Specifically, living with family members predicted infrequent light drinkers. These findings suggest that in prevention projects targeting alcohol abuse in emerging adulthood, in addition to personality traits, young person's mental health, living situation and the context of drinking should also be considered. This study also lends support for examining subpopulations of drinkers and implementing a multidimensional perspective of both personality and alcohol use, in order to better understand emerging adult drinking.

Keywords: Emerging adulthood, drinking patterns, self-regulation, impulsivity, distress tolerance, negative emotionality

ÖZET

Genç Yetişkinler Arasındaki Farklı Alkol Kullanım Grupları:

Öz Düzenlemenin Yordayıcı Rolü

Bu araştırmada, duygusal ve davranışsal öz düzenleme perspektifinden hareketle, gençlerde alkol kullanım örüntüleri ile çeşitli dürtüsellik boyutları (tasarlama eksikliği, sıkışıklık, heyecan arayışı, sebatsızlık), duygu düzenleme becerileri (sıkıntıya dayanma, olumsuz duygulanım) ve alkol kullanım bağlamı (alkol kullanımına başlama yaşı, kiminle ve nerede alkol kullanıldığı, ebeveynlerin alkol kullanımı) arasındaki ilişki incelenmiştir. Araştırma kapsamında 18-25 yaş aralığındaki 701 katılımcıya internet üzerinden anket uygulanmıştır. Araştırma bulguları, ailesi ile birlikte yaşayan, daha geç yaşta alkol kullanmaya başlayan, heyecan arayışı düşük olan gençlerin, düşük alkol kullanımı ile tanımlanan “seyrek ve hafif kullanıcılar” gurubunda olma olasılığı diğerlerine göre daha yüksek bulunmuştur. Bununla birlikte, psikiyatrik bir tanıya sahip olma, düşük öz denetim (tasarlama eksikliği, sebatsızlık) becerilerinin alkol kullanımı açısından risk faktörü olduğu belirlenmiştir. Söz konusu bulgular, genç yetişkinlere yönelik alkolün kötüye kullanımını önleme çalışmalarının geliştirilmesinde, gencin kişilik özelliklerinin ruh sağlığı, alkol kullanım bağlamı ve ikâmet koşulları ile beraber düşünülmesi gerektiğini ortaya koymaktadır.

Anahtar kelimeler: Genç yetişkinler, alkol kullanım grupları, dürtüsellik, duygu düzenleme becerileri

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LIST OF ABBREVIATIONS

APC:	Alcohol per Capita Consumption
AUD:	Alcohol Use Disorder
AUDIT:	Alcohol Use Disorders Identification Test
BFI-2	The Big Five Inventory–2
BFI-2/NE	The Big Five Inventory–2 Negative Emotionality Subscale
DTS:	Distress Tolerance Scale
HES:	Heavy Episodic Drinking
NIAAA:	National Institute on Alcohol Abuse and Alcoholism
NSDUH:	National Survey on Drug Use and Health
OECD:	Organization for Economic Co-operation and Development
SAMHSA:	Substance Abuse and Mental Health Services Administration
TURKSTAT:	Turkish Statistical Institution
UPPS	Urgency-Premeditation-Perseverance-Sensation Seeking (UPPS) Impulsive Behavior Scale
UPPS/LPR:	UPSS Lack of Premeditation
UPPS/LPS:	UPPS Lack of Perseverance Subscale
UPPS/SS:	UPPS Sensation Seeking Subscale
UPPS/U:	UPPS Urgency Subscale
WHO:	World Health Organization

CHAPTER 1

INTRODUCTION

While the experimentation with alcohol use very often occurs in adolescence, recreational and regular use develops in emerging adulthood. Emerging adulthood, a distinct developmental period between adolescence and adulthood, is characterized by identity explorations, increased independence, and significant life transitions, accompanied by instability and feeling in-between (Arnett, 2005, 2014). These specific features of this period are associated with an increased risk for the initiation, escalation, and maintenance of alcohol use and misuse (Sassi, 2015; Boak et al., 2015; Schulenberg et al., 2017). Specifically, heavy drinking, binge drinking, and alcohol use disorders (AUDs) peak during this developmental period (Johnston et al., 2012; Patrick et al., 2016; Fazzino et al., 2017; Reich et al., 2015). When compared to other age groups, emerging adults are also at the highest risk for both immediate and long-term negative consequences of drinking, making this developmental period significantly important to understand and be targeted by prevention and intervention initiatives (Bamberger et al., 2018; Akmatov et al., 2011; Gaudet, 2007).

Although problematic alcohol use is often more prevalent in this stage of life, research indicates heterogeneity in patterns of use. To capture this heterogeneity, individual drinking behaviors should be investigated on a variety of indicators, including the onset of drinking, frequency, and quantity of drinking, and related consequences (Bräker et al., 2015). The current study assesses a range of alcohol use indexes and alcohol-related contextual indicators to explore and describe heterogeneity in emerging adult drinking, with a particular reference to the self-regulation framework.

Researchers have developed and used person-centered approaches to identify different groups of young adult drinkers and their trajectories. Those approaches cluster individuals based on the similarity of drinking patterns they exhibit. Relatedly, a growing body of research also investigates individual and contextual level predictors which characterize those drinking groups (Jackson et al., 2014; Lightowlers, 2017). For instance, personality research has documented heightened impulsivity and poor emotion regulation as risk factors associated with problematic alcohol use patterns among emerging adults.

In Turkey, research regarding emerging adult alcohol consumption is limited to prevalence studies with small college samples and cross-sectional design (i.e., Canbulat & Yıldız, 2011; Eryılmaz et al., 2020; Yalçın et al., 2009; Turhan et al., 2011), while nationally representative panel surveys are conducted sporadically (TURKSTAT; 2006, 2013; WHO, 2014). To date, there hasn't been a study that has employed a person-centered approach to examine emerging adult drinking. The majority of the studies explore hereditary and environmental factors associated with alcohol use and mainly focus on parental use, perceived social support, and adverse childhood experiences, but rarely investigate the relationship between individuals' personality traits and susceptibility to certain drinking patterns among a general population sample (Yıldırım & Sütçü, 2011).

Considering the developmental significance of emerging adulthood and in acknowledgment of the apparent gap in Turkish literature, the purpose of this study is to: (1) identify distinct groups of emerging adult drinkers, and (2) examine discrete impulsivity and emotion regulation facets that may pose the greatest risk to certain drinking behaviors. Understanding the factors that coincide with this public health issue would contribute to identifying at-risk youth and developing more effective

intervention approaches tailored to their unique needs (Jackson et al., 2014). This is crucial because empirical evidence suggests that emerging adult drinking can be more effectively intervened with efforts that address distinct drinking (Lee & Park, 2019; Carey et al., 2007) and personality characteristics (Conrod et al., 2008).

The following chapter will discuss the literature on emerging adult alcohol use, the relevant literature from Turkey, person-centered approaches, and the associations between the study variables and alcohol use. Finally, the current study and hypotheses will be presented.

CHAPTER 2

LITERATURE REVIEW

2.1 Alcohol use: Global status and Turkish context

Alcohol is the world's most commonly used psychoactive drug, accounting for 2.3 billion people worldwide (World Health Organization, 2018; SAMHSA, 2015). With 100.4 million estimated cases in 2016, alcohol use disorders are the most prevalent substance use disorders (Degenhardt et al., 2018). Globally, the harmful use of alcohol is the leading risk factor for disease, disability, and death among individuals aged 15 to 49 (WHO, 2018). Furthermore, 5.3% of all deaths worldwide in 2016, and 5.1% of all disability-adjusted life years in that year were attributable to the harmful use of alcohol, corresponding to 132.6 million DALYs¹ (WHO, 2018).

Most studies concerning alcohol consumption and alcohol-related consequences are conducted in the United States and Western European countries, and indexes of alcohol use in Turkey are documented at a much less prevalent rate than in these countries (Ulaş et al., 2017). The majority of the Turkish population (53%) tend to initiate alcohol use between the ages 15 and 19 (TURKSTAT, 2012), and the onset becomes earlier by year (Akvardar et al., 2003a). Pure alcohol per capita consumption (APC) (i.e., persons aged 15+ years) in Turkey was estimated at an average of 2.4 liters in 2000 and 2.0 in 2018 (İlhan & Yapar, 2020; The World Bank, n.d.). This decline may be due to (i) high taxation of alcoholic beverages in the past decade, (ii) the adoption of alcohol restrictions such as a ban of sales between 10 pm and 6 am (BIA News Desk, 2022; Hürriyet Daily News, 2013), and relatedly (iii)

¹ Disability-adjusted life years (DALYs) refer to the sum of the years of life lost due to premature mortality as well as years lived with disability or in ill-health which are caused by diseases or by accidents linked with alcohol use.

the significantly larger rate of unrecorded² alcohol intake in Turkey (29%) compared to the OECD average (11%) (Franco, 2015). While APC figures are below the rates in European countries, when the analysis is carried out only among drinkers, APC in Turkey is higher than in some Western countries with high alcohol consumption (WHO, 2014). To interpret this situation, one should acknowledge the unique position of Turkey in terms of its drinking culture (Alikashiöğlu et al., 2004). Turkey has a diverse culture with a unique blend of elements from both Islamic and Western traditions. Although alcohol consumption is prohibited in Islam – the widely identified religion in the country – alcohol consumption is legal. Different communities within the country vary in their commitment to these traditions and values. Therefore, views on alcohol consumption and drinking behaviors cannot be expressed by a single tendency adopted by the majority of the population. Attesting to this, prior research indicates a polarization between one large group who abstain³ from alcohol and another group characterized by a relatively high consumption (TÜİK, 2013; Buzrul, 2016). Therefore, Turkey is a unique case to examine alcohol use patterns among emerging adults.

2.2 Importance of emerging adulthood in terms of alcohol use

Alcohol use follows a developmental course, a range of risk and protective factors come into play as each individual progresses through life. This means that drinking patterns are variable, not constant across the life span (Schulenberg et al., 2001).

² In the report, unrecorded alcohol is defined as alcohol produced or sold outside of normal governmental controls and considered as a substantial part of total alcohol intake.

³ There are several types of abstainers. The term lifetime abstainers refers to those who have never consumed alcohol, whereas former drinkers are individuals who previously drank alcohol but have ceased alcohol consumption in the past 12 months. Despite the high prevalence of alcohol use globally, more than half of the world's population aged 15 years and older reported that they had not drunk alcohol (abstained) in the past 12 months.

Emerging adulthood is defined as the transitional period between adolescence and adulthood, with a focus on ages 18 to 25 (Arnett, 2000, 2005). In this distinct period of development, emerging adults face frequent, unexpected, and often confusing transitions across multiple spheres of functioning (e.g., neurologic, cognitive, and social maturation) and main domains of life (e.g., education, love and work; Schulenberg & Maggs, 2002; Arnett, 2000). Some of the prominent features of this period can be listed as identity formation, growing autonomy, initiation of new roles; decreased social control, parental surveillance, and guidance (e.g., changes in residence); changes in norms and attitudes; and establishment of new social networks (Casey & Jones, 2010; Krieger et al., 2018; Mills et al., 2014). Managing or failing to master some of those changes is associated with a subjective sense of ambiguity and uncertainty that makes emerging adults highly susceptible to high levels of frustration and psychological distress (e.g., emotional instability and negative affect; Gunn & Smith, 2010; Arnett et al., 2014). Those factors often put young adults at risk for engaging in unhealthy behaviors that can have a range of adverse psychosocial outcomes (Merikangas et al., 2010; Reinke et al., 2012; Fergusson et al., 2013). Relatedly, this period of life has been identified as a time of increased risk for the initiation, escalation, and maintenance of alcohol use, misuse, and associated adverse consequences (Chen et al., 2004, 2005; Karagülle et al., 2010; Sussman & Arnett, 2014; Evans-Polce et al., 2015; Simons-Morton et al., 2016; Cleveland et al., 2013). Therefore, researchers have paid attention to understand emerging adult drinking (Palmer et al., 2009; Moss et al., 2014; Ha, 2010).

Although alcohol experimentation typically begins during early adolescence (Webb et al., 2002), findings from both cross-sectional and longitudinal studies demonstrate that the prevalence of alcohol use (White et al., 2005; Windle & Zucker,

2010; Johnston et al., 2012; McCambridge et al., 2011; Gates et al., 2016), along with problematic use, heavy episodic drinking⁴ (WHO, 2018), and alcohol use disorders⁵ (AUDs) (Hasin et al., 2007; Henges & Marczyński, 2012; Naimi et al., 2003; SAMHSA, 2015; Grant et al., 2006) reach a peak during the emerging adulthood years.

Attesting these findings, results from the 2015 National Survey on Drug Use and Health (NSDUH) demonstrated that the majority of emerging adults in the United States aged 18 to 25 (58.3%) were current alcohol users, 40% reported binge drinking, 10.9% had engaged in heavy alcohol use⁶ in the past month (SAMHSA, 2016), and that about 9.3% reported past-year AUDs (SAMHSA, 2019). Likewise, calculations from the 2019 NSDUH data file indicate that more than 90 percent of all alcoholic drinks consumed by young people in the United States are consumed through heavy episodic drinking (NIAAA, 2021). Consequently, heavy drinking behavior (i.e., binge drinking and getting drunk) is identified as the most prominent feature of emerging adult problem drinking regardless of the regularity of use (Reboussin et al., 2006).

⁴ Although other thresholds have been proposed (e.g., 8+ drinks, 12+ drinks; Conigrave et al., 1995; Nadeau et al., 1998; White et al., 2006), 5 or more drinks on a single occasion “has generally maintained its status of being the standard for measuring heavy episodic drinking in general population alcohol surveys” (Midanik, 1999). Based on the recommendations for a gender-specific measure, the standard definition of HED has become consuming 5 or more standard drinks for males, or 4 or more standard drinks for females, on one occasion, within a couple of hours of each other (Wechsler & Austin, 1998; Wechsler et al., 1995; SAMHSA, 2018).

⁵ Alcohol use disorder (AUD) is a chronic brain disorder which is marked by preoccupation with alcohol, compulsive drinking, tolerance to alcohol’s intoxicating effects, impaired ability to stop or control alcohol use despite adverse consequences, and experiencing withdrawal symptoms (e.g., hand tremors, restlessness, anxiety, reduced energy, disturbed sleeping). This physical dependence on alcohol also becomes disruptive to an individual’s personal life (Merline et al., 2008). The terms alcohol abuse, alcohol dependence, alcohol addiction are encompassed by AUD, along with the term alcoholism that people use colloquially.

⁶ Engaging in heavy episodic drinking behavior on 5 or more days in the past 30 days is termed as heavy alcohol use or heavy drinking by SAMHSA. Whereas NIAAA defines heavy drinking as consuming more than 4 drinks on any day or more than 14 drinks per week (males) and consuming more than 3 drinks on any day or more than 7 drinks per week (females).

This spread of high-risk drinking among emerging adults has been linked to a wide variety of consequences, including engaging in serious fights (e.g., being injured, having life-threatening experiences), unplanned sexual activity (e.g., being susceptible to sexually transmitted diseases), and driving while intoxicated (Windle & Windle, 2006; Lau-Barraco et al., 2017; Turrisi et al., 2006). The resulting accidents and injuries have been identified as the largest cause of death for emerging adults (Kuntsche et al., 2017; Hingson et al., 2009; Mostofsky et al., 2016).

Research consistently indicates that alcohol use follows a sequential pattern. The prevalence of alcohol use and problematic alcohol involvement tends to increase in late adolescence gradually, typically peaking in the early 20s (SAMHSA, 2014), and decrease sharply thereafter as individuals age (Dawson et al., 2004; Johnston et al., 1998; OECD, 2015). This period of normative decline in problematic use, which corresponds to the end of emerging adulthood, has been referred to as *maturing out* (Johnston et al., 2011; Bachman et al., 2014). This decline is usually attributed to (i) attaining adult roles and responsibilities (e.g., marriage, parenthood, career) that are incompatible with heavy drinking (O'Malley, 2004; Kuntsche & Gmel, 2013; Littlefield & Sher, 2010) and (ii) reductions in etiologically relevant personality traits (i.e., impulsivity) (Littlefield et al., 2009).

2.3 Alcohol use of emerging adults in Turkey

In Turkey, information regarding emerging adults' alcohol consumption is neither sufficient nor up to date as research examining the trends of alcohol consumption among this specific group is not carried out regularly, is mainly limited to college students, and has relatively small sample sizes. Prior research consistently shows the following in the Turkish context: (i) among emerging adults, alcohol is the most

prevalent drug of choice (Taner, 2005; Erdem, 2019); (ii) college students drink alcohol more frequently, at a higher quantity, and experience more drinking problems in comparison with the general adult population (Ilhan et al., 2008); (iii) male participants consume alcohol more than female participants, both in frequency and quantity (Çam et al., 2019; Topuz, 2005; Akvardar et al., 2003b); (iv) beer is the most preferred beverage, followed by wine, “rakı,” and whiskey (Topuz, 2005; Beşirli, 2007). A review of these studies is presented below.

Studies conducted between 2001 and 2019 documented a 35.3% to 72% lifetime prevalence of alcohol use among college students (Akvardar et al., 2001; Topuz, 2005; Ilhan et al., 2008; Ulukoca et al., 2013; Dayi, 2013; Dayi et al., 2015; Alaçam et al., 2015; Ilhan et al., 2008; Çam et al., 2019; Gündüz et al., 2019). In a recent study, 12.44% of the participants reported a consumption frequency of once or more than once a week (Gündüz et al., 2019), whereas, in an earlier study, the rate of those who consumed alcohol more than once a week was 17.1% (Ulukoca et al., 2013). Regarding problematic alcohol use, studies conducted between 2003 and 2015 documented prevalence rates of 7.4% to 29.7% among college students (Akvardar et al., 2003b; Demirbaş, 2015; Alaçam et al., 2015). In a more recent study, the prevalence of heavy alcohol consumption⁷ (HAC), was 18.8% for males and 8.2% for females (Çam et al., 2019). In addition, both recent and earlier studies indicated a lifetime drunkenness rate of approximately 40% (Taner, 2005; Gündüz et al., 2019). However, while considering those rates, it is important to keep the widespread under-reporting of alcohol consumption in Turkey in mind (Gündüz et al., 2019). For instance, Canbulat and Yıldız (2011) demonstrated that while the prevalence of self-reported alcohol consumption was 10.4%, 46.5% of the participants reported that

⁷ In this study heavy alcohol consumption was defined as scoring 8 points or above in the Alcohol Use Disorders Identification Test (AUDIT).

their friends use alcohol. The association between the perceptions of friends' drinking behaviors and one's problematic drinking is underscored in the literature (Reboussin et al., 2006).

2.4 Diversity of drinking patterns

Although many young people use alcohol, patterns of alcohol consumption and alcohol-related behaviors are extremely heterogeneous, as indicated by the substantial individual variability (Tucker et al., 2003), including, but not limited to: age of onset; kinds of alcohol consumed; frequency and quantity of consumption; the amount of alcohol consumed in a single sitting; contexts of use; motivation to use; patterns of escalation that develop over time; and consequences related to use (Chassin et al., 2002). For instance, although recent trends suggest that fewer young people aged between 16 to 25 report recent alcohol consumption (SAMHSA, 2019), those who drink appear to be drinking more frequently and consuming larger amounts when doing so (Department of Health, 2007). Therefore, it is crucial to examine the patterns of alcohol consumption in terms of multidimensional drinking characteristics (Connell et al., 2009; Chung et al., 2011; Abar, 2012; Skogen et al., 2019).

Univariate analyses on different aspects of alcohol use are often run with the assumption that high levels of a single aspect indicate high levels of alcohol use overall for each individual. Yet, research has identified distinct classes of frequency behavior and quantity behavior (i.e., “low frequency, high quantity drinkers” or “high frequency, low quantity” drinkers), indicating that different aspects of alcohol use are, to an extent, independent (Colder et al., 2002; Casswell et al., 2002; Auerbach & Collins, 2006). Moreover, these different patterns of use have

differential influences on youth's psychosocial outcomes. For instance, individuals with an earlier onset of drinking are at greater risk of progressing towards more chronic and intensive alcohol use trajectories and developing alcohol use disorders when compared to those who have a later onset of use (Hanson et al., 2011; Grant et al., 2001; NSDUH, 2013; Griffin et al., 2010). Drawing from the complex associations among key aspects of alcohol use, it can be concluded that the variable-centered approaches overlook the heterogeneity in the patterns of use, the associated unique risk factors, and prognostic profiles (Tomczyk et al., 2016; Su et al., 2017). Therefore, multivariate methods are necessary for identifying multidimensional patterns of use (Auerbach et al., 2006).

2.5 Implementing person-centered approaches to identify distinct drinking classes

Given the aforementioned heterogeneity in drinking behaviors, a growing body of literature has sought to identify distinct subgroups of alcohol use. Researchers have developed analytic classification techniques that identify individuals who can be grouped based on an outcome measure (e.g., alcohol) (Fairlie, 2012). A considerable amount of research has used person-centered approaches (e.g., cluster analysis, latent class analysis) to derive different drinking classes (e.g., Aresi et al., 2017; Lau-Barraco et al., 2017; Rinker & Neighbors, 2015; Aldenderfer & Blashfield, 1984; Lanza & Rhoades, 2013; Lange et al., 2002). The following is a brief review of the related literature.

Prior research has generally identified three to six classes of drinkers among emerging adults, generally characterized by light, moderate, and heavy drinking (Beseler et al., 2012; Lee & Park, 2019; Magri et al., 2020; Chiauuzzi et al., 2013; Cleveland et al., 2013). Researchers have also been arguing that assessing only the

consumption aspect of alcohol use may disregard the fact that various drinking classes are characterized by adverse outcomes of use (Rist et al., 2009). Thus, several studies have employed the Alcohol Use Disorders Identification Test (AUDIT; Saunders et al., 1993) to empirically derive drinking classes based on consumption and related consequences. Their findings revealed multiple heavy drinking classes, which are often distinguished by the presence or different levels and types of alcohol-related consequences (Kuvaas et al., 2014; Smith & Shelvin, 2008; O'Connor & Colder, 2005). In these cited studies, heavy drinking classes were characterized with higher probabilities of binge drinking, blackout after drinking, endorsement of more AUD criteria, and more alcohol-related problems. As research consistently finds multiple drinking groups among emerging adults that vary by alcohol use and related problems, a growing body of research also investigates the factors that predict group membership.

2.6 Predictors of group membership in drinking behaviors: Self-regulation framework

Understanding factors that may distinguish problematic use from typical use is essential for clarifying etiological pathways (O'Connor & Colder, 2005). Risk factors for emerging adults' concurrent and future alcohol use and misuse are conceptualized to encompass their individual and contextual characteristics (e.g., childhood adversity, family functioning, socioeconomic status, peer influences; White & Jackson, 2004; Ducci & Goldman, 2012; Merline et al., 2008; Maggs & Schulenberg, 2005; Cooper et al., 2003).

Researchers have identified certain personality traits that have been consistently associated with emerging adult alcohol use, such as sensation seeking

(VanZile-Tamsen et al., 2006; Stautz & Cooper., 2013; Kaynak et al., 2013), impulsivity (Hair & Hampson, 2006; Shin et al., 2011) and negative emotionality (Chassin et al., 2002; Colder et al., 2002; Gmel et al., 2020). Research implementing person-centered approaches has demonstrated that the effects of those individual-level factors may vary across user profiles, indicating that alcohol use outcomes are rooted in distinct pathways (Cleveland et al., 2010; Bohnert et al., 2014; Su et al., 2017; Sher et al., 2000). Therefore, the current study aims to employ a self-regulation framework to understand drinking patterns and expand the knowledge on drinking behavior etiology.

Most individuals are motivated to engage in some type of self-regulatory behavior to reduce discrepancies with desired end-states and increase discrepancies with undesired end-states (Carver & Scheier, 1998; 2001). Whereas deficits in self-regulation are defined as an inability to regulate affective experiences (i.e., emotional lability) and behavioral actions (i.e., impulsivity) in response to environmental context (Kliewer & Murelle, 2007; Carver, 2003; Thatcher & Clark, 2008). Both behavioral and emotional self-regulation has been comprehensively examined and demonstrated as predictors of different patterns of emerging adult alcohol use, related problems, early onset of use, and escalation of use (Brody & Ge, 2001; Novak & Clayton, 2001; Wills & Stoolmiller, 2002; Wills et al., 2011; Murelle et al., 2001). Research suggests that, with their different correlations and manifestations, behavioral and emotional self-regulation are statistically distinct, and both are relevant for understanding youth's alcohol use (Melnick & Hinshaw, 2000; Wills et al., 2006).

2.6.1 Emotional self-regulation: Emotional instability and distress tolerance

The complex processes of emotional self-regulation determine the degree to which experiences and resulting emotions disturb individuals from their homeostasis, how they attempt to cope, and the time they need to alleviate those unpleasant mood states and recover (Gross, p.275, 1998).

Research demonstrates that stress responses are reduced by the direct anxiolytic effect produced by the large doses of alcohol (Sher et al., 2007a; Donahue et al., 2007; Moberg & Curtin, 2009). Relatedly, various studies (e.g., cross-sectional, epidemiological, experience sampling) have shown that emotional distress (e.g., depression, anxiety, negative affect) can increase the risk for alcohol use, misuse, and relapse (Catanzaro & Laurent, 2004; Grant et al., 2005; Dvorak & Simons, 2014; Swendsen et al., 2000). Therefore, most of the major theories of drinking consider emotion regulation as a fundamental factor for understanding drinking behavior (Leonard & Blane, 1999). Relatedly, emotional self-regulation studies have established a fertile base for the development of motivational models of alcohol consumption (Cox & Klinger, 1988).

Conger's (1951, 1956) "tension reduction hypothesis" instigated empirical research on the relationship between alcohol and emotion (e.g., Rotter, 1954, 1982; Lazarus & Folkman, 1984; Aldwin, 2007; Carver et al., 1989). Central to the stress-coping and self-medication perspectives of addictive disorders (Khantzian, 1990, 1995, 1997, 2003; Khantzian & Galanter, 1990) is the understanding that mood and alcohol use have been linked via the mechanisms of positive and negative reinforcement (Baker et al., 2004; Shiffman & Wills, 1985; Cooper et al., 2016; Turner et al., 2018). The resulting literature has associated poor emotional regulation with alcohol consumption, development and maintenance of problematic use, and

related consequences, especially in emerging adulthood (Sher et al., 2007b, Cooney et al., 2009; Giancola, 2004; Kober, 2014; Kassel et al., 2000; Gottfredson & Hussong, 2013; Sher & Grekin, 2007). Specifically, drinking to regulate negative emotions has been identified as the strongest motivational correlate for problematic alcohol use (Feil & Hasking, 2008; Cooper et al., 1988; Williams & Clark, 1998; McKee et al., 1998; Cleveland & Harris; 2010). Those studies provide the insight that drinking behaviors vary by one's affective response characteristics (Koob & Le Moal, 2001). The present study focuses on two important aspects of emotion regulation (i.e., emotional instability, distress tolerance). The associated literature is presented below.

Emotional instability, an important component of emotion regulation (Oliver & Simons, 2004), can be operationalized as the degree of variability (i.e., frequency and intensity) in emotional states over time (Dvorak et al., 2015). It has been shown to predict drinking frequency, problematic alcohol use, and alcohol-related problems in several cross-sectional (e.g., Simons et al., 2005; Simons et al., 2004; Kuvaas et al., 2014), prospective (Simons & Carey, 2006; Simons et al., 2009), and ecological momentary assessment studies (Ebner-Priemer et al., 2009; Jahng et al., 2011). Among the personality traits measured by Eysenck Personality Inventory (EPI), neuroticism, later called negative emotionality, corresponds to emotional instability (Headey, 2014). The construct can be further defined as being “excitable, easily upset” (John & Srivastava, 1999). The resulting mood changes and negative moods are argued to make it difficult to resist the allure of alcohol-based mood management (Malouff et al., 2007). Relatedly, negative emotionality has been consistently shown to be positively associated with escalating trajectories of emerging adult alcohol use

(Chassin et al., 2002; Colder et al., 2002), alcohol-involved risk behaviors, blackout drinking (Wray et al., 2012); and AUDs (Jackson & Sher, 2003; Blum et al., 2020).

The construct of distress tolerance – the ability to tolerate and cope with negative emotional states – has been widely studied in relation to alcohol use. Individuals with low distress tolerance are more likely to perceive distress as unbearable, unacceptable, and uncontrollable, and they avoid and overly react to distress (Simons & Gaher, 2005). Whereas the impact of negative mood states diminishes with increasing distress tolerance. Therefore, as an emotion-focused coping strategy, alcohol use can be especially attractive to individuals with low distress tolerance. Confirming this, higher distress tolerance was found to be a protective factor against alcohol-involved risk behaviors and blackout drinking (Dvorak et al., 2014). And low distress tolerance was found to be directly related to coping motives for alcohol use in the face of negative emotions (Howell et al., 2010; Gorka et al., 2012), and thus, was associated with an increased quantity of alcohol consumption and alcohol-related problems (Brown et al., 2002; Cox et al., 1998; Buckner et al., 2007). Research from Turkey also provide similar findings (Köroğlu, 2018; Çakmak & Ayvaşık, 2007).

2.6.2 Behavioral self-regulation: Impulsivity

Behavioral self-regulation plays a central role in understanding alcohol use involvement (Hull & Slone, 2004; Wills et al., 2002). It consists of dual systems, which are separate yet related (Dvorak et al., 2011). The first system, often called the “impulsive” system is intuitive, quick to act in nature, mostly under the influence of emotional states and without considering the future consequences of the action (Lieberman et al., 2007; Strack & Deutsch, 2004). The second one, often referred to

as the “effortful” or “controlled” system is strategic, slower, relatively uninfluenced by emotion, relies on executive processing, and associated with future orientation (Carver, 2005).

Both systems have been shown to be related to indexes of alcohol use (Newcomb & McGee, 1991; Wills et al., 2006). While the effortful system is associated with adaptive outcomes such as reduced alcohol use and fewer alcohol-related problems, the impulsive system is associated with maladaptive outcomes such as involvement with friends who use alcohol and increased severity of related problems (Dvorak et al., 2011; Wills et al., 2008). Several studies also demonstrated that these two systems differ across drinking classes (Goudriaan et al., 2007). While the class of heavy drinkers was characterized by higher levels of behavioral undercontrol variables (Beseler et al., 2012), good self-control predicted an increased likelihood of being in a group of abstainers (Dvorak et al., 2011; Kuvaas et al., 2014). In the context of behavioral self-regulation, the present study examines the construct of impulsivity in relation to emerging adult drinking patterns.

Impulsivity has been defined as a predisposition toward rapid, unplanned reactions to internal or external stimuli, before complete processing of information and without regard to the long-term negative consequences of these actions to oneself and/or to others (Moeller et al., 2001). A substantial literature has identified impulsivity as one of the primary personality traits that have consistently been linked to excessive and problematic alcohol use during emerging adulthood, both concurrently and prospectively (Adams et al., 2013; Dunne et al., 2013; Littlefield & Sher, 2010; Shin et al., 2012; James & Taylor, 2007; MacKillop et al., 2007; Grekin & Sher, 2006; Stautz & Cooper, 2013; Dom et al., 2006; Rubio et al., 2008; Littlefield et al., 2010).

According to recent reviews of published factor analytic studies, impulsivity has a multidimensional nature and comprises several discrete traits (Dick et al., 2010; Stautz & Cooper, 2013). Yet, many studies consider impulsivity as a unitary construct. The extent of variation in how they conceptualize, and measure impulsivity hinders combining findings in the literature (MacKillop et al., 2016; Whiteside & Lynam, 2009; Tran et al., 2018).

In an attempt to resolve this issue, Whiteside and Lynam (2001) conducted a factor analysis on several frequently used self-report measures of impulsivity and developed a model which initially consisted of four lower-order personality traits related but distinct to each other (Miller et al., 2003). Cyders and Smith (2007, 2008b) contributed to this model by separating the urgency subtraits into two facets. The resulting was the Five-Factor Model of impulsivity and the UPPS-P Impulsive Behavior Scale. In this scale, reward drive is assessed by the sensation seeking subscale; mood-based dispositions are assessed by the positive urgency and negative urgency subscales; and deficits in self-control are assessed by the lack of premeditation and perseverance subscales. Those facets of impulsivity are differentially related to different alcohol use outcomes (Henges & Marcziński, 2012; Shin et al., 2012).

2.6.2.1 Literature on the facets of impulsivity and alcohol use

Urgency reflects the tendency to engage in mood-based rash action (Cyders & Smith, 2007, 2008b). Here, the case is not a failure to plan ahead but rather a failure to follow an original plan in the face of strong emotional states and engaging in potentially risky impulsive behaviors (Magid & Colder, 2007). The disposition to behave impulsively when experiencing positive affect is termed positive urgency and

the disposition to behave impulsively when experiencing negative affect is termed negative urgency (Cyders & Smith, 2007). Research consistently links positive and negative urgency to AUDs and alcohol-related consequences in samples of emerging adults (Cyders et al., 2009; Tran et al., 2018; Simons et al., 2010; Wray et al., 2012; Cyders & Smith, 2007, 2008b; Coskunpinar et al., 2013; Fischer & Smith, 2008; Whiteside et al., 2005).

Sensation seeking, one of the most consistent predictors of alcohol use among emerging adults, is defined as the tendency to seek out novel, intense, exciting, or rewarding experiences (Cyders & Smith, 2008; Hittner & Swickert, 2006; Zuckerman, 1994). A considerable amount of research has found individuals high on sensation seeking to be at risk for high levels of alcohol consumption (Lynam & Miller, 2004; Miller et al., 2003; Magid & Colder, 2007; Stautz & Cooper, 2013), higher frequencies of alcohol use (Cyders et al., 2007; Cyders et al., 2009; Whiteside & Lynam, 2003, 2009; Fischer & Smith, 2008), binge drinking behavior (Sargent et al., 2010; Shin et al., 2012; Carlson et al., 2010; Conrod et al., 2008), and heavy drinking (Katz et al., 2000).

Besides more consumption, sensation seeking is also associated with trajectories with earlier onset and greater persistence (Chassin et al. 2002; Hill et al. 2000; Malmberg et al., 2012; Jensen et al., 2017). However, there are mixed findings regarding the relevance of sensation seeking to alcohol-related problems. While several studies report an association between sensation seeking and alcohol-related problems (Shin et al., 2012; Finn et al., 2000; Read et al., 2003), others indicate that sensation seeking does not significantly predict alcohol-related problems (Cooper et al., 1995; Cyders et al., 2009; Magid et al., 2007; Zuckerman, 1994). Nevertheless, since alcohol consumption and alcohol-related problems are closely related, it is

likely that sensation seeking has an indirect relation to alcohol-related problems (Curcio & George, 2011).

Lack of premeditation is characterized by a lack of planning and disinhibition, which represents a tendency to select immediate reward without the consideration of the potential consequences of the behavior (Eysenck et al., 1984; Lejuez, et al., 2010; Claes & Muehlenkamp, 2013). Individuals low on premeditation consume larger quantities of alcohol (Magid & Colder, 2007; Shin et al., 2012; Teese & Bradley, 2008; Coskunpinar et al., 2013) and engage in binge drinking behavior (Tran et al., 2018), probably due to their limitations in considering adverse consequences of heavy drinking that would typically act as a break that regulates consumption.

Lack of perseverance reflects poorer concentration, boredom proneness, and increased distraction which diminishes the capacity to persist with a task, especially boring or difficult ones. While some studies report no link between lack of perseverance and alcohol use (Cyders et al., 2009; Han & Mason, 2011, Xiao et al., 2009), some others demonstrate low levels of perseverance to be associated with high levels of alcohol-related consequences, but not with alcohol use (Ruiz et al.; 2003; Magid & Colder; 2007). In contrast, a meta-analysis revealed that perseverance most strongly predicted alcohol intake but not alcohol-related problems (Coskunpinar et al., 2013).

Overall, sensation seeking appears to be the strongest predictor of initiation and higher frequency and quantity of alcohol use (Baer, 2002; Jackson et al. 2005; Curcio & George, 2011). On the other hand, urgency appears to be more related to problem levels of alcohol involvement and alcohol-related problems (Stamates & Lau-Barraco, 2017; Gullo et al., 2011; Verdejo-García et al., 2007; Cyders et al.,

2009). These findings suggest that excessive drinking may result from the desire to seek novel and exciting experiences (i.e., to attend social gatherings with alcohol consumption opportunities, to drink heavily to experience the resulting positive arousal) (Cyders et al., 2008). Problematic use may be driven in part by a tendency to act rashly under the influence of strong emotional states (Stautz & Cooper, 2013; Fischer & Smith, 2004). It can be concluded that the measurement of distinct traits of impulsivity enables a more detailed understanding of different types of alcohol use outcomes and the development of more targeted prevention and intervention strategies, which would not be possible with broad impulsivity scales.

2.7 Sociodemographic and contextual factors associated with emerging adult alcohol use

Sociodemographic and background characteristics and context of drinking also influence and characterize the drinking patterns among emerging adults (Swendsen et al., 2009; Wechsler & Nelson, 2008). Research consistently shows that men are at a higher risk for most indexes of alcohol consumption than females (Fuller, 2015; Squeglia et al., 2017; Evren et al., 2015). Notably, the prevalence of heavy episodic drinking, heavy drinking, and drunkenness are reported to be higher among young men than women (WHO, 2018; Wilsnack et al., 2018; Kuntsche et al., 2015; Patrick et al., 2016). Whereas women are more vulnerable to the associated alcohol-related health and psychosocial consequences than men (Dir et al., 2017). Yet, there has been a notable decrease in the gender gap in overall alcohol use (including binge drinking) (Chartier et al., 2010; Doksat et al., 2016; Chen & Jacobsen, 2012; Slade et al., 2016).

Age of onset has been identified as a crucial predictor of alcohol consumption (Aguilar, 2022). Relative to those who initiate alcohol use after the age of 21, those who initiate before the age of 15 are more likely to develop to experience alcohol-related health and psychosocial consequences (Donoghue et al., 2017; Pemberton et al., 2008), to be classified in a high-risk group of college students (Scaglione et al., 2015), and to develop AUDs (Hingson et al., 2006). The same was valid to a lesser extent for those who started drinking between ages 15 and 17.

Various socioeconomic status (SES) indicators are studied in relation to emerging adult drinking (i.e., income, parental education, educational attainment, student status, employment status; Ryff et al., 1999). Through the six years that a longitudinal study covered, the young adults with lower education significantly consumed higher quantities during a single occasion (Casswell et al., 2003). Whereas according to a more recent study, from age 19 onward, alcohol use increases with higher education levels (Schmengler et al., 2022).

Regarding student status, a considerable amount epidemiological studies demonstrate that college students, compared with their non-student age peers, consume more alcohol, engage in heavy episodic drinking more often, and are more likely to receive a diagnosis of alcohol abuse (Johnston et al., 2016; Slutske et al., 2004; SAMHSA, 2019; Lorant et al., 2013; Boyd et al., 2005; Carter et al., 2010). Yet, several studies have shown that both college students and their nonstudent peers reported very similar rates of quantity and frequency of drinking, and frequency of intoxication (Jackson et al. 2005; White et al., 2005). However, nonstudent drinkers experienced higher levels of alcohol-related problems and were less likely to “mature out” of heavy drinking than their college-attending peers (Beseler et al., 2012). Yet, the differences between those two groups of emerging adults were fully accounted

for by their living arrangements (i.e., on-campus, off-campus, with parents) (Bachman et al., 1997; Dawson et al., 2004). Living in dormitories was positively and living with a spouse was negatively associated with heavy drinking.

There is limited research on the association between emerging adult drinking and employment status. And the existing literature examines this relationship mainly among college students. Research indicates that, compared to nonworking students, being employed was associated with a decreased likelihood of daily drinking and heavy drinking (Cleveland et al., 2013; Leppel, 2006). Whereas Butler et al. (2010) demonstrated a positive association between the number of hours college students worked and the number of drinks consumed daily. This finding was interpreted in terms of work-related stress among employed college students.

Turning to parental factors, several cross-sectional and longitudinal studies demonstrate that emerging adults with higher family incomes always drank more often (Casswell et al., 2003) and consumed larger amounts of alcohol (Ulukoca et al., 2013; Finch et al., 2013; McMorris & Uggen, 2000; Patrick et al., 2012). In contrast, this association was not as strong or present when perceived peer norms were also included as covariates (Kar et al., 2019; Paschall et al., 2004). Moreover, the higher education level of parents has been positively associated with emerging adult offspring's alcohol consumption (Maggs et al., 2008), binge drinking (Pedersen & Soest, 2013), and rates of drunkenness (Humensky, 2010; Livingston et al., 2008). Whereas according to some other studies, while high parental education predicted frequent drinking, low parental education predicted a high quantity of drinking (Wells & Östberg, 2018) and a higher prevalence of drunkenness (Torikka et al., 2017; Melotti et al., 2011). Although those in the latter group were less likely to drink, the way they drink put them at greater risk. It is proposed that (i) the

possession of financial resources for purchasing alcohol and (ii) higher classes to have more opportunities for social drinking (e.g., consuming alcohol at home, attending social gatherings) make parental modeling of drinking behavior and alcohol itself more available to youth (Maggs et al., 2009; Richter et al., 2006). Parental alcohol use is a well-established risk factor for drinking patterns among offspring over the life course (Pearson et al., 2012). Young people identify with the parent and model different aspects of parental use of alcohol, such as quantity and frequency of use, contexts of use, attitudes regarding use, and use expectancies (White et al., 2000). According to a systematic review of the literature, parental modeling of drinking was significantly associated with earlier onset of drinking (e.g., Chuang et al., 2005; Ennett et al., 2001), increased later drinking (van der Zwaluw et al., 2008), alcohol-related problems in young adulthood (e.g., Poelen et al., 2007; Guo et al., 2001) (all $ps < 0.0001$) (Ryan et al., 2010). More recent longitudinal research also showed a positive association between parents' and emerging adult offspring's alcohol use (Diggs et al., 2017; Brook et al., 2010; Mahedy et al., 2018). This association was also found among Turkish youth (Herken et al., 2000).

During emerging adulthood, the primary source of socialization shifts from parents to peers, and this network plays an active role in shaping youth's alcohol use attitudes and behaviors (Mowen & Boman, 2018; Van Ryzin et al., 2012). The majority of youth is associated with peers who drink (Li et al., 2002; Martino et al., 2009). Consistent with social influence models of alcohol use, having more friends and peers who drink is found to predict increased consumption and earlier onset for alcohol use, among youth (Simons-Morton et al., 2016; Mallett et al., 2013; Han et al., 2014; Trucco et al., 2011; Goliath & Pretorius, 2016; Cruz et al., 2012; Wiesner et al., 2008; Ünlü & Evcin, 2014; Mundt, 2011). Relatedly, at-risk youth are more

likely to be embedded in more alcohol-involved social networks (Reifman et al., 2006). However, the extent of peer influence is observed to change across different levels of consumption. While peer influences are most important for exposure and initial pattern of alcohol use, in transition to problematic use, family history is shown to be more influential (Merikangas & Avenevoli, 2000).

Finally, the context of drinking (i.e., drinking locations and companions) may also influence the drinking patterns of emerging adults (Lightowlers, 2017). When they are with their families, they tend to drink less than amount they drink with their peers or strangers (Mayer et al. 1998; Demers et al. 2002). Furthermore, drinking locations with the least likelihood of parental surveillance (i.e., bars, nightclubs, streets, parks) have been associated with increased alcohol consumption and heavy drinking compared to drinking at home or family home (Single & Wortley, 1993; Demers et al., 2002; Forsyth & Barnard, 2000).

2.8 The present study

The current study employed a range of consumption and consequence indicators to a general population sample of 18–25 year olds from Turkey to (i) empirically derive subgroups of emerging adult drinkers, and (ii) examine several self-regulation indicators (i.e., facets of impulsivity, distress tolerance, and negative emotionality) and age of onset for regular use as predictors of emerging adults' membership to identified groups. By explicating the differential associations between empirically derived risk factors and distinct patterns of use, this study aims to contribute to the development of (i) a more nuanced understanding of emerging adult drinking, and (ii) more effective prevention and treatment initiatives (e.g., personality-targeted) that would be tailored to the different needs of youth in Turkey.

Based on the literature presented, the current study tests the hypotheses hereinbelow. First, it is expected that being male, living with friends, presence of maternal and paternal alcohol use, being a student, the amount of leisure time, having psychiatric diagnoses or physical illnesses would be positively associated with higher AUDIT scores and earlier initiation of use.

Furthermore, consistent with the previous research, it was hypothesized that multiple alcohol involvement groups would be derived from the study sample. It is also expected that heavier drinking groups would be more likely to experience alcohol-related consequences and the heaviest drinking groups would be further divided based on those consequences. Also, risk factors such as facets of behavioral and emotional self-regulation were expected to be associated with youth's probabilities of membership in different groups of alcohol involvement. Those facets were hypothesized to differentiate the drinking classes. It was hypothesized that with an increasing level of drinking involvement, sensation seeking would increase and self-control would decrease. In addition, it was expected that urgency and facets of emotional self-regulation (i.e., distress tolerance and emotional instability) would distinguish the heaviest use classes as they positively predict alcohol-related problems.

CHAPTER 3

METHOD

3.1 Procedure

All study procedures were approved by The Ethics Committee for Master and PhD Theses in Social Sciences and Humanities (SOBETİK) of Boğaziçi University (IRB no: SBB-EAK 2021/47, 01.07.2021; see Appendix I). Subsequently, the informed consent and the questionnaires were uploaded to PsyToolkit (Stoet, 2010, 2017). Convenience sampling, a common type of nonprobabilistic sampling, was employed in this study (Leary, 2012). The sample size was calculated by a feature-to-observation ratio (between $k*50$ and $k*70$, see Dolnicar et al., 2013). Therefore, we aimed to recruit at least 500 participants.

Between November 2021 and January 2022, the online link of the study was distributed to potential participants through two main channels: (i) personal invitations via social media platforms and (ii) the Research Participation System (RPS) of Boğaziçi University. In order to be eligible for the study, participants had to be 18 to 25 years old and fluent in Turkish. Participants who were invited via social media platforms did not receive any incentive for their participation. Whereas participants from the RPS were enrolled in PSY 101, PSY111 or PSY 241 courses in the semester of Fall 2021 and were given 0.5 credits for their participation. Those participants who did not complete the whole study still received the credit.

As participants started the study, they were presented with an informed consent form. The consent form included a brief summary of the scope, aims, and duration of the current study. The form also informed the participants about their right to leave the study at any time. After reading and approving the consent form,

participants proceeded to the study instruments in the following order: demographic information form, Alcohol Use Disorder Identification Test (AUDIT), UPPS Impulsive Behavior Scale, Negative Emotionality Scale, and Distress Tolerance Scale. Participants were required to answer all of the items in order to move on to the next section. The survey approximately took 25-minutes to complete. Data contained no identifying information of the participants.

3.2 Participants

The initial sample consisted of 908 participants. During the data cleaning process, 103 participants who failed to provide data on the main independent variables of the study were excluded from the analysis. Because the study focused on alcohol users, 104 participants who indicated that they have never used alcohol in their lifetime were also excluded. Thus, the final sample included 701 Turkish emerging adults (68% female, 73.8% undergraduate student, $Mean_{age} = 21.82$, $SD_{age} = 2.09$).

The majority of the sample were living with their family members (45.4%, $n = 318$), identified as having a high SES (50.4%, $n = 303$). Less than one fifth of the participants reported having a psychiatric diagnosis (18.8%, $n = 132$) of which the most prevalent was anxiety disorders (46%). The prevalence of chronic illnesses was 12.8% ($n = 90$). Table 1 presents the demographic characteristics of the sample.

Table 1. Demographic Characteristics of the Sample

Demographic Characteristics	n	%
Gender		
Female	482	68.8
Male	199	28.4
Other (i.e., non-binary or not specified)	20	2.7
Student Status		
Not Student	93	13.3
High School Student	5	.7
University Student	517	73.8
Master's Student	82	11.7
PhD Student	4	.6
Education		
Secondary School Graduate	8	1.1
High School Graduate	522	74.5
College Graduate	153	21.8
Master's Degree Graduate	17	2.4
Employment		
Working at a regular job	148	21.1
Working at an irregular job	35	5.0
Student	503	71.8
Unemployed	14	2
SES		
Lower	6	.9
Lower-middle	64	9.1
Middle	278	39.7
Upper	353	50.4
Maternal education		
Secondary school or below	132	18.8
High school	212	30.5
University or master's degree	355	50.6
Paternal education		
Secondary school or below	122	17.4
High school	159	22.7
University or master's degree	420	59.9
Amount of Daily Leisure Time		
None	9	1.3
Rarely	159	22.7
Sometimes	371	52.9
Most of the day	142	20.3
Almost all day	20	2.9
Living with		
Parents	318	45.4
Close relatives	15	2.1
Friends or partner	170	24.3
Alone	98	14
Other		
Dormitory	98	14
Missing	2	.3
Psychiatric Diagnosis		
Yes	132	18.8
No	569	81.2
Physical Illness		
Yes	90	12.8
No	611	87.2

Notes: ^aN = 701. ^bSES response categories were, we don't have enough income to meet even our most basic requirements (lower), we can live from paycheck to paycheck (lower middle), we who can make both ends meet if they don't buy expensive and non-essential things (middle), we have the income to live comfortably (upper).

3.3 Measures

3.3.1 Sociodemographic information form

The sociodemographic information form included questions related to the respondent's age, sex, current education status, educational attainment, employment status, parents' education level, perceived socioeconomic status, amount of leisure time, current living situation, residential stability, and psychiatric and chronic health (See Appendix C for details and response categories).

3.3.2 Alcohol use characteristics and context

Respondents were asked about their onset of regular alcohol use, beverage of choice, usual drinking location, typical drinking companions, parental drinking, peer drinking (See Appendix E for details and response categories).

3.3.3 Alcohol use disorders identification test (AUDIT)

Alcohol use and related problems were assessed using the Alcohol Use Disorders Identification Test (AUDIT: $\alpha = .86$; Saunders & Aasland, 1987; Babor et al. 1992), a 10-item screening measure, developed by the World Health Organization to identify individuals at risk for hazardous alcohol use and alcohol use disorders (Saunders et al. 1993). The final version of the scale was completed with the contributions of Babor and colleagues (2001).

The AUDIT was designed to measure alcohol consumption (items 1 to 3) and alcohol-related consequences (items 4 to 10), in the past 12 months, which can be summed to yield a total AUDIT score (Saunders & Aasland, 1987). Sample items from each domain include "How often do you have a drink containing alcohol?" and "Have you or somebody else been injured as a result of your drinking?",

respectively. Survey questions are presented in a multiple-choice format. The first 7 questions have five response options which are scored ranging from zero to five points. Whereas the last three questions have three response options where the first option is scored as 0, second option is scored as 2 and the third option is scored as 4 points. Scores can range from 0 to 40 and the cutoff point is suggested to be 8 or 9 (Saunders et al., 1993; Allen et al., 2001). This cutoff point is used to identify potentially problematic alcohol use (Babor et al., 2001; Cherpitel, 1995; Conigrave et al., 1995). AUDIT scores between 8-15 indicated a medium level of alcohol problems, scores of 16 and above represented a high level of alcohol problems (Miller et al., 1992). For scores of 20 or above diagnostic evaluation for alcohol dependence is suggested.

A review of the research on the Alcohol Use Disorders Identification Test (AUDIT) indicated that the test exhibits a high level of internal consistency; that is, both Cronbach's α and item-total correlations are generally in the 0.80's (Allen et al., 1997). The AUDIT also had a test-retest reliability of 0.88, indicating that it measures reliably over time (Daeppen et al., 2000). Further, AUDIT has shown 90% sensitivity⁸ and 80% specificity⁹ (Saunders et al. 1993; Allen et al., 1997).

Turkish version of the AUDIT, which is adapted by Saatçioğlu and colleagues (2002), was used in the current study. The internal consistency coefficients of the Turkish version of the test were 0.59 and 0.65 (Saatçioğlu et al., 2002). The item total correlation coefficients for each item were reported to exceed 0.30. The test-retest reliability of the test is found to be 0.90 at $p < .001$. Finally, its correlation with Michigan Alcoholism Screening Test is reported to be 0.32, $p < .05$ (Saatçioğlu et al., 2002). Authors suggest that alcohol history of those who scored 8

⁸ Percentage of positive cases identified by the test.

⁹ Percentage of negative cases accurately identified by the test.

or higher on this scale should be examined (Saatçioğlu, 2002). This cutoff score will be used in the present study. Finally, in the present study, the Cronbach alpha for the AUDIT was .79, indicating a good reliability.

3.3.4 Distress tolerance scale (DTS)

Distress Tolerance Scale (DTS) is a 15-item self-report measure developed by Simons and Gaher (2005) to assess the individual differences in the perceived capacity to tolerate negative emotional experiences. Distress tolerance consists of four subscales: tolerance (3 items; sample item “Feeling distressed or upset is unbearable to me”), appraisal (5 items; sample item “Other people seem to be able to tolerate feeling distressed or upset better than I can”); absorption (3 items; sample item “When I feel distressed or upset, all I can think about is how bad I feel”), regulation (3 items; sample item “I’ll do anything to stop feeling distressed or upset”). Items are rated on a 5-point Likert-type scale ranging from *strongly disagree* to *strongly agree*. The minimum score one can get from this scale is 15 and the maximum is 75. Higher scores refer to higher levels of distress tolerance. The DTS has shown adequate internal consistency and validity with a 6-month test-retest reliability (Simons & Gaher, 2005).

In current study, the Turkish adaptation of the DTS by Sargın and colleagues (2012) was used. While there were four factors in the original study, the factor analysis of the Turkish version resulted in three factors. Authors concluded Turkish version of DTS to be a reliable and valid measure with .89 overall internal consistency, .64 test-retest reliability and positive correlations with related constructs statistically significant at the level of 0.05. In the present study, the total score of DTS was used and shown to be highly reliable with a Cronbach’s alpha of .91.

3.3.5 UPPS impulsive behavior scale

UPPS Impulsive Behavior Scale is a 45-item measure assessing the factors that could lead to impulsive behaviors (Whiteside & Lynam, 2001). A more recent version of the scale also incorporates a 14-item measure of positive urgency with the original 4-factor model of impulsivity (Cyders & Smith, 2007; Cyders et al., 2007). However, as this version has not been adapted to Turkish, the present study employed the Turkish adaptation of the original model by Whiteside and Lynam (2001) (Yargıç et al., 2011).

UPPS consists of four subscales: (lack of) premeditation (11 items, $\alpha = .86$), negative urgency (12 items, $\alpha = .90$), sensation seeking (12 items, $\alpha = .85$) and (lack of) perseverance (10 items, $\alpha = .86$). Urgency dimension consists of statements like “When I am upset, I often act without thinking” and assesses one’s capacity to control behaviors under the influence of negative emotions. Lack of premeditation dimension consists of statements like “I am not one of those people who blurt out things without thinking” and assesses one’s tendency to act rashly without first reflecting on the decision to act. Sensation seeking dimension consists of statements like “I would like to learn to fly an airplane” and assesses tendency to seek out novel, intense or exciting experiences. The last dimension of lack of perseveration consists of statements like “Unfinished tasks really bother me” (example of a reverse-coded item) and assesses the tendency to focus and complete a task. Items are rated on a 4-point Likert-type scale ranging from 1 (strongly disagree) to 4 (strongly agree).

The UPPS has demonstrated satisfactory psychometric properties in terms of reliability as well as convergent, discriminant, and predictive validity (Cyders et al., 2009; Cyders & Smith, 2007; Cyders et al., 2007). Research shows that the four-factor model loads on three higher order constructs: lack of conscientiousness (i.e.,

lack of self-control), urgency, and sensation seeking (Cyders & Smith, 2007). Lack of premeditation and lack of perseverance, two distinct factors, both loaded on a conscientiousness. In the current study, these three higher-order constructs are considered as indicator variables of behavioral self-regulation.

The adaptation studies of UPPS Behavior Scale were conducted by Yargıç and colleagues (2011). Cronbach alpha reliability of the scale was 0.85 and test-retest reliability was 0.81. Finally, UPPS's correlation with State-Trait Anger Expression Inventory was reported to be significant ($r=0.24-0.49$). In this study, the UPPS Behavior Scale demonstrated high reliability with a Cronbach alpha of .9. Cronbach alphas were .79 for lack of perseverance, .89 for urgency, .86 for sensation seeking, and .89 for lack of premeditation subscales of the UPPS. Appendix F presents items of the scale and response categories.

3.3.6 The big-five inventory: Negative emotionality

Big-Five Inventory was originally developed by John and colleagues (1991). A major revision of the original scale was conducted by Soto and John (2017).

Researchers balanced the number of true-keyed and false-keyed items on each scale and adopted new labels for two of the Big Five domains (Neuroticism and Openness). The resulting BFI-2 provided a robust hierarchical structure, greater bandwidth, fidelity, and predictive power than the BFI. BFI – 2 scale has 60 short, easy-to-understand phrases rated on a five-point Likert-type from “1-totally disagree” to “5-totally agree”. This scale consists of five sub-dimensions: Extraversion, Agreeableness, Conscientiousness, Negative Emotion, and Open-Mindedness. Each sub-dimension has 12 items.

Cemalcılar and colleagues (2017) conducted the Turkish adaptation of the Big Five Inventory–2 (BFI-2). Furthermore, they tested the psychometric properties of the Turkish version using two samples: a university student sample and a nationally representative community sample of young adults aged 18–35. In this study, alpha reliabilities for the BFI-2 domain scales were 0.82, 0.87, 0.87, 0.79, and 0.87 for open-mindedness, conscientiousness, extraversion, agreeableness, and negative emotionality dimensions, respectively. Findings from the university student sample replicated the psychometric properties of the BFI-2, indicating Turkish BFI-2 to be reliably used with university students. Whereas in the community sample, psychometric characteristics were weaker compared to the student sample, but were still acceptable.

In the current study, the negative emotionality subscale from The Turkish version of The Big Five Inventory – 2 (BFI – 2) was used as a measure of participants’ emotional instability (Cemalcılar et al., 2017; sample item “I am someone who is moody, has up and down mood swings.”). For this study, Cronbach alpha was calculated as .87. Appendix G presents items of the scale and response categories.

3.4 Data management and data analysis

Prior to the data analysis, data cleaning and management were completed using Microsoft Excel 2016 (Microsoft Corporation, Redmond, WA, USA) and SPSS version 25.0 (IBM Corporation, Armonk, NY, USA). During the data management process, 103 participants who failed to provide data on the main independent variables of the study were excluded from the sample. In order to compare whether participants who did not complete the survey had different characteristics in terms of

their gender and educational attainment, chi-square tests of independence were conducted. Results indicated that male participants were more likely than female participants to leave the study without completing the survey [$\chi^2 (2, N = 804) = 80.15, p < .001$]. Furthermore, participants with a bachelor's or a master's degree were more likely to leave the study relative to secondary school or high school graduates. Finally, an independent samples t-test was conducted to compare the participants who completed the whole survey (group 1) and participants who did not (group 2), in terms of their alcohol use and onset for regular use. Results showed that there was not a significant difference between group 1 ($M = 8.78, SD = 53.15$) and group 2 ($M = 5.61, SD = 4.82$) conditions in their AUDIT scores [$t (802) = 2.89, p = .55$] or their onset for regular drinking [group 1 ($M = 17.83, SD = 2.34$) and group 2 ($M = 17.63, SD = 2.36$); $t (738) = .76, p = .45$].

Before testing the hypotheses of the study, preliminary statistical analyses were performed to examine the frequencies (means and standard deviations) and the distributions of study variables (skewness and kurtosis) (See Table 4). Subsequently, bivariate correlations (i.e., Pearson) were performed to investigate the associations between independent variables and dependent variables (i.e., AUDIT, the onset of regular use) of the study. Associations between categorical demographic variables and AUDIT were analyzed with one-way ANOVAs or independent samples t-tests. In cases where the assumption of homogeneity of variance was violated, in ANOVAs the Welch F-ratio was reported, and in t-tests, the degrees of freedom were adjusted. Finally, variables with ordinal nature (i.e., the proportion of friends who use alcohol) were examined through Spearman's correlation coefficient.

The study sample consisted of three gender groups (i.e., female, male, and other). Due to impractical statistical group comparisons, we aimed to examine

gender as a dichotomous variable (i.e., female vs. male and female vs. other). This decision was made based on the literature, which consistently demonstrates that females drink less than other gender groups. Regarding the SES variable, lower and lower-middle categories were merged before the preliminary analysis, due to the small number of participants in the former category. Likewise, regarding living situation of the participants, the response categories “with close relatives” and “with parents” were merged to create the “living with family members” category and then included in the preliminary analysis. Regarding the proportion of friends who use alcohol, the response categories “none” and “very few” were merged and then included in the preliminary analysis. Additionally, student status was examined using three categories: non-students, high school students, and university & grad school students. Finally, after comparing different venues of drinking, for further examination, this variable was dichotomized as drinking indoors (i.e., home, bar, pub, tavern) and drinking outdoors (i.e., parks, streets).

To test the hypotheses of the study, several cluster analysis methods were applied. These methods cluster respondents who exhibit similar response patterns on the indicator variables. To validate the final cluster solution, one-way ANOVAs were conducted for each alcohol use indicator across clusters, and the differences between clusters were examined through post hoc analyses. Once the suitable cluster structure of drinking behavior was determined, a two step multinomial logistic regression was performed to assess the influence of self-regulation and demographic indicators in predicting group membership. Lack of perseverance and premeditation facets of UPPS Impulsivity scale were combined to form a “(lack of) self-control” indicator. Both the cluster analysis and the multinomial logistic regression were carried out using SPSS version 25.0 (IBM Corporation, Armonk, NY, USA).

CHAPTER 4

RESULTS

4.1 Preliminary analysis and descriptive results

Descriptive statistics for the study variables are displayed in Table 4. The normality of those variables was evaluated through their skewness and kurtosis statistics. The ratio of skewness to the standard error of skewness - z-score of skewness - was not examined as the standard error for skewness decrease with larger N, increasing the likelihood that the null hypothesis of no skewness will be rejected even when there are only minor deviations from normality (Tabachnick & Fidell, 2013). Except for the AUDIT, skewness values of all variables were in the range of ± 1 (see Table 4), which indicates an acceptable range for normality (Kim, 2013). This finding was also supported by the visual examination of the histograms.

AUDIT had non-normal distribution with the right-skewness of 1.93 (SE=.09), and the kurtosis of 7.26 (SE=.18). Therefore, the AUDIT scale was subjected to the square root transformation method prior to the analysis. In addition, there were two participants who were outliers (their raw AUDIT scores were 35 and 37, which were 3.5 SD above the overall mean), and they were coded as system missing. After completion of these procedures, the new skewness and kurtosis values of AUDIT were in an acceptable range, -.14 (SE=.09) and .93 (SE=.19), respectively.

The drinking characteristics of the sample and alcohol consumption consequences are presented in Table 2 and Table 3, respectively. About 65.29% of the participants initiated alcohol consumption before the age of 18. The majority of the sample (96.7%, $n = 678$) reported some alcohol consumption in the past twelve months. Youth were typically drinking at bars and pubs (51.6%, $n = 362$) or at home

(31.5%, n = 222). Participants reported friends were the most common companions for drinking (89%, n = 624). Beer was the most preferred beverage (42.1%, n = 295), followed by wine (27.7%, n = 194). The majority of participants reported no maternal alcohol use (60.6%, n = 424), but more than half of the sample reported paternal alcohol use (59.4%, n = 416) as well as all peers using alcohol (49.4%, n = 346).

Table 2. Drinking Characteristics and Context of the Sample

Alcohol Use Characteristics	n	%
Age of onset for regular use		
10-15	100	15.29
16-18	327	50
19-25	227	34.71
Current Alcohol Use		
Yes	678	96.7
No	23	3.3
Type of Alcoholic Beverage Consumed		
Beer	295	42.1
Raki	45	6.4
Wine	194	27.7
Whiskey, vodka or gin	138	19.7
Usually Drinking at		
Home	222	31.5
Bar, pub	362	51.6
Tavern	40	5.7
Outdoors (streets, parks etc.)	44	6.3
Usually Drinking with		
By myself	21	3.0
Friends	624	89.0
Family	24	3.4
Relatives	1	.1
Maternal Alcohol Use		
Yes	276	39.4
No	424	60.6
Paternal Alcohol Use		
Yes	416	59.4
No	284	40.6
Friends' Alcohol Use		
None of them	1	.1
Very few of them	35	5.0
Half of them	85	12.1
Most of them	233	33.2
All of them	346	49.4

Notes: ^a Participants who did not report regular alcohol use did not answer the typical beverage, usual drinking location, and typical drinking companion questions. They only answered parental use and lifetime substance use questions. There were also missing answers to some of the questions. Therefore, for each of the questions in this table, the total sample ranged between 667 to 701.

Regarding AUDIT scores, the majority of the sample consumed alcohol 2 to 4 times a month (38.3%, $n = 268$), and mostly consumed 5-6 standard drinks on a day they were drinking (37.9, $n = 265$). Occasions of binge drinking were reported as less than once a month by the majority of the sample (46.8%, $n = 328$). In addition, the majority of the sample responded “never” or “no” to the alcohol-related consequence questions (items 4-10). For detailed information on each question and response category, see Table 3.

Bivariate correlations between the study variables are also displayed in Table 4. Results indicated that alcohol use and onset for regular alcohol use were negatively and significantly correlated ($r = -.23, p < .001$). However, onset was not significantly correlated with any other study variable. Overall, there was a moderate positive correlation between facets of impulsivity and alcohol use. As the lack of perseverance ($r = .17, p < .001$), urgency ($r = .24, p < .001$), sensation seeking ($r = .22, p < .001$) and lack of premeditation ($r = .24, p < .001$) increased, alcohol use in the past year also increased. In addition, the results showed that the correlation between alcohol use and distress tolerance ($r = .13, p < .001$) was very small. However, alcohol use was not significantly correlated with negative emotionality ($r = .06, p > .05$).

Inter-correlations between independent variables did not exceed .5, indicating no multicollinearity. Impulsivity was positively and significantly correlated with negative emotionality ($r = .36, p < .001$), and negatively and significantly correlated with distress tolerance ($r = -.35, p < .001$). Results also indicated a negative and significant correlation between negative emotionality and distress tolerance ($r = -.53, p < .001$).

Table 3. Consumption and Consequences of Alcohol

Alcohol Use Disorder Identification Test Questions		n	%
How often do you have a drink containing alcohol?	Never	28	4.01
	Monthly or less	258	36.91
	2-4 times a month	268	38.34
	2-3 times a week	133	19.03
	4 or more times a week	12	1.72
How many standard drinks containing alcohol do you have on a typical day when drinking?	1	102	14.59
	2	245	35.05
	3-4	265	37.91
	5-6	72	10.3
	7 or more	15	2.15
How often do you have six or more drinks on one occasion?	Never	265	37.91
	Less than a month	328	46.92
	Monthly	70	10.02
	Weekly	36	5.15
	Daily or almost daily	0	0
During the past 12 months, how often have you found that you were not able to stop drinking once you had started?	Never	537	76.82
	Less than a month	108	15.45
	Monthly	32	4.58
	Weekly	17	2.43
	Daily or almost daily	5	.72
During the past 12 months, how often have you failed to do what was normally expected of you because of drinking?	Never	525	75.1
	Less than a month	147	21.03
	Monthly	23	3.29
	Weekly	2	.29
	Daily or almost daily	2	.29
During the past 12 months, how often have you needed a drink in the morning to get yourself going after a heavy drinking session?	Never	671	96
	Less than a month	21	3
	Monthly	6	.86
	Weekly	1	.14
	Daily or almost daily	0	0
During the past 12 months, how often have you had a feeling of guilt or remorse after drinking?	Never	375	53.65
	Less than a month	275	39.34
	Monthly	35	5.01
	Weekly	8	1.14
	Daily or almost daily	6	.86
During the past 12 months, have you been unable to remember what happened the night before because you had been drinking?	Never	467	66.81
	Less than a month	202	28.9
	Monthly	26	3.72
	Weekly	4	.57
	Daily or almost daily	0	0
Have you or someone else been injured because of your drinking?	No	646	92.42
	Yes, but not in the past year	33	4.72
	Yes, during the past year	20	2.86
Has a relative or friend, doctor or other health worker been concerned about your drinking or suggested you cut down?	No	659	94.28
	Yes, but not in the past year	12	1.72
	Yes, during the past year	28	4

Notes: There were initially 701 respondents for the AUDIT scale, but two outlier scores were excluded before the analysis.

Table 4. Descriptive Statistics and Bivariate Correlations Among All Study Variables

Variables	1	2	3	4	5	6	7	8	Range	<i>M</i>	<i>SD</i>	Skew	α
1. AUDIT	1								0-37	6.24	4.07	1.9	.79
2. Onset	-	1							10-25	17.83	2.34	.29	-
	.23***												
3. UPPS	.33***	-	1						56-166	96.98	16.55	.53	.9
		.05											
4. UPPS/LPE	.17***	-	.67**	1					11-42	24.22	5.36	.33	.79
		.02											
5. UPPS/U	.24***	-	.73**	.43***	1				11-44	23.21	6.74	.53	.89
		.02											
6. UPPS/SS	.21***	-	.58***	.05	.14***	1			12-48	30.08	7.31	-.08	.86
		.04											
7. UPPS/LPR	.24***	-	.72***	.47**	.38***	.21***	1		11-41	19.47	5.27	.69	.89
		.05											
8. BFI-2/NE	.06	.00	.36**	.35**	.58***	-	.17***	1	15-60	36.98	9.55	.09	.87
						.11**							
9. DTS	-	-	-	-	.52***	-.04	-.07*	-	15-74	52.09	12.01	-.44	.91
	.13***	.01	.35**	.29**				.53***					

Notes: ^a*N* = 654 for the onset variable, *N* = 701 for the other variables. ^b AUDIT = Alcohol Use Disorders Identification Test; UPPS = UPPS Impulsive Behavior Scale; UPPS/LPS = UPPS Lack of Perseverance Subscale; UPPS/U = UPPS Urgency Subscale; UPPS/SS = UPPS Sensation Seeking Subscale, UPPS/LPR = UPPS Lack of Premeditation, DTS = Distress Tolerance Scale; BFI-2/NE = The Big Five Inventory–2 Negative Emotionality Subscale. ^c*** *p* < .001; ** < .01; * < .05. ^d Square root transformed AUDIT is used.

4.2 Relationship between demographic variables and dependent variables

Results of the Welch's ANOVA indicated no significant difference between the three gender groups (male, female, other) in terms of AUDIT scores [$F(2, 50.12) = 2.62, p = .08$] or onset of regular alcohol use [$F(2, 651) = 1.63, p = .2$]. In addition, the AUDIT scores of the participants did not differ by student status [$F(2, 696) = 1.66, p = .19$], employment status [$F(3, 47.04) = .76, p = .52$] or SES [$r_s = .01, p = .78$].

Whereas the amount of daily leisure time had a very small but significant association with the AUDIT scores ($r = .1, p = .007$). Participants with a psychiatric diagnosis [$t(178.71) = 4.22, p < 0.001$], a chronic physical illness [$t(697) = 2.17, p = 0.03$], high school diploma (as compared to university; [$t(696) = 2.03, p = .04$]) reported significantly higher AUDIT scores. Those with maternal drinking [$t(696) = 3.13, p = .001$] endorsed significantly higher scores of AUDIT than their counterparts. In contrast, those who reported paternal drinking ($M = 2.36, SD = .84$) did not significantly differ from those who reported no paternal drinking ($M = 2.27, SD = .9$), in terms of AUDIT scores [$t(696) = 1.24, p = .21$].

Furthermore, one-way ANOVAs revealed significant univariate effects of the living situation [$F(3, 693) = 17.65, p < .001$] and drinking companions [$F(2, 665) = 12.45, p < .001$] on alcohol use. Post hoc analyses using Bonferroni adjustment showed that participants who live with their family members ($M = 2.1, SD = .88$) have significantly lower AUDIT scores compared to those who live with their friends ($M = 2.61, SD = .9, p < .001$), and those who live alone ($M = 2.59, SD = .7, p < .001$). Similarly, those who drink with their family or relatives ($M = 1.68, SD = .62$) endorsed significantly lower AUDIT scores compared to those who drink alone ($M = 2.45, SD = .83$) and those who drink with friends ($M = 2.44, SD = .75, p = .002$ and $p < .001$, respectively). In addition, the proportion of friends who use alcohol was positively and significantly associated with AUDIT scores ($r_s = .27, p < .001$), and negatively and significantly associated with the age of onset for regular use ($r_s = -.23, p < .001$). Regarding the places respondents usually drank alcohol, one-way ANOVA results indicated significant differences in terms of AUDIT scores [$F(3, 661) = 3.58, p = .01$]. According to a post hoc analysis using Bonferroni adjustment, those who generally drink in parks or streets ($M = 2.65, SD = .88$) had significantly higher scores of AUDIT compared to those who generally drink at taverns ($M = 2.14, SD = .74, p = .01$). There was no difference between other pairwise comparisons (all $p > .05$). In the further examination of this variable, respondents who drink outdoors (i.e., parks, streets) ($M = 2.65, SD = .88$) endorsed significantly higher scores of AUDIT compared to respondents who drink indoors (i.e., home, bar, pub, tavern) [$(M = 2.39, SD = .75); t(663) = -2.16, p = .03$].

We also conducted one-way ANOVAs to examine group differences by onset of regular alcohol use. Results indicated that university & grad school students ($M = 17.71, SD = 2.21$) and high school students ($M = 16.33, SD = .58$) had significantly

earlier onset for regular drinking compared to non-students ($M = 18.64$, $SD = 2.91$) [$F(2, 5.99) = 11.68$, $p = .009$]. In addition, participants from low SES had older onset of drinking ($r_s = -.11$, $p = .007$). However, the amount of daily leisure time was not associated with the age of onset for regular use, $p > .05$. Similarly, psychiatric diagnosis conditions did not differ in terms of age of onset for regular use [$t(652) = -.59$, $p = .56$]. Whereas those who had a chronic physical illness also had a significantly earlier onset for regular use ($M = 17.24$, $SD = 2.1$) compared to those who didn't have such an illness ($M = 17.92$, $SD = 2.36$); $t(652) = -2.5$, $p = .01$. Furthermore, those who reported maternal drinking ($M = 16.95$, $SD = 2.18$) and paternal drinking ($M = 17.38$, $SD = 2.28$) had significantly earlier onset of regular drinking compared to those did not report maternal drinking ($M = 18.43$, $SD = 2.24$) and paternal drinking [$(M = 18.54$, $SD = 2.24$); $t(651) = -8.4$, $p < .001$ and $t(651) = -6.42$, $p < .001$], respectively. However, there were no statistically significant differences between groups, in terms of onset of regular use and their preferred venue for drinking [$F(3, 628) = 1.27$, $p = 2.5$].

4.3 Cluster Analysis

4.3.1 Creating Clusters

First, the decision of which variables to include in the analysis was made based on the predictor importance values that a two-step cluster analysis provided for each AUDIT variable. According to those values, the most important variable in determining class membership was binge drinking, it was followed by the quantity and frequency of drinking. Whereas variables regarding alcohol-related consequences, especially being injured or injuring others due to alcohol consumption, endorsed the least predictive importance. This result was expected

from the uneven distribution of the answers to alcohol-related consequence variables. The majority of the sample did not or very infrequently experience such consequences. In order for this construct to vary among participants, instead of 7 consequence items, a total score of those items was included in the cluster analysis. Therefore, distinct groups of drinkers were determined based on four variables from AUDIT: drinking frequency, drinking quantity, frequency of binge drinking, and the total score of alcohol-related consequences.

Subsequently, a hierarchical cluster analysis using Ward's (1963) linkage method was performed on the four variables to have an initial idea about the possible number of clusters that best represents the data. Standardized scores were used in the analysis due to the sensitivity of cluster analysis to the distances between values. The visual examination of the dendrogram, a diagrammatic representation of the similarity of the cases and possible clusters in the sample (Yim & Ramdeen, 2015), indicated that 3 clusters might be a suitable solution (See Figure 1).

In order to have additional information on the optimal number of clusters, we proceeded with the examination of coefficient values from the agglomeration schedule. During cluster analysis, while aiming to identify homogenous clusters, one might end up having too many clusters, as many as the total number of cases. Whereas trying to obtain a workable number of clusters might include too much heterogeneity in the clusters. The differences between agglomeration coefficients of two consecutive stages inform us about the increase in heterogeneity when those clusters are merged. If this difference is large, indicating that members in the cluster become too dissimilar, it is suggested to stop the clustering process (Yim & Ramdeen, 2015). In this regard, we applied a stopping rule based on the percentage changes in heterogeneity and decided on the final number of clusters that

agglomeration schedule suggests (Hair et al., 2014). As seen in Table 5, compared to the previous stages, the increase in heterogeneity is substantially larger when moving from stage 696 to stage 697, suggesting us to stop at the three cluster solution.

Findings from the hierarchical cluster analysis (i.e., dendrogram, agglomeration schedule) were incorporated to decide on a final number of clusters and used as an input for a subsequent K-means cluster analysis. Therefore, a K-means cluster analysis was conducted with 3 clusters. This clustering method assigns cluster membership to individuals and describes those clusters on the dimensions that we are creating the clustering on. The resulting cluster centers are presented in Figure 2. The first cluster had 109 participants, the second cluster had 273 participants, and the third cluster had 317 participants.

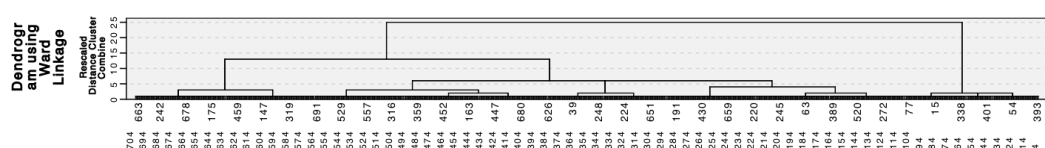


Figure 1. Dendrogram.

Table 5. Agglomeration Schedule

Stage	Clusters Combined		Coefficient	Number of clusters	Difference	Proportionate Increase (%)
	Cluster 1	Cluster 2				
693	5	8	1037.96	6	114	10.98
694	16	32	1151.96	5	171.52	14.88
695	16	20	1323.48	4	191.82	14.49
696	2	16	1515.30	3	421.82	26.83
697	2	5	1937.12	2	854.88	44.13
698	1	2	2792	1		

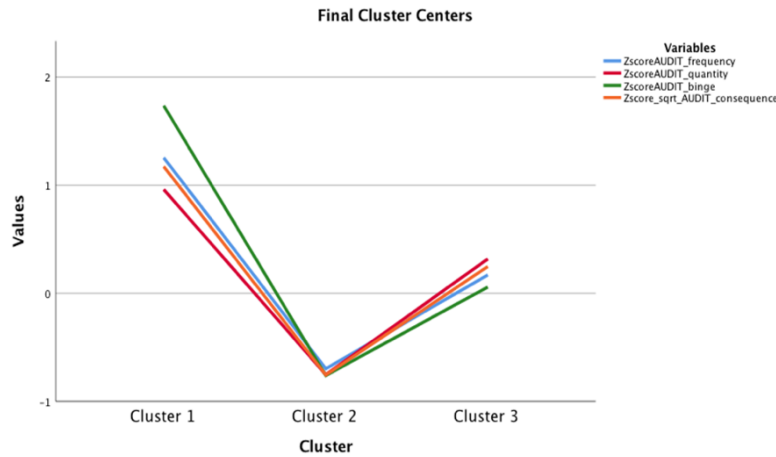


Figure 2. Line Graph of Final Cluster Centers.

4.3.2 Validating the cluster solution

To validate the cluster solution, one-way ANOVAs were conducted for each variable across clusters. Results indicated a significant univariate effect of each variable.

Clusters differed in terms of frequency of drinking [$F(2, 696) = 283.43, p < .001$], quantity of consumption [$F(2, 281.39) = 229.69, p < .001$], frequency of binge drinking [$F(2, 268.10) = 558.86, p < .001$], and alcohol-related consequences [$F(2, 283.69) = 301.02, p < .001$]. The homogeneity of variances test was significant for all variables except for drinking frequency (for quantity [$F(2, 696) = 7.62$], for binge drinking [$F(2, 696) = 28.47$], for consequence [$F(2, 696) = 119.05$], all $ps < .001$).

Therefore, in the post hoc analyses, we used the Bonferroni method for the frequency variable and the Games-Howell method for the other variables. The raw scores were used in the post hoc analyses. Post hoc analyses revealed that the three clusters significantly differed from each other on all of the variables, all $ps < .001$. Cluster 1 endorsed higher scores than Cluster 3, Cluster 3 endorsed higher scores than Cluster 2, on all of the variables. Cluster means are presented in Table 6.

Table 6. Means and Standard Deviations of Alcohol Use Indictors Measured for Drinking Clusters

Clusters	Variables							
	Frequency of consumption		Quantity of consumption		Frequency of binge drinking		Alcohol-related consequences	
	M	SD	M	SD	M	SD	M	SD
Cluster 1	2.85	.62	2.4	.85	2.23	.62	5.34	3.65
Cluster 3	1.92	.67	1.8	.7	.87	.4	2.24	1.98
Cluster 2	1.18	.61	.8	.69	.21	.41	.49	.92

4.3.3 The cluster characteristics

The first cluster, labeled “heavy drinkers” ($n= 109$), endorsed the highest scores in all aspects of alcohol use involvement. Specifically, it was characterized by frequent use: the majority of the cluster members consumed alcohol 2-3 times a week (67.89%), followed by a consumption frequency of 2-4 times a month (19.27%), and 4 or more times a week (10%). In addition, the majority of the cluster members consumed 3-4 standard drinks on a typical day they were drinking (44.95%), followed by a consumption quantity of 5-6 drinks (31.19%). The majority of the cluster reported a monthly frequency of binge drinking (56.88%), followed by a weekly frequency (33.03%). There was no one in this cluster that did not report binge drinking. Losing control during drinking ($M = 1.26$, $SD = 1.07$) and feelings of guilt ($M = 1.08$, $SD = .96$) were the main alcohol-related consequences experienced among the cluster members. Finally, the mean AUDIT score for this cluster ($M = 12.3$, $SD= 3.63$) was above 8, suggesting hazardous or harmful alcohol consumption.

The third cluster, labeled “regular moderate drinkers” ($n= 317$), was in the middle of the other two clusters for all aspects of alcohol use involvement. The majority of the cluster displayed a consumption frequency of 2-4 times a month (55.84%), followed by a frequency of monthly or less (17.67%). Similar to the alcohol use quantity of Cluster 1, the majority of this cluster consumed 3-4 standard drinks on

a typical day they were drinking (54.57%). However, differentiating it from Cluster 1, this was followed by a consumption quantity of 2 standard drinks (31.23%). The majority of the cluster reported a monthly frequency of binge drinking (82.02%). Whereas 17% of the cluster reported that they never binge drink. Members of this cluster endorse higher frequencies of alcohol-related consequences than Cluster 2, yet this was still very low, indicating no risk. Finally, the mean AUDIT score for this cluster ($M= 6.6$, $SD= 1.68$) was below the cutoff, indicating low-risk alcohol involvement.

The second cluster, labeled “infrequent light drinkers” ($n=273$), was characterized by the lowest scores in all aspects of consumption and alcohol-related consequences. The majority of the sample consumed alcohol monthly or less frequently (63%) and consumed 2 standard drinks on a typical day they were drinking (48.35%). The substantial majority of the cluster (79.12%) reported that they never binge drink. And expectedly, they almost never experienced any of the alcohol-related consequences. Finally, the mean AUDIT score for this cluster ($M= 2.64$, $SD= 1.36$) indicates no risk.

4.4 Predictors of cluster membership: Multinomial logistic regression analysis

Multinomial logistic regressions were conducted to investigate indicators of emerging adult drinking clusters (i.e., heavy drinkers, regular moderate drinkers, infrequent light drinkers).

We utilized a two step model construction procedure in multinomial logistic regression analysis. First, we examined the hypothesized model, which includes negative emotionality, distress tolerance, sensation seeking, lack of self-control, and urgency as indicators of alcohol user type. Next, we added demographic variables and

alcohol use patterns that were significantly associated with AUDIT scores (as reported in section 4.3). Regression analyses yielded differences in those indicators. Both models are presented in Table 7 and Table 8.

4.4.1 Multinomial logistic regression with self-regulation indicators

Before conducting the analysis, Mahalanobis distances and their p values were calculated to identify multivariate outliers. Five participants who endorsed a p -value that is less than .001 were considered as outliers and excluded from the analysis. A Box-Tidwell Test was also applied to check the linearity of the logit assumption. Linearity assumption was met for all predictor variables (all $ps > .05$), except distress tolerance ($p = .01$). To solve the non-linearity problem, distress tolerance was subjected to log transformation.

In the first step, the multinomial logistic regression was run to examine self-regulation indicators with respect to the drinker clusters while holding all other variables in the model constant. Chi square test showed that the full model represents a significant improvement in fit over the null (intercept only) model [X^2 ($df= 10$, $N = 694$) = 85.84, $p < .001$]. Goodness of fit statistics show good fit with $p = .29$ by the Pearson criterion and with $p = .84$ for the Deviance criterion. The model accounted for 13.4% of the variance.

Likelihood-ratio tests showed that, in the overall model, lack of self-control [X^2 (2) = 16.89, $p < .001$], sensation seeking [X^2 (2) = 21.76, $p < .001$], urgency [X^2 (2) = 8.49, $p = .01$], distress tolerance [X^2 (2) = 7.94, $p = .02$] and negative emotionality [X^2 (2) = 6.33, $p = .04$] variables significantly contributed to the prediction of cluster membership.

Parameter estimates showed that emerging adults with a greater lack of self-control [$B = .13$, $SE = .03$, $OR = 1.13$, $p < .001$], with higher sensation seeking [$B = .08$, $SE = .02$, $OR = 1.08$, $p < .001$], with higher urgency [$B = .05$, $SE = .03$, $OR = 1.06$, $p = .04$] were more likely to be in “heavy drinkers” cluster rather than “infrequent light drinkers” cluster. In other words, every one-unit increase in lack of self-control increases the odds of being in “heavy drinker” cluster rather than “infrequent light drinkers” by 1.13 (13.4%). Likewise, those who endorse higher sensation seeking were 1.08 times (7.9%) and higher urgency were 1.06 times (5.6%) more likely to be in “heavy drinkers” than “infrequent light drinkers” cluster. However, those who endorse higher negative emotionality was .96 times (4%) less likely to be in “heavy drinker” than “infrequent light drinkers” cluster [$B = -.04$, $SE = .02$, $OR = .96$, $p = .01$].

Results showed that lack of self-control [$B = .09$, $SE = .03$, $OR = 1.1$, $p = .002$], negative emotionality [$B = -.04$, $SE = .02$, $OR = .97$, $p = .04$] and (log transformed) distress tolerance [$B = -3.35$, $SE = 1.2$, $OR = .04$, $p = .01$] variables significantly predicted whether a participant is in “heavy drinker” or “regular moderate drinker” cluster. For instance, those who endorse (one unit) lower self-control were 1.1 times (9.6%) more likely to be in “heavy drinker” than “regular moderate drinker” cluster. And those who endorse (one unit) higher negative emotionality were .97 times (3%) less likely to be in “heavy drinker” cluster than in “regular moderate drinker” cluster.

Finally, emerging adults with higher urgency [$B = .05$, $SE = .02$, $OR = 1.05$, $p = .01$] and higher sensation seeking [$B = .04$, $SE = .01$, $OR = 1.04$, $p = .001$] had an increased likelihood of being in “regular moderate drinkers” cluster compared to “infrequent light drinkers” cluster. Participants with (one unit) higher urgency were 1.05 times (5.2%) and with higher sensation seeking were 1.04 times (4.4%) more likely to be in “regular moderate drinkers” than “infrequent light drinkers” cluster.

4.4.2 Multinomial logistic regression with self-regulation, demographic and contextual indicators

In the next step of multinomial logistic regression, several demographic variables and alcohol use patterns were also added to the model. Those demographic variables were having a psychiatric disorder, chronic illness, maternal drinking, and the living situation (living alone/roommates vs. with family) and drinking companions. The alcohol use patterns were the onset of drinking and the context of drinking (outside vs. inside). Model fitting information showed that the full model represents a significant improvement in fit over the null (intercept only) model [$X^2(24) = 157.42, p < .001$]. Turning to the goodness of fit table, both Pearson chi-square test [$X^2(1218) = 1226.46, p = .43$] and Deviance chi square [$X^2(1218) = 1109.36, p = .99$] indicate that the model fit the data well. The model accounted for 26% of the variance.

The likelihood ratio tests revealed that, in the overall model, (lack of) self-control [$X^2(2) = 16.46, p < .001$], sensation seeking [$X^2(2) = 16.99, p < .001$], urgency [$X^2(2) = 6.84, p = .03$], negative emotionality [$X^2(2) = 6.94, p = .03$] and distress tolerance [$X^2(2) = 6.25, p = .04$] variables once again significantly predicted cluster membership. In addition, among demographic variables and alcohol use patterns, the onset of drinking [$X^2(2) = 14.97, p = .001$], the living situation [$X^2(2) = 12.02, p = .002$], drinking companions [$X^2(2) = 14.35, p = .001$] and having psychiatric diagnosis [$X^2(2) = 11.89, p = .003$] variables also significantly contributed to the prediction of cluster membership. However, having a chronic illness [$X^2(2) = 1.41, p = .49$], context of drinking [$X^2(2) = .15, p = .93$] and maternal drinking [$X^2(2) = 3.97, p = .14$] were not significant predictors of cluster membership.

Parameter estimates showed that (lack of) self-control [$B = .14, SE = .04, OR = 1.15, p < .001$], sensation seeking [$B = .08, SE = .02, OR = 1.08, p < .001$], negative

emotionality [$B = -.05$, $SE = .02$, $OR = .95$, $p = .02$], onset of drinking [$B = -.15$, $SE = .06$, $OR = .86$, $p = .02$], psychiatric disorder [$B = 1.2$, $SE = .36$, $OR = 3.33$, $p = .001$], and living situation [$B = -.93$, $SE = .28$, $OR = .4$, $p = .001$] variables significantly predicted whether a participant is in “heavy drinkers” or “infrequent light drinkers” cluster. There were no interpretable results regarding drinking companions as “heavy drinkers” cluster did not include any participants who live with their parents. Those with lower self-control were 1.15 times (15.8%) and with higher sensation seeking were 1.08 times (8.4%) more likely to be in in “heavy drinker” cluster than “infrequent light drinker” cluster. Furthermore, those who have a psychiatric disorder were 3.33 times more likely to be in in “heavy drinker” cluster than “infrequent light drinker” cluster. Whereas those who started drinking at an older age were .86 times (14%), who live with their parents (compared to living with roommates/alone) were .4 times (60.5%) and who exhibited higher negative emotionality were .95 times (4.8%) less likely to be in “heavy drinker” cluster than “infrequent light drinker” cluster.

In comparing “regular moderate drinkers” and “infrequent light drinkers”, urgency [$B = .05$, $SE = .02$, $OR = 1.05$, $p = .01$], sensation seeking [$B = .04$, $SE = .01$, $OR = 1.04$, $p = .003$], onset of drinking [$B = -.16$, $SE = .04$, $OR = .85$, $p < .001$], the living situation [$B = -.45$, $SE = .19$, $OR = .64$, $p = .02$] and drinking companion [$B = 1.36$, $SE = .52$, $OR = 3.89$, $p = .01$] variables were significant predictors. Those who endorsed higher urgency were 1.05 times (5.4%) and higher sensation seeking were 1.04 times (4.4%) more likely to be in “regular moderate drinkers” cluster than “infrequent light drinkers” cluster. Furthermore, emerging adults who drink alone or with friends (compared to drinking with family) were 3.77 times more likely to be in “regular moderate drinkers” cluster than “infrequent light drinkers” cluster. Whereas those who started drinking at an older age were .85 times (14.7%) and those who live

with their parents (compared to living with roommates/alone) were .64 times (36.5%) less likely to be in “regular moderate drinkers” cluster than “infrequent light drinkers” cluster.

Lastly, (lack of) self-control [$B = .1$, $SE = .03$, $OR = 1.11$, $p = .001$], sensation seeking [$B = .04$, $SE = .02$, $OR = 1.04$, $p = .04$], distress tolerance [$B = -3.18$, $SE = 1.26$, $OR = .4$, $p = .02$], negative emotionality [$B = -.04$, $SE = .02$, $OR = .96$, $p = .02$], and psychiatric disorder [$B = .816$, $SE = .3$, $OR = 2.36$, $p = .004$] variables significantly predicted whether a participant is in “heavy drinkers” or “regular moderate drinkers” cluster. Those who endorse lower self-control were 1.11 times (11%) and those who have a psychiatric diagnosis were 2.262 times more likely to be in “heavy drinkers” than “regular moderate drinkers” cluster. Whereas those who exhibit a higher (log) tolerance for distress were 4.2% less likely to be in “heavy drinkers” than “regular moderate drinkers” cluster. Contrary to expectations, those with higher negative emotionality were 4.4% times less likely to be in “heavy drinkers” than “regular moderate drinkers” cluster.

Table 7. Results of The Multinomial Logistic Regression Comparing Self-Regulation Indicators Across Drinking Clusters

Cluster comparisons	Model predictors	<i>b</i> (<i>SE</i>)	Wald	<i>OR</i>	95% CI for <i>OR</i>	
					Lower Bound	Upper Bound
Heavy drinkers vs. regular moderate drinkers	Sensation seeking	.03 (.02)	3.66	1.03	1	1.07
	(Lack of) self-control	.09 (.03)**	10.02	1.1	1.04	1.16
	Urgency	.004 (.03)	.03	1.01	.96	1.05
	(log) Distress tolerance	-3.35 (1.2)*	7.87	.04	.00	.36
Heavy drinkers vs. infrequent light drinkers	Negative Emotionality	-.04 (.02)*	4.44	.97	.94	1
	Sensation seeking	.08 (.02)***	17.3	1.08	1.04	1.12
	(Lack of) self-control	.13 (.03)***	16.23	1.13	1.07	1.21
	Urgency	.05 (.03)*	4.34	1.06	1	1.11
Regular moderate drinkers vs. infrequent light drinkers	(log) Distress tolerance	-2.18 (1.25)	3.04	.11	.01	1.31
	Negative Emotionality	-.04 (.02)*	6.03	.96	.93	.99
	Sensation seeking	.04 (.01)**	11.14	1.04	1.02	1.07
	(Lack of) self-control	.03 (.02)	2.98	1.04	.99	1.08
	Urgency	.05 (.02)**	6.78	1.05	1.01	1.09
	(log) Distress tolerance	1.18 (.96)	1.49	3.12	.5	21.09
	Negative Emotionality	-.01 (.01)	.41	.99	.97	1.02
Model properties		Explained variance: Nagelkerke $R^2 = .13$				
		Fit index= χ^2 (df = 10, N = 694) = 85.84, $p < .001$				

Notes. ^a OR = Odds Ratio. ^b * $p < .05$, ** $p < .01$, *** $p < .001$

Table 8. Results of The Multinomial Logistic Regression Comparing Self-Regulation, Demographic and Contextual Indicators Across Drinking Clusters

Cluster comparisons	Model predictors	<i>b</i> (<i>SE</i>)	Wald	<i>OR</i>	95% CI for <i>OR</i>	
					Lower Bound	Upper Bound
Heavy drinkers vs. regular moderate drinkers	Sensation seeking	.04 (.02)*	4.15	1.04	1	1.08
	(Lack of) self-control	.1 (.03)**	10.97	1.11	1.04	1.18
	Urgency	.001 (.03)	.002	1	.95	1.06
	(log) Distress tolerance	-3.18 (1.26)*	6.32	.04	.00	.5
	Negative Emotionality	-.04 (.02)*	5.83	.96	.92	.99
	Onset	.01 (.06)	.06	1.01	.91	1.14
	Psychiatric diagnosis	.86 (.3)**	8.09	2.36	1.31	4.26
	Living with parents	-.48 (.26)	3.44	.62	.37	1.03
Heavy drinkers vs. infrequent light drinkers	Drinking with friends	-	-	-	-	-
	Sensation seeking	.08 (.02)***	14.87	1.08	1.04	1.13
	(Lack of) self-control	.14 (.04)***	15.18	1.15	1.08	1.23
	Urgency	.05 (.03)	3.15	1.06	.99	1.12
	(log) Distress tolerance	-2.55 (1.43)	3.16	.08	.01	1.3
	Negative Emotionality	-.05 (.02)*	5.89	.95	.92	.99
	Onset	-.15 (.06)*	5.55	.86	.76	.98
	Psychiatric diagnosis	1.2 (.36)**	11.13	3.33	1.64	6.75
Regular moderate drinkers vs. infrequent light drinkers	Living with parents	-.93 (.28)**	10.9	.4	.23	.69
	Drinking with friends	-	-	-	-	-
	Sensation seeking	.04 (.01)**	11.14	1.04	1.02	1.07
	(Lack of) self-control	.04 (.03)	1.81	1.03	.99	1.09
	Urgency	.05 (.02)**	6.3	1.05	1.01	1.1
	(log) Distress tolerance	.63 (1.12)	.32	1.88	.22	16.41
	Negative Emotionality	-.01 (.01)	.11	1	.97	1.02
	Onset	-.16 (.04)***	13.79	.85	.78	.93
	Psychiatric diagnosis	.34 (.29)	1.4	1.41	.81	2.49
	Living with parents	-.45 (.19)*	5.46	.64	.44	.93
	Drinking with friends	1.36 (.52)**	6.94	3.89	1.42	10.69

Model properties

Explained variance: Nagelkerke $R^2 = .26$

Fit index= χ^2 (df = 24, N = 696) = 157.42, $p < .001$

Notes. ^a OR = Odds Ratio. ^b * $p < .05$, ** $p < .01$, *** $p < .001$

CHAPTER 5

DISCUSSION

The primary purpose of the present study was to identify emerging adult drinking groups with a person-centered approach and to examine how these groups differ with respect to self-regulation and demographic indicators. In this chapter, the study findings from the univariate, cluster, and multivariate analyses are discussed with respect to the relevant literature.

5.1 Drinking clusters

Attesting the heterogeneity in emerging adult drinking patterns, cluster analysis suggested solutions with multiple clusters. Initially, a decision was made between two-cluster and three-cluster solutions. While the former included a high and a lower alcohol involvement group, the latter included a high alcohol involvement group along with two lower alcohol involvement groups. Literature on the drinking practices in Turkey suggests that there is a significant proportion of people who almost abstain from alcohol or consume very low levels, and in contrast, there are individuals characterized by high alcohol consumption, and finally, there are individuals who hold a middle position between these two ends. Choosing a two-cluster solution might have led to (i) a reduction in cluster homogeneity, and (ii) relatedly, missing out the differences among two lower alcohol involvement groups.

Therefore, considering the results of the cluster analysis and the common drinking practices in the Turkish context, the present study identified three multidimensional clusters of emerging adult drinkers based on four key alcohol-use indexes (i.e., frequency of use, the quantity of consumption, frequency of binge

drinking, and alcohol-related consequences). Those clusters were labeled as “heavy drinkers”, “regular moderate drinkers” and “infrequent light drinkers”.

Prior research has found a varying number of drinking groups that were generally characterized by light, moderate, and heavy drinking (e.g., three groups, Beseler et al., 2012; four groups, Aresi et al., 2018; Cleveland et al., 2013; five groups, Auerbach & Collins, 2006; six groups, Rist et al., 2009). In this regard, the findings of the current study were consistent with the literature. However, unlike several studies that have identified multiple heavy drinking classes based on the experience of alcohol-related consequences, the current study identified only one “heavy drinkers” cluster (15.5%, $n = 109$), indicating that this study did not reach emerging adults that were on the higher end of the alcohol use involvement continuum (i.e., problem drinkers). Relatedly, the majority of participants were on the lower to middle end of the continuum. Approximately one half of emerging adults belonged to the “regular moderate drinkers” cluster (45%, $n = 317$), followed by “infrequent light drinkers” cluster (38.9%, $n = 273$). Those three groups were significantly distinguished on all of the alcohol use indexes. Specifically, “heavy drinkers” primarily differed from “regular moderate drinkers” in terms of frequency of consumption, binge drinking and alcohol related consequences. Whereas “regular moderate drinkers” primarily differed from “infrequent low drinkers” in terms of quantity of consumption and their experience of alcohol-related consequences. Finally, “infrequent light drinkers” were characterized by the lowest scores of all alcohol use indexes. In the following section, those clusters are referred to as light, moderate, and heavy drinkers.

5.2 Associations between self-regulation indicators, demographic variables, drinking patterns, and drinking clusters

In the present study, indicators of self-regulation, several demographic variables, and alcohol use patterns were examined as predictors of cluster membership. Although they demonstrated significant associations with the emerging adults' AUDIT scores, maternal drinking, preferred location of drinking, and having a chronic illness were not significant predictors of cluster membership in the multivariate analyses. On the other hand, supporting the hypothesis of the present study all the self-regulation indicators (i.e., self-control, sensation seeking, urgency, distress tolerance, negative emotionality), some of the demographic variables (i.e., living situation, having psychiatric diagnosis), and alcohol use patterns (i.e., onset, drinking companions) were associated with emerging adults' likelihoods of membership in drinking clusters. The significant predictors in the general model demonstrated differential associations with drinking clusters (i.e., heavy vs. light, heavy vs. moderate, moderate vs. light drinkers). Implications of those differential associations will be discussed in this section.

Relative to light drinkers, the other two drinking clusters with greater alcohol involvement initiated alcohol use at a younger age, endorsed higher sensation seeking, and were living with friends or alone (as compared to living with family members). Those findings were attesting to the hypotheses of the study and to the earlier empirical studies. A younger onset of use is consistently associated with intensive alcohol use trajectories (Hanson et al., 2011; Grant et al., 2001; Griffin et al., 2010) and with greater odds of being classified in a high-risk group of college students (Scaglione et al., 2015).

Turning to another consistent predictor for light drinkers, living with parents might indicate increased surveillance, sustainment of family ties, and greater parental guidance and support (Arnett, 2004). In the Turkish context, this may also be accompanied by (over)protection and intrusion aspects of parenting (Sümer & Kağıtçıbaşı, 2010) that may be associated with greater self-restrictive tendencies among emerging adults, and thus, predict light drinkers. Whereas living alone or with peers might provide a more liberal environment for alcohol consumption and an increase in drinking opportunities (Joutsenniemi et al., 2007). Those findings echo the prior research which associates living with parents with less alcohol involvement than living with friends (Bachman et al., 1997; Dawson et al., 2004).

The finding that sensation seeking differentiated all the clusters was also consistent with the hypothesis of the current study and the existing literature (Adams et al., 2012). Previous studies propose that individuals elevated in sensation seeking were more likely to attend social events and gatherings, and thus, were much more exposed to potentially stimulating alcohol consumption opportunities (Cyders et al., 2008; Fischer & Smith, 2004). In addition, from a neurophysiological perspective, the items on the sensation seeking subscale (see Appendix E) measure the extent to which respondents seeks novel and thrilling experiences that would result in a dopamine release. Notably, even low levels of alcohol consumption can increase dopaminergic activity and resulting in rewarding effects (Chiara, 1997). Therefore, individuals high in sensation seeking have been demonstrated to be more likely to drink heavily in order to experience this positive arousal (Magid et al., 2007). Relatedly, the reinforcement from both initial alcohol use and continued use is formed stronger for those individuals, promoting alcohol consumption (Robinson & Berridge, 2001) and confirming the findings of the present study.

Focusing on the comparison between moderate and light drinkers, in addition to previously mentioned variables, drinking with friends or alone (as compared to drinking with family) also emerged as an important correlate of emerging adults' membership in the "moderate drinkers" cluster. In the prior research, drinking with family is also associated with less consumption and psychosocial alcohol problems than drinking with peers, strangers (Mayer et al., 1998; Demers et al., 2002), and solitary drinking (Skrzynski & Creswell, 2020). Yet, the effects of emotional self-regulation indicators (i.e., distress tolerance, negative emotionality), having a psychiatric diagnosis, and lack of self-control did not differentiate between moderate and light drinkers. Prior research has demonstrated that distress tolerance, negative emotionality, and self-control primarily differentiated the most problematic groups of drinking as they were positively associated with high levels of alcohol-related consequences (Dvorak et al., 2011; Cyders et al., 2008). Those variables might not have differentiated low and moderate drinkers as those clusters did not exhibit high levels of such consequences. Yet, expectably, the absence of self-control was related to greater odds of being in the "heavy drinkers" cluster relative to other clusters with lower alcohol use involvement. This finding was in line with the hypothesis of the study and consistent with the prior research as "heavy drinkers" endorsed the highest levels of alcohol-related consequences relative to other clusters (Dvorak et al., 2011; Beseler et al., 2012).

The previously mentioned finding on having a psychiatric diagnosis was also in line with the hypothesis of the current study as moderate and light drinkers did not have risky levels of alcohol involvement that might be accompanied by a diagnosis of psychiatric condition. Notably, having a diagnosis differentiated heavy drinkers from the other two clusters. This finding was consistent with the prior research that

has also associated poor mental well-being with increased alcohol consumption (Sedain, 2013), specifically with a binge drinking frequency of more than monthly, and an AUDIT score of ≥ 6 points (Mäkelä et al., 2014). The first condition was met by the majority and the second condition was met by all of the respondents in the “heavy drinkers” cluster. As a well-established explanation for this association, the self-medication hypothesis suggests that individuals use alcohol to escape from or alleviate the impact of negative emotional states or physical pain of their conditions (Khantzian, 1997).

Continuing with heavy drinkers, confirming the hypothesis of the current study, respondents in the “heavy drinkers” cluster endorsed lower tolerance for distress compared to moderate drinkers. Individuals with low distress tolerance are more likely to perceive distress as unbearable, and to avoid distress (Simons & Gaher, 2005). This reliance on avoidant strategies for coping with emotions (i.e., denial, mental disengagement) is associated with an increased risk for heavier drinking, binge drinking, and alcohol-related problems among emerging adults (Obeid et al., 2019; Merrill & Thomas, 2013; Wills et al., 2001; Bonin et al., 2000; Brown et al., 2002; Buckner et al., 2007). Relatedly, prior research directly associates low distress tolerance with coping motives for alcohol use in the face of negative emotions (Howell et al., 2010; Gorka et al., 2012). Yet the study findings indicated that higher levels of negative emotionality were related to lower odds of being in the heavy drinkers cluster relative to moderate and light drinkers, yet it did not differentiate clusters with lower alcohol use involvement. However, it was hypothesized that negative emotionality would predict clusters with greater consumption and alcohol-related consequences. Two explanations are presented to understand this unanticipated finding.

Emotional and behavioral self-regulation explains different trajectories of drinking behavior (Altman, 2022; Blum et al., 2020; Bohnert et al., 2014; Su et al., 2017). In this regard, consistent with prior empirical studies (Kuvaas et al., 2014), there may be problem drinkers that are characterized by significantly higher levels of negative emotionality and by similar or lower levels of sensation seeking than heavy drinkers. Yet due to the inability of the current study in capturing the variability in the upper end of the drinking continuum, different clusters of heavy or problematic drinkers were not observed. In addition, in a study with two different samples of Turkish young adults (i.e., university students and a nationally representative community sample) Cemalcilar and colleagues (2021) found that regardless of age, those who were more educated and had higher household income significantly displayed lower negative emotionality. Considering the sample characteristics of the current study, it could be the case that the study was not able to reach problem drinkers with higher negative emotionality.

Furthermore, in another study, nondrinkers and moderate drinkers were also more likely to endorse higher negative emotionality compared to binge drinkers, indicating that those with higher emotional instability avoid heavy alcohol intake (Lac & Donaldson, 2016). It is important to note that, in addition to emotional volatility facet, the negative emotionality domain of the BFI-2 also assesses depression and anxiety facets. Those with lower scores in these facets may also be more likely to be active and less self-restrictive as well as less concerned with the negative consequences of drinking (Ibáñez et al., 2015). It can also be proposed that, in addition to negative emotions, this group of emerging adult heavy drinkers might also be drinking under positive emotions, which is a tendency associated with drinking escalation during college years (Cyders et al., 2009).

In addition, urgency did not differentiate heavy drinkers from other clusters. This finding was consistent with our hypothesis and the existing literature. A higher tendency to act impulsivity under strong negative emotions is consistently linked to AUDs and alcohol-related consequences among emerging adults (Tran et al., 2018; Simons et al., 2010; Wray et al., 2012; Cyders & Smith, 2007, 2008b; Coskunpinar et al., 2013). As mentioned previously, this study was not able to reach emerging adults at the higher end of the alcohol use continuum. Therefore, it is expected that this variable couldn't predict the "heavy drinkers" cluster which did not have problematic levels of alcohol-related consequences.

Another important finding was that, when compared to the moderate drinkers, heavy drinkers did not differ in terms of the onset of alcohol use and the living situation; but consistent with the hypotheses of the study and the literature (Kuvaas et al., 2014), they did endorse lower self-control, higher sensation seeking, and were more likely to have a psychiatric diagnosis. Moreover, all members of this cluster reported to consume alcohol with their friends. Compared to regular moderate drinkers, heavy drinkers did endorse a greater frequency of consumption and a relatively smaller difference in the quantity of consumption. In this regard, the significance of sensation seeking as a predictor is expected due to its consistent association with the frequency of consumption in the literature (Cyders et al., 2008). These findings indicate that contribution of mental health and peer network is as much important as the influence of impulsivity facets.

Overall, although moderate and light drinkers endorsed different patterns of drinking, they did not differ from each other on the majority of the personality traits. In other words, those traits were useful in differentiating heavy drinkers from others but not individuals who endorsed unproblematic yet different patterns of drinking. In

this regard, factors underlying the difference between moderate and light drinkers among Turkish emerging adults require further investigation. Yet, as the differences between those groups were mainly in quantity and frequency of consumption, they may be explained in part by socialization and cultural factors.

5.3 Background characteristics and alcohol use involvement

In addition to the aforementioned multivariate findings, univariate findings of the present study demonstrated that factors like living situation, psychological and physical well-being, household income, family and peer alcohol use, context and companions of drinking were associated with emerging adult alcohol use, supporting the existing literature that individual, contextual and social factors are important correlates of emerging adult alcohol use involvement, indicated by AUDIT scores.

The current study showed that both alcohol use involvement and age of onset for regular use were not statistically different by gender among emerging adults. Although this finding did not support the hypothesis related to gender, it was in accordance with the recent literature, which indicates that the gender gap in overall alcohol use has been decreasing in the United States and the European region (Chartier. et al., 2010; Doksat et al., 2016; Chen & Jacobsen, 2012; Slade et al., 2016). This was a new finding in the Turkish context as previous studies indicate that among emerging adult males consume alcohol more than females, both in frequency and quantity (Çam et al., 2019; Topuz, 2005; Akvardar et al., 2003b).

Another unexpected finding was concerning emerging adults' employment status. Alcohol use involvement did not differ for unemployed participants relative to employed and student participants. Relatedly, the amount of daily leisure time also had a very small but significant association with alcohol use involvement. Prior

empirical research indicates a lack of consensus on the association between drinking and employment status among emerging adults. While some studies indicate a positive association between the number of hours worked and the number of drinks consumed daily (Butler et al., 2010), others indicate a negative association between employment, alcohol consumption, and heavy drinking (Leppel, 2006; Cleveland et al.; 2013). One possible explanation for this lack of association could be the disproportionate sample size of the current study, which mainly consists of participants who are either students or working at a regular or irregular job, while only 2% of the participants were unemployed.

Similarly, emerging adults' student status (i.e., university & grad school students, high school students, nonstudents) was not significantly associated with their alcohol use involvement. The restricted age range of the study sample (18-25) might be another reason why we were unable to observe any influence of student status and employment status on alcohol consumption. The non-students were at very similar ages with students and considering their educational attainment, the majority of them were probably newly graduated from college. Yet the study results showed that compared to non-students, students had an earlier onset for regular use. Considering that non-students had a significantly greater mean age (as compared to both high school students and university & grad school students), this finding aligns with the trend in Turkey that the age of onset for alcohol use becomes earlier by year (Akvardar et al., 2003a).

Emerging adults with a bachelor's degree or higher education level were associated with significantly lower alcohol use involvement compared to individuals with a high school diploma. This observed difference is consistent with the literature and is usually attributed to attaining adult roles and responsibilities that are

incompatible with heavy drinking (O'Malley, 2004; Kuntsche & Gmel, 2013; Littlefield & Sher, 2010). Considering the small negative correlation between the total impulsivity scores and the participants' age, the reductions in this etiologically relevant personality trait can also be proposed as another explanation (Littlefield et al., 2009).

Although several studies have shown that emerging adult alcohol consumption is more frequent and larger in quantity among higher-income households (Casswell et al., 2003; Ulukoca et al., 2013; Finch et al., 2013; McMorris & Uggen, 2000; Patrick et al., 2012), others provided further insight that the positive association between income and access to alcohol might not be as strong when perceived peer norms are included in the analysis as covariates (Kar et al., 2019; Paschall et al., 2004). Relatedly, there was a very weak but statistically significant negative association between SES and age of onset in the current study. However, no association between SES and alcohol use involvement was found. Emerging adults from higher classes might have more opportunities for exposure to alcohol and initiating consumption (e.g., consuming alcohol at home, attending social gatherings), whereas regarding patterns of alcohol use individual and peer-related factors have also come into play (Merikangas & Avenevoli, 2000).

Attesting to the hypothesis of the study and the social influence models of alcohol use, the current study results revealed that having more alcohol-using friends was associated with increased alcohol use involvement and earlier onset of regular alcohol use among emerging adults. Prior studies have also highlighted the impact of peer influence in this developmental period and also demonstrated alcohol using peers as a risk factor for early alcohol use initiation and increased consumption (Simons-Morton et al., 2016; Mallett et al., 2013; Han et al., 2014; Trucco et al.,

2011; Goliath & Pretorius, 2016; Cruz et al., 2012; Ünlü & Evcin, 2014; Mundt, 2011).

The living situation and drinking companions are also implicated in emerging adult alcohol consumption. Related univariate findings were in line with the previously discussed multivariate findings on those factors. In addition to those, notably, the findings of the current study did not support the existing literature on living on campus and alcohol use involvement (Dawson et al., 2004). Although emerging adults who live in the dormitories exhibited greater alcohol use involvement than those who live with their parents, this difference was not significant. An explanation for this finding might be campus alcohol policies (i.e., ban of alcohol on campuses in Turkey) (Jernigan et al., 2019), and relatedly, the degree of surveillance in college campuses and dormitories that might compensate for the reductions in parental surveillance associated with moving away from home.

Prior research generally indicates a positive association between parental drinking and alcohol use (Mahedy et al., 2018; Herken et al., 2000; van der Zwaluw et al., 2008; Mares et al., 2011) and alcohol-related problems (e.g., Poelen et al., 2007; Guo et al., 2001) among emerging adult offspring. Results of the univariate analyses partially supported the existing literature and hypothesis of the study as only mother's use was significantly and positively associated with alcohol use involvement in emerging adults. Similarly, several studies demonstrated the effects of maternal alcohol use on offspring emerging adults' alcohol involvement to be greater than the influence of paternal use (Chassin et al., 1999; Christoffersen & Soothill, 2003). This difference might be due to the primary caregiver role that mothers generally occupy, providing greater opportunities for the offspring to identify with the mother's attitudes on drinking and drinking patterns (Mares et al.,

2013). On the other hand, fathers tend to be less engaged in the primary caregiver role regardless of their employment status (Bianchi et al., 2006), and also tend to consume alcohol outside the home, decreasing offspring's contact with their consumption practices and values.

As another explanation, in the Turkish family structure, maternal alcohol use is a relatively rare practice. This was also the case for the present study as the reported paternal use was 40% more than the rate of maternal use. Thus, maternal drinking is usually a practice that accompanies paternal drinking, instead of being the only parental source of modeling. Therefore, the presence of maternal use may result in consensus with the father on (i) a more tolerant drinking culture in the family and (ii) less restrictive attitudes on offspring's drinking (Mitchell et al., 2022). In addition, in line with the existing literature (e.g., Chuang et al., 2005; Ennett et al., 2001; Mattick et al., 2018), emerging adults whose fathers and mothers consumed alcohol endorsed significantly earlier onset of regular alcohol use.

This study also found that emerging adults with a psychiatric diagnosis and with a chronic illness exhibited significantly higher alcohol involvement than those who did not have such conditions.). Additionally, although the onset of alcohol use did not differ by having a psychiatric diagnosis; in accordance with the prior empirical studies (Turner et al., 2018) and the hypothesis of the present study, respondents with a chronic illness initiated alcohol use at an earlier age.

Different mechanisms are proposed to explain this cross-sectional association between psychiatric disorders and alcohol use: (i) these disorders might provoke initiation of use and increased consumption; (ii) alcohol use might influence the development of those disorders; and (iii) a third factor might have an influence on both conditions (Kushner et al. 2000; Zimmermann et al., 2003). Regarding the first

mechanism, the current study did not collect any information on the onset of respondents' physical and mental conditions. Therefore, it cannot be conclusively inferred that those conditions had started before the onset of use and did or did not have a prior influence on it. It is highlighted in the literature that psychiatric symptoms reach a peak during emerging adulthood (Health Canada, 2007). Yet, for the respondents with a psychiatric diagnosis, the mean age of onset for alcohol use was 17.7. As one of many explanations, it can be proposed that the majority of the respondents' may have received a mental health diagnosis after initiating regular alcohol use. Therefore, their condition might have influenced their current consumption but not their onset of use.

As another conceivable explanation, considerable amount of research demonstrates that different psychiatric conditions have different effects on alcohol outcomes (Zimmermann et al., 2003; Page & Andrews, 1996). For instance, although generalized anxiety was found to positively predict initiation of alcohol use, separation anxiety was a negative significant predictor for this outcome (Kaplow et al., 2001). Future research may also study prospective associations between receiving a diagnosis and subsequent alcohol use initiation, considering the differential influence of different types of psychiatric conditions.

5.4 Limitations and strengths

A number of limitations should be borne in mind while interpreting the findings of the current study. Due to the cross-sectional design of the study, interpretation of the findings cannot indicate causality. An additional limitation concerns the sampling procedure and relatedly sample characteristics. The majority of the sample was recruited through the Boğaziçi University research participation system and mainly

consisted of middle to high SES urban college students. Therefore, the current sample was not nationally representative of Turkish emerging adults, especially those who were not highly educated and came from low SES levels. Yet the social sanctions regarding drinking and cultural expectations from women vary very much based on educational and socioeconomic backgrounds (Griffin et al., 2000). Given this issue, the findings that indicate no gender difference in alcohol involvement should be interpreted with caution.

Similarly, the clusters derived from this sample would not be generalizable to the broader Turkish emerging adult population. The present study may have failed to capture more problematic clusters, characterized by higher levels of alcohol-related consequences. Relatedly, it was also unable to observe several expected findings, especially regarding heavier drinking classes, in this non-clinical sample of Turkish emerging adults. Furthermore, once again due to the nonclinical nature of the sample, the proportion of individuals who were or would be diagnosed with AUDs was not known.

Another limitation of the study concerns the uneven gender balance in the study sample. Relatedly, the rate of male respondents in the heavy drinkers cluster was only 30.27%, indicating that the present study mainly examines female heavy drinking. Finally, since data were collected via self-reports, it is important to bear in mind the potential bias in these responses.

Despite those limitations, the current study holds several strengths at multiple levels. First and foremost, it contributed to the knowledge on emerging adult alcohol involvement and personality research in the Turkish context while incorporating a multidimensional model of self-regulation with several contextual indicators. Besides, to our knowledge, this study is the first study that attempted to implement a

person-centered approach to identify distinct patterns of drinking among Turkish emerging adults.

5.5 Implications for future research and clinical practice

This research has brought up many questions in need of further investigation. To start with, the present study included a one-item assessment of parental alcohol use which only concerned the presence and absence of this behavior. Yet it would be wise for future research to include broader measures of parental drinking patterns and history of alcoholism in future studies, in order to better understand emerging adult drinking behaviors. Furthermore, living with family members was identified as a protective factor against alcohol use involvement. In order to understand the dynamics behind this association, relational factors such as attachment and family factors such as family functioning, parental support, and parental behavioral control (i.e., monitoring, expectations, discipline) should also be studied in relation to emerging adult drinking in the future studies.

In addition, the current study assessed the amount of leisure time that emerging adults have, but did not collect information about how they generally utilize this time. Notably, the literature suggests that the participation in structured (e.g., spending time with the family or on a hobby) and unstructured (e.g., hanging out with friends, surfing online) leisure activities predict different alcohol use outcomes (Chen et al., 2019). For instance, the latter is associated with a greater risk of alcohol use (Larson, 2000; Albertos et al., 2021). Therefore, in future studies, a more comprehensive examination of leisure time might be required to observe a meaningful link to alcohol use involvement.

The current study examined aspects of emotional self-regulation with respect to drinking clusters. Unanticipated findings on negative emotionality calls for further examination of this personality trait with respect to emerging adult drinking. Those studies would provide the information necessary to establish a greater degree of accuracy on this matter. Considering the unequal number of male and female respondents in the study sample, the following stands as a meaningful question that future studies could investigate: would those findings on negative emotionality still remain the same in an equally balanced sample of emerging adults?

Furthermore, there may be several buffering factors that may influence the association between emotional self-regulation and emerging adult drinking. In this regard, future research can test a motivational model of alcohol use to examine whether different alcohol expectancies or drinking motives (e.g., social, enhancement, coping) distinguish drinking clusters. This may provide more information on emerging adults' drinking behaviors than indirectly associating emotional self-regulation characteristics with alcohol use involvement. Moreover, future research may also consider conducting the Turkish adaptation of the UPPS-P Impulsivity Scale to include positive urgency in their model and examine drinking behaviors in the face of strong positive emotional states, rather than only negative emotional states.

In the present study, sensation seeking was a consistent predictor for increased alcohol involvement. In addition to its general connotation (i.e., disinhibition, boredom susceptibility), when items of the scale are examined, this aspect of impulsivity also indicates a desire to live life to its fullest by welcoming new, exciting, and unique experiences (i.e., wanting to skydive or to learn how to fly an airplane) and chasing after the sense of awe. Sensation seeking individuals may be

less obsessive, self-restrictive, and isolated (Frenkel et al., 2013). Relatedly, respondents in the “heavy drinking” cluster also endorse such characteristics. Given this, in addition to interventions designed to ameliorate sensation seeking, a relatively stable personality trait, the present study suggests prioritizing prevention and intervention programs that would target emotional self-regulation skills. A greater capacity to be in touch with one’s emotions would also have broader benefits such as mindful sensation seeking. Similarly, in the clinical settings, psychotherapeutic interventions and methods that would focus on developing emotional insight and improving emotional skills could be utilized in the treatment of at-risk emerging adults.

The prevalence rate of psychiatric disorders in the study sample and its comorbidity with heavy drinking implicates a need for further research of the subject matter in the Turkish context. Those findings also reveal the importance of diagnosing and treating psychiatric conditions in order to effectively intervene for emerging adult heavy drinking. Considering the student status of the majority of emerging adults and the means required to afford individual psychotherapy, it is necessary the develop group programs that are designed to support emerging adults in managing their psychiatric conditions with healthy coping strategies. In addition, due to its accessibility and convenience, having psychiatrists on the college campuses might enhance the regularity of visits of in need youth and their adherence to a given treatment plan.

Finally, future research may also want to (i) use more advanced cluster analytic methods (i.e., latent class analysis) and (ii) implement longitudinal study designs and identify latent trajectories of emerging adult alcohol involvement.

5.6 Conclusion

The present study, in convergence with evidence from prior research, showed the importance of emotional and behavioral self-regulation and mental health especially in heavy drinking emerging adults. Those with higher sensation seeking, lower self-control and distress tolerance seem to be the most vulnerable individuals for hazardous drinking patterns. One of the important findings of the present study was the protective influence of contextual factors as much as and sometimes more than individual-level factors.

APPENDIX A

INFORMED CONSENT FORM (TURKISH)

KATILIMCI BİLGİ ve ONAM FORMU

Araştırmayı destekleyen kurum: Boğaziçi Üniversitesi

Araştırmanın adı: Genç yetişkinler arasındaki farklı alkol kullanım grupları: öz düzenlemenin yordayıcı rolü

Proje Yürütücüsü: Prof. Dr. Serra Müderrisoğlu

E-mail adresi: ...

Telefonu: ...

Araştırmacının adı: Romina Markaroğlu

E-mail adresi: ...

Telefonu: ...

Sayın Katılımcı,

Birçok genç alkol kullanmasına rağmen, kullanım örüntülerinde önemli farklılıklar söz konusudur. Yapılan birçok araştırma, gencin alkol kullanımını etkileyen bireysel özelliklerinin kapsamlı bir şekilde anlaşılmasını desteklemektedir. Boğaziçi Üniversitesi Psikoloji Bölümü'nün desteklediği bu çalışmanın amacı alkol kullanan gençlerin farklılıkları incelemek ve birey düzeyindeki faktörlerin bu farklılıklara etkisini anlamaktır. Bu bireysel farklılıkların etkisini anlamanın gençlerin kendilerine özgü tedavi ihtiyaçlarının belirlenmesine ve bu sayede ülkemizdeki ilgili sağaltım çalışmalarının daha etkili bir şekilde oluşturulmasına katkı sağlayacağını umuyoruz.

Bu projenin gerçekleşmesi için yaklaşık 500 katılımcıya ihtiyaç vardır. Sizi de bu araştırmaya kendi deneyimleriniz ile katkı sağlamaya davet ediyoruz. Bu formu okuyup onaylamanız, araştırmaya katılımı kabul ettiğiniz anlamına gelecektir. Kararınızdan önce araştırma hakkında sizi bilgilendirmek istiyoruz.

Bu çalışmaya katılımınız tamamen gönüllülük esasına dayanmaktadır.

BOUN Research Participation System üzerinden katılan Boğaziçi öğrencileri için onam formunda bu cümle yer alacaktır: Bu çalışmaya katılmanız karşılığında sadece PSY 101 veya PSY 241 dersinden 1 kredi ile ödüllendirilecek, bunun dışında herhangi bir ücret veya geribildirim verilmeyecektir.

Çalışmaya online ortamda oluşturulan link üzerinden katılım sağlayan katılımcılar için "Bu çalışmaya katılımınız tamamen gönüllülük esasına dayanmaktadır" cümlesinden sonra herhangi bir ekleme yapılmaksızın paragraf aşağıdaki cümle ile devam edecektir.

Araştırmaya katılmayı kabul ettiğiniz takdirde sizden toplam 5 anket formu cevaplamanız istenecektir. Bu anketleri doldurmak yaklaşık yaklaşık yarım saatinizi alacaktır. Çalışmanın amacına ulaşması için sizden beklenen, bütün soruları eksiksiz, kimsenin baskısı veya telkini altında olmadan, size en uygun gelen cevapları içtenlikle verecek şekilde cevaplamanızdır. Katılmayı seçtiğiniz takdirde çalışmanın herhangi bir aşamasında sebep göstermeksizin katılmaktan vazgeçme hakkına sahipsiniz. Bu durumda doldurmuş olduğunuz tüm anketlerin kayıtları imha edilecek ve çalışma kapsamından çıkartılacaktır.

Çalışma bilimsel amaçlarla yapılmakta ve katılımcıların kişisel bilgilerinin gizliliğini esas olarak kabul etmektedir. Sizden toplanan veriler yalnızca araştırmacılar tarafından görülebilecektir. Kayıtlarınız ilk aşamadan itibaren bir katılımcı numarası ile eşlenecek ve araştırma boyunca kişisel bilgileriniz olmaksızın bu numara ile anılacaktır. Çalışma sonuçları tez için kullanılarak değerlendirilecektir, bulgular psikoloji kongresinde sunulacak ve akademik yayın için hazırlanacaktır.

Araştırma ile ilişkili oluşabilecek herhangi bir risk saptanmamıştır. Görüşme esnasında ya da sonrasında duygusal olarak zorlandığınızı hissetmeniz ve psikolojik destek talep etmeniz durumunda araştırmacı sizi ücretsiz psikolojik destek için gerekli kurumlara yönlendirecektir. Bu kurumların iletişim bilgileri ayrıca bu formun sonunda paylaşılmıştır.

Bu formu imzalamadan önce, çalışmayla ilgili sorularınız varsa lütfen sorun. Daha sonra sorunuz olursa, proje yürütücüsüne (Ofis Telefonu: ...) sorabilirsiniz. Araştırmayla ilgili haklarınız konusunda Boğaziçi Üniversitesi Sosyal ve Beşeri Bilimler Yüksek Lisans ve Doktora Tezleri Etik İnceleme Komisyonu'na (SOBETİK) (sbe-ethics@boun.edu.tr) danışabilirsiniz.

Ücretsiz Psikolojik Destek Hizmetleri

Yeşilay Psikolojik Destek Merkezi (YEDAM) Danışma Hattı: ALO 155

Devlet Hastaneleri: Merkezi Hekim Randevu Sistemi (MHRS) veya ALO 182

İstanbul Büyükşehir Belediyesi Psikoterapi Merkezleri: ALO 153

Belediyeler: Bağlı bulunduğunuz belediyeyi arayarak bilgi alabilirsiniz (Örn., Pendik

Belediyesi Psikolojik Danışmanlık Hizmetleri: 444 81 80; Beşiktaş Belediyesi

Yetişkinlere Yönelik Bireysel Psikoterapi Hizmeti: 444 44 55).

Onayladığınız takdirde lütfen aşağıdaki kırmızı kutuları işaretleyin.

☐ Bana anlatılanları ve yukarıda yazılanları anladım. Çalışmaya katılmayı kabul ediyorum.

APPENDIX B

INFORMED CONSENT FORM (ENGLISH)

PARTICIPATION INFORMATION AND CONSENT FORM

Institution Supporting the Research: Boğaziçi Üniversitesi

Name of the Research: Alcohol use involvement groups among Turkish emerging adults: the role of self-regulation in group membership

Project Coordinator: Prof. Dr. Serra Müderrisoğlu

E-mail Address of the Project Coordinator: ...

Phone Number of the Project Coordinator: ...

Name of the researcher: Romina Markaroğlu

E-mail Address of the Researcher: ...

Phone Number of the Researcher: ...

Although many young people use alcohol, there is significant heterogeneity in their patterns of use. Prior empirical research supports a comprehensive understanding of the youth's personality characteristics that influence their drinking behavior. The aim of the present study, which is supported by the Department of Psychology at Boğaziçi University, is to examine the differences in emerging adults' alcohol involvement and to understand the effects of several personality traits on these differences. We hope that understanding those will contribute to the identification of the specific treatment needs of youth and thus to the development of effective treatment studies in our country.

About 500 participants are needed for this project. We invite you to contribute to this research with your own experience. Reading and approving this form will mean that you agree to participate in the research. We would like to inform you about the research before your decision.

Participation in this research is voluntary.

This sentence will be included in the consent form for Boğaziçi students participating through the BOUN Research Participation System: You will only be rewarded with .5 credit from PSY 101 or PSY 241 course for your participation in this study, and no other fee or feedback will be given.

If you accept to participate in the research, you will be asked to answer a total of 5 questionnaires. It will take about half an hour to fill out these surveys. In order for the study to reach its purpose, you are expected to answer all the questions completely, without being under anyone's pressure or suggestion. If you choose to participate in the study, you have the right to withdraw from participating at any part of the study. In this case, the records of all the questionnaires you have completed will be deleted from the system by the researcher.

The study is carried out for scientific purposes and considers the confidentiality of the personal information of the participants as essential. The data collected will only be

available to the researchers. Your registrations will be mapped to a participant number from the very beginning of the study and will be referred to by this number throughout the research, no personal information will be used. The results of the study will be used for the thesis study and the findings will be presented at the psychology congress and prepared for academic publication.

This research is not expected to pose any risk to you. If you feel emotionally challenged during or after your participation, you can request psychological support, the researcher will direct you to the necessary institutions for free psychological support. The contact information of these institutions is also shared at the end of this form.

If you have any questions or would like to have additional information about the research, you may contact the project coordinator (Office Phone: ...). You can also consult with the Boğaziçi University Social Sciences and Humanities Master's and Doctoral Thesis Ethics Review Commission (SOBETİK) through sbe-ethics@boun.edu.tr email address about your rights related to the research.

Free Psychological Support Services

Green Crescent Consultancy Center (YEDAM): ALO 155

Public Hospitals: ALO 182 appointment line

Istanbul Metropolitan Municipality Psychotherapy Centers: ALO 153

District Municipalities: You can get information by calling your municipality (e.g., Pendik Municipality Psychological Consultation Services: 444 81 80; Beşiktaş Municipality Individual Psychotherapy Services: 444 44 55).

If you agree, please check the red boxes below.

☐ I have read the text above, and I fully understood the extent and purpose of the study. In these circumstances, I agree to participate in this research.

APPENDIX C

SOCIODEMOGRAPHIC INFORMATION FORM

1. Yaşınız (Age): ()

2. Cinsiyetiniz (Gender): (0) Kadın (Female) (1) Erkek (Male) (2) Diğer (Other)

3. Aşağıda sizin için uygun olan güncel eğitim durumunu seçiniz.

(Please select your current student status):

- (0) Öğrenci değilim (Not student)
- (1) Lise öğrencisiyim (High school student)
- (2) Üniversite öğrencisiyim (College student)
- (3) Yüksek lisans öğrencisiyim (Masters student)
- (4) Doktora öğrencisiyim (Doctorate student)

Not: Katılımcı eğer öğrenci değilse, tamamladığı en yüksek eğitim düzeyini öğrenebilmek adına bir sonraki soruya yönlendirilmiştir. Öğrenci olanlar için bu soru atlanmıştır.

(Note: If the participant is not a student, she/he is directed to the next question in order to learn the highest level of education she/he has completed. For those who are students, this question is skipped.)

4. Tamamladığınız en yüksek eğitim düzeyi nedir?

(What is the education level you last completed?)

- (0) Okul bitirmedim, okur yazarım (Did not complete any formal education, literate)
- (1) İlkokul mezunuyum (1. 2. 3. ve 4. sınıf) (Primary school graduate)
- (2) Ortaokul mezunuyum (5. 6. 7. ve 8. sınıf) (Secondary school graduate)
- (3) Lise mezunuyum (High school graduate)
- (4) Üniversite mezunuyum (College graduate)
- (5) Yüksek lisans mezunuyum (Master's degree graduate)

Not: 3 ve 4. Soruların cevapları doğrultusunda eğitim düzeyi (educational attainment) değişkeni oluşturulmuştur.

(Note: Answers to item 3 and 4 are combined to create the “educational attainment” variable).

- (0) Ortaokul mezunu (Secondary school graduate)
- (1) lise mezunu (High school graduate)
- (2) üniversite mezunu (College graduate)
- (3) yüksek lisans mezunu (Master's degree graduate)

5. Çalışma durumunuz (Employment status):

- (0) Düzenli bir işim var (memur, esnaf, ticaret vb.) (*Working at a regular job*)
- (1) Düzensiz bir işim var (geçici işler, aile işinde düzensiz çalışma, işporta vb.) (*Working at an irregular job*)
- (2) Öğrenciyim (*Student*)
- (3) Çalışmıyorum (*Unemployed*)
- (4) Diğer (*Other*)

Not: 6. soru yalnızca çalışmadığını belirten katılımcılara sorulmuştur.
(*Note: 6th question is asked only to unemployed participants.*)

6. Çalışmama nedeniniz nedir?

- (What is your reason for unemployment?)
- (0) Çalışmak istemiyorum (*Don't want to work*)
- (1) İş bulamamak (işsizlik) (*Unemployed*)
- (2) Diğer (lütfen belirtiniz) (*Other, please specify*)

7. Annenizin eğitim durumu (Maternal educational attainment):

- (0) Okuryazar değil (*Illiterate*)
- (1) İlkokul mezunu (*Primary school graduate*)
- (2) Ortaokul mezunu (*Secondary school graduate*)
- (3) Lise mezunu (*High school graduate*)
- (4) Üniversite mezunu (*College graduate*)
- (5) Yüksek lisans/doktora mezunu (*Masters graduate*)

8. Annenizin çalışma durumu nedir?

- (What is your mother's employment status?)
- (0) Düzenli bir işi var (işçi, memur, esnaf, iş insanı, serbest meslek vb.) (*Has a regular job*)
- (1) Düzensiz bir işi var (geçici işler, aile işinde düzensiz çalışma, işporta vb.) (*Has an irregular job*)
- (2) Çalışmıyor (*Not working*)

9. Babanızın eğitim durumu (Paternal educational attainment):

- (0) Okuryazar değil (*Illiterate*)
- (1) İlkokul mezunu (*Primary school graduate*)
- (2) Ortaokul mezunu (*Secondary school graduate*)
- (3) Lise mezunu (*High school graduate*)
- (4) Üniversite mezunu (*College graduate*)
- (5) Yüksek lisans/doktora mezunu (*Masters graduate*)

10. Babanızın çalışma durumu nedir?

- (What is your father's employment status?)
- (0) Düzenli bir işi var (işçi, memur, esnaf, iş insanı, serbest meslek vb.) (*Has a regular job*)
- (1) Düzensiz bir işi var (geçici işler, aile işinde düzensiz çalışma, işporta vb.) (*Has an irregular job*)
- (2) Çalışmıyor (*Not working*)

11. Ailenizin ekonomik durumunu aşağıdaki cümlelerden hangisi en iyi tanımlar?

(Please select the statement that best describes your household income.)

- (0) En temel gereksinimlerimizi (kira, ısınma gibi) bile karşılayacak yeterli gelirimiz yok *(We don't have enough income to meet even our most basic requirements)*
- (1) Maaştan maaşa ancak geçinebiliyoruz *(We can live from paycheck to paycheck)*
- (2) Eğer pahalı ve zorunlu olmayan şeyler almaksak geçinebiliyoruz *(We who can make both ends meet if they don't buy expensive and non-essential things)*
- (3) Rahatça yaşamak için gelirimiz var *(We have the income to live comfortably)*

12. Gün içinde ne kadar boş zamanınız var?

(Please specify the amount of your daily leisure time.)

- (0) Hiç yok *(None)*
- (1) Nadiren *(Rarely)*
- (2) Bazen *(Sometimes)*
- (3) Günün çoğu *(Most of the day)*
- (4) Neredeyse tüm gün *(Almost all day)*

13. Son 12 ayda kaç kez ev değiştirdiniz? (How many times did you move in the past 12 months?)

14. Son 6 aydır kiminle yaşıyorsunuz?

(With whom you have been living in the past six months?)

- (0) Ailemle (eş ve/veya ebeveyn) *(Family)*
- (1) Yakın akrabalarımle *(Close relatives)*
- (2) Arkadaşlarımla veya partnerimle *(Friends or partner)*
- (3) Tek başına *(Alone)*
- (4) Yurt *(Dormitory)*

15. Bir uzman (psikiyatrist, klinik psikolog vb.) tarafından konulmuş psikiyatrik bir tanınız var mı?

(Do you have a psychiatric illness diagnosed by psychiatrist?)

- (0) Evet ise, belirtiniz *(If yes, please specify)* (1) Hayır *(No)*

16. Bir tıp doktoru tarafından tanısı konulmuş kronik fiziksel bir hastalığınız var mı?

(Do you have a chronic illness diagnosed by a doctor of medicine?)

- (0) Evet ise, belirtiniz *(If yes, please specify)* (1) Hayır *(No)*

17. Kaç yaşından beri düzenli olarak alkol kullanıyorsunuz?

(Please specify the onset of your regular alcohol use?)

Not: Demografik bilgi formunun 17. sorusu ile ve AKBTT ölçeğinin ilk sorusuna verilen yanıtlar doğrultusunda düzenli kullanım değişkeni oluşturuldu.

(Notes: The regular use variable was created by combining the answers to the 17th question of the demographic information form and the first question of the AUDIT scale.)

- (0) Düzenli kullanım var *(Don't have regular use)*
- (1) Düzenli kullanım yok *(Have regular use)*

APPENDIX D

ALCOHOL USE DISORDERS IDENTIFICATION TEST (AUDIT)

Açıklama: Lütfen aşağıdaki soruları son bir yılı düşünerek yanıtlayın.

(For the English version of the scale, see Table 3.)

	0	1	2	3	4
1. Ne sıklıkla alkolü içecek kullanıyorsunuz?	Hiç	Ayda 1 veya daha az	Ayda 2-4 kez	Haftada 2-3 kez	Haftada 4 veya daha fazla
2. Alkol aldığınız bir günde kaç standart içki içersiniz? (1 standart içki=1 küçük bira=1 kadeh şarap=1 tek rakı=1 tek votka)	1	2	3-4	5-6	7 ve daha fazla
3. Ne sıklıkla bir oturuşta 6 standart içki veya daha fazla içiyorsunuz?	Hiç	Ayda birden az	Her ay	Her hafta	Her gün veya hemen her gün
4. Son 12 ayda ne sıklıkla, bir kez içmeye başladıktan sonra içki içmeyi kesemediğiniz olmuştur?	Hiç	Ayda birden az	Her ay	Her hafta	Her gün veya hemen her gün
5. Son 12 ayda, ne sıklıkla normal olarak sizden beklenenleri içki içmeniz nedeniyle yerine getiremediniz?	Hiç	Ayda birden az	Her ay	Her hafta	Her gün veya hemen her gün
6. Son 12 ayda, ne sıklıkla, çok fazla içki içmenin ardından sabah kendinize gelmek için içki içmeye ihtiyacınız oldu mu?	Hiç	Ayda birden az	Her ay	Her hafta	Her gün veya hemen her gün
7. Son 12 ayda ne sıklıkla içki içtikten sonra suçluluk veya pişmanlık duydunuz?	Hiç	Ayda birden az	Her ay	Her hafta	Her gün veya hemen her gün
8. Son 12 ayda ne sıklıkla, içki içmeniz nedeniyle, gece neler olduğunu ertesi gün hatırlayamadığınız olmuştur?	Hiç	Ayda birden az	Her ay	Her hafta	Her gün veya hemen her gün
9. Siz veya bir başkası içki içmeniz nedeniyle yaralandı mı?	Hayır		Evet fakat geçen yıl içinde değil		Evet geçen yıl içinde

10. Bir yakınınız, arkadaşınız, doktor veya sağlık personeli alkol almayı kesmenizi veya azaltmanızı önerdi mi?	Hayır		Evet fakat geçen yıl içinde değil		Evet geçen yıl içinde
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APPENDIX E

ADDITIONAL BACKGROUND QUESTIONS FOR ALCOHOL USE

Not: 17.-23. sorular sadece düzenli alkol kullanımı belirten katılımcılara sorulmuştur.

(Note: Questions 17-23 were only asked to participants who indicated regular alcohol use.)

18. Son altı aydır çoğunlukla hangi tür alkollü içeceği tercih ediyorsunuz?

(What type of alcoholic beverage have you mostly preferred for the last six months?)

- (0) Bira (Beer)
- (1) Rakı (Raki)
- (2) Şarap (Wine)
- (3) Votka, viski, cin vb. (Vodka, whiskey, gin)

19. Genellikle alkölü nerede kullanmayı tercih ediyorsunuz?

(What is your most preferred location for drinking?)

- (0) Evde (Home)
- (1) Bar, pub (Bar, pub)
- (2) Meyhane (Tavern)
- (3) Sokak park gibi açık alanlarda (Outdoors like streets, parks etc.)
- (4) Diğer (Other)

20. Genellikle alkölü kimlerle kullanıyorsunuz?

(Who do you usually use alcohol with?)

- (0) Yalnız (By myself)
- (1) Arkadaşlarımla (Friends)
- (2) Ailemle (Family)
- (3) Akrabalarımla (Relatives)
- (4) Diğer (Other)

21. Anneniz alkol kullanıyor mu?

(Does your mother drink alcohol?)

- (0) Evet (yes)
- (1) Hayır (no)

22. Babanız alkol kullanıyor mu?

(Does your father drink alcohol?)

- (0) Evet (yes)
- (1) Hayır (no)

23. Arkadaşlarınızın ne kadarı alkol kullanıyor?

(How much of your friends drink alcohol?)

- (0) Hiçbiri (None of them)
- (1) Çok azı (Very few of them)
- (2) Yarısı (Half of them)
- (3) Çoğu (Most of them)
- (4) Neredeyse hepsi (Almost all of them)

APPENDIX F

UPPS IMPULSIVE BEHAVIOR SCALE

Açıklama: Aşağıda kişilerin kendilerini tanımlarken kullandıkları birtakım ifadeler verilmiştir. Lütfen her bir maddeyi okuyarak o maddede yer alan ifadenin sizi ne kadar iyi tanımladığına, size ne derece uygun olduğuna karar veriniz.

(*Instructions:* Below are a number of statements that describe ways in which people act and think. For each statement, please indicate how much you agree or disagree with the statement.)

	Bana hiç uymuyor (Disagree strongly)	Bana uymuyor (Disagree some)	Bana uyuyor (Agree some)	Bana çok uyuyor (Strongly agree)
1. İhtiyatlı ve tedbirli biriyimdir.* (<i>I have a reserved and cautious attitude toward life.</i>)	1	2	3	4
2. Düşüncelerim ölçülü ve bir amaca yöneliktir.* (<i>My thinking is usually careful and purposeful.</i>)	1	2	3	4
3. Düşünmeden konuşan biri değilim.* (<i>I am not one of those people who blurt out things without thinking.</i>)	1	2	3	4
4. Harekete geçmeden önce biraz durup yapacağım şey üzerine düşünürüm.* (<i>I like to stop and think things over before I do them.</i>)	1	2	3	4
5. Nasıl yürüteceğimi tam olarak bilmediğim bir projeye başlamak istemem.* (<i>I don't like to start a project until I know exactly how to proceed.</i>)	1	2	3	4
6. Karşılaştığım sorunları mantıklı bir biçimde değerlendirerek "makul" bir yaklaşımda bulunma eğilimindeyim.* (<i>I tend to value and follow a rational, "sensible" approach to things.</i>)	1	2	3	4
7. Kararlarımı genellikle dikkatlice enine boyuna düşünerek veririm.* (<i>I usually make up my mind through careful reasoning.</i>)	1	2	3	4
8. İhtiyatlı biriyimdir.* (<i>I am a cautious person.</i>)	1	2	3	4
9. Yeni bir durumun içine girmeden önce, o durumun bana neler kazandırabileceğini bilmek isterim.* (<i>Before I get into a new situation I like to find out what to expect from it.</i>)	1	2	3	4
10. Herhangi bir şey yapmadan önce genellikle iyice düşünürüm.* (<i>I usually think carefully before doing anything.</i>)	1	2	3	4

11. Bir konuyla ilgili karar vermeden önce tüm avantaj ve dezavantajları hesaba katarım.* (Before making up my mind, I consider all the advantages and disadvantages.)	1	2	3	4
12. Dürtülerimi kontrol etmede sorun yaşıyorum. (I have trouble controlling my impulses.)	1	2	3	4
13. Şiddetli isteklerime direnç göstermede sorun yaşıyorum. (örneğin, yemek, sigara içmek vb.) (I have trouble resisting my cravings (for food, cigarettes, etc.).)	1	2	3	4
14. Kendimi çoğu kez, sonradan pişman olup da kurtulmak istediğim işlerin içine sokarım. (I often get involved in things I later wish I could get out of.)	1	2	3	4
15. Kendimi kötü hissettiğimde, çoğu kez o anda iyi hissettiren fakat sonradan yaptığıma pişman olduğum şeyler yaparım. (When I feel bad, I will often do things I later regret in order to make myself feel better now.)	1	2	3	4
16. Kendimi kötü hissettiğim bazı zamanlarda, kendimi kötü hissettirse bile yapmakta olduğum şeyi durduramam. (Sometimes when I feel bad, I can't seem to stop what I am doing even though it is making me feel worse.)	1	2	3	4
17. Üzgün olduğum zamanlarda çoğu kez düşünmeden hareket ederim. (When I am upset I often act without thinking.)	1	2	3	4
18. Reddedildiğimi hissettiğim zamanlarda, çoğu kez sonradan pişman olduğum şeyler söylerim. (When I feel rejected, I will often say things that I later regret.)	1	2	3	4
19. Duygularıma göre hareket etmemin önüne geçemiyorum. (It is hard for me to resist acting on my feelings.)	1	2	3	4
20. Sorunlarla karşılaştığımda onları çoğu kez içinden çıkılmaz bir hale getiririm çünkü üzgün olduğum zamanlarda düşünmeden hareket ederim. (I often make matters worse because I act without thinking when I am upset.)	1	2	3	4
21. Bir tartışmanın en ateşli anında, çoğu kez sonradan pişman olduğum sözler söylerim. (In the heat of an argument, I will often say things that I later regret.)	1	2	3	4
22. Duygularımı her zaman kontrol altında tutmayı başarabilirim.* (I always keep my feelings under control.)	1	2	3	4
23. Bazen aklıma eseni yapar ve sonra pişman olurum. (Sometimes I do impulsive things that I later regret.)	1	2	3	4
24. Genellikle yeni ve heyecan verici deneyimler ve duygular ararım. (I generally seek new and exciting experiences and sensations.)	1	2	3	4

25. Bu hayatta her şeyi bir kere deneyeceğim. (<i>I'll try anything once.</i>)	1	2	3	4
26. Bir sonraki hamlenin çabuk yapıldığı spor ve oyunlardan hoşlanırım. (<i>I like sports and games in which you have to choose your next move very quickly.</i>)	1	2	3	4
27. Su kayağı yapmaktan keyif alabilirim. (<i>I would enjoy water skiing.</i>)	1	2	3	4
28. Risk almaktan hoşlanırım. (<i>I quite enjoy taking risks.</i>)	1	2	3	4
29. Paraşütle atlamak hoşuma gidebilir. (<i>I would enjoy parachute jumping.</i>)	1	2	3	4
30. Biraz korkutucu ya da gelenek dışı dahi olsalar, yeni deneyimler ve duygular yaşamaya açıgımdır. (<i>I welcome new and exciting experiences and sensations, even if they are a little frightening and unconventional.</i>)	1	2	3	4
31. Uçak kullanmayı öğrenmek hoşuma gidebilir. (<i>I would like to learn to fly an airplane.</i>)	1	2	3	4
32. Ara sıra biraz korkutucu işler yapmaktan keyif alırım. (<i>I sometimes like doing things that are a bit frightening.</i>)	1	2	3	4
33. Yüksek bir dağın tepesinden aşağıya hızla kayarken hissedilen duygular bana keyif verebilir. (<i>I would enjoy the sensation of skiing very fast down a high mountain slope.</i>)	1	2	3	4
34. Hava tüpü olmadan dalış yapmak hoşuma gidebilir. (<i>I would like to go scuba diving.</i>)	1	2	3	4
35. Arabayı hızlı sürmek hoşuma gidebilir. (<i>I would enjoy fast driving.</i>)	1	2	3	4
36. Genellikle olayları sonuna kadar takip etmeyi severim.* (<i>I generally like to see things through to the end.</i>)	1	2	3	4
37. Kolayca pes etme eğiliminde olan biriyim. (<i>I tend to give up easily.</i>)	1	2	3	4
38. Bitmemiş, yarım kalan işler canımı sıkar.* (<i>Unfinished tasks really bother me.</i>)	1	2	3	4
39. Bir şey yapmaya başladığımda, durmaktan nefret ederim.* (<i>Once I get going on something I hate to stop.</i>)	1	2	3	4
40. Kolaylıkla konsantre olabilirim.* (<i>I concentrate easily.</i>)	1	2	3	4
41. Başladığım işi bitiririm.* (<i>I finish what I start.</i>)	1	2	3	4
42. İşleri zamanında bitirebilmek için belirli bir düzen içinde çalışma konusunda oldukça iyiyimdir.* (<i>I am able to pace myself so as to get things done on time.</i>)	1	2	3	4
43. Ben her zaman yapacak bir işi olan üretken biriyim.* (<i>I am a person who always gets the job done.</i>)	1	2	3	4

44. Başladığım hemen hemen her işin sonunu getiririm.* (<i>I almost always finish projects that I start.</i>)	1	2	3	4
45. Yapılması gereken küçük işleri bazen hiç umursamam. (<i>Sometimes there are so many little things to be done that I just ignore them all.</i>)	1	2	3	4

*: Indicates the item needs to be reverse scored such 1=4, 2=3, 3=2, and 4=1.

(lack of) Premeditation (all items are reversed): Items 1 to 11

Urgency (no items are reversed except 22): Items 12 to 22

Sensation Seeking (no items are reversed): Items 23-34

(lack of) Perseverance (eight items are reversed): Items 35-45

APPENDIX G

THE BIG FIVE INVENTORY- 2: NEGATIVE EMOTIONALITY

Açıklama: Aşağıda sizi kısmen tanımlayan (ya da pek tanımlayamayan) bir takım özellikler sunulmaktadır. Örneğin, başkaları ile zaman geçirmekten hoşlanan birisi olduğunuzu düşünüyor musunuz? Lütfen aşağıda verilen özelliklerin sizi ne oranda yansıttığını ya da yansıtmadığını belirtmek için sizi en iyi tanımlayan ifadeyi işaretleyiniz.

(Instruction: Here are a number of characteristics that may or may not apply to you. For example, do you agree that you are someone who likes to spend time with others? Please write a number next to each statement to indicate the extent to which you agree or disagree with that statement.)

Kendimi biri olarak görüyorum.	Hiç katılmıyorum (Disagree strongly)	Biraz katılmıyorum (Disagree a little)	Ne katılmıyorum ne de katılmıyorum (Neutral; no opinion)	Biraz katılmıyorum (Agree a little)	Tamamen katılmıyorum (Agree strongly)
1. Rahat, stresle baş edebilen* (Is relaxed, handles stress well.)	1	2	3	4	5
2. Bir aksilik yaşadığında iyimserliğini koruyan* (Stays optimistic after experiencing a setback.)	1	2	3	4	5
3. Dakikası dakikasına uymayan, ruh hali inişli çıkışlı (Is moody, has up and down mood swings.)	1	2	3	4	5
4. Gergin olabilen (Can be tense.)	1	2	3	4	5
5. Güvenli, kendiyle barışık* (Feels secure, comfortable with self.)	1	2	3	4	5
6. Duygusal olarak dengeli, keyfi kolay kaçmayan* (Is emotionally stable, not easily upset.)	1	2	3	4	5
7. Çok endişelenen (Worries a lot.)	1	2	3	4	5
8. Sıkça üzgün hisseden (Often feels sad.)	1	2	3	4	5
9. Duygularını kontrol altında tutan* (Keeps their emotions under control.)	1	2	3	4	5
10. Nadiren kaygılanan ya da korkan* (Rarely feels anxious or afraid.)	1	2	3	4	5
11. Depresif, hüzünlü hissetmeye eğilimli (Tends to feel depressed, blue.)	1	2	3	4	5
12. Değişken mizaçlı, çabuk sinirlenen (Is temperamental, gets emotional easily.)	1	2	3	4	5

*: Reverse coded

APPENDIX H

DISTRESS TOLERANCE SCALE

Açıklama: Kendinizi sıkıntılı veya üzgün hissettiğiniz zamanları düşünün. Aşağıda sıralanmış olan özellikleri 1 (tamamen katılıyorum) ile 5 (hiç katılmıyorum) arasında puanlayınız.

(Instructions: Think of times that you feel distressed or upset. Please rate the features listed below on a scale of 1 (I completely agree) to 5 (disagree at all).)

	Tamamen katılıyorum (Strongly agree)	Oldukça katılıyorum (Mildly agree)	Ne katılıyorum ne katılmıyorum (Agree and disagree equally)	Pek katılmıyorum (Mildly disagree)	Hiç katılmıyorum (Strongly disagree)
1. Sıkıntılı ya da üzgün hissetmek bana dayanılmaz gelir. (Feeling distressed or upset is unbearable to me.)	1	2	3	4	5
2. Sıkıntılı ya da üzgün hissettiğimde tek düşünebildiğim ne kadar kötü hissettiğimdir. (When I feel distressed or upset, all I can think about is how bad I feel.)	1	2	3	4	5
3. Sıkıntılı ya da üzgün hissetmenin üstesinden gelemem. (I can't handle feeling distressed or upset.)	1	2	3	4	5
4. Sıkıntılı duygularım beni tamamen ele geçirecek kadar yoğundur. (My feelings of distress are so intense that they completely take over.)	1	2	3	4	5
5. Sıkıntılı ya da üzgün hissetmekten daha kötü bir şey yoktur. (There's nothing worse than feeling distressed or upset.)	1	2	3	4	5
6. Sıkıntılı ya da üzgün olmaya diğer birçok kişi kadar katlanabilirim.* (I can tolerate being distressed or upset as well as most people.)	1	2	3	4	5
7. Sıkıntı ya da üzüntü duygularım kabul edilemezdir. (My feelings of distress or being upset are not acceptable.)	1	2	3	4	5

8. Sıkıntılı ya da üzüntülü hissetmemek için her şeyi yaparım. (<i>I'll do anything to avoid feeling distressed or upset.</i>)	1	2	3	4	5
9. Diğer insanlar sıkıntılı veya üzüntülü hissetmeye benden daha çok dayanıyor gibiler. (<i>Other people seem to be able to tolerate feeling distressed or upset better than I can.</i>)	1	2	3	4	5
10. Sıkıntılı ya da üzgün hissetmek her zaman benim için ateşten gömlektir. (<i>Being distressed or upset is always a major ordeal for me.</i>)	1	2	3	4	5
11. Sıkıntılı ya da üzgün hissettiğimde utanırım. (<i>I am ashamed of myself when I feel distressed or upset.</i>)	1	2	3	4	5
12. Sıkıntılı hissetmek ya da üzüntülü olmak beni korkutur. (<i>My feelings of distress or being upset scare me.</i>)	1	2	3	4	5
13. Sıkıntılı veya üzgün hissetmeyi durdurmak için her şeyi yaparım. (<i>I'll do anything to stop feeling distressed or upset.</i>)	1	2	3	4	5
14. Sıkıntılı ya da üzgün hissettiğimde hemen bir şeyler yapmalıyım. (<i>When I feel distressed or upset, I must do something about it immediately.</i>)	1	2	3	4	5
15. Sıkıntılı ya da üzgün hissettiğimde, sıkıntının aslında ne kadar kötü hissettirdiğine odaklanmaktan kendimi alamam. (<i>When I feel distressed or upset, I cannot help but concentrate on how bad the distress actually feels.</i>)	1	2	3	4	5

*: Reverse coded

APPENDIX I

ETHICAL APPROVAL

Evrak Tarih ve Sayısı: 02.07.2021-20089

T.C.
BOĞAZİÇİ ÜNİVERSİTESİ
SOSYAL VE BEŞERİ BİLİMLER YÜKSEK LİSANS VE DOKTORA TEZLERİ ETİK İNCELEME
KOMİSYONU
TOPLANTI TUTANAĞI

Toplantı Sayısı : 19
Toplantı Tarihi : 01.07.2021
Toplantı Saati : 17:30
Toplantı Yeri : Zoom Sanal Toplantı
Bulunanlar : Dr. Öğr. Üyesi Yasemin Sohtorik İlkmen, Prof. Dr. Ebru Kaya, Prof. Dr. Fatma Nevra Seggie
Bulunmayanlar :

Romina Markaroğlu
Psikoloji

Sayın Araştırmacı,

"Gençler arasındaki farklı alkol kullanım alt gruplarının örtük sınıf analizi ile açığa çıkarılması ve bu gruplara dahil olmayı etkileyen bireysel ve ailesel faktörlerin değerlendirilmesi" başlıklı projeniz ile ilgili olarak yaptığımız SBB-EAK 2021/47 sayılı başvuru komisyonumuz tarafından 1 Temmuz 2021 tarihli toplantıda incelenmiş ve uygun bulunmuştur.

Bu karar tüm üyelerin toplantıya çevrimiçi olarak katılımı ve oybirliği ile alınmıştır. COVID-19 önlemleri kapsamında kurul üyelerinden ıslak imza alınmadığı için bu onay mektubu üye ve raportör olarak Ebru Kaya tarafından bütün üyeler adına e-imzalanmıştır.

Saygılarımızla, bilgilerinizi rica ederiz.

Prof. Dr. Ebru KAYA
ÜYE

e-imzalıdır
Prof. Dr. Ebru KAYA
Raportör

SOBETİK 19.01.07.2021

Bu belge 5070 sayılı Elektronik İmza Kanununun 5. Maddesi gereğince güvenli elektronik imza ile imzalanmıştır.

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