Exploring the relationship between Meaning in Life and Alcohol Use

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Abstract

Alcohol use is a major public health problem with potential consequences ranging from physical and mental health problems to social and interpersonal problems. Two important factors associated with alcohol use are meaning in life and drinking patterns, such as drinking to cope with negative emotions or habitual drinking. Findings suggest that people tend to drink less when they experience greater meaning in life and when they do not use alcohol as a coping mechanism to deal with negative emotions or as an automatic response. Despite these associations, there is still a lack of comprehensive research on the interrelationships between these constructs. To address this gap, the present study was designed to achieve two primary objectives. First, we sought to examine the relationship between life meaning and alcohol consumption using a multidimensional meaning scale, replicating the study conducted by Copeland and colleagues (2022). Second, by examining the mediating effects of life meaning on the relationship between alcohol consumption and specific drinking patterns, such as coping drinking or habitual drinking, we aimed to delve deeper into mechanisms. In a cross-sectional study, participants (N=504) completed online the Multidimensional Existential Meaning Scale (MEMS), the Alcohol Use Disorders Identification Test (AUDIT) and the Drinking Behaviors Profile (DBP). Results showed no significant association between the three subscales of MEMS and AUDIT. Furthermore, MEMS did not mediate the relationship between DBP and AUDIT, suggesting that meaning may not explain the relationship between drinking patterns and alcohol use in the present study. However, significant associations were found between DBP and AUDIT and between MEMS and DBP. This highlights the importance of understanding the underlying mechanisms. In developing effective treatments for alcohol dependence, the interplay between meaning, drinking to cope or habitual drinking and alcohol consumption may be important. Limitations such as sample characteristics, study designs and measurement tools should be considered.

***Key words*:** life meaning, alcohol, drinking to cope, habitual drinking, mediation analysis

Contents

Literature Review

Both individual well-being and public health are significantly affected by alcohol consumption. Excess alcohol consumption is associated with numerous negative outcomes, including physical health and mental health impairments, impaired social function, and increased risk of accident and injury (Rehm et al., 2018). Despite the development of interventions to reduce drinking, many people continue to struggle with addiction, highlighting the need for innovative treatments (Miller & Wilbourne, 2002).

Meaning in life has been recognized as an important aspect of psychological well-being, defined as a sense of purpose, coherence, and significance (Steger et al., 2006). Previous research has examined the relationship between meaningfulness and drinking with mixed results. Individuals who report greater meaning in life tend to use less alcohol, some studies have found. For example, research has shown that higher levels of meaning are associated with lower alcohol consumption, fewer alcohol-related problems, and a lower likelihood of developing alcohol use disorders (Copeland et al., 2020, Kuntche et al., 2005). However, other studies have found no significant relationship between purpose and alcohol use (Csabonyi & Philips, 2017).

Inconsistent findings may be due to differences in conceptualization that have hindered the integration of life meaning with the broader literature. In this study, a multidimensional meaning scale was used for this reason. Furthermore, these inconsistencies might be an indication that the relationship between meaning in life and alcohol use is complex and may be influenced by various factors (Copeland et al., 2020, Copeland et al., 2022). For instance, Copeland and colleagues (2022) found that the relationship between drinking and life meaning was mediated by drinking to cope. Drinking to cope was suggested as a potential mechanism underlying this relationship, implying that alcohol may be a coping strategy for individuals with lower levels of life meaning.

Drinking motives such as coping or habitual drinking have also been associated with alcohol use (Cooper et al., 1995; Copeland et al., 2022;). Coping drinking involves using alcohol to manage stress or negative emotions. It has been consistently associated with higher levels of alcohol use and alcohol-related problems (Cooper et al., 1995; Hussong et al., 2011). Individuals who drink for coping purposes may see alcohol as a way of relieving emotional distress or regulating their mood. In addition, habitual drinking,

characterized by a pattern of regular and repeated alcohol use, is associated with higher levels of alcohol consumption and a greater risk of alcohol problems (Kuntsche et al., 2005; McCarthy et al., 2001). Understanding these mechanisms might be critical to shed light on the interplay between alcohol use and meaning in life.

The purpose of this study was to elucidate the relationship between drinking and meaning using a multidimensional meaning scale and to explore the complex interactions among alcohol use, life meaning, and drinking patterns.

Meaning in Life

The meaning of life as a fundamental notion for human flourishing, has been extensively studied in different fields, particularly psychology, and philosophy. A growing body of literature has thoroughly examined a variety of variables supposedly leading to well-being and firmly associated the importance of meaning in life with positive outcomes, such as health and happiness (Hooker et al., 2018). Despite any ambiguity in terms of its definition, the consensus view of scholars worldwide considers the meaning of life as the degree to which individuals feel that their lives have meaning, purpose, and context to experience motivational drive (Steger et al., 2006)

Making sense of life, pursuing goals, and other parameters that add more value in life have been found and analyzed in the literature, thus promoting the development of the building blocks for humanity to sustain a worthwhile life and experience overall satisfaction. A bulk of research seems to support the crucial role life meaning plays in shaping individuals' perceptions of themselves, their relationships with others, their sense of rich and fulfilled lives, the requisites for happiness (Baumeister, 1991). Its pursuit has become a universal undertaking as it has correlated with several positive psychological outcomes, including subjective well-being, life satisfaction, and lack of negative affectivity (Baumeister et al., 2013). Individuals with higher levels of life meaning report better mental health and well-being and are less likely to suffer from depression, anxiety, and stress. In contrast, low levels of life meaning have been related to a number of adverse outcomes, including depression, anxiety, and substance use disorders (Lambert et al., 2013).

The concept of life meaning has been explored from various theoretical perspectives, including highly influential movements such as existentialism, positive psychology, and social psychology. The existentialist view on meaning of life states that individuals should create their own meaning in life, as there is no inherent or objective meaning (Frankl, 1985). The positive psychology perspective on life meaning focuses on cultivating positive emotions, positive relationships, and positive experiences to enhance the individual's sense of meaning and purpose in life (Steger et al., 2006). The social psychology position assumes that individuals derive meaning from their social roles, relationships, and cultural and social context (Steger et al., 2008).

It has also been proved that life meaning is closely related to the concept of spirituality and religiosity. Many individuals derive meaning and purpose in life from their religious and spiritual beliefs (Krause, 2003). Religious and spiritual beliefs provide a framework for understanding the world and offer individuals a sense of comfort, guidance, and support in difficult times (Krause, 2003). However, as the relationship between meaning in life and religiosity/spirituality is complex, not all individuals who report high levels of life meaning are religious or spiritual (Steger et al., 2006).

Critical though life meaning is, it is not a static construct. Various factors influencing individuals' sense of meaning and purpose throughout life can change. Life experiences, personal values, and cultural and societal contexts can be considered as such (Baumeister & Landau, 2018). In addition, trauma, loss, and significant life transitions can challenge individuals' sense of meaning and purpose, leading to existential crises (Park, 2010). Therefore, understanding its dynamic nature and its determinants is crucial for promoting well-being and preventing adverse outcomes such as substance use disorders.

Meaning in life has also been found to play a protective role against the harmful effects of stress (Ostafin & Proulx, 2020; Park, 2010). In particular, individuals with higher levels of meaning reported lower levels of perceived stress. They were less inclined to experience symptoms of depression and anxiety in response to stressors (Park, 2010). Moreover, life meaning has been associated with greater resilience in the face of adversity. A study conducted with individuals who had experienced a traumatic event found that higher levels of meaning in life were associated with tremendous post traumatic growth and lower levels of post traumatic stress symptoms (Tedeschi et al., 2018). In a study conducted with older adults, higher levels of meaning in life were associated with better physical health and greater emotional well-being (Ryff, 2013).

Similarly, another study conducted with older adults found that higher levels of meaning were associated with better self-rated health and greater satisfaction with life (Wong et al., 2017). These findings strongly suggest that higher levels of life meaning are associated with greater well-being across various outcomes, including physical and emotional health, life satisfaction, and resilience when confronted with stress and adversity. As such, interventions that promote life meaning may be beneficial for improving overall well-being and preventing adverse outcomes correlated with low levels of meaning.

Questionnaires measuring life meaning

There are several ways to measure meaning in life include self-report questionnaires, interviews, and projective tests:

The Meaning in Life Questionnaire (MLQ), developed by Steger et al. (2006), is the most widely used and validated measure of MIL. It is a 10-item self-report questionnaire assessing two dimensions of MIL: the presence of meaning and the search for meaning. The meaning dimension assesses the extent to which individuals have a sense of purpose and meaning in their lives. The Search for Meaning dimension assesses the extent to which individuals actively seek meaning in their lives. The MLQ has been widely used in research and has been shown to have good internal congruence, test-retest reliability, and convergent and discriminant validity. (Steger et al., 2006).

Another commonly used measure of MIL is the Purpose in Life Test (PIL), developed by Crumbaugh and Maholick (1964). The PIL is a 20-item self-report questionnaire that assesses an individual's sense of purpose in life. The PIL has been proven to have good internal consistency, test-retest reliability, and convergent validity with other measures of well-being (Crumbaugh & Maholick, 1964).

Interviews can also be used to assess MIL, particularly when a more in-depth understanding of an individual's sense of purpose and meaning is desired. The Life Attitude Profile-Revised (LAP-R) is an interview-based measure of meaning that assesses an individual's overall sense of purpose and meaning and their beliefs about the nature of life and death (Reker & Peacock, 1981). The LAP-R, employed in several studies to assess the relationship between meaning in life and well-being, has been shown to have good reliability and validity (Reker et al., 1987).

Projective tests, such as the Thematic Apperception Test (TAT), can also assess meaning. The TAT is a projective test in which participants are shown a series of ambiguous pictures and asked to create stories about the pictures. The reports are then analyzed for themes related to meaning, such as purpose, values, and goals. The TAT has been used in several studies to assess the relationship between life meaning and well-being. Nevertheless, it has been criticized for its lack of standardization and reliability (McAdams, 1995).

Meaning in Life measures can be unidimensional, such as the Purpose in Life (PIL), or multidimensional, such as the Meaning in Life Questionnaire (MLQ) or the MEMS. Multidimensional models appear to assess meaning more accurately than unidimensional models by distinguishing different facets or dimensions of life meaning. Even the PIL, a classic instrument used to assess meaning has been shown to have better psychometric properties and to be more clinically useful when different dimensions are distinguished (Schulenberg & Melton, 2010). Therefore, multidimensional models are preferable to unidimensional for the assessment of meaningfulness.

As evidenced by the variety of questionnaires available to assess this construct, measuring meaning in life is a complex and multifaceted task. Results from different studies vary because different questionnaires may emphasize different aspects of meaning. Although researchers have made considerable efforts to develop valid and reliable measures of purpose, there is no universally accepted gold standard measure of meaning.

Meaning in life and alcohol use

The relationship between meaning in life and alcohol use has been investigated in several studies. While the findings have been mixed, current studies support that higher levels of meaning are associated with less alcohol use and fewer alcohol-related problems (Copeland et al., 2022; Steger et al., 2008; Tartaglia & Bergagna, 2019).

A number of theoretical frameworks have been proposed to help explain how meaningfulness relates to substance use. According to self-determination theory, individuals with a strong sense of meaning are more likely to engage in behaviors that are in line with their values and goals. This includes behaviors that promote health and well-being. Examples include engaging in physical activity, maintaining a healthy diet, and avoiding

substance use. Conversely, individuals who do not have a sense of meaning may engage in behaviors that are inconsistent with their values and goals, including substance use (Ryan & Deci, 2000),

Research indicates that meaning appears to play a protective role in drinking. Specifically, individuals with a strong sense of purpose and meaning are less likely to engage in risky behaviors (Debats, 1999; Stillman et al., 2009). Having a sense of meaning is inversely related to harmful drinking among young people (Csabonyi & Phillips, 2017) and among those who are treated for alcohol use disorders (Roos et al., 2015). Moreover, Schnetzer and colleagues (2013), who conducted a study with college students found that higher meaning is associated with drinking less and having fewer alcohol-related problems. These findings suggest that people with a higher life meaning are more likely to make healthy choices and to avoid high-risk activities, such as heavy alcohol consumption.

Many factors may influence this relationship, including personality characteristics and other psychological and social factors. Copeland et al. (2020) suggested that trait self-control and alcohol value mediate the relationship between drinking and life meaning, highlighting the need to consider other constructs to shed light on this relationship. In a subsequent study, a positive association between depressive symptoms and drinking to cope was found also by Copeland and colleagues (2022). Depressive symptoms alone were not a significant mediator within the relationships between meaning in life and alcohol consumption, there was a serial mediation effect through both depressive symptoms and drinking to cope. Age also has been associated with alcohol use. As individuals grow older, they take on roles that are incompatible with drinking. This process, called "maturing out," is enhanced by identity formation and life meaning and leads to less alcohol consumption (O' Malley, 2004).

Further research is needed to fully understand the nature of this relationship and its implications for interventions aimed at reducing alcohol consumption and related problems. Identifying the factors that influence the relationship between MIL and alcohol use can inform targeted interventions to promote well-being and prevent adverse outcomes associated with low levels of life meaning.

Meaning in Life and drinking patterns

Life meaning and coping mechanisms, such as coping drinking and habitual drinking, have been associated with alcohol use. The stress and coping model is a theoretical framework proposed to explain the relationship between MIL and substance use (Lazarus & Folkman, 1984). According to this model, individuals who experience anxiety or negative emotions may resort to substance use as a coping mechanism to alleviate their distress. In this sense, substance use is a maladaptive coping strategy that individuals use to manage their negative emotions rather than address the underlying causes of their distress (Kuntsche et al., 2017). Coping mechanisms are a set of cognitive and behavioral efforts that individuals use to manage stress and cope with challenging situations (Lazarus & Folkman, 1984). They can be categorized into several types. These include problem-focused coping, emotion-focused coping, and avoidance coping (Folkman & Lazarus, 1988). Previous research has confirmed that individuals with higher levels of meaning are more likely to use problem-focused coping strategies and less likely to use avoidance coping strategies (Steger et al., 2006). Therefore, individuals with higher levels of life meaning may be better equipped to deal with stress and to cope with difficult situations that might otherwise lead them to use coping mechanisms such as coping drinking or habitual drinking.

The use of alcohol to manage negative emotions or stressors is referred to as drinking to cope. This behavior is associated with higher alcohol consumption and alcohol use disorders. It has been identified as a risk factor for the development of alcohol use disorders and other adverse outcomes, including depression, anxiety, and poor academic and occupational performance (Cooper et al., 2015). It is thought to be a maladaptive coping strategy that ultimately increases an individual's risk for adverse outcomes, including excess alcohol consumption (Cooper et al., 2015). For example, in the Cooper et al. (1992) study, college students who reported using alcohol to cope with stress tended to experience negative consequences of drinking, including blackouts and hangovers, and had higher levels of alcohol use and symptoms. Merrill and Read (2010) also found that people who reported using alcohol as a way of coping with negative emotions were more likely to drink and drive.

Higher levels of alcohol use have also been associated with habitual drinking. Habitual drinking refers to drinking that takes place on a frequent basis and without much thought or planning. As it increases the

individual's exposure to alcohol and can lead to tolerance and dependence, habitual drinking is considered a risk factor for alcohol use disorders (Grant et al., 2016). For example, Kuntsche and colleagues (2005) found that young adults who reported drinking frequently and without much thought or planning were more likely to engage with risky drinking practices and were at higher risk for excess drinking. Kuntsche and colleagues (2012) also found that youth who reported habitual drinking were more likely to experience negative consequences of drinking, such as hangover and injury, and were at higher risk for alcohol use disorders. Similarly, a study by Hasking et al. (2015) found that young adults who reported habitual drinking had lower levels of meaning in life compared to those who did not engage in habitual drinking. These findings suggest that frequent, habitual drinking may be associated with decreased levels of meaning in life, which could contribute to the development of alcohol use disorders.

Regarding the relationship between coping drinking and life meaning, Martens et al. (2008) found that college students who reported using alcohol to deal with stress had lower levels of life meaning than those who reported not using alcohol to deal with stress. Similarly, adolescents who reported using alcohol to cope with negative emotions had lower levels of meaning in life compared to those who did not use alcohol to cope 4 in a study by Kuntsche et al. (2011). These findings suggest that the use of alcohol to cope with negative emotions may be associated with lower levels of meaning in life, which may be a contributor to the development of AUDs.

In the context of alcohol use disorders, comprehensive treatment and intervention strategies require an understanding of the interplay between life meaning, coping drinking, habitual drinking, and alcohol consumption. Clinicians can tailor interventions to address both the underlying meaning-making processes and the maladaptive coping strategies associated with alcohol misuse by recognizing the impact of life meaning on coping motives and habitual drinking.

Current study

The purpose of this dissertation was to examine the relationship between meaning in life and alcohol consumption and to examine whether meaning in life mediates the relationship between coping or habitual drinking and alcohol consumption.

We sought to replicate and extend the findings of Copeland and colleagues (2022), who found a negative association between life meaning and alcohol use. In that study, Copeland and colleagues used a two-dimensional questionnaire to assess meaning in life, the Meaning in Life Questionnaire, which distinguishes between searching for meaning and having meaning.

We sought to replicate and extend the findings of Copeland and colleagues (2022), who found a negative association between meaning in life and alcohol use. The meaning scale used in that study was the Meaning in Life Questionnaire (MLQ), which distinguishes between seeking meaning and having meaning. The current study used a different meaning scale, the Multidimensional Existential Meaning Scale (MEMS).

Both scales are multidimensional, but the MEMS is the only meaning scale that assesses each dimension of meaning separately. The MEMS allows researchers to gain insight into the specific aspects of meaning that contribute to an individual's overall sense of meaning by assessing each dimension separately. There are several ways in which the differentiated assessment of the dimensions of meaning is valuable. First, it provides a more nuanced understanding of subjective meaning-making processes by identifying unique patterns of meaning that individuals may experience. This can inform interventions and treatments tailored to specific dimensions of meaning that may be deficient or in need of reinforcement (Martela & Steger, 2016). For example, Davis, Nolen-Hoeksema, and Larson's (1998) research into coping with bereavement suggest that two distinct forms of meaning are most relevant to recovery from adverse experiences: making sense of the experience and finding benefit in the experience. These are distinct processes with different clinical outcomes.

A new validated measure of drinking patterns was also used in this study. Specifically, the Drinking Behavior Profile (DBP) questionnaire developed by Kurihara et al 2022 was included in the analysis as a measure to assess drinking patterns. The DBP specifically measures the extent to which individuals drink as a coping mechanism for stress, negative emotions, or difficult situations. Compared to other relevant measures, the DBP-20 is a behavioral assessment tool that broadly covers common motives for drinking and risky behaviors that lead to AUD. Thus, the DBP offers a unique approach to the understanding of drinking motives in that the focus is on the ability to cope with drinking. The DBP provides a more comprehensive understanding of individuals' motivations, coping strategies, and drinking patterns by focusing on these specific dimensions.

Therefore, complex relationship between drinking patterns and their underlying psychological and social factors is better understood.

Research Questions:

1) To what extent do the three dimensions of the Multidimensional Existential Meaning Scale (MEMS) (i.e coherence, purpose, mattering) have a partly independent relationship with alcohol use, as measured by the Alcohol Use Disorders Identification Test (AUDIT)?
2) Is the relationship between drinking to cope or habitual drinking and harmful alcohol use mediated by meaning in life?

Method

Participants

There was a total of 504 participants in the study, of which 251 were women and 249 were men. Five participants were nonbinary or did not disclose their gender. The mean age of the subjects was 28.7 years (SD = 8.8) and the mean BMI was 24.5 kg/m2 (SD = 4.9 kg/m2). Inclusion criteria were native Dutch and fluency in Dutch. The participants were recruited via Prolific. Prolific is a research platform that aims to improve the quality of research and data collection. Their mission is to facilitate and improve the way in which research is carried out online. Each participant received £7 (8.40 euros at the time) for their participation. Study has been approved by Ethical Committee of Psychology (PSY-2223-S-0020).

Materials

Multidimensional Existential Meaning Scale (MEMS; George & Park, 2016)

George and Park (2016) created the Multidimensional Existential Meaning Scale (MEMS), which is a self-report questionnaire designed to measure people's judgments of the existential meaning of their lives. The multidimensional nature of meaning is what the MEMS seeks to capture. It is based on the idea that people desire and derive meaning from their lives.

The MEMS is a set of 15 items that measure the presence of three separate dimensions of meaning: meaning, coherence, and purpose. Each dimension is represented by a group of items that draw from different facets of meaning in life.

1. Purpose: The purpose dimension of the MEMS assesses a person's sense of direction and purpose in life. It captures how strongly people believe that what they choose to do and how they choose to act serve a higher good. Items on the purpose dimension ask about a person's sense of purpose, the importance of their actions, and their belief that they are living a meaningful life.

2.Coherence: The sense of order, comprehensibility, and integration in one's life experiences are measured by the coherence dimension. It reveals how individuals view the situations and events in their lives as significant and related. The items in the coherence dimension examine how well people can make sense of problems and difficulties, identify patterns and connections in their life experiences, and view life as a coherent whole.

3.Mattering: The dimension of meaning focuses on the subjective assessment of the value and significance of the individual's existence. It measures how people feel about themselves, the value they place on their lives, and the impact they believe they have on other people and the world. The elements of the Meaning dimension assess how an individual perceives the purpose of his or her life, the value of his or her accomplishments, and his or her sense of self-worth.

Participants are often asked to rate each item on a Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree) to indicate the extent to which each statement represents their own experience of existential meaning.

It is used extensively in research examining the relationship between meaning in life and various psychological outcomes, including happiness, mental health, and health behaviors. The scale demonstrated adequate internal consistency and construct validity in various populations and cultures, with good reliability and validity. In the present study Cronbach's, alpha coefficient of MEMS subscales was greater than .7, indicating acceptable reliability of the scale. More specifically, for Comprehension factor the coefficient was .86, for the Purpose factor it was .92 and for the Mattering factor it was .85.

MEMS is used in this study to assess perceived existential meaning in life along three dimensions: Meaning, Coherence, and Purpose. Scores on each dimension are examined independently to see how they relate to alcohol use as measured by the Alcohol Use Disorders Identification Test (AUDIT).

Drinking Behaviors Profile (DBP; Kurihara et al., 2022)

Kurihara and colleagues (2022) developed the Drinking Behaviors Profile (DBP). The DBP is a self-report questionnaire designed to assess people's drinking habits and behaviors. The DBP is designed to capture different facets of alcohol use, such as drinking as a response to unfavorable emotions or feelings and "automatic" or "habitual" drinking in the absence of a specific trigger.

These two types of drinking are distinguished by the 12 items that make up the DBP. Participants are asked to rate the frequency and severity of their drinking using a Likert scale. The scale typically ranges from 1 (strongly disagree) to 5 (strongly agree).

1.Drinking as a Coping Technique: This subscale of the DBP measures people's tendency to use alcohol as a coping technique when they are experiencing unpleasant emotions such as stress, sadness, or worry. It is an

accurate representation of the amount and intensity of alcohol use that is specifically motivated by the desire to reduce or escape from unpleasant feelings.

2.Automatic or habitual drinking: The second subscale of the DBP focuses on people's automatic or habitual drinking behaviors. The frequency and intensity of alcohol use that is motivated by routine, habit, or social convention, rather than by a particular emotional state or trigger, is captured by this subscale.

DBP items examine various aspects of drinking, including frequency and intensity of drinking, causes of drinking, circumstances leading to drinking, and beliefs about control over drinking. The DBP has been used to study a wide variety of drinking patterns and their relationship to mental health, alcohol problems and treatment outcomes. By providing a more complex understanding of people's drinking habits, it offers invaluable insights into the causes and circumstances of drinking.

This study used the DBP questionnaire developed by Kurihara et al. (2022) to assess participants' drinking. The results of the subscales that assess automatic or habitual drinking and drinking as a response to unpleasant feelings or emotions were examined one by one. DBP subscales had acceptable reliability in the present study (Cronbach's a for Coping with negative affect was .93 and for Automaticity it was .78). Correlations between these subscales and the MEMS dimensions were examined, as well as potential mediating effects on the relationship between purpose and drinking as assessed by the Alcohol Use Disorders Identification Test (AUDIT).

Alcohol Use Disorders Identification Test (AUDIT; Saunders et al., 1993)

The World Health Organization (WHO) has developed the widely used Alcohol Use Disorders Identification Test (AUDIT) to assess alcohol use, problems associated with alcohol use, and the likelihood of alcohol use disorders. The AUDIT is designed to provide a thorough assessment of a person's drinking habits and associated risks.

Ten questions make up the AUDIT, which examines three key areas of alcohol use:

1. Alcohol Use: Frequency and quantity of alcohol use is assessed in the first part of the AUDIT. It asks how often people drink, how many standard drinks are consumed on an average day, and how often binge drinking occurs. The DBP items examine different facets of drinking habits, such as frequency and intensity of drinking, causes of drinking, circumstances that lead to drinking, and views of control over alcohol intake.

2. Alcohol-related problems: The second section of the questionnaire is devoted to alcohol problems and how they have an impact on different aspects of life. Questions include how badly you feel about drinking, whether you have skipped appointments due to drinking, whether you have experienced memory loss, and whether you have had interpersonal or legal problems due to drinking.
3. Alcohol dependence symptoms: The presence of alcohol dependence symptoms is assessed in the final section of the AUDIT. It asks about issues such as building up tolerance to alcohol, withdrawing from drinking, and craving or wanting alcohol.

Participants rate each item using a Likert scale with multiple alternatives to answer. Higher scores indicate more problematic use of alcohol and a greater likelihood of having an alcohol use disorder. A total score ranging from 0 to 40 is generated by the AUDIT.

AUDIT has been widely used for research and treatment purposes to screen and intervene with individuals at risk for alcohol use disorders. It has strong reliability and validity and has been modified and tested in a variety of populations and cultural contexts (Frank et al., 2008). In the present study the reliability was acceptable (a= .82).

The AUDIT was used in this study to assess the participants' use of alcohol and any problems associated with it. The Multidimensional Existential Meaning Scale (MEMS), which measures multiple dimensions of existential meaning, is used as an outcome measure to examine the relationship between alcohol use and existential meaning.

Procedure

The study was conducted online, and data collection lasted from December 2022 to January 2023. The data collection was outsourced to Prolific, an online research platform that aims to maximize the quality of research through the recruitment and management of participants. The instruments were administered to the participants with the use of Qualtrics. This is an online survey software that enabled the online distribution of questionnaires in a specific order of presentation. Inclusion criteria were native Dutch speakers and fluency in the Dutch language. No additional exclusion criteria existed. Each participant was paid £7 for participating in the study. This was the equivalent of 8.40E at the time. For the protection of the rights of the participants, the principles of ethics were followed. Issues such as privacy, confidentiality, and anonymity were considered. First, participants signed a consent form and then received a link to the online questionnaires, which were

presented in a fixed order. Next, participants filled out some demographic information (age, gender, education level, BMI. Participants could pause and resume the questionnaires later. After opening the link, they were given information about the purpose of the study and were assured that all data would be kept anonymous. Each time the users clicked, the questions would be presented in sequence (from demographics, MEMS, MLQ, DASS-21, BSCS, etc.). There were also control questions to check whether participants were paying attention when answering the questions. For example, sample items such as the following were presented on the screen: "To make sure you are paying attention, please select 'most of the time.'"). Participants who did not pay attention while filling out the questions gave inaccurate answers, which were removed from the data file.

Statistical Analysis

Quantitative variables were expressed as mean (Standard Deviation) or as median (Interquartile Range). Qualitative variables were expressed as absolute and relative frequencies. Sample size supports the appliance of central limit theorem, thus parametric tests and procedures were used. A simple mediation analysis was conducted to examine whether MEMS mediates the relationship between DBP-20 and AUDIT (Figure 1 in Appendix). For the investigation of the mediating role (mediator-M) of meaning in life scale (MEMS) in the association between drinking to cope or habitual drinking (DBP-20) (Independent Variable-IV) and harmful alcohol (AUDIT) scales (Dependent Variable-DV) SPSS PROCESS macro was used following Hayes guidelines (Hayes, 2013). A 5000-sample bootstrap procedure was used to estimate bias-corrected 95% confidence intervals (CIs) to test the significance of indirect effect of the relationships. Mediation is presented when the indirect effect is significant, i.e., if confidence intervals do not contain zero. According to Hayes & Preacher (2008, 2004) this bootstrapping procedure overcomes the limitations of the approaches highlighted by Baron and Kenny (1986) and Sobel (1982), yielding results that are more accurate and less affected by sample size. Full mediation is presented when the direct effect is not significant, while partial mediation is presented when the direct effect is significant. Pearson correlations coefficients (r) were used for the association between all under study scales. Multiple linear regression analysis was used with dependent the AUDIT scale. The regression equation included terms for participants' age, gender as well as DBP-20 subscales. Adjusted regression coefficients (β) with standard errors (SE) were computed from the results of the linear regression analyses. Diagnostics for regression models were performed to check if the conditions for regression had been

met with the residuals of each model being normally distributed and their variance being constant. Internal consistency of the questionnaires was evaluated via Cronbach's alpha. All reported p values are two-tailed. Statistical significance was set at $p<0.05$ and analyses were conducted using SPSS statistical software (version 26.0).

Results

Sample consisted by 504 participants (49.8% males), whose characteristics are presented in Table 1. Mean age was 28.7 years (*SD* = 8.8 years).

Table 1

Sample Characteristics

Characteristic	%	n
Female	49.2	248
Male	49.8	251
Other	0.8	4
I don't want to say	0.2	1
Age in years	8.8	28.7

Participants' scores in MEMS subscales are described in Table 2 (sum scores). Overall, greater values indicate greater meaning in life. Comprehension factor score ranged from 4.20 to 10.20, with mean being 7.69 *(SD* = 1.00). Purpose factor score ranged from 4.20 to 10.20, with mean being 8.31 (*SD* = 0.99) and Mattering factor score ranged from 5.80 to 11.80, with mean being 8.26 (*SD* = 1.23). All scales had Cronbach's alpha greater than .7, indicating acceptable reliability of the scale.

Table 2

Descriptives of Participants' Scores in MEMS Subscales

	Minimum	Maximum	M (SD)	Cronbach's alpha
Comprehension factor (MEMS)	4.20	10.20	7.69 (1.00)	0.86
Purpose factor (MEMS)	4.20	10.20	8.31 (0.99)	0.92
Mattering factor (MEMS)	5.80	11.80	8.26 (1.23)	0.85

Participants' scores in DBP-20 subscales are described in Table 3 (sum scores). Coping with negative affect score ranged from 0 to 21, with mean being 3.14 (*SD* = 4.79). Automaticity score ranged from 0 to 19, with mean being 4.22 (*SD* = 4.14). Both scales had Cronbach's alpha greater than .7, indicating acceptable reliability of the scale.

Table 3

Descriptives of Participants' Scores in DBP-20 Subscales

	Minimum	Maximum	M (SD)	Cronbach's alpha
Coping with negative affect (DBP-20)	0.00	21.00	3.14 (4.79)	0.93
Automaticity (DBP-20)	0.00	19.00	4.22 (4.14)	0.78

Participants' AUDIT score (sum score) ranged from 0 to 35, with mean score being 6.37 (*SD* = 5.13), Table 4. Alpha coefficient was .82, indicating acceptable reliability of AUDIT scale.

Table 4

Descriptives Of Participants' Scores in AUDIT Scale

	Minimum	Maximum	M (SD)	Cronbach's alpha
AUDIT score	0.00	35.00	6.37 (5.13)	0.82

According to AUDIT score, participants were categorized in four groups regarding their risk level (Table 5). Most of the sample had low risk (68.5%) and almost one out of four participants were in a risky or hazardous level, with the percentage being 25.6%.

Table 5

Participants' Risk Levels of Alcohol Abuse

Risk level	n	%
Low risk (score 0-7)	345	68.5
Risky or hazardous level (score 8-15)	129	25.6
Harmful level (score 16-19)	18	3.6
High risk (score 20+)	12	2.4

Pearson's correlation coefficients between MEMS and DBP-20 subscales are presented in Table 6. Higher score in Coping with negative affect subscale was significantly associated with lower score in Comprehension, r (502) = -.23; $p < .001$, Purpose, r (502) = -.23; $p < .001$, and Mattering factors, r (502) = -.18; $p < .001$ (see Figures 2, 3 & 4 in Appendix). Also, higher score in Automaticity subscale was significantly

associated with lower score in Purpose, *r (*502) = -.11; *p* = .016, and Mattering factors, *r* (502) = -.12; *p* = .006 (see Figures 6 & 7 in Appendix).

Table 6

Pearson's Correlation Coefficients between MEMS and DBP-20 Subscales

	Comprehension factor (MEMS)	Purpose factor (MEMS)	Mattering factor (MEMS)
Coping with negative affect (DBP-20)	-.23***	-.23***	-.18***
Automaticity (DBP-20)	-.07	-.11*	-.12**

**p < .05; **p < .01; ***p < .001*

Pearson's correlation coefficients between AUDIT and DBP-20 subscales are presented in Table 7. Greater scores in Coping with negative affect and Automaticity subscales are significantly correlated with greater AUDIT score, *r* (502) = .52; *p* < .001 and *r* (052) = .60; *p* < .001 respectively (see Figures 6 & 7 in Appendix).

Table 7

Pearson's Correlation Coefficients between AUDIT and DBP-20 Subscales

	AUDIT score
Coping with negative affect (DBP-20)	.52***
Automaticity (DBP-20)	.60***

**p <.05; **p <.01; ***p <.001*

Pearson's correlation coefficients between AUDIT and MEMS subscales are presented in table 8. No significant correlations were found between AUDIT and MEMS subscales.

Table 8

Pearson's Correlation Coefficients between AUDIT and MEMS Subscales

	AUDIT score
Comprehension factor (MEMS)	.03
Purpose factor (MEMS)	-.05
Mattering factor (MEMS)	-.04

**p < .05; **p < .01; ***p < .001*

The mediating role of MEMS in the relationship between DBP-20 and AUDIT was examined via PROCESS macro, version 4.2. Coping with negative affect had a significant total effect on AUDIT (path *c*; *b* = .555), which remained significant in the full model (direct effect; path *c'*; *b* = .594), as presented in table 9. Also, coping with negative affect significantly predicted Comprehension factor (path *a*; *b* = -.048), which was significantly predicting AUDIT (path *b*; *b* = .805). The indirect effect of Coping with negative affect on AUDIT (path *ab*; effect = -.039) had a bias-corrected bootstrap confidence interval than included zero, thus Comprehension factor was not mediating the relationship between Coping with negative affect and AUDIT.

Table 9

Simple Mediation Analysis with Coping with Negative Affect and Comprehension Factor (Mediator) on AUDIT

Simple Regression Models	Path/ effect	B	SE	t	p	CI
R^2 = .52; F (1, 502) = 183.48; p < .001	c (total effect of Coping with negative affect on AUDIT)	.555	.041	13.55	<.001	.474; .635
R^2 = .24. F (1, 502) = 28.48; p < .001	a (Coping with negative affect on Comprehension factor)	-.048	.009	-5.34	<.001	-.066; -.031
Multiple Regression Model						
R^2 = .54; F (2, 501) = 102.78; p < .001	c' (direct effect of Coping with negative affect on AUDIT)	.594	.042	14.32	<.001	.512; .675
	b (Comprehension factor on AUDIT)	.805	.198	4.05	<.001	.415; 1.194
		Effect	Boot[1] SE			Boot[1] CI
	ab (indirect effect of Coping with negative affect on AUDIT through Comprehension factor)	-.039	.032			-.066; .018

Note. [1]Boot= bias-corrected bootstrap standard error/ confidence interval

Coping with negative affect had a significant total effect on AUDIT (path *c*; *b* = .555), which remained significant in the full model (direct effect; path *c'*; *b* = .572), as presented in Table 10. Also, coping with negative affect significantly predicted Purpose factor (path *a*; *b* = -.048), which was not significantly predicting AUDIT (path *b*; *b* = .365). The indirect effect of Coping with negative affect on AUDIT (path *ab*; effect = -.018) had a

bias-corrected bootstrap confidence interval than included zero, thus Purpose factor was not mediating the relationship between Coping with negative affect and AUDIT.

Table 10

Simple Mediation Analysis with Coping with Negative Affect and Purpose Factor (Mediator) on AUDIT

Simple Regression Models	Path/ effect	B	SE	t	P	CI
R^2= .52; F (1,502) = 183.48; p<.001	c (total effect of Coping with negative affect on AUDIT)	.555	.041	13.55	<.001	.474; .635
R^2= .23 ; F (1,502) = 29.10; p<.001	a (Coping with negative affect on Purpose factor)	-.048	.009	-5.39	<.001	-.066; -.031
Multiple Regression Model						
R^2= .52; F (2,501) = 93.76; p<.001	c' (direct effect of Coping with negative affect on AUDIT)	.572	.042	13.62	<.001	.490; .655
	b (Purpose factor on AUDIT)	.365	.204	1.79	.073	-.035; .766
		Effect	Boot[1] SE			Boot[1] CI
	ab (indirect effect of Coping with negative affect on AUDIT through Purpose factor)	-.018	.010			-.041; .001

Note. [1]Boot= bias-corrected bootstrap standard error/ confidence interval

Coping with negative affect had a significant total effect on AUDIT (path *c*; *b* = .555), which remained significant in the full model (direct effect; path *c'*; *b* = .564), as presented in table 11. Also, coping with negative affect significantly predicted Mattering factor (path *a*; *b* = -.046), which was not significantly predicting AUDIT (path *b*; *b* = .217). The indirect effect of Coping with negative affect on AUDIT (path *ab*; effect = -.001) had a bias-corrected bootstrap confidence interval than included zero, thus Mattering factor was not mediating the relationship between Coping with negative affect and AUDIT.

Table 11

Simple Mediation Analysis with Coping with Negative Affect and Mattering Factor (Mediator) on AUDIT

Simple Regression Models	Path/ effect	B	SE	t	p	CI
R^2 = .52; F (1, 502) = 183.48; p < .001	c (total effect of Coping with negative affect on AUDIT)	.555	.041	13.55	<.001	.474; .635
R^2 = .18; F (1, 502) = 16.29; p < .001	a (Coping with negative affect on Mattering factor)	-.046	.011	-4.04	<.001	-.068; -.023
	Multiple Regression Model					
R^2= .52; F(2, 501) = 92.78; p < .001	c' (direct effect of Coping with negative affect on AUDIT)	.564	.042	13.58	<.001	.483; .646
	b (Mattering factor on AUDIT)	.217	.162	1.34	.181	-.101; .535
		Effect	Boot[1] SE			Boot[1] CI
	ab (indirect effect of Coping with negative affect on AUDIT through Mattering factor)	-.001	.008			-.026; .004

Note. [1]Boot= bias-corrected bootstrap standard error/ confidence interval

Automaticity had a significant total effect on AUDIT (path *c*; *b* = .742), which remained significant in the full model (direct effect; path *c'*; *b* = .748), as presented in table 12. Automaticity did not significantly predict Comprehension factor (path *a*; *b* = -.016), which was not significantly predicting AUDIT (path *b*; *b* = .354). The indirect effect of Automaticity on AUDIT (path *ab*; effect = -.006) had a bias-corrected bootstrap confidence interval than included zero, thus Comprehension factor was not mediating the relationship between Automaticity and AUDIT.

Table 12

Simple Mediation Analysis with Automaticity and Comprehension Factor (Mediator) on AUDIT

Simple Regression Models	Path/ effect	B	SE	t	p	CI
R^2 = .60; F (1, 502) = 280.80; p < .001	c (total effect of Automaticity on AUDIT)	.742	.044	16.76	<.001	.655; .829

R^2 = .07; F (1, 502) = 2.26; p = .133	a (Automaticity on Comprehension factor)	-.016	.011	-1.50	.133	-.037; .005
Multiple Regression Model						
R^2= .60; F (2, 501) = 143.02; p < .001	c' (direct effect of Automaticity on AUDIT)	.748	.044	16.89	<.001	.661; .835
	b (Comprehension factor on AUDIT)	.354	.183	1.93	.054	-.006; .714
		Effect	Boot[1] SE			Boot[1] CI

Note. [1]Boot= bias-corrected bootstrap standard error/ confidence interval

Automaticity had a significant total effect on AUDIT (path *c*; *b* = .742), which remained significant in the full model (direct effect; path *c'*; *b* = .744), as presented in table 13. Automaticity significantly predicted Purpose factor (path *a*; *b* = -.026), which was not significantly predicting AUDIT (path *b*; *b* = .052). The indirect effect of Automaticity on AUDIT (path *ab*; effect = -.001) had a bias-corrected bootstrap confidence interval than included zero, thus Purpose factor was not mediating the relationship between Automaticity and AUDIT.

Table 13

Simple Mediation Analysis with Automaticity and Purpose Factor (Mediator) on AUDIT

Simple Regression Models	Path/ effect	B	SE	t	p	CI
R^2 = .60; F (1, 502) = 280.80; p < .001	c (total effect of Automaticity on AUDIT)	.742	.044	16.76	<.001	.655; .829
R^2 = .11; F (1, 502) = 5.89; p = .016	a (Automaticity on Purpose factor)	-.026	.011	-2.43	.016	-.047; -.005
Multiple Regression Model						
R^2 = .60; F(2, 501) = 140.18; p < .001	c' (direct effect of Automaticity on AUDIT)	.744	.045	16.67	<.001	.656; .831
	b (Purpose factor on AUDIT)	.052	.187	0.28	.781	-.316; .419
		Effect	**Boot[1] SE**			**Boot[1] CI**
	ab (indirect effect of Automaticity on AUDIT through Purpose factor)	-.001	.006			-.012; .008

Note. [1]Boot= bias-corrected bootstrap standard error/ confidence interval

Automaticity had a significant total effect on AUDIT (path *c*; *b* = .742), which remained significant in the full model (direct effect; path *c'*; *b* = .747), as presented in table 14. Automaticity significantly predicted Mattering factor (path *a*; *b* = -.037), which was not significantly predicting AUDIT (path *b*; *b* = .136). The indirect effect of automaticity on AUDIT (path *ab*; effect = -.005) had a bias-corrected bootstrap confidence interval than included zero, thus Mattering factor was not mediating the relationship between Automaticity and AUDIT.

Table 14

Simple Mediation Analysis with Automaticity and Mattering Factor (Mediator) on AUDIT

Simple Regression Models	Path/ effect	B	SE	t	p	CI
R^2 = .60; F (1, 502) = 280.80; p < .001	c (total effect of Automaticity on AUDIT)	.742	.044	16.76	<.001	.655; .829
R^2=.13; F (1, 502) = 7,70; p = .006	a (Automaticity on Mattering factor)	-.037	.013	-2.77	.006	-.062; -.011
Multiple Regression Model						
R^2 = .60; F (2, 501) = 140.76; p < .001	c' (direct effect of Automaticity on AUDIT)	.747	.045	16.74	<.001	.660; .835
	b (Mattering factor on AUDIT)	.136	.150	0.91	.365	-.159; .432
		Effect	Boot[1] SE			Boot[1] CI
	ab (indirect effect of automaticity on AUDIT through Mattering factor)	-.005	.006			-.019; .006

Note. [1]Boot= bias-corrected bootstrap standard error/ confidence interval

In the context of a post-hoc analysis and to check if the effect of DBP-20 subscales on AUDIT scale remained significant after adjusting for participants' age and gender, multiple linear regression analysis was conducted. As independent variables participants' age, gender and DBQ subscales were entered jointly in the analysis. Participants' age, gender and DBQ subscales were significantly associated with AUDIT score, R^2 = .46, F (4, 494) = 106.92, $p < .001$ (Table 15). More specifically, greater age was significantly associated with lower AUDIT score, β = -0.12; *t* (494) = -6.22; $p < .001$. Males had significantly greater AUDIT score compared to females, β = 1.56; *t (*494) = 4.63; $p < .001$. Greater score in Coping with negative affect subscale

was significantly associated with greater AUDIT score, β = 0.26; *t (494)* = 5.93; $p < .001$ and greater score in Automaticity was significantly associated with greater AUDIT score, β = 0.59; *t* (494) = 11.70; $p < .001$.

Table 14

Multiple Linear Regression Results with AUDIT Score as Dependent Variable

	B+	SE++	Stand. beta‡	t
Age in years	-0.12	0.02	-0.21	-6.22***
Gender (males vs females)	1.56	0.34	0.15	4.63***
Coping with negative affect (DBP-20)	0.26	0.04	0.24	5.93***
Automaticity	0.59	0.05	0.47	11.70***

Note. F (4, 494) = 106.92; $p < .001$; $R^2 = .46$

+regression coefficient; ++Standard Error; ‡standardized regression coefficient

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

Discussion

This study aimed to examine the relationship between purpose, drinking, and alcohol use. In particular, the first aim was to further investigate the relationship between meaning in life and alcohol consumption using a multidimensional measure that assesses meaning in life. The second aim was to examine the effect of drinking patterns on drinking as mediated by meaning in life.

No significant associations were found between MEMS and AUDIT for the first objective. The lack of association between MEMS and AUDIT is inconsistent with previous findings (Copeland et al., 2020; Schnetzer et al., 2013; Krentzamn et al., 2017) and may be related to the characteristics of the sample. Differences in sample characteristics between our study and Copeland's (2022) study may contribute to the lack of association between life meaning and drinking and may also explain the lack of MEMS' mediation between DBP and AUDIT.

It is possible that in populations with higher levels of alcohol-related problems or dependence, the association between meaning in life and alcohol use may be more pronounced or apparent. In Copeland's study, the relationship between meaning in life and alcohol use may have been more apparent due to greater variability in alcohol consumption and alcohol-related difficulties, as two-thirds of the sample (n = 364; 66.67%) were classified as hazardous or harmful drinkers (AUDIT $\geq$ 8). In contrast, this study had a sample with a lower prevalence of problematic alcohol use (*n* =30; 6%). This may have resulted in a narrower range of alcohol use and fewer associations with purpose in life. The lack of association between meaning in life and alcohol use in our study compared to Copeland's findings may be explained by the different distribution of alcohol use patterns within the samples.

In the present study, the sample was composed of individuals without alcohol use disorders or significant drinking problem. In contrast, previous studies have often included clinical populations or individuals with hazardous or harmful drinking patterns (Copeland et al., 2022). This discrepancy in sample characteristics may contribute to the lack of mediation effects observed in our study. It is possible that among individuals with greater alcohol-related difficulties or in clinical populations, the role of purpose in life as a mediator may be more pronounced.

This is also highlighted by the association found between MEMS and DBP, which may suggest the possibility that increasing life meaning may nevertheless have a positive influence on drinking (drinking less) via reducing automaticity and drinking to cope. Findings from a recent study suggest that finding meaning and purpose in one's life may help college students manage increased stress with more adaptive coping strategies that do not involve drinking to cope (Jaffe et al., 2022).

Results of the study indicated that coping with negative affect significantly predicted the comprehension factor on the MEMS (path a; b = -.048). In addition, the Comprehension factor significantly predicted drinking as measured by the AUDIT (path b; b=.805). Although a significant association was found between Coping and Comprehension, the bias-corrected bootstrapped confidence interval for the indirect effect of coping on AUDIT through the understanding factor (path ab) included zero, indicating a nonsignificant indirect effect (effect = -.039). As a result, the study did not provide support for the Comprehension factor as a significant mediator in the relationship between coping with negative affect and AUDIT scores.

These findings suggest that in explaining how coping with negative affect influences alcohol use, the Comprehension factor of the MEMS did not serve as a mediating mechanism. The lack of significant mediation may be an indication that other factors or pathways may be influencing the association between coping with negative affect and alcohol use. It is likely that multiple factors are involved in the relationship between coping with negative affect and alcohol use. Because the MEMS is primarily a measure of meaning in life, it may not be able to fully capture all the nuances of this relationship. Consideration of other constructs related to coping, stress, or emotional regulation may provide a more complete understanding of the mechanisms involved in alcohol use behavior (Kuntsche et al, 2023; Simons et al., 2017; Holahan et al., 2001; Cooper et al., 1995;).

In summary, the non-significant mediation result suggests that the Comprehension factor of the MEMS did not mediate the relationship between Coping with negative affect and AUDIT scores in the current study. These results highlight the complexity of the relationship between meaning in life, negative affect, and alcohol use, and call for further examination of alternative mediators and longitudinal research to improve our understanding of these psychological mechanisms included zero. Thus, no evidence was found to support that Comprehension was a significant mediator between Coping with negative affect and AUDIT.

Results may have been influenced by the characteristics of the study sample, such as demographic factors, cultural background, or alcohol consumption patterns. The relationships between coping, meaning in life, and alcohol use may differ in different populations. When interpreting these findings, it is important to consider the limitations of the present study. The results should be understood in the specific context of the limitations of the study. These limitations include the characteristics of the sample, the measurement instruments used, and the study design.

The composition of the sample, which consisted of individuals without problematic alcohol use, is a limitation of our study. This limits our ability to generalize to more severe alcohol-related problems. The nonsignificant correlation between MEMS and AUDIT scores may have been due to the lack of individuals with harmful or hazardous drinking behaviors in our sample.

Additionally, the use of self-report measures such as the MEMS and AUDIT introduces potential biases and measurement errors. Self-report measures rely on participants' subjective interpretations and recollections, which may be influenced by social desirability biases or limited accuracy in recalling their drinking behaviors (Brown & Jones, 2018). Participants may underreport or overreport their alcohol consumption, leading to an attenuation of the observed associations.

Moreover, the reliance on cross-sectional data restricts our ability to establish directional relationships between meaning in life and alcohol use outcomes. Future studies employing longitudinal designs would provide a more robust examination of the temporal relationships between these constructs. By following individuals over time, researchers will be able to examine how changes in meaning in life are related to changes in patterns of alcohol use. This will allow for more robust evidence to be obtained regarding the directionality of the relationship.

In addition, the inclusion of diverse samples in future studies will further our understanding of the relationship between purpose in life and alcohol use. These samples can increase the applicability of findings to diverse populations by providing insights into different contexts, risk factors, and protective factors. However, broadening the scope to include other populations may provide valuable insights. The following are a few of the types of samples that may be useful for future research:

- High-risk populations: The study of purpose in life and alcohol use in high-risk populations, such as individuals with a family history of alcoholism or individuals with co-occurring mental health disorders, may contribute to an understanding of the specific vulnerabilities and protective factors within these groups. Research has shown that the study of high-risk populations is important for the development of targeted interventions (Chartier et al., 2017).
- Age-specific samples: Investigation of the relationship between purpose in life and alcohol use in different age groups can provide insight into how this relationship evolves across the life span. Adolescents, middle-aged adults, and older adults may have unique motivations and patterns of alcohol use. Therefore, it is necessary to examine age-specific samples (Kuntsche et al., 2006).

Future research may examine other factors for mediators such as psychological happiness, coping skills, or social support (Steger et al., 2008; Kuntsche et al., 2014). There are few studies linking coping with drinking to alcohol use. However, there is a paucity of literature linking these constructs to meaning in life. Understanding the underlying processes by which meaning in life influences alcohol use may shed light on intervention strategies aimed at promoting healthier behaviors.

First, to examine the temporal relationships among purpose in life, coping with negative affect, and alcohol use over time, it is essential that future studies employ longitudinal designs. Longitudinal studies can provide valuable insights into the direction of effects and potential causation (Holahan et al., 2001). The use of a mixed-methods approach, combining quantitative and qualitative methods, to better understand the underlying mechanisms may be useful for future research. Qualitative data can provide rich insights into individuals' experiences and perspectives in relation to life meaning, drinking patterns and alcohol use.

Future studies could also design and implement interventions that target meaning making, coping, and alcohol consumption. Interventions could include meaning-oriented therapies, cognitive-behavioral approaches, or mindfulness-based interventions. In addition, it may be informative to examine potential moderating factors that influence the relationships between coping with negative affect, meaning in life, and alcohol use. These associations may be modified by factors such as social support, socioeconomic status, or resilience. In this study, the overall multiple linear regression model reached statistical significance (R2=.46), indicating that the

combination of age, sex, and the two DBQ subscales (Negative Affect and Automatic) accounted for a significant amount of variance in AUDIT scores.

In conclusion, multiple linear regression analysis revealed that age, sex, and the two DBQ subscales (Negative Affect Management and Automaticity) were significant predictors of AUDIT scores. These findings highlight the importance of considering age, gender, and specific drinking behaviors when examining alcohol use patterns and provide insight into factors associated with alcohol use and alcohol-related problems in the study sample.

Although the current study found no evidence supporting life meaning as a mediator between the relationship drinking patterns and alcohol consumption meaning and of purpose in the relationship between AUDIT and DBP scores, it highlighted the importance to continue to explore the underlying mechanisms and factors contributing to alcohol use and drinking behaviors. By refining our understanding of these relationships, we can develop more effective interventions and support strategies to address alcohol-related problems in clinical practice.

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Appendix

Figure 1

Illustration Of Simple Mediation Model

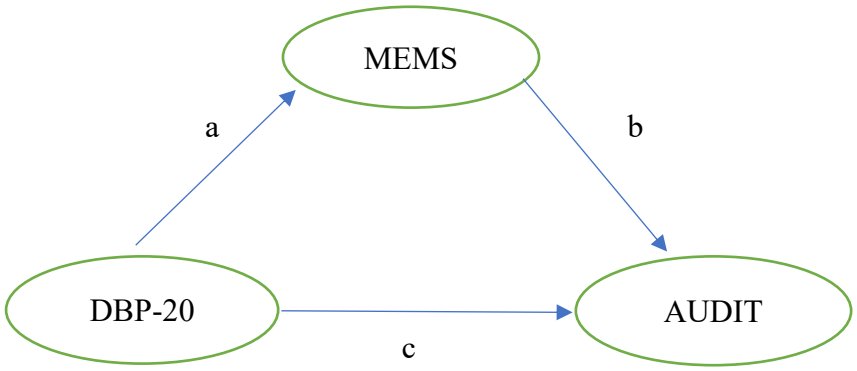

Figure 2

Correlation Between Comprehension Factor and Coping with Negative Affect Subscale

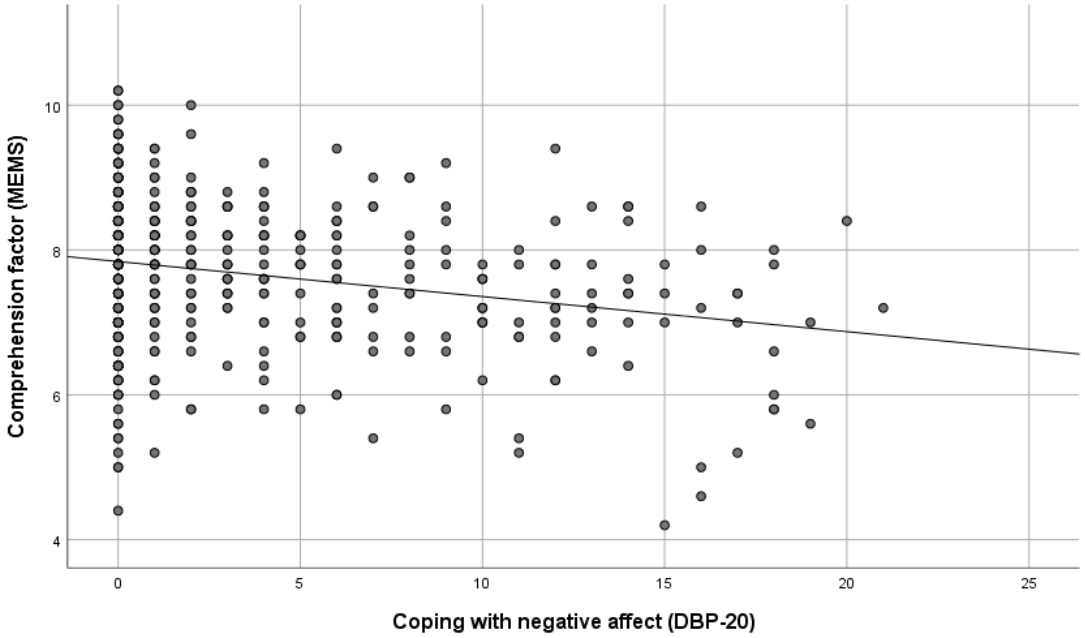

Figure 2

Correlation Between Purpose Factor and Coping with Negative Affect Subscale

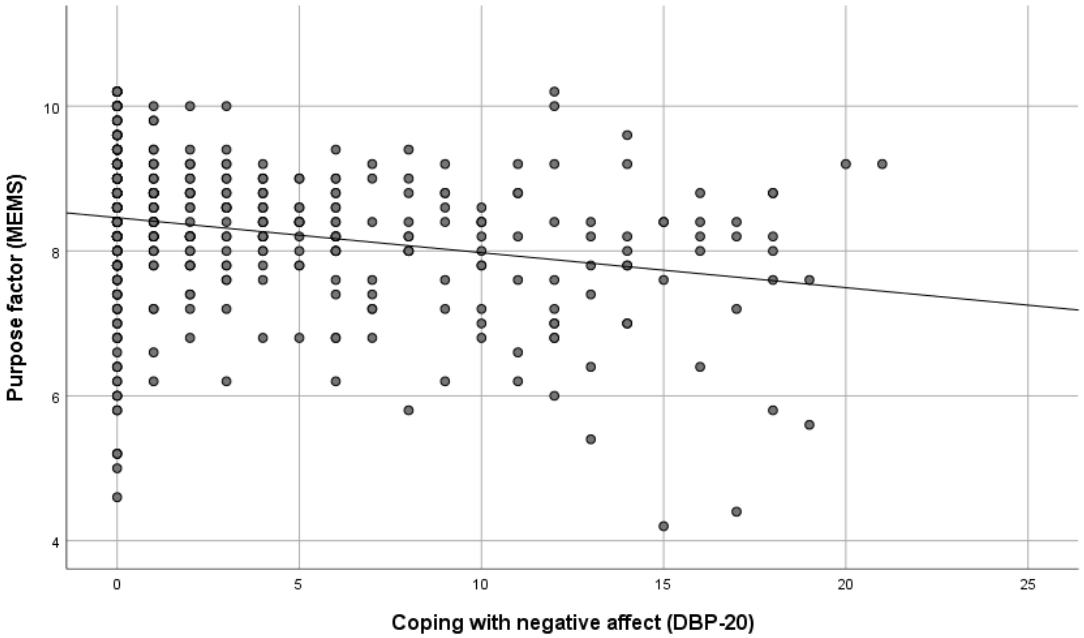

Figure 3

Correlation Between Mattering Factor and Coping with Negative Affect Subscale

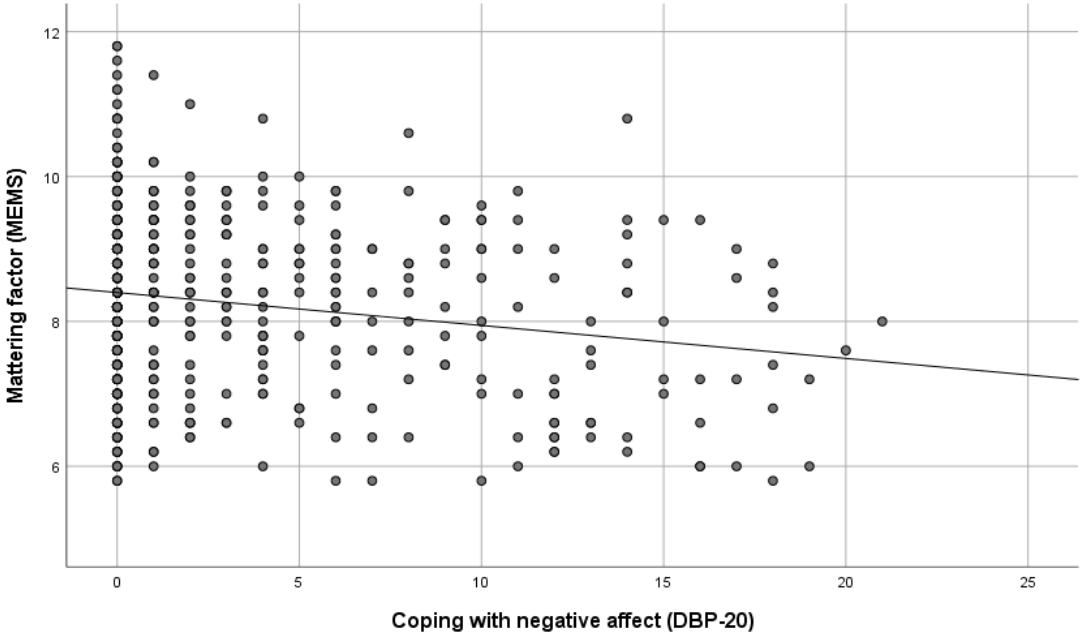

Figure 4

Correlation Between Purpose Factor And Automaticity Subscale

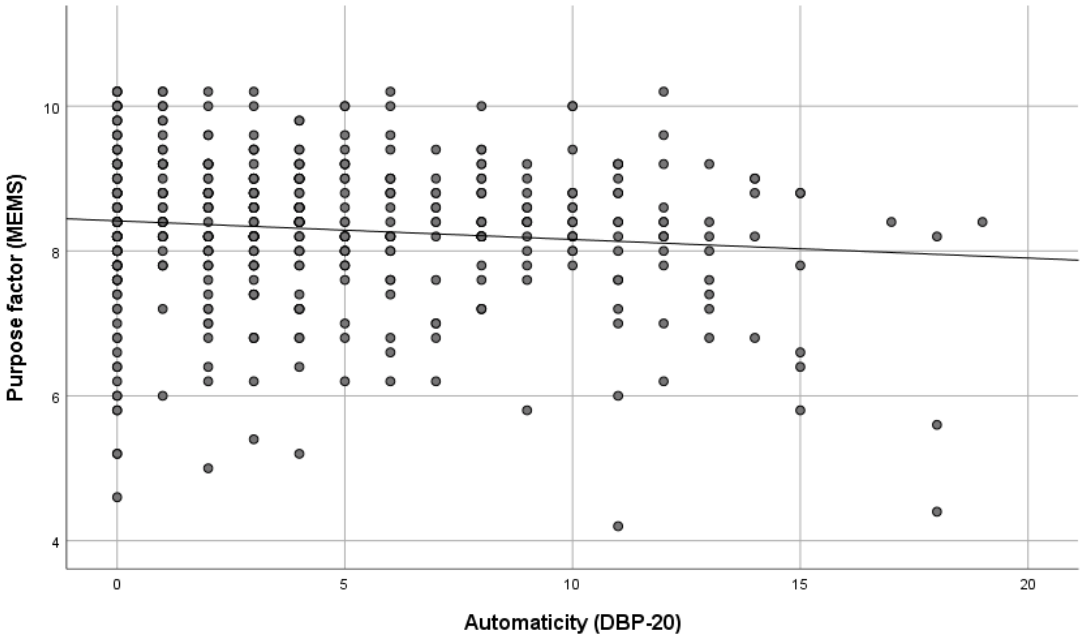

Figure 5

Correlation Between Mattering Factor and Automaticity Subscale

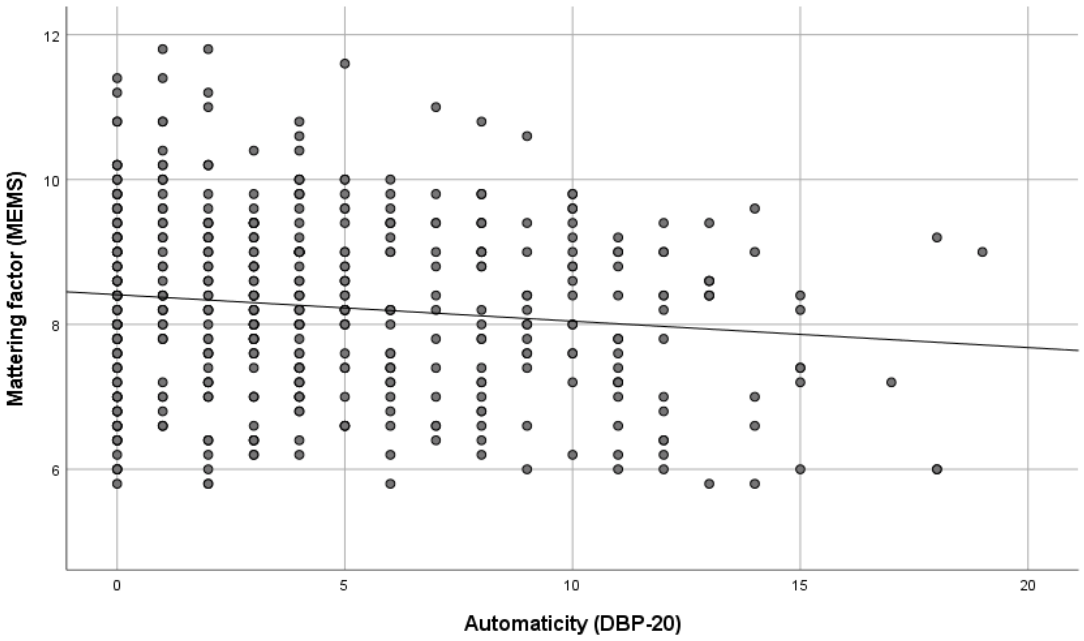

Figure 6

Correlation between AUDIT Score and Coping with Negative Affect Subscale

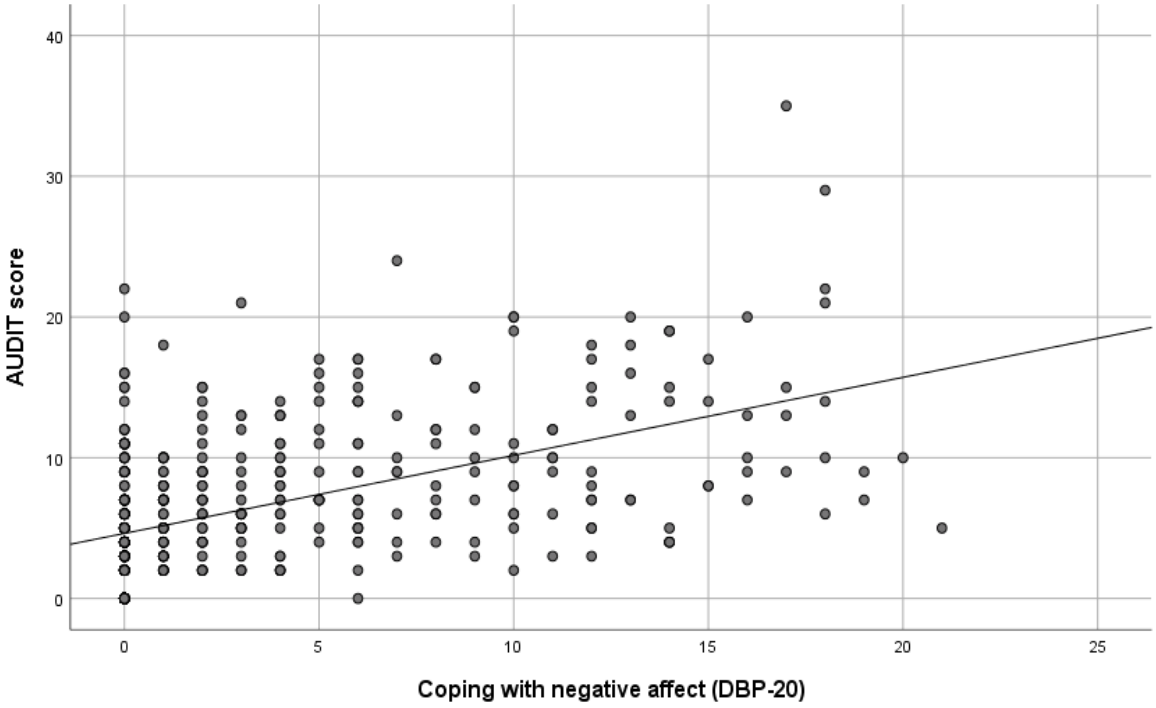

Figure 7

Correlation Between AUDIT Score and Automaticity Subscale