



## Transdiagnosis of alcohol use and psychopathologies: A systematic review

Ana Caroline Leite de Aguiar<sup>\*</sup>, Lucas Guimarães Bloc

University of Fortaleza (Unifor), Washington Soares Avenue, 1321, Edson Queiroz, Fortaleza, Ceará 60811-905, Brazil

### ARTICLE INFO

#### Keywords:

Alcohol use disorder  
Transdiagnosis

### ABSTRACT

Multiple diagnoses are the rule in Mental Health and alcohol use disorder (AUD) is a psychopathology with many comorbidities, requiring interventions that consider common factors, which means using a transdiagnostic perspective. This study aimed to identify in the scientific literature the main common transdiagnostic factors that link AUD to other psychopathologies in people over 18 years of age. A systematic review of the literature was carried out in the portals of the databases Pubmed, PsychINFO and CAPES. 37 articles were selected for analysis, which resulted in 25 transdiagnostic factors linked to AUD and to several other related disorders and health conditions. The results emphasize the variety of disorders and health conditions related to AUD, which highlights the importance of transdiagnostic factors for these conditions as targets for both scientific research and therapeutic interventions for this population.

### 1. Introduction

Comorbidities are the existence of two or more interrelated diagnoses for the same individual (Associação Brasileira de Estudos do Álcool e Outras Drogas [ABEAD], 2004). In Mental Health, comorbidities between disorders tend to be the rule, not the exception (Roefs et al., 2022): about 50 % of people diagnosed receive one or more additional diagnoses (Sauer-Zavala et al., 2017). For example, personality disorders may be a comorbidity with substance use disorder (SUD) in up to 90 % of cases (ABEAD, 2004). Patients with alcohol use disorder (AUD) may suffer from anxiety disorders in up to 70 % of cases (ABEAD, 2004). Depression is identified as being more prevalent among people with AUD (Ministério da Saúde do Brasil, 2019).

Despite the historical evolution of the main current diagnostic manuals (DSM 5-TR and ICD 10), they still adopt a of type classification that is more dimensional than categorical (Martinhago & Caponi, 2019), prioritizing the description of a set of basic dimensions of the same disorder in a continuum and emphasizing the level of severity. The DSM 5-TR, for example, still maintains more than 300 nosographic categories (American Psychiatric Association [APA], 2023).

These manuals facilitated universal scientific communication between professionals and researchers in the area and the guarantee of treatments in some public and private health systems (Azevedo, 2021). However the overlapping diagnoses, combined with a significant amount of manuals and clinical protocols to address mental disorders individually remain as obstacles (Hayes & Hofmann, 2020). Due to these

problems, an alternative method that may be employed is transdiagnosis, which has a main goal to surpass nosographics diagnosis, without ignoring it, understanding that there may be greater clinical usefulness in focusing on common factors among mental disorders (Norton & Paulus, 2017).

There is suggestive evidence of a common neurobiological basis for several mental disorders (Almeida & Marinho, 2021). Equivalently, the occurrence of similar psychological factors considered etiological and maintainers for these disorders has been proposed (Almeida & Marinho, 2021).

These factors are called transdiagnostic factors (TF) and are the etiological and maintaining factors shared by different mental disorders. Thus, considering them in clinical terms has shown the potential for further understanding and possible therapeutic interventions against comorbidities (Roefs et al., 2022). These comorbidities are diagnosed based on a professional assessment that involves, among other aspects, signs and symptoms presented by patients. TF differ from psychiatric symptoms, since the latter can be phenotypically distinct, and are also associated with similar psychological factors (Forsén et al., 2022), that is, functioning as the foundation of different disorders. Therefore, from a transdiagnostic perspective, interventions focus on TF and, thus, can treat more than one mental disorder at the same time, which shares the TF worked on. In current perspectives, each comorbidity, that is, each mental disorder would have a different intervention protocol, based on the improvement of signs and symptoms, which can lead to an increase in the cost-benefit of treatments (Almeida & Marinho, 2021).

<sup>\*</sup> Corresponding author.

E-mail address: [anacarolaguiar@edu.unifor.br](mailto:anacarolaguiar@edu.unifor.br) (A.C.L. de Aguiar).

AUD can benefit a lot from studies and transdiagnostic interventions, as it is considered one of the most comorbid conditions (Secretaria de Saúde do Ceará, 2017; ABEAD, 2004), which worsens its prognosis (Dalglish, Black, Johnston, & Bevan, 2020), further aggravated ever since the Covid-19 pandemic in 2020 (Clay & Parker, 2020). It is related to alcohol which causes worldwide an average of three million annual deaths (Clay & Parker, 2020). The early onset of consumption has been a concern across America, and studies have already shown that, both in Latin America and on the European continent, the age of onset has progressively decreased (Abad-Villaverde, 2022).

Research and therapies related to this disorder have focused on achieving and maintaining abstinence (Kelly, Humphreys, & Ferri, 2020; McGovern, Newham, Addison, Nickman, & Kaner, 2021), which is not necessarily a guarantee of improved general health and excludes alcoholics who neither want nor are not able to interrupt nor reduce their use at a certain point, but may have other therapeutic gains (Gomes & Dalla Vecchia, 2018; Santos, Campos, & Fortes, 2019).

There are a variety of aspects involved in the health of alcohol users, such as, for example, self-efficacy to avoid the substance and the ability to cope with problems (Ornelas, Díaz-Leal, Contreras, Fernández, & Pinto, 2019). Intervening in factors that generate and maintain AUD may be more promising and suitable for alcoholics, since they usually have multiple diagnoses and, because of this, a worse prognosis. Such complexity means that abstinence is not the only parameter of investigation and care.

However, in transdiagnostic studies, some disorders, such as depressive and anxiety disorders, seem to have received more emphasis and to have better established factors, including intervention protocols constructed and tested for effectiveness, such as those by Barlow (2016). Other disorders, such as AUD, still seem to need more and well-designed research for their establishment. There is a protocol called Common-Elements Treatment Approach (CETA), which is presented as an intervention for symptoms of depression, anxiety, post-traumatic stress disorder, and SUD, initially aimed at developing countries and already with some research that shows reasonable effectiveness (Almeida & Marinho, 2021). The module referring to SUD, however, was added later to the initial protocol, and was not originally designed for this demand (Kane et al., 2017).

The present study proposes to contribute to filling this relevant scientific, health and social gap linked to AUD and other psychopathologies related to it. The objective of the article is to identify, through a systematic review of the literature, the main common transdiagnostic factors between AUD and other psychopathologies in people aged 18 or older.

## 2. Method

To achieve the objective proposed here, a systematic review was carried out from July 1, 2022 to August 11, 2023, based on databases of Pubmed, PsycINFO and CAPES Portal.

In Pubmed and CAPES Portal, the English language was maintained, and the keyword 'transdiagnostic' was used, followed by the Boolean operators AND and OR to find the connecting denoting terms of problematic alcohol use, and written between parentheses: alcohol, binge drinking, Alcohol-Related Disorders, alcohol misuse, alcohol use disorder. Furthermore, an asterisk was used after the word alcohol, as a truncation to include its possible derivations, such as alcoholism.

PsycINFO operates with descriptors from its Thesaurus database. Initially, a search was made for the most appropriate terms for the topic of interest. They are: transdiagnostic treatment, Alcohol Abuse, Alcoholism, Alcohol Drinking Patterns, Alcohol Drinking Attitudes, Alcohol Treatment, Alcohol Use Disorder and Binge Drinking. However, when using the term transdiagnostic with them, in the English language, the search did not return results. The keyword transdiagnostic was used, connected to the aforementioned descriptors referring to the use of alcohol.

The search formulas in the three databases and the records that emerged are shown at Table 1.

The review was based on the recommendations of the PRISMA statement (Moher et al., 2015), according to which a four-phase process was conducted (identification, tracking, eligibility, and inclusion) to select the studies, based on a sequential examination of the title, abstract, and full text. The search and selection flowchart of articles is described at Fig. 1.

A counter-reviewer was consulted to replicate the searches. Subsequently, an inter-observer agreement was reached to establish the selection process of studies to be included in the review (Donato & Donato, 2019). According to the flowchart (Fig. 1), a search was conducted in the aforementioned databases, with the formulas indicated, and 871 studies were identified. The filters were applied for: Public - Adults, Period 2017 to 2023, and Peer-Reviewed, which restricted the findings to 171 studies. 47 duplicates were excluded.

As inclusion criteria, the following were established: a) contained the term transdiagnostic in the title, abstract or keywords; b) presented TF structured in psychological processes, instead of TF predominantly genetic/biological; and c) presented common TF between AUD and other mental disorders or different health conditions.

Of the 124 remaining articles, 34 were discarded: 4 for not meeting criterion "a", 9 for not meeting criterion "b" and 21 for not meeting criterion "c" and therefore were outside the scope of this research.

As exclusion criteria, the following were adopted: a) studies still in progress; b) studies whose results were not applicable to the target audience of this work; c) studies which did not present transdiagnostic factors.

Of the 90 remaining eligible studies, 2 were excluded by criterion "a", 32 by "b" and 19 by "c", resulting in the 37 articles included in this review. All of these were examined by reading the texts in full.

The selected articles underwent risk of bias assessment with the aid of the Risk of Bias in Non-randomized Studies of Interventions (ROBINS-I) tool (Sterne et al., 2016), from Cochrane. The ROBINS-I was chosen because it can be used to evaluate studies with different designs (Sterne et al., 2016), as was the case of those that composed this review. The tool covers seven domains: bias due to confounders; bias in the selection of study participants; bias in the classification of interventions; bias by deviation from intended interventions; bias due to lack of data; bias in terms of outcomes; and bias in the selection of reported results. Based on these domains, articles are classified as low, moderate, serious or critical risk of bias.

**Table 1**  
Review search data.

Database	Descriptors/Keywords	Search formulas	Number of references
Pubmed	Transdiagnostic alcohol* binge drinking Alcohol-Related Disorders alcohol misuse alcohol use disorder	transdiagnostic AND (alcohol* OR binge drinking OR Alcohol-Related Disorders OR alcohol misuse OR alcohol use disorder)	252
PsycINFO	Keyword: transdiagnostic Thesaurus terms: Alcohol Abuse Alcoholism Alcohol Drinking Patterns Alcohol Drinking Attitudes Alcohol Treatment Alcohol Use Disorder Binge Drinking	transdiagnostic AND (Alcohol Abuse OR Alcoholism OR Alcohol Drinking Patterns OR Alcohol Drinking Attitudes OR Alcohol Treatment OR Alcohol Use Disorder OR Binge Drinking)	292
CAPES Portal	Transdiagnostic alcohol* binge drinking Alcohol-Related Disorders alcohol misuse alcohol use disorder	transdiagnostic AND (alcohol* OR binge drinking OR Alcohol-Related Disorders OR alcohol misuse OR alcohol use disorder)	327

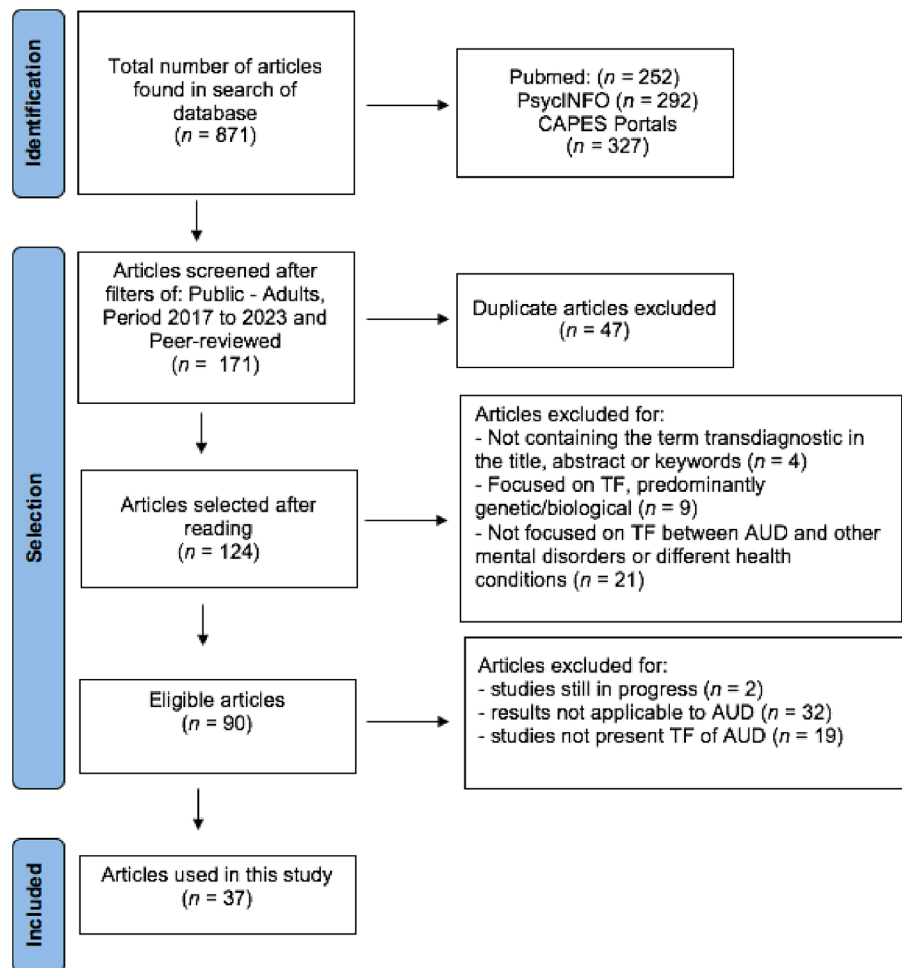


Fig. 1. Flowchart of the selection of articles included in the systematic review.

### 3. Results

The selected studies and its main characteristics can be view at the Table 2.

All studies used quantitative approaches, and two (Akeman et al., 2022; Helle, Sher, & Trull, 2021) were mixed, with both quantitative and qualitative elements. Among the results, alcohol use disorder is sometimes considered either a diagnosis category or a problematic use of this substance. This resulted from employing descriptors linked to this abusive use (such as binge drinking and alcohol abuse). Sometimes, the terms related to each situation are used as synonyms in the literature (Weiss, Forkus, Contractor, & Dixon-Gordon, 2020).

Some studies point to common transdiagnostic factors not only among mental disorders, but also between AUD and other health problems/associated behaviors (Albertella et al., 2020; Gearhardt, Waller, Jester, Hyde, & Zucker, 2018; Hasking & Claes, 2020; Hooker, LaRowe, Powers, & Ditre, 2022; LaRowe et al., 2020; Paulus et al., 2017, 2018; Paulus, Capron, & Zvolensky, 2021; Paulus, Rogers, Asmundson, & Zvolensky, 2020; Simons et al., 2018; Tiego et al., 2019; Zale, LaRowe, Boissoneault, Maisto, & Ditre, 2019). Sometimes, the factors are included in all these categories, contemplating multiple simultaneous diagnoses.

Three studies (Anderson, Hruska, Boros, Richardson, & Delahanty, 2018; Schag et al., 2019; Simons et al., 2018) present, in addition to the TF common to AUD and other health conditions, transdiagnostic factors specific to AUD. In the latter case, these are understood as precipitants (life events) and maintainers of the disorder (Silva, 2016).

Below, the results are described according to the combination of

AUD and other psychopathologies and/or health conditions and also taking in consideration the number of diagnoses studied together.

#### 3.1. Problematic use of alcohol or AUD and other psychopathologies

According to the literature employed in this study, the main disorders associated with AUD are: post-traumatic stress disorder (PTSD) (Acuff et al., 2018; Hawn et al., 2019; Lebeaut, Zegel, Leonard, Bartlett, & Vujanovic, 2021; Pezzoli, Antfolk, & Santtila, 2017; Simons et al., 2018; Weiss et al., 2018, 2020; Wolitzky-Taylor, Smit, Vujanovic, & Zvolensky, 2023); other substance use disorders (SUD) (Den Ouden et al., 2020; Girard et al., 2017; McCallum et al., 2019; Rodriguez-Seijas, Arfer, Thompson, Hasin, & Eaton, 2017; Rosenström et al., 2021; Yoon et al., 2021); personality disorders (PD) (Girard et al., 2017; Helle et al., 2021; Mattingley, Youssef, Manning, Graeme, & Hall, 2022; Rodriguez-Seijas et al., 2017; Rosenström et al., 2021); obsessive-compulsive disorder (OCD) (Albertella et al., 2020; Den Ouden et al., 2020; Ferreira et al., 2021; Pezzoli et al., 2017); eating disorders (ED) (Den Ouden et al., 2020; Hasking & Claes, 2020; Mattingley et al., 2022; Pezzoli et al., 2017), in particular, binge eating disorder (Schag et al., 2019); anxiety (McCallum et al., 2019; Paulus et al., 2017; Pezzoli et al., 2017; Swerdlow, Pearlstein, & Johnson, 2019; Yoon et al., 2021); depression (Akeman et al., 2022; Anderson et al., 2018; Anker et al., 2017; Barbotin et al., 2022; Paulus et al., 2017; Swerdlow et al., 2019; Weiss et al., 2018, 2020); disruptive, impulse control and conduct disorders (DICC) (Rodriguez-Seijas et al., 2017); attention deficit hyperactivity disorder (ADHD) (Oddo et al., 2022; Rodriguez-Seijas et al., 2017); and oppositional defiant disorder (ODD) (Rodriguez-Seijas et al., 2017).

**Table 2**  
Selected studies and its characteristics.

	Authors	Title	Year	Journal	Transdiagnostic factors and disorders
1	Yoon et al.	Alcohol Craving and Psychiatric Disorders Among Current Drinkers	2021	Am J Addict	Alcohol craving – AUD, SUD, humor disorders, Anxiety and Personality disorders.
2	Ferreira et al.	Habitual versus affective motivations in obsessive–compulsive disorder and alcohol use disorder	2021	CNS Spectr	Reward as motivation for repetitive behaviors – AUD and OCD.
3	Rodriguez-Seijas et al.	Sex-related substance use and the externalizing spectrum	2017	Drug Alcohol Depend	Disinhibition – SUD (including AUD) and disorders related to impulsivity and antisociality, as antisocial PD, ODD and ADHD.
4	LaRowe et al.	Pain-related anxiety, sex, and co-use of alcohol and prescription opioids among adults with chronic low back pain	2020	Drug Alcohol Depend	Anxiety related to pain - chronic pain, risky alcohol consumption and use/co-use of opioids.
5	Zale et al.	Gender differences in associations between pain-related anxiety and alcohol use among adults with chronic pain	2019	Am J Drug Alcohol Abuse	Anxiety related to pain - chronic pain, risky alcohol consumption among men.
6	Albott, C.S., Forbes, M.K., Anker, J.J.	Association of Childhood Adversity With Differential Susceptibility of Transdiagnostic Psychopathology to Environmental Stress in Adulthood.	2018	JAMA Netw Open	Childhood adversity – Common mental disorders (as Anxiety and Depression) and AUD.
7	Hasking, P., Claes, L.	Transdiagnostic mechanisms involved in nonsuicidal self-injury, risky drinking and disordered eating: Impulsivity, emotion regulation and alexithymia	2020	J Am Coll Health	Negative urgency and emotional dysregulation - non-suicidal self-injury, risky alcohol consumption and eating disorders.
8	Paulus, D.J., Capron, D.W., Zvolensky, M.J.	Understanding hazardous drinking and suicidal ideation and suicide risk among college students: anxiety sensitivity as an explanatory factor	2021	Cogn Behav Ther	Anxiety sensitivity – risky alcohol consumption and suicidal ideation/risk.
9	Paulus et al.	Pain severity and anxiety sensitivity interact to predict drinking severity among hazardous drinking college students	2020	Am J Drug Alcohol Abuse	Anxiety sensitivity – AUD and pain.
10	Paulus et al.	Pain and Alcohol Use among Latinos in Primary Care: Examining Rumination as an Explanatory Factor	2018	Subst Use Misuse	Rumination - AUD and pain.
11	Paulus et al.	Synergistic effects of pain and alcohol use in relation to depressive and anxiety symptoms among Latinos in primary care	2017	Cogn Behav Ther.	Intensity of physical pain – risky alcohol consumption and anxiety/depression symptoms.
12	McCallum et al.	Associations of fatigue and sleep disturbance with nine common mental disorders	2019	J Psychosom Res.	Problems with sleep and insomnia - Anxiety disorder and AUD/SUD.
13	Girard et al.	Interpersonal problems across levels of the psychopathology hierarchy	2017	Compr Psychiatry	Disinhibition – antisocial PD, SUD, AUD and borderline PD. Agency - SUD, AUD, antisocial PD, borderline PD, histrionic PD, narcissistic PD and paranoid PD. Domineering interpersonal style – SUD and AUD.
14	Gearhardt et al.	Body mass index across adolescence and substance use problems in early adulthood	2018	Psychol Addict Behav	Reward dysfunction and Impulsivity – substance misuse and obesity.
15	Tiego et al.	Overlapping dimensional phenotypes of impulsivity and compulsivity explain co-occurrence of addictive and related behaviors.	2019	CNS Spectr	Impulse control problems – alcohol misuse, pathological game and compulsive buying.
16	Albertella et al.	Compulsivity is measurable across distinct psychiatric symptom domains and is associated with familial risk and reward-related attentional capture.	2020	CNS Spectr	Compulsivity – compulsive behaviors, games, internet use, alcohol use, binge eating and OCD-related compulsions.
17	Weiss et al.	Heterogeneity in emotion regulation difficulties among women victims of domestic violence: A latent profile analysis	2018	J Affect Disord	Negative and positive emotional dysregulation – alcohol misuse, substance misuse, PTSD and Depression.
18	Weiss et al.	The interplay of negative and positive emotion dysregulation on mental health outcomes among trauma-exposed community individuals.	2020	Psychol Trauma.	Negative and positive emotional dysregulation – alcohol misuse, substance misuse, PTSD and Depression.
19	Anderson et al.	Patterns of co-occurring addictions, posttraumatic stress disorder, and major depressive disorder in detoxification treatment seekers: Implications for improving detoxification treatment outcomes	2018	J Subst Abuse Treat	Intolerance to suffering – AUD and depression.
20	Hooker et al.	Pain Intensity, Emotion Dysregulation, and Hazardous Drinking Among Adults With Chronic Pain	2022	J Stud Alcohol Drugs	Emotional dysregulation – alcohol misuse and comorbid chronic pain.
21	Rosenström et al.	Specific antisocial and borderline personality disorder criteria and general substance use: A twin study.	2021	T.Personal Disord	Behavioral disinhibition– SUD (including AUD) , antisocial PD, borderline PD.
22	Oddo et al.	Unique and Transdiagnostic Dimensions of Reward Functioning in Attention-Deficit/Hyperactivity Disorder and Alcohol Use Disorder Symptoms	2022	Alcohol Alcohol	Environmental suppressants – AUD and ADHD.
23	Akeman et al.	Amplification of Positivity Therapy for Co-occurring Alcohol Use Disorder with Depression and Anxiety Symptoms: Pilot Feasibility Study and Case Series	2022	Behav Modif.	Dysregulation of the positive valence system – AUD, depression and anxiety.
24	Barbotin et al.	Sleep Complaints Among Adults With Major Depressive Episode Are Associated With Increased Risk of Incident Psychiatric Disorders: Results From a Population-Based 3-Year Prospective Study	2022	The Journal of Clinical Psychiatry	Sleep problems – AUD and depression.
25	Acuff et al.	Access to environmental reward mediates the relation between posttraumatic stress symptoms and alcohol problems and craving	2018	Exp Clin Psychopharmacol	Little access to environmental rewards – AUD and PSTD.

(continued on next page)

Table 2 (continued)

Authors	Title	Year	Journal	Transdiagnostic factors and disorders
26 Anker et al.	A Network Approach to Modeling Comorbid Internalizing and Alcohol Use Disorders	2017	Journal of Abnormal Psychology	“Drink to cope” - anxiety, depression and alcohol misuse.
27 Helle, A.C., Kenneth, J. S., Trull, T.J.	Individual Symptoms or Categorical Diagnoses? An Epidemiological Examination of the Association Between Alcohol Use, Personality Disorders, and Psychological Symptoms	2021	Personality Disorders: Theory, Research, and Treatment	Impulsivity and Affective instability – antisocial PD, borderline PD and AUD.
28 Lebeaut et al.	Examining Transdiagnostic Factors among Firefighters in Relation to Trauma Exposure, Probable PTSD, and Probable Alcohol Use Disorder	2021	Journal of Dual Diagnosis	Anxiety sensitivity and emotional regulation difficulties – AUD and PTSD.
29 Schag et al.	Transdiagnostic Investigation of Impulsivity in Alcohol Use Disorder and Binge Eating Disorder With Eye-Tracking Methodology—A Pilot Study	2019	Frontiers in Psychiatry	Impulsivity – AUD and binge eating disorder.
30 Hawn et al.	Examination of the effects of impulsivity and risk-taking propensity on alcohol use in OEF/OIF/OND Veterans	2019	Journal of Military, Veteran and Family Health	Propensity to take risks and impulsivity(for example, negative urgency) – AUD and PTSD.
31 Swerdlow, B.A., Pearlstein, J.G., Johnson, S.L.	Multivariate Associations of Ideal Affect With Clinical Symptoms	2019	Emotion	Negative Absolute Ideal Affect – internalizing disorders (as depression and anxiety) and externalizing disorders (as AUD).Valuation of states of high arousal (example: excitement) – anxiety and alcohol misuse.
32 Paulus et al.	Intraindividual change in anxiety sensitivity and alcohol use severity 12-months following smoking cessation treatment	2019	Behaviour Research and Therapy	Anxiety sensitivity – AUD and smoking.
33 Simons et al.	PTSD symptoms and alcohol-related problems among veterans: Temporal associations and vulnerability	2018	Journal of Abnormal Psychology	Emotional dysregulation – AUD and PTSD. Lability, disinhibition, emotional dysregulation - AUD and conduct problems.
34 Den Ouden et al.	The role of Experiential Avoidance in transdiagnostic compulsive behavior: A structural model analysis	2020	Addict Behav	Experiential avoidance – OCD, eating disorders and SUD (including AUD).
35 Mattingley et al.	Distress tolerance across substance use, eating, and borderline personality disorders: A meta-analysis	2022	J Affect Disord.	Intolerance to suffering – SUD, eating disorders and borderline PD.
36 Pezzoli et al.	Phenotypic factor analysis of psychopathology reveals a new body-related transdiagnostic factor	2017	PLoS One	Traits of anger, aggressive behavior, sexual anguish, body image, and eating attitudes – eating disorders, OCD, anxiety disorder, PTSD and SUD (including AUD).
37 Wolitzky-Taylor et al.	Transdiagnostic Processes Linking Posttraumatic Stress Disorder Symptoms to Alcohol Use Severity	2023	Journal of dual diagnosis	Anxiety sensitivity and emotional dysregulation – AUD and PTSD.

The frequency in with which these psychopathologies were associated with AUD in the researched literature are explained at Table 3, below.

3.1.1. TF between problematic use of alcohol or AUD and one more psychopathological diagnosis

The main TF associated with the problematic use of alcohol or AUD and another psychopathological diagnosis are shown at Fig. 2:

Table 3

Frequencies with which psychopathologies appeared to be associated with AUD in the review articles.

Associated psychopathology	f <sub>i</sub>	f <sub>r</sub> (%)
AUD		
Depression	8	21.6 %
PTSD	8	21.6 %
SUD	6	16,2%
PD	5	13.5 %
ED	5	13.5 %
Anxiety	5	13.5 %
OCD	4	10.8 %
ADHD	2	5.4 %
DICCD	1	2.7 %
OD	1	2.7 %

Note. f<sub>i</sub> – absolute frequency. f<sub>r</sub> – relative frequency = f<sub>i</sub> / n (37 studies) × 100. Articles that cited more than one psychopathology were counted individually for each of them.

3.2. Problematic use of alcohol or AUD and other health conditions

Other health conditions linked to AUD were: chronic pain with co-use of opioids (LaRowe et al., 2020) or without (Hooker et al., 2022; Zale et al., 2019), non-suicidal self-injury (Hasking & Claes, 2020), suicidal ideation/risk (Paulus et al., 2021), obesity (Gearhardt et al., 2018), compulsive behaviors (Tiego et al., 2019) and conduct problems (Simons et al., 2018).

3.2.1. TF between problematic alcohol use or AUD and one more health condition

The main TF associated with the problematic use of alcohol or AUD and one more health condition are shown at Fig. 3:

3.3. Problematic use of alcohol or AUD associated with two more diagnoses – psychopathological and/or other health condition

Fig. 4 lists the TF between three diagnoses studied simultaneously, one of which is the problematic use of alcohol or AUD, and the others, psychopathological and/or another health condition.

3.4. Problematic use of alcohol or AUD associated with three or more diagnoses - psychopathological and/or other health condition

Considering four psychopathological diagnoses, between problematic alcohol use (or AUD), PTSD, SUD, and Depression, the TF of negative and positive emotional dysregulation appeared (Weiss et al., 2020). Between problematic alcohol use (or AUD), OCD, ED, and SUD, there

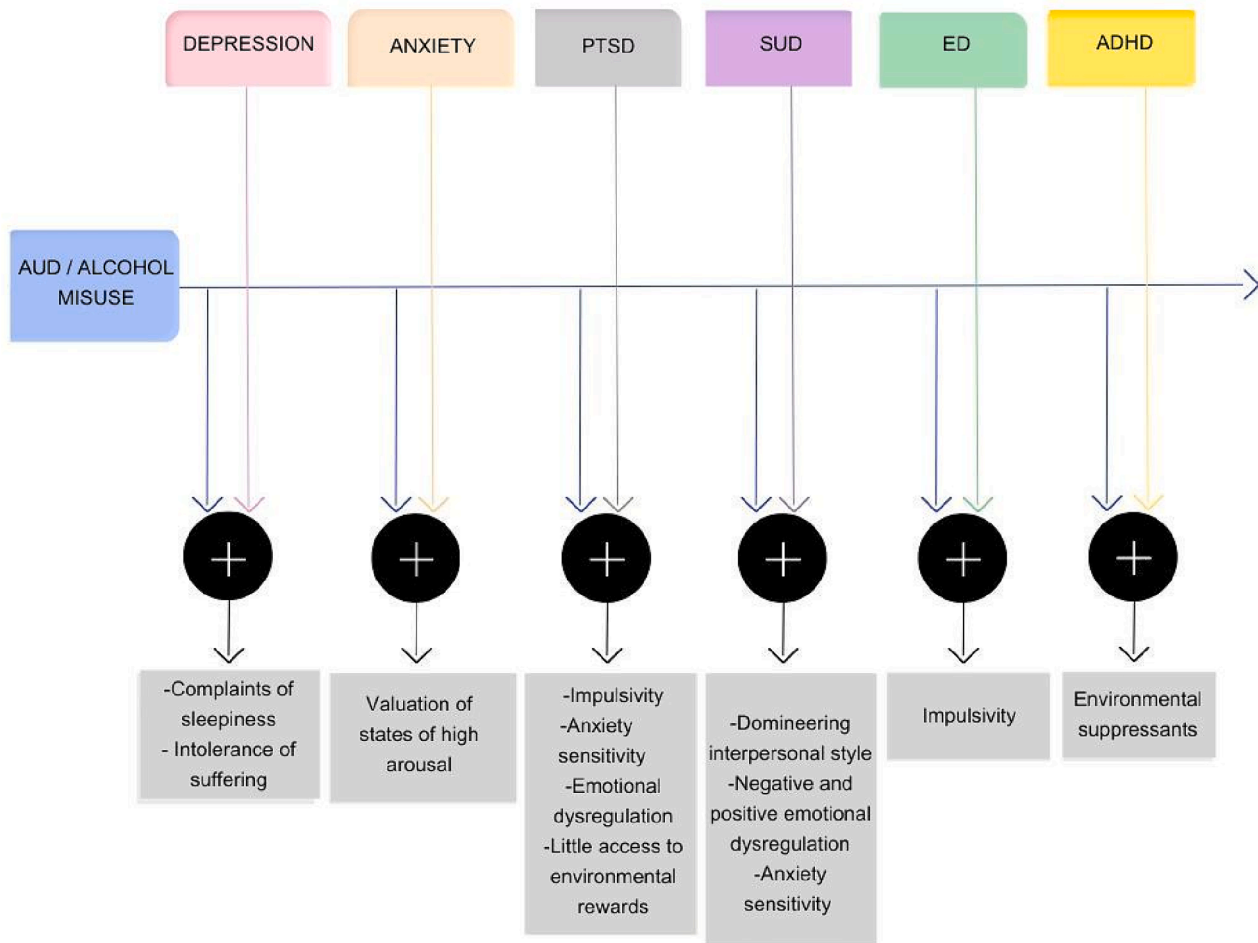


Fig. 2. TF between AUD or alcohol misuse and one more psychopathology.

was experiential avoidance (Den Ouden et al., 2020). Between problematic alcohol use (or AUD), SUD, ED and PD, there was suffering intolerance (Mattingley et al., 2022). Among problematic alcohol use (or AUD), SUD, PD and Anxiety, there was alcohol craving (Yoon et al., 2021).

In the case of five diagnoses, between problematic alcohol use (or AUD), SUD, PD, DICCD, and ADHD, personality traits related to disinhibition emerged as TF, these included sensation seeking, impulsivity, and aggression (Rodríguez-Seijas et al., 2017).

Finally, in the case of six diagnoses, between problematic use of alcohol (or AUD), PTSD, SUD, ED, OCD, and Anxiety, traits of anger, aggressive behavior, sexual anguish, body image, and eating attitudes emerged as TF (Pezzoli et al., 2017).

As can be seen, in recent scientific literature AUD appears to be related to several mental disorders and other health conditions and behaviors through transdiagnostic factors. Some of these relationships are associated with the so-called externalizing spectrum, defined by personality traits of disinhibition, sensation seeking, impulsivity, and aggression, within which would be AUD, SUD, antisocial PD, DICCD, and ADHD (Rodríguez-Seijas et al., 2017).

It is observed that alcohol use disorder, however, can also be relevantly related to disorders of the internalizing spectrum, marked by symptoms that are prominently anxious, depressive, and somatic (APA, 2023). It should be noted that, in the case of Anxiety and Depression, it was decided not to use the nosographic nomenclature of these disorders, because studies do not always specify whether the results refer to diagnoses and their subtypes or to unregulated states of anxiety and mood, without a closed diagnosis for the respective psychopathologies.

It should also be noted that the transdiagnostic factor of emotional dysregulation usually refers to both negative and positive emotions (Weiss et al., 2020).

In the article by Gearhardt et al. (2018), in addition to impulsivity, a predominantly biological TF was identified, the dysfunction of the brain reward system in people with substance abuse and obesity, however, due to the focus of this work, only impulsivity was considered.

At Table 4, the 25 TF extracted from this review are listed, described with the absolute and relative frequencies with which they appeared in the studies.

Regarding the risk of bias, according to the ROBINS-I, most studies ( $n = 29$ ) were considered at low risk of bias, seven studies (Albertella et al., 2020; Gearhardt et al., 2018; Hooker et al., 2022; Paulus et al., 2018; Rosenström et al., 2021; Tiego et al., 2019; Zale et al., 2019) showed moderate risk and one (Akeman et al., 2022) showed serious risk.

#### 4. Discussion

Studies on transdiagnostic factors have multiplied in recent years, in order to support the development of interventions that are more consistent with their underlying processes and complexity (Mattingley et al., 2022), exemplified by the high incidence of comorbidities.

It is observed, however, that there is no conceptually and methodologically standardized path for the study of transdiagnostic factors. The selected studies demonstrate different understandings of these factors and different paths to establish them, in line with the findings by Frank and Davidson (2014), in that they have been approached either as

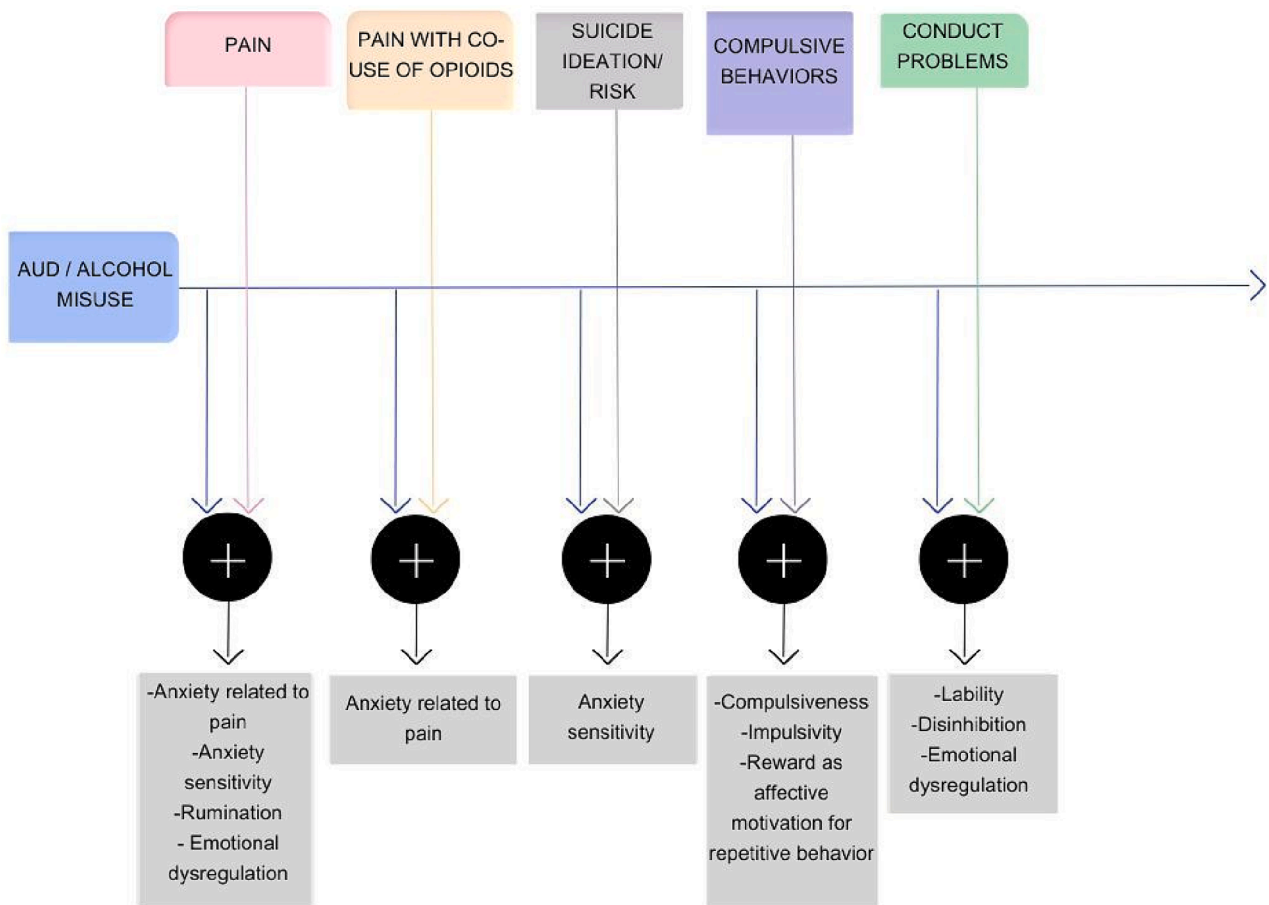


Fig. 3. TF between AUD or alcohol misuse and one more health condition.

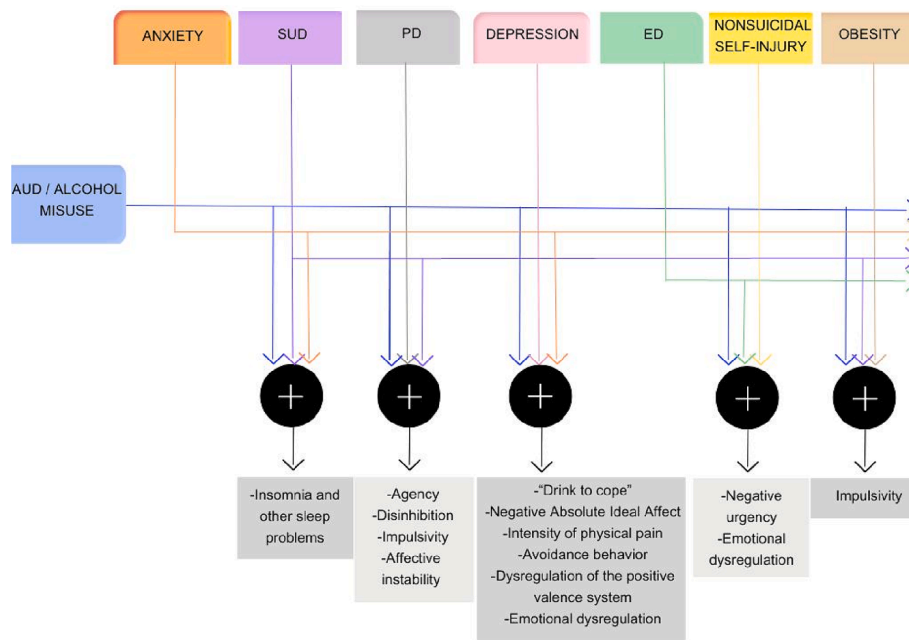


Fig. 4. TF between AUD or alcohol misuse and two more diagnoses.

psychological processes or as risk or vulnerability factors, cognitive and emotional constructs, mediators or moderators, among other mechanisms and symptoms, or maintenance and coping mechanisms, or

response patterns, etc. In other studies, such as the ones selected for this review, TF are considered to be common underlying diagnoses or simultaneous health conditions, which contribute to the maintenance or

**Table 4**

TF extracted from the review with respective descriptions and frequencies from the analyzed studies.

TF	Description	f <sub>i</sub>	f <sub>r</sub> (%)
Alcohol craving	Some alcoholics experience cravings or strong desires for alcohol, others do not. Those (cravers) had higher prevalence rates of psychiatric disorders than the others (Yoon et al., 2021).	1	2.7
Reward as motivation for repetitive behaviors	Search for a pleasurable sensation, emotional gratification that leads someone to repeat compulsive or addictive behaviors, as in OCD and AUD. Motivation is considered affective because it is related to emotional regulation (Ferreira et al., 2021).	1	2.7
Disinhibition	Personality traits related to disinhibition: sensation seeking, impulsivity and aggression (Rodriguez-Seijas et al., 2017). This is linked to the dominating interpersonal style (Girard et al., 2017). Also studied by Rosenström et al. (2021) and Simons et al. (2018).	4	10.8
Anxiety related to pain	It may arise in response to chronic pain and manifest as pain concern – intensity, duration, effects on quality of life, etc. (LaRowe et al., 2020; Zale et al., 2019).	2	5.4
Childhood adversity	Childhood adversities considered in the study: physical or sexual abuse, physical or emotional neglect, exposure to domestic or community violence, parental divorce or separation, death or loss of a parent or other loved one, serious illness or prolonged hospitalization, extreme poverty or food insecurity, frequent changes of residence or school, racial or ethnic discrimination (Albott, Forbes, & Anker, 2018).	1	2.7
Negative urgency	Linked to impulsivity: it is a tendency to act impulsively when experiencing negative emotions (Hasking & Claes, 2020; Hawn et al., 2019).	2	5.4
Negative and positive emotional dysregulation	Difficulty controlling behavior in the context of emotions (Hasking & Claes, 2020; Weiss et al., 2018; Weiss et al., 2019; Weiss et al., 2020), that is, to use adaptive behaviors to deal with emotions of these two senses. Also in: Hooker et al. (2022), Lebeaut et al. (2021) and Simons et al. (2018).	9	24.3
Anxiety sensitivity (AS)	Reflects fear of physiological sensations. Pain severity and AS may interact in such a way that those with high AS may have stronger relationships between pain and alcohol (Lebeaut et al., 2021; Paulus et al., 2020, 2021; Paulus, Gallagher, Raines, Schmidt, & Zvolensky, 2019).	4	10.8
Rumination	Cognitive process that involves the obsessive and passive repetition of thoughts and/or concerns (Paulus et al., 2018).	1	2.7
Physical pain intensity (PPI)	The relationship between physical pain, alcohol consumption and symptoms of anxiety and depression was examined, and it was concluded that PPI increased the risk of anxiety	1	2.7

**Table 4 (continued)**

TF	Description	f <sub>i</sub>	f <sub>r</sub> (%)
	and depression symptoms in patients with pain and alcohol use (Paulus et al., 2017). Dangerous drinking was linked to more severe depressive/anxious arousal symptoms only when pain intensity/disability was high (Paulus et al., 2017).		
Sleep problems	Insomnia, excessive daytime sleepiness, and nightmares (McCallum et al., 2019). Also in: Barbotin et al. (2022).	2	5.4
Agency	“Agency [...] describes a range of interpersonal functioning, from assertiveness to passivity, [...] relevant to negotiating social hierarchies. Assertiveness manifests itself in displays of power, dominance.” (Girard et al., 2017, p. 2).	1	2.7
Domineering interpersonal style	This style is linked to disinhibition and dominance over the other (Girard et al., 2017).	1	2.7
Impulsivity or impulse control problems	“For the purpose of the present investigation, we conceptualize impulsivity as it is represented [...] in the DSM-5, broadly representing the behavioral component (e.g., tends to do things impulsively; fails to plan ahead) [...] However, it is important to note that [...] the construct of impulsivity is multifaceted and is a prominent feature of many disorders and treatment prognosis (Mullins-Sweatt et al., 2019).” (Helle et al., 2021, p. 3). Also in: Gearhardt et al. (2018), Hawn et al. (2019), and Schag et al. (2019). Impulse control problems that lead to health impairments, such as harmful use of alcohol, pathological gambling, and compulsive buying (Tiego et al., 2019).	5	13.5
Compulsivity	Repetitive and persistent behaviors that are difficult to control, are harmful, and can be present in various mental disorders (Albertella et al., 2020).	1	2.7
Intolerance to suffering	“Suffering tolerance can be an especially useful skill to learn in the early [...] part of detox, where those seeking treatment may be experiencing acute and painful withdrawal symptoms.” (Anderson et al., 2018, p. 50). Also studied by Mattingley et al. (2022).	2	5.4
Environmental suppressants	Factors external to the individual that can negatively affect the sensitivity of the brain’s reward system. These can be stressful experiences, lack of social support, sleep deprivation and others that can decrease the brain’s ability to receive and process rewarding stimuli (Oddo et al., 2022).	1	2.7
Dysregulation of the positive valence system	“The positive valence system is conceptualized as involving responses to contexts and situations that are positively motivating or associated with positive affect, including anticipation and reactivity to rewarding or pleasurable events (Morris & Cuthbert, 2012). This system	1	2.7

(continued on next page)



Table 4 (continued)

TF	Description	f <sub>i</sub>	f <sub>r</sub> (%)
	facilitates the acquisition of psychosocial resources, promoting stress resilience and overall health and well-being (Fredrickson, 2013; Lyubomirsky et al., 2005).” (Akeman et al., 2022, p. 2) Thus, positive valence involves positive affect and social connection (Akeman et al., 2022).		
Little access to environmental rewards	“those with reduced access to environmental reward may have little access to recreational and educational resources due to poverty and, in some cases, may lack the social skills or self-regulatory capacity to engage in or take advantage of opportunities to participate [...] [in ] social, leisure, or academic/community activities.” (Acuff et al., 2018, p. 3).	1	2.7
“Drink to cope”	Use of alcohol to cope with negative emotions, anxiety, stress, depressed mood. This differs from use for social or recreational purposes (Anker et al., 2017).	1	2.7
Affective instability or lability	“The current study uses [...] affective instability as represented in the DSM-5 [...] (e.g., sudden changes in affective states, such as from sadness to anger), but it should be noted that affective instability is a complex construction with various conceptualizations and associated processes.” (Helle et al., 2021, p. 3). Links to lability (Simons et al., 2018).	2	5.4
Negative Absolute Ideal Affect (AIA)	How people describe their ideal emotions in terms of valence and intensity. The study found that people with a more negative AIA tended to have greater severity in symptoms of anxiety, depression, and AUD (Swerdlow et al., 2019).	1	2.7
Valuation of states of high arousal	“[...] tendencies to value and experience high positive arousal [...]” (Swerdlow et al., 2019, p. 2). This valuing was associated with both heightened anxiety and alcohol abuse.	1	2.7
Experiential avoidance or avoidance behaviors	Avoidance of sensations, evasion as a way to adapt to the environment, social isolation (Den Ouden et al., 2020).	1	2.7
Anger trait, aggressive behavior, sexual distress, body image and eating attitudes	“Shaping measures [of these FT], along with more common measures of psychopathology, would reshape the internalizing-externalizing metastructure.” (Pezzoli et al., 2017, p. 11).	1	2.7

Note. f<sub>i</sub> – absolute frequency. f<sub>r</sub> – relative frequency = f<sub>i</sub> / n (37 studies) × 100. Articles that cited more than one TF were counted individually for each one of them.

worsening of the disorders and worsen the prognosis.

The heterogeneity of the conceptual understanding of FT may imply difficulties for clinicians to translate these studies into their practices. Furthermore, most studies with a quantitative method suggest that this type of research is valued for indexing in the databases used and there is a potential loss of important qualitative correlations of the quantitative results, meaning that they are not understood in a deeper way.

With regard to AUD and related psychopathologies, it was possible to observe that emotional dysregulation was the most common

transdiagnostic factor among the mental disorders considered, confirming its reference as underlying all mental disorders in the DSM-5-TR (APA, 2023).

Based on the results of this review, an expansion of the target audience for the Unified Treatment Protocol for Emotional Disorders (Barlow, 2016) is suggested: alcoholics diagnosed with OCD and ED can also benefit, since the protocol works to reduce avoidance behaviors (Almeida & Marinho, 2021), and experiential avoidance appeared as a TF among the aforementioned disorders.

In addition the results of this study can contribute to the elaboration and testing of more specific mental health intervention protocols of AUD and the main psychopathologies with which it has been related in the scientific literature, since this gap still exists, but is just starting to be filled with CETA (Almeida & Marinho, 2021).

Knowledge of the main TF associated with AUD and other related disorders is also important to guide clinicians and researchers in the preparation, selection, and validation of scales and other assessment instruments that can measure/evaluate these factors and, consequently, qualify the therapeutic interventions.

Based on the findings, it is recommended, for example, the use of the Difficulties in Emotion Regulation Scale – DERS (Gratz & Roemer, 2004), which assesses aspects of emotional regulation, and the Schema Therapy Inventories and Related Materials (Young, 2014), which assesses avoidance behaviors, both of these TF are associated with AUD and other diagnoses.

The results endorsed the variety of mental disorders related to AUD, in addition to other health associated problems, which highlights the importance of TF emerging from these conditions being targets of both scientific research on care interventions for alcoholics and therapeutic intervention processes for this public.

As a result, the transdiagnostic perspective gains space to research and therapeutically intervene in the common factors between these associated health conditions.

Among the limitations of this review are the heterogeneity of the studies, mainly in terms of methods, which hinders both the joint analysis of the results, the assessment of methodological quality with only one tool, and a probable non-consideration of all relevant studies on the theme, due to having been limited to the databases mentioned.

Based on this work, investigations are proposed on possible hierarchies of transdiagnostic factors in relation to the disorders to which they underlie. As most of the findings were quantitative, it is necessary to deepen the results, that is, on people’s experience when undergoing these factors, gaps that can direct future studies.

## 5. Conclusion

It is concluded that the consideration of transdiagnostic factors in research and interventions with people with AUD is necessary in order to reach the factors underlying the disorder, which can contribute to its maintenance and worsening. With this, an expansion of care and research parameters is expected beyond abstinence and relapse prevention, since the transdiagnostic factors identified here point to what also needs to be evaluated, investigated and worked on with people with AUD.

## Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

## CRediT authorship contribution statement

**Ana Caroline Leite de Aguiar:** Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Resources, Writing – original draft, Writing – review & editing. **Lucas Guimarães Bloc:** Project administration, Supervision, Validation, Visualization, Writing –

review & editing.

## Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

## Data availability

No data was used for the research described in the article.

## References

- Abad-Villaverde, B. (2022). Consumo de Alcohol y Otras Sustancias Psicoactivas en Adolescentes Dominicanos. *Revista Iberoamericana de Diagnóstico Y Evaluación – e Avaliação Psicológica*, 65(4), 5–18. <https://doi.org/10.21865/ridep65.4.01>
- Acuff, S. F., Luciano, M. T., Soltis, K. E., Joyner, K. J., McDevitt-Murphy, M., & Murphy, J. G. (2018). Access to environmental reward mediates the relation between posttraumatic stress symptoms and alcohol problems and craving. *Experimental and Clinical Psychopharmacology*, 26(2), 177–185. <https://doi.org/10.1037/pha0000181>
- Akeman, E., White, E., Wolitzky-Taylor, K., Santiago, J., McDermott, T. J., DeVille, D. C., Stewart, J. L., Paulus, M., Taylor, C. T., & Aupperle, R. L. (2022). Amplification of positivity therapy for co-occurring alcohol use disorder with depression and anxiety symptoms: Pilot feasibility study and case series. *Behavior Modification*, 46(5), 1021–1046. <https://doi.org/10.1177/01454455211030506>
- Albertella, L., Chamberlain, S. R., Le Pelley, M. E., Greenwood, L. M., Lee, R. S., Den Ouden, L., Segrave, R. A., Grant, J. E., & Yücel, M. (2020). Compulsivity is measurable across distinct psychiatric symptom domains and is associated with familial risk and reward-related attentional capture. *CNS spectrums*, 25(4), 519–526. <https://doi.org/10.1017/S1092852919001330>
- Albott, C. S., Forbes, M. K., & Anker, J. J. (2018). Association of childhood adversity with differential susceptibility of transdiagnostic psychopathology to environmental stress in adulthood. *JAMA Network Open*, 1(7), e185354.
- Almeida, D., & Marinho, G. (2021). Terapia cognitivo-comportamental transdiagnóstica: Uma revisão da literatura. *Revista Psicologia, saúde & doenças*, 22(3), 979–990. <https://doi.org/10.15309/21psd220317>
- American Psychiatric Association – APA (2023). *Manual diagnóstico e estatístico de transtornos mentais – DSM-5-TR*. Artmed.
- Anderson, R. E., Hruska, B., Boros, A. P., Richardson, C. J., & Delahanty, D. L. (2018). Patterns of co-occurring addictions, posttraumatic stress disorder, and major depressive disorder in detoxification treatment seekers: Implications for improving detoxification treatment outcomes. *Journal of substance abuse treatment*, 86, 45–51. <https://doi.org/10.1016/j.jsat.2017.12.009>
- Anker, J. J., Forbes, M. K., Almqvist, Z. W., Menk, J. S., Thuras, P., Unruh, A. S., & Kushner, M. G. (2017). A network approach to modeling comorbid internalizing and alcohol use disorders. *Journal of abnormal psychology*, 126(3), 325–339. <https://doi.org/10.1037/abn0000257>
- Associação Brasileira de Estudos do Álcool e Outras Drogas (2004). *Comorbidades*. Associação Brasileira de Estudos do Álcool e Outras Drogas.
- Azevedo, L. M. N. (2021). *Neuroticismo e inflexibilidade psicológica na ansiedade, depressão e na disfunção sexual: Uma abordagem transdiagnóstica*. [Dissertação de Mestrado, Universidade do Porto, Portugal]. Repositório Aberto da Universidade do Porto. <https://hdl.handle.net/10216/137722>
- Barbotin, B., Hoertel, N., Olsson, M., Blanco, C., Sanchez-Rico, M., Lejoyeux, M., Limosin, F., & Geoffroy, P. A. (2022). Sleep complaints among adults with major depressive episode are associated with increased risk of incident psychiatric disorders: Results from a population-based 3-year prospective study. *The Journal of clinical psychiatry*, 84(1), 21m14236. <https://doi.org/10.4088/JCP.21m14236>
- Barlow, D. H. (Org.). (2016). *Manual clínico dos transtornos psicológicos: Tratamento passo a passo* (5th ed.). Artmed.
- Clay, J. M., & Parker, M. O. (2020). Alcohol use and misuse during the covid-19 pandemic: A potential public health crisis? [Public health]. *The lancet*, 5(5). [https://doi.org/10.1016/s2468-2667\(20\)30088-8](https://doi.org/10.1016/s2468-2667(20)30088-8)
- Dalgleish, T., Black, M., Johnston, D., & Bevan, A. (2020). Transdiagnostic approaches to mental health problems: Current status and future directions. *Journal of consulting and clinical psychology*, 88(3), 179–195. <https://doi.org/10.1037/ccp0000482>
- Den Ouden, L., Tiego, J., Lee, R. S. C., Albertella, L., Greenwood, L. M., Fontenelle, L., Yücel, M., & Segrave, R. (2020). The role of Experiential Avoidance in transdiagnostic compulsive behavior: A structural model analysis. *Addictive Behaviors*, 108, Article 106464. <https://doi.org/10.1016/j.addbeh.2020.106464>
- Donato, H., & Donato, M. (2019). Etapas na condução de uma revisão sistemática. *Acta Médica Portuguesa*, 32(3). <https://doi.org/10.20344/amp.11923>
- Ferreira, G. M., Lee, R. S. C., Piquet-Pessôa, M., de Menezes, G. B., Moreira-de-Oliveira, M. E., Albertella, L., Yücel, M., Dos Santos Cruz, M., Dos Santos-Ribeiro, S., & Fontenelle, L. F. (2021). Habitual versus affective motivations in obsessive-compulsive disorder and alcohol use disorder. *CNS spectrums*, 26(3), 243–250. <https://doi.org/10.1017/S1092852919001706>
- Forsén, M. E., Clinton, D., Monell, E., Levallius, J., & Birgegård, A. (2022). Impulsivity and compulsivity as parallel mediators of emotion dysregulation in eating-related addictive-like behaviors, alcohol use, and compulsive exercise. *Brain and Behavior*, 12(1), 1–9. <https://doi.org/10.1002/brb3.2458>
- Frank, R. L., & Davidson, J. (2014). *The transdiagnostic road map to case formulation and treatment planning: Practical guidance for clinical decision making*. New Harbinger Publications.
- Gearhardt, A. N., Waller, R., Jester, J. M., Hyde, L. W., & Zucker, R. A. (2018). Body mass index across adolescence and substance use problems in early adulthood. *Psychology of addictive behaviors: journal of the Society of Psychologists in Addictive Behaviors*, 32(3), 309–319. <https://doi.org/10.1037/adb0000365>
- Girard, J. M., Wright, A. G. C., Beeney, J. E., Lazarus, S. A., Scott, L. N., Stepp, S. D., & Pilkonis, P. A. (2017). Interpersonal problems across levels of the psychopathology hierarchy. *Comprehensive psychiatry*, 79, 53–69. <https://doi.org/10.1016/j.comppsy.2017.06.014>
- Gomes, T. B., & Dalla Vecchia, M. (2018). Estratégias de redução de danos no uso prejudicial de álcool e outras drogas: Revisão de literatura. *Ciência e saúde coletiva*, 23(7). Doi: 10.1590/1413-81232018237.21152016.
- Gratz, K. L., & Roemer, L. (2004). Multidimensional assessment of emotion regulation and dysregulation: Development, factor structure, and initial validation of the Difficulties in Emotion Regulation Scale. *Journal of psychopathology and Behavioral Assessment*, 26, 41–54. <https://doi.org/10.1023/B:JOBA.0000007455.08539.94>
- Hasking, P., & Claes, L. (2020). Transdiagnostic mechanisms involved in non-suicidal self-injury, risky drinking and disordered eating: Impulsivity, emotion regulation and alexithymia. *Journal of American college health*, 68(6), 603–609. <https://doi.org/10.1080/07448481.2019.1583661>
- Hawn, S. E., Chowdhury, N., Kevorkian, S., Sheth, D., Brown, R. C., Berenz, E., McDonald, S., Pickett, T., Danielson, C. K., Thomas, S., & Amstadter, A. B. (2019). Examination of the effects of impulsivity and risk-taking propensity on alcohol use in OEF/OIF/OND Veterans. *Journal of military, veteran and family health*, 5(2), 88–99. <https://doi.org/10.3138/jmvfh.2018-0002>
- Hayes, S. C., & Hofmann, S. G. (2020). *Beyond the DSM: Toward a process-based alternative for diagnosis and mental health treatment*. Context Press.
- Helle, A. C., Sher, K. J., & Trull, T. J. (2021). Individual symptoms or categorical diagnoses? An epidemiological examination of the association between alcohol use, personality disorders, and psychological symptoms. *Personality disorders*, 12(5), 484–490. <https://doi.org/10.1037/per0000459>
- Hooker, J. E., LaRowe, L. R., Powers, J. M., & Ditre, J. W. (2022). Pain intensity, emotion dysregulation, and hazardous drinking among adults with chronic pain. *Journal of studies on alcohol and drugs*, 83(2), 223–230. <https://doi.org/10.15288/jsad.2022.83.223>
- Kane, J. C., Skavenski Van Wyk, S., Murray, S. M., Bolton, P., Melendez, F., Danielson, C. K., Chimponda, P., Munthali, S., & Murray, L. K. (2017). Testing the effectiveness of a transdiagnostic treatment approach in reducing violence and alcohol abuse among families in Zambia: Study protocol of the Violence and Alcohol Treatment (VATU) trial. *Global Mental Health*, 4. <https://doi.org/10.1017/gmh.2017.10>
- Kelly, J. F., Humphreys, K., & Ferri, M. (2020). Alcoholics anonymous and other 12-step programs for alcohol use disorder. *The Cochrane database of systematic reviews*, 3(3), CD012880. <https://doi.org/10.1002/14651858.cd012880.pub2>
- LaRowe, L. R., Powers, J. M., Garey, L., Rogers, A. H., Zvolensky, M. J., & Ditre, J. W. (2020). Pain-related anxiety, sex, and co-use of alcohol and prescription opioids among adults with chronic low back pain. *Drug and alcohol dependence*, 214, Article 108171. <https://doi.org/10.1016/j.drugalcdep.2020.108171>
- Lebeaut, A., Zegel, M., Leonard, S. J., Bartlett, B. A., & Vujanovic, A. A. (2021). Examining transdiagnostic factors among firefighters in relation to trauma exposure, probable PTSD, and probable alcohol use disorder. *Journal of Dual Diagnosis*, 17(1), 52–63. <https://doi.org/10.1080/15504263.2020.1854411>
- Martinho, F., & Caponi, S. (2019). Breve história das classificações em psiquiatria. *Revista Interacional Interdisciplinar Interthesis*, 16(1), 74–91. <https://doi.org/10.5007/1807-1384.2019v16n1p73>
- Mattingley, S., Youssef, G. J., Manning, V., Graeme, L., & Hall, K. (2022). Distress tolerance across substance use, eating, and borderline personality disorders: A meta-analysis. *Journal of Affective Disorders*, 300, 492–504. <https://doi.org/10.1016/j.jad.2021.12.126>
- McCallum, S. M., Batterham, P. J., Cleave, A. L., Sunderland, M., Carragher, N., & Kazan, D. (2019). Associations of fatigue and sleep disturbance with nine common mental disorders. *Journal of Psychosomatic Research*, 123, Article 109727. <https://doi.org/10.1016/j.jpsychores.2019.05.005>
- McGovern, R., Newham, J. J., Addison, M. G., Nickman, C. D., & Kaner, E. F. S. (2021). Effectiveness of psychosocial interventions for reducing parental substance misuse. *The Cochrane database of systematic reviews*, 3(3), Article CD012823. <https://doi.org/10.1002/14651858.cd012823.pub2>
- Ministério da Saúde do Brasil (2019). *Nota Técnica n. 11/2019*. <https://pbpd.org.br/wp-content/uploads/2019/02/0656ad6e.pdf>
- Moher, D., Shamseer, L., Clarke, M., Ghersi, D., Liberati, A., Petticrew, M., Shekelle, P., & Stewart, L. A. (2015). Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015 statement. *Systematic reviews*, 4(1), 1–9. <https://doi.org/10.1186/2046-4053-4-1>
- Norton, P. J., & Paulus, D. J. (2017, Agosto). Transdiagnostic models of anxiety disorder: Theoretical and empirical underpinnings. *Clinical Psychology Review*, 56, 122–137. <https://doi.org/10.1016/j.cpr.2017.03.004>
- Oddo, L. E., Acuff, S. F., Arenson, M. B., Oshri, A., Chronis-Tuscano, A., MacKillop, J., & Murphy, J. G. (2022). Unique and transdiagnostic dimensions of reward functioning in attention-deficit/hyperactivity disorder and alcohol use disorder symptoms. *Alcohol and Alcoholism (Oxford, Oxfordshire)*, 57(4), 452–459. <https://doi.org/10.1093/alcac/agab070>

- Ornelas, L. H. B., Díaz-Leal, A. C., Contreras, M. O., Fernández, F. M., & Pinto, N. S. (2019). La Autoeficacia en el Cuidado de la Salud en la Predicción de la Satisfacción con la Vida. *Revista Iberoamericana de Diagnóstico y Evaluación – e Avaliação Psicológica RIDEP*, 3(52), 53–65. <https://doi.org/10.21865/RIDEP52.3.05>
- Paulus, D. J., Capron, D. W., & Zvolensky, M. J. (2021). Understanding hazardous drinking and suicidal ideation and suicide risk among college students: Anxiety sensitivity as an explanatory factor. *Cognitive Behaviour Therapy*, 50(5), 378–394. <https://doi.org/10.1080/16506073.2020.1840622>
- Paulus, D. J., Ditte, J. W., Viana, A. G., Bakhshaie, J., Garza, M., Valdivieso, J., Ochoa-Perez, M., Lemaire, C., & Zvolensky, M. J. (2018). Pain and alcohol use among latinos in primary care: Examining rumination as an explanatory factor. *Substance Use & Misuse*, 53(4), 686–693. <https://doi.org/10.1080/10826084.2017.1361998>
- Paulus, D. J., Gallagher, M. W., Raines, A. M., Schmidt, N. B., & Zvolensky, M. J. (2019). Intraindividual change in anxiety sensitivity and alcohol use severity 12-months following smoking cessation treatment. *Behaviour Research and Therapy*, 116, 10–18. <https://doi.org/10.1016/j.brat.2019.01.008>
- Paulus, D. J., Rogers, A. H., Asmundson, G. J. G., & Zvolensky, M. J. (2020). Pain severity and anxiety sensitivity interact to predict drinking severity among hazardous drinking college students. *The American Journal of Drug and Alcohol Abuse*, 46(6), 795–804. <https://doi.org/10.1080/00952990.2020.1804921>
- Paulus, D. J., Viana, A. G., Ditte, J. W., Bakhshaie, J., Garza, M., Berger Cardoso, J., Valdivieso, J., Ochoa-Perez, M., Lemaire, C., & Zvolensky, M. J. (2017). Synergistic effects of pain and alcohol use in relation to depressive and anxiety symptoms among Latinos in primary care. *Cognitive Behaviour Therapy*, 46(6), 478–492. <https://doi.org/10.1080/16506073.2017.1336185>
- Pezzoli, P., Antfolk, J., & Santtila, P. (2017). Phenotypic factor analysis of psychopathology reveals a new body-related transdiagnostic factor. *PLoS one*, 12(5), e0177674.
- Rodríguez-Seijas, C., Arfer, K. B., Thompson, R. G., Jr, Hasin, D. S., & Eaton, N. R. (2017). Sex-related substance use and the externalizing spectrum. *Drug and Alcohol Dependence*, 174, 39–46. <https://doi.org/10.1016/j.drugalcdep.2017.01.008>
- Roefs, A., Fried, E. L., Kindt, M., Martijn, C., Elzinga, B., Evers, A. W. M., Wiers, R. W., Borsboom, D., & Jansen, A. (2022). A new science of mental disorders: Using personalised, transdiagnostic, dynamical systems to understand, model, diagnose and treat psychopathology. *Behaviour Research Therapy*, 153. <https://doi.org/10.1016/j.brat.2022.104096>
- Rosenström, T., Torvik, F. A., Ystrom, E., Aggen, S. H., Gillespie, N. A., Krueger, R. F., Czajkowski, N. O., Kendler, K. S., & Reichborn-Kjennerud, T. (2021). Specific antisocial and borderline personality disorder criteria and general substance use: A twin study. *Personality disorders*, 12(3), 228–240. <https://doi.org/10.1037/per0000404>
- Santos, M. V. F., Campos, M. R., & Fortes, L. C. L. (2019). Relação do uso de álcool e transtornos mentais comuns com a qualidade de vida de pacientes na atenção primária em saúde. *Ciência e saúde coletiva*, 24(3). <https://doi.org/10.1590/1413-81232018243.01232017>
- Sauer-Zavala, S., Gutner, C. A., Farchione, T. J., Boettcher, H. T., Bullis, J. R., & Barlow, D. H. (2017). Current definitions of “transdiagnostic” in treatment development: A search for consensus. *Behavior Therapy*, 48, 128–138. <https://doi.org/10.1016/j.beth.2016.09.004>
- Schag, K., Rauch-Schmidt, M., Wernz, F., Zipfel, S., Batra, A., & Giel, K. E. (2019). Transdiagnostic investigation of impulsivity in alcohol use disorder and binge eating disorder with eye-tracking methodology-A pilot study. *Frontiers in Psychiatry*, 10, 724. <https://doi.org/10.3389/fpsy.2019.00724>
- Secretaria de Saúde do Ceará (2017). *Projeto QualificaAPSUS Ceará: Qualificando a Atenção Primária à Saúde no Estado*. Secretaria Estadual de Saúde do Ceará.
- Silva, R. A. D. (2016). *A perspectiva transdiagnóstica pela voz de psicoterapeutas e supervisores: Um estudo qualitativo pela variedade de fatores*. [Dissertação de Mestrado, Universidade de Lisboa, Portugal]. Repositório da Universidade de Lisboa. <http://hdl.handle.net/10451/27949>.
- Simons, J. S., Simons, R. M., Keith, J. A., Grimm, K. J., Stoltenberg, S. F., O'Brien, C., & Andal, K. (2018). PTSD symptoms and alcohol-related problems among veterans: Temporal associations and vulnerability. *Journal of Abnormal Psychology*, 127(8), 733–750. <https://doi.org/10.1037/abn0000376>
- Sterne, J. A. C., Hernán, M. A., Reeves, B. C., Savović, J., Berkman, N. D., Viswanathan, M., Henry, D., Altman, D. G., Ansari, M. T., Boutron, I., Carpenter, J. R., Chan, A. W., Churchill, R., Deeks, J. J., Hróbjartsson, A., Kirkham, J., Jüni, P., Loke, Y. K., Pigott, T. D., & Higgins, J. P. T. (2016). ROBINS-I: A tool for assessing risk of bias in non-randomized studies of interventions. *BMJ*, 355. <https://doi.org/10.1136/bmj.i4919>
- Swerdlow, B. A., Pearlstein, J. G., & Johnson, S. L. (2019). Multivariate associations of ideal affect with clinical symptoms. *Emotion (Washington, D.C.)*, 19(4), 617–628. <https://doi.org/10.1037/emo0000468>
- Tiego, J., Oostermeijer, S., Prochazkova, L., Parkes, L., Dawson, A., Youssef, G., Oldenhof, E., Carter, A., Segrave, R. A., Fontenelle, L. F., & Yücel, M. (2019). Overlapping dimensional phenotypes of impulsivity and compulsivity explain co-occurrence of addictive and related behaviors. *CNS spectrums*, 24(4), 426–440. <https://doi.org/10.1017/S1092852918001244>
- Weiss, N. H., Darosh, A. G., Contractor, A. A., Forkus, S. R., Dixon-Gordon, K. L., & Sullivan, T. P. (2018). Heterogeneity in emotion regulation difficulties among women victims of domestic violence: A latent profile analysis. *Journal of Affective Disorders*, 239, 192–200. <https://doi.org/10.1016/j.jad.2018.07.009>
- Weiss, N. H., Forkus, S. R., Contractor, A. A., & Dixon-Gordon, K. L. (2020). The interplay of negative and positive emotion dysregulation on mental health outcomes among trauma-exposed community individuals. *Psychological Trauma: Theory, Research, Practice and Policy*, 12(3), 219–226. <https://doi.org/10.1037/tra0000503>
- Wolitzky-Taylor, K., Smit, T., Vujanovic, A. A., & Zvolensky, M. J. (2023). Transdiagnostic processes linking posttraumatic stress disorder symptoms to alcohol use severity. *Journal of dual diagnosis*, 19(2–3), 97–110. <https://doi.org/10.1080/15504263.2023.2225373>
- Yoon, G., Thompson, K., Hakes, J. K., Westermeyer, J., Petrakis, I. L., & Kim, S. W. (2021). Alcohol craving and psychiatric disorders among current drinkers. *The American journal on addictions*, 30(1), 34–42. <https://doi.org/10.1111/ajad.13083>
- Young, J. E. (2014). *Schema Therapy Inventories and Related Materials*. Version 2.5. Schema Therapy Institute.
- Zale, E. L., LaRowe, L. R., Boissoneault, J., Maisto, S. A., & Ditte, J. W. (2019). Gender differences in associations between pain-related anxiety and alcohol use among adults with chronic pain. *The American Journal of Drug and Alcohol Abuse*, 45(5), 479–487. <https://doi.org/10.1080/00952990.2019.1578968>