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Introduction
Alcohol use and alcohol use disorders: from epidemiology to the treatment

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Alcohol consumption at any level is associated with health loss from several diseases, although the population-level health risks associated with low levels of alcohol consumption varied across regions and are greater for younger populations than for older populations[1]. In 2020, about 1 billion males and 312 million females worldwide drank harmful amounts of alcohol in excess; alcohol consumption accounted for 1·78 million deaths, and it was the leading risk factor for mortality among males aged 15-49 years[1]. In young people between the ages of 15 and 30, binge drinking represents the most common pattern of alcohol intake, consisting of over five drinks for men or over four drinks for women on a single occasion. Alcohol Use Disorder (AUD) at present is the third leading risk factor for morbidity and mortality both in Europe and in the U.S. AUD is a chronic relapsing disease characterized by an impaired ability to stop or control alcohol use despite adverse social, occupational, or health consequences. According to the Diagnostic and Statistical Manual of Mental Disorders (DSM) 5[2], AUD can range from mild to severe, and recovery is possible regardless of severity. The fourth edition of the DSM-IV defined AUD patients as dependent on, or abusive of alcohol. This classification has been updated in the fifth edition, where those two categories are combined into a single disorder: AUD with mild, moderate, and severe sub-classifications[2]. The diagnosis usually involves at least two of a specific set of symptoms, such as regular high-risk drinking and alcohol-related problems in work, school, or social activities.

AUD is mediated by a complex interaction between genetic, environmental, and psychological factors[3].
Chronic exposure to alcohol leads to changes in brain chemicals and circuits connected to pleasure, judgment, and self-control, further contributing to the maintenance of AUD[4].
AUD has wide-ranging effects on physical and mental health, social interactions, and general well-being. It can lead to numerous health problems, including liver disease, cardiovascular problems, cancer, and mental health disorders[5].
Moreover, AUD leads to an increased demand for healthcare services, stretching resources thin. Dealing with the consequences of excessive alcohol consumption includes the management of withdrawal symptoms, physical complications like liver disease and associated mental health disorders. According to a study by Rehm et al[5], the treatment of AUD accounted for about 3% of total healthcare expenditures in high-income countries[6].
The societal implications of AUD include lost productivity, economic burden, and an overall decline in public health and safety. Moreover, AUD is linked with an increased risk of committing violent crimes, augmenting social instability[6].
AUD is a significant global health issue. The World Health Organization (WHO) estimates that about 5.1% of the global burden of disease and injury is attributable to alcohol, ranking alcohol as the third largest risk factor for premature mortality, disability, and loss of

health worldwide. In 2016, alcohol contributed to an estimated three million deaths globally (5.3% of all deaths) and 132.6 million disability-adjusted life years (DALYs). In many parts of the world, AUD is a leading cause of illness and death and leads to considerable social and economic burdens[6].

Europe has the highest alcohol consumption per capita worldwide, with significant public health implications resulting from alcohol-related diseases. According to the World Health Organization (WHO), in 2018, 23.5% of adults in the European Union reported heavy episodic drinking6. In addition, alcohol contributes 7.2% to the overall burden of disease in Europe, primarily due to liver diseases, cancers, and mental health disorders[7].

Alcohol policy frameworks in Europe emphasize prevention efforts primarily focusing on reducing demand. This includes strategies such as limiting alcohol availability, implementing pricing policies, and running public awareness campaigns. The European Alcohol Action Plan 2012-2020 also outlines a strategy to promote voluntary actions by the alcohol industry to reduce harmful drinking[8]. Despite these measures, implementing effective alcohol policies in Europe remains a challenge due to varying cultural norms and industry influences[9].

Historically, alcohol consumption has been intertwined with social, religious, and cultural practices in many societies. The recognition of problematic alcohol use and the subsequent categorization as AUD, however, is a fairly recent phenomenon.

In the early 19th century, alcohol addiction, then referred to as "alcoholism," was perceived mainly as a moral failing or a result of personal weakness. The treatments during this era were largely punitive or moralistic, primarily involving asylum confinement or religious counseling.

By the middle of the 20th century, alcohol use disorder was recognized as a medical condition requiring treatment. Therapeutic strategies have consequently evolved and now encompass various therapeutic approaches, including pharmacological treatments, behavioral therapies, as well as self-help groups like Alcoholics Anonymous[10].

The narrative of pharmacotherapy's evolution in treating AUD is as captivating as it is inspiring. Beginning with the bold advent of Disulfiram in the 1940s, the exploration into the healing powers of medication replaced earlier traditions of punitive measures with the warm dawn of scientifically backed treatments[11].

As this captivating narrative unfolded, the field was further enrichened with the rise of drugs such as Naltrexone and Acamprosate. The 1990s witnessed FDA-approved Naltrexone combatting heavy drinking, proving its mettle as a formidable opioid receptor antagonist[12]. Alongside this, Acamprosate emerged from the shadows and, under the limelight, displayed its efficacy in solidifying alcohol abstinence by retaining the brain's chemical harmony[13].

The recent chapter in our saga of AUD management has seen a flurry of innovative approaches. Medicines such as Topiramate, a promising anticonvulsant, and Baclofen, our faithful muscle relaxant, have risen to the challenge, reducing drinking frequency and assisting in maintaining abstinence, respectively[14,15]. Meanwhile, Gabapentin, stepping out of its anticonvulsant origins, has carved a new path in the alleviation of early withdrawal symptoms, proving an invaluable asset[16].

Our current frontier in AUD pharmacotherapy research has heralded equally thrilling heroes such as Nalmefene, an ingenious ally in controlled drinking, and Sodium Oxybate, a steadfast guardian maintaining abstinence in severe AUD patients[17,18].

As scientific research advances, our understanding and practices continue to evolve, moving towards more targeted, effective, and individualized treatments for AUD. Research on AUD has made significant progress, but there are still unanswered questions and gaps that need to be addressed. The impact of alcohol on neurotransmitters like dopamine and GABA is well established, but understanding how these systems contribute to addiction is evolving. Genetic factors influencing AUD have been studied, but the correlation between alcohol metabolism genes and AUD risk and their potential intersection with central nervous system parameters requires further exploration.

AUD often co-exists with other mental health conditions, introducing complexities in patient identification, diagnosis, and treatment. To address this, improved prevention measures should be developed, considering psychological, sociocultural, and policy-related factors. Treatment approaches should move beyond traditional pharmaceutical remedies and behavioral therapies, focusing on personalized medicine approaches[19], genetic factors[20], and brain imaging technologies[21]. The role of microbiota in AUD treatment is also under investigation, and understanding the long-term impacts of current AUD medications is crucial for developing safer treatment options[22]. The dynamic arena of relapse and long-term recovery requires ongoing exploration of factors influencing recovery success and relapse, including social support systems, mental health conditions, and personal commitment.

This special issue of Nutrimentum et Curae mainly focuses on bridging gaps in knowledge and treatment approaches that exist between different research fields, thus fostering an interdisciplinary dialogue. A specific

emphasis is put on exploring the correlation between alcohol and health outcomes, a pertinent yet widely overlooked area.

The primary objective of this special issue is to provide a comprehensive synthesis of the latest scientific progress in understanding AUD, focusing on its various typologies and the range of associated health conditions. Along with insights into neurobiology and genetic predispositions, the special issue provides a balanced view integrating the role of microbiota and potential therapies for AUD patients.

It is designed for those who have a direct encounter with AUD patients in their professional practice, researchers conducting studies in the field, and health policymakers.

Conflict of Interest:

The authors have no conflicts of interest to declare.

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