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The role of antiobesity medications in alcohol use disorder treatment: a critical review

Abstract

Anti-obesity medications (AOMs) are pharmacological agents designed to assist with weight loss through various mechanisms, including appetite suppression, increased satiety, and inhibition of fat absorption. Recent studies have investigated the effectiveness of several AOMs concerning weight loss and alcohol use disorders (AUDs).

The complex relationship between anti-obesity medications and alcohol consumption has attracted considerable academic interest, as emerging research indicates potential benefits for individuals with alcohol use disorder. In this critical review, the authors examine the existing literature, focusing on the relevance of current findings for those diagnosed with AUD. The authors also highlight the limitations of these key studies and emphasize the urgent need for further research to clarify the methodological and psychosocial complexities involved in using AOMs to address alcohol-related challenges.

Keywords: anti-obesity medications (AOMs), alcohol consumption; bias in studies on anti-obesity medications in alcohol use-abuse treatment; neglect of cultural and social factors in studies on anti-obesity medications in alcohol use-abuse treatment

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Marcello Maviglia,[1] Norman Cooeyate,[2] Mauro Ceccanti[3]

[1]Clinical Professor, Family and Community Medicine/ Core Faculty Member at CNAH(Center For Native American Health)/University Of New Mexico, USA
[2]Associate Director, Center for Native American Health - a Public Health Institute for Indigenous Knowledge and Development/Lecturer II, Department of Family & Community Medicine/University of New Mexico Health Sciences, USA
[3]Medical Doctor, Professor at "Universita' La Sapienza", Italy

Correspondence: Marcello Maviglia, Clinical Professor, Family and Community Medicine/ Core Faculty Member at CNAH(Center For Native American Health)/ University Of New Mexico, Albuquerque, USA, Tel 505-272-1855/ 1505620628, Email mmaviglia@salud.unm.edu

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Introduction

Recent investigations into anti-obesity medications (AOMs), particularly glucagon-like peptide-1 receptor agonists (GLP-1 RAs) such as Liraglutide and Semaglutide, have garnered significant academic interest due to their dual effects on weight management and alcohol consumption behaviors.[1–3] These pharmacological agents are recognized for their substantial role in weight loss and improving metabolic health. More recently, they have been examined for their potential impact on drinking patterns among obese individuals.[1–4]

However, there is no clear and definitive evidence that these findings translate to improved outcomes for individuals with Alcohol Use Disorder (AUD).[5] A critical consideration is that the mechanisms by which these medications may influence drinking behaviors—particularly their direct effects on the brain's reward pathways—remain inadequately understood.[6] Furthermore, the motivations for alcohol consumption, especially in the context of AUD, are deeply rooted in psychological, social, and environmental factors.[7]

Consequently, the observed reductions in alcohol intake may not accurately reflect the true efficacy of AOMs, as other factors may influence treatment success or failure.[8]

The positive perception surrounding the therapeutic benefits of anti-obesity medications (AOMs) can be partly attributed to the extensive publicity generated by the pharmaceutical industry—a strategy that has not been similarly employed for Medications for Alcohol Use Disorder (MAUD). Despite some positive data supporting MAUD, these medications have not received equivalent enthusiastic attention.[9–16] The societal stigma associated with developing and marketing medications for treating drug-dependent patients poses a significant concern for pharmaceutical companies.[9,16] They may be concerned that once a medication is approved for use in the treatment of drug addiction, the market for other indications will diminish or disappear. Patients, in general, are reluctant to take medications associated with drug addiction.[9,10] Consequently, the pharmaceutical industry seems hesitant to develop compounds only specific to drug addiction if other medical uses for them could be marketed.[9,16]

The pharmaceutical industry exhibits notable differences in their investment and marketing strategies for AOMs compared to MAUD medications.[9] In the first half of 2023, drug manufacturers allocated nearly $500 million to advertise obesity and diabetes medications, illustrating their capacity to influence societal perceptions concerning weight management.[11,12]

Obesity drugs have emerged as "disruptors" on a scale matched by few other pharmaceutical innovations. Their emergence, along with a shift in the way obesity and related illnesses are regarded and treated, has positioned this new class of drugs on a blockbuster path with no signs of abating.[11–13]

In light of this surging demand, Morgan Stanley Research has re-evaluated the global market for obesity drugs, now projecting it to reach $105 billion by 2030, up from an earlier forecast of $77 billion, and potentially as high as $144 billion. Sales of branded obesity drugs were $6 billion in 2023.[13]

Through strategic use of public figures and extensive marketing campaigns, pharmaceutical companies have successfully raised awareness and normalized the negative perceptions and social stigma associated with being overweight, thereby fostering a positive attitude towards weight loss interventions.[9,11–16] Conversely, MAUD medications have experienced significantly less effective marketing, hindering their reach to potential patients and failing to address the stigma surrounding alcohol use disorders.[12,16]

Pharmaceutical marketing strategies emphasize the importance of weight loss for overall health improvement, thus positioning AOMs within the context of holistic wellness. This may inadvertently normalize the use of these medications among individuals struggling with addiction. Reports indicate that pharmaceutical companies utilize direct-to-consumer advertising, highlighting testimonials and alleged success stories of AOM users, thus shaping patient perceptions and potentially influencing their treatment choices.[11,13,14]

Without a doubt, the prominence of these marketing efforts raises ethical concerns about potentially weakening the focus on

comprehensive addiction treatment approaches. While AOMs may offer some benefits, reliance on pharmacotherapy without a strong emphasis on behavioral and life-changing approaches could undermine the effectiveness of treatment programs for SUDs and AUDs and the pivotal clinical aspects of mental and physical well-being.[17–19] Even if, on paper, emphasis on lifestyle changes may be identified and stressed, in reality, the massive marketing obscures them by emphasizing the properties and effects of these new medications as an absolutely effective and innovative approach. Therefore, a balanced treatment strategy that emphasizes both behavioral interventions and pharmacological support is vital, alongside ongoing scrutiny of the implications of pharmaceutical marketing on clinical practices.[11,13–19]

Thus, while AOMs offer an innovative avenue for addressing weight-related issues intertwined with alcohol use disorder, their promotion requires cautious handling. It is essential to ensure that ethical considerations are upheld and that patients receive comprehensive care tailored to their needs.[17–19]

A thorough examination is essential regarding how treatment options for substance use disorders (SUDs) and alcohol use disorder (AUD) are conceptualized, presented, and perceived. This is particularly important for historically marginalized and minority populations who often experience the most severe consequences of these disorders. These groups also face unfavorable social determinants of health, which serve as barriers to making lifestyle changes and accessing proper nutrition. Such challenges are critical in addressing obesity and comorbidity conditions associated with it.[20–25]

This article evaluates the evidence on the effectiveness of anti-obesity medications (AOMs) in reducing alcohol consumption among individuals with co-occurring obesity and problematic drinking or AUD. Drawing on the limited number of pivotal studies available from the specialized literature, it underlines the need for psychosocial and culturally based approaches, which may have more realistic chances for long-term positive outcomes.[11–14,16–19]

The primary objective is to maintain a realistic perspective on the therapeutic potential of AOMs to assist clinicians in making informed decisions about their use in clinical practice. Furthermore, the article emphasizes the importance of incorporating cultural and social factors into future investigations of AOM efficacy, highlighting the interplay between biological, psychosocial, and cultural factors in AUD treatment, especially within the context of weight-related concerns.[26–32]

Main methodological issues in current studies on the efficacy of anti-obesity medications for alcohol consumption

The comorbidity of problematic drinking and alcohol use disorder (AUD) with weight problems and obesity presents a complex challenge for individuals, clinicians, and researchers.[33,34]

This article reviews the effectiveness of anti-obesity medications (AOMs) in reducing alcohol consumption among people struggling with significant drinking issues, which are defined here as both problematic drinking and AUD, essentially referring to the same conditions.[35,36]

These conditions are characterized by an individual's inability to control their alcohol intake despite facing adverse consequences. They encompass a range of issues from mild to severe and can negatively influence various aspects of a person's life, including physical health, social relationships, and career prospects.[35,36]

Behaviors associated with AUD, such as binge drinking and heavy consumption, often worsen the situation. Furthermore, these behaviors are influenced by numerous psychological, physiological, and sociocultural factors, highlighting the need for a contextual approach to fully understand these interconnections.[35–37]

Many studies highlight the importance of these critical elements to enhance the relevance and applicability of treatment modalities in real-world settings. By examining the limited but significant specialized literature on the efficacy of anti-obesity medications (AOMs) in reducing alcohol consumption by those with serious drinking problems, the authors emphasize the necessity of a multifaceted understanding of the psychosocial and cultural complexities surrounding interventions for AUD and problematic drinking.[20–30] The article's primary goal is to highlight the potential shortcomings of narrow pharmacologic-based approaches, which by themselves may not be able to address both the areas of AUDs and Obesity management.

Review of the studies:

1) Miller-Matero et al. study:[1]

a) Investigates the impact of AOMs on alcohol consumption in individuals with significant drinking problems and provides some positive outcomes alongside methodological challenges. The data show a significant reduction in alcohol use among participants following AOM initiation, with 45.3% of individuals who reported alcohol consumption at baseline experiencing a decrease in intake after starting treatment. They reflect a substantial portion of the study's cohort, as 3,395 participants reported reduced consumption, 52.4% reported no change, and 2.3% experienced an increase. These trends suggest a beneficial relationship between certain AOMs and a decrease in alcohol intake. The reduction in drinking was consistent across various AOM classes, with 51% for metformin, 46% for the bupropion/naltrexone combination, and 45% for second-generation GLP-1 drugs, all demonstrating statistical significance ($P < .0\ 001$).

b) The utilization of telehealth weight management interventions in the study may contribute to increased access for those who may find in-person care challenging. The research also identified risk factors associated with decreased alcohol use, showing that participants with higher obesity levels and problematic baseline alcohol consumption were more likely to reduce their intake after starting AOMs, which underscores the importance of identifying individual risk characteristics and factors in treatment protocols. Attention to these aspects helps identify groups and subgroups of patients who benefit from targeted interventions promoting both weight loss and alcohol consumption. In addition, by exploring various AOMs, including naltrexone and bupropion, the study offers insights into different medications' potential effectiveness in reducing alcohol consumption. On the other hand, the inclusion of multiple pharmacological agents raises concerns about attributing outcomes to specific medications due to distinct mechanisms of action and varying effects on weight and alcohol intake. Additionally, potential pharmacological interactions and individual response variations may affect the reliability of results.

c) Despite promising findings, the study has limitations. Here are some of the most significant:

(i) Reliance on self-reported data regarding alcohol consumption introduces bias, as participants may under-report their use due to societal stigma or a desire to meet perceived expectations. It may call into question the accuracy of reported changes and complicates the assessment of the proper relationship between AOMs and alcohol consumption outcomes.

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(ii) The absence of a control group makes it challenging to attribute the decrease in alcohol use to medications rather than other variables related to program participation.

(iii) While the study included a diverse participant pool, the high percentage of female participants (86.0%), may limit the generalizability of the findings. Although focusing on a female cohort is valuable, assessing applicability to male populations or other demographic groups is vital for developing inclusive and effective treatment strategies.

(iv) Cultural sensitivity is another concern, as the categorization of racial and ethnic groups into broad classifications may oversimplify their unique cultural contexts, health disparities, and treatment needs. For example, placing Native Americans in an "other" category risks overlooking unique sociocultural factors that influence their relationships with alcohol and obesity. This homogenization can undermine the effectiveness of interventions addressing specific challenges within these groups. Indigenous scholars have referred to this phenomenon as "data genocide" to describe the systematic erasure of Indigenous identities and needs through inadequate or biased data collection and reporting practices. In healthcare research and policy development, it can occur in several ways[38]:

(i) Exclusion from data: Undercounting or misclassification of Indigenous populations in data collection efforts results in a significant gap in accurate and reliable information about their communities.

(ii) Aggregation of data: When aggregated data about Indigenous people is included with other groups, it can obscure their unique challenges and needs of Indigenous populations.

(iii) Misclassification: Categorizing Indigenous individuals incorrectly in datasets can also result in neglecting and misunderstanding their unique needs.

d) In the same perspective, lack of inclusion for culturally sensitive interventions tailored to diverse ethnic and racial backgrounds could hinder patient engagement and treatment effectiveness, as cultural factors significantly influence health behaviors and treatment attitudes.[26–32]

e) A notable limitation is the study's handling of diagnostic classifications. It does not provide a precise diagnosis for alcohol use disorder (AUD), but it essentially identifies changes in alcohol consumption patterns. This may represent a substantial limitation in generalizing its data as the AUD category presents with complex therapeutic challenges, not comparable to more moderate or less complex modalities of consumption.[27,35,36]

2) Lähteenvuo et al. study:[3]

a) Explores the potential of re-purposing glucagon-like peptide-1 (GLP-1) receptor agonists, specifically Semaglutide and Liraglutide, for the treatment of alcohol use disorder (AUD). This research aims to address the significant public health challenge posed by AUD by investigating whether these medications initially developed for diabetes and obesity can reduce the risk of hospitalizations related to alcohol use. It includes an analysis of hospitalization risks, mental health outcomes, and broader impacts on substance use disorders among a large cohort of individuals diagnosed with AUD. In addition, it provides statistical evidence regarding the effectiveness of GLP-1 receptor agonists, specifically Semaglutide and Liraglutide, in reducing hospitalization risks associated with alcohol use disorder. It encompassed 227,866 individuals diagnosed with AUD, with a male predominance of 63.5% and an average age of 40 years.

b) Significant findings emerged over an extended follow-up period of 8.8 years. Among the participants, 58.5% had experienced at least one hospitalization due to AUD. Notably, those using Semaglutide (4,321 participants) showed a significantly lower risk of hospitalization, showing more than a 35% reduction in hospitalization risk. Users of Liraglutide (2,509 participants) also experienced protective benefits, showing a 28% risk reduction compared to periods without Liraglutide use. In addition, Semaglutide was associated with a decreased risk of hospitalization for any substance use disorder.

c) Importantly, researchers found no significant correlation between the use of Semaglutide and Liraglutide and the incidence of suicide attempts. This suggests a reasonable level of safety associated with their use in this context. Overall, the findings from this study suggest that GLP-1 agonists, particularly Semaglutide and Liraglutide, present a promising strategy to mitigate alcohol-related hospitalizations for individuals suffering from AUD. This research emphasizes a substantial reduction in AUD hospitalizations, underscoring the need for further randomized trials to confirm these outcomes, and explores the potential of GLP-1 agonists in managing alcohol use disorders.

d) While the study provides valuable insights, several limitations warrant consideration:

(i) The focus on individuals aged 16 to 64 with AUD in Sweden may limit the applicability of results to other age groups or populations outside Sweden. Different cultural attitudes towards alcohol and varying healthcare systems might yield divergent findings in other contexts.[20,21,27,28]

(ii) The study likely included a sample of the Swedish population, which seems to have limited and insufficient representation of specific minority groups. Societal and cultural factors influencing alcohol consumption and treatment efficacy could differ significantly among various ethnic backgrounds, potentially affecting the generalizability of the outcomes, as stressed in the points that follow.[20,21,27,28]

(iii) Because of societal differences, the study population may not fully represent individuals with limited access to healthcare or those who do not seek treatment. The specialized literature clearly establishes that disparities in socioeconomic status can significantly influence treatment experiences and outcomes. Individuals from lower-income backgrounds frequently encounter additional barriers that adversely affect their health and access to GLP-1 agonists.[20,21,27,28]

(iv) In the same vein, variations in economic status due to societal differences can significantly affect the use of GLP-1 agonists and overall treatment effectiveness.[20,21,27,28] Financial constraints may limit access to these medications for some patients, potentially skewing results if wealthier individuals were more represented in the sample.[20,21,27,28]

(v) As an observational study, the research design inherently limits the capacity to draw direct causal inferences. Although the study carefully evaluated associations, its observational nature indicates that unmeasured confounding factors may influence the results.[39]

3) Wang et al. study:[2]

a) Investigates the link between Semaglutide, a glucagon-like peptide-1 receptor agonist (GLP-1RA), and the incidence and recurrence of alcohol use disorder (AUD) in a large cohort

of obese patients. Based on electronic health records, this retrospective cohort study includes 83,825 patients, providing compelling evidence that Semaglutide treatment is associated with a significant 50%-56% reduction in both the incidence and recurrence of AUD compared to other anti-obesity medications.

b) Key findings include the substantial cohort size, which enhances the reliability of the results, and the consideration of various demographic factors such as gender, age, and race. Stratified results by the presence of type 2 diabetes (T2DM) allow for a nuanced understanding of the drug's effects across different subpopulations.

c) However, the study shows some limitations:

(i) Its retrospective design is a potential limit to establishing causation definitively. Despite efforts to match cohorts using propensity-score techniques, unmeasured confounders may still exist, such as patients' underlying motivations for choosing Semaglutide over other medications, mental health status, personal history of addiction, and environmental influences.[40]

(ii) The study's demographic breakdown reports 15.8% Black, 66.6% White, and 6.5% Hispanic patients, but the representation of other minority groups, such as Native American, Asian, and individuals from low-income backgrounds, appears limited. These gaps raise questions about the study's applicability in a broader context where cultural factors can significantly influence both alcohol use and treatment outcomes.[20,21,27,28]

(iii) Similarly, the study does not explicitly explore cultural approaches to alcohol use disorder (AUD) treatment nor how cultural beliefs and practices may affect patients' responses to Semaglutide. Since AUD often intersects with cultural norms regarding alcohol consumption and the stigma associated with addiction, it is essential to understand these factors to develop effective interventions.[20,21,27,28]

(iv) The absence of an explicit cultural competency framework may limit adequate understanding of individuals' and groups' experiences and perceptions regarding the use of AOMs as a means of managing AUD.[20,21,27,28]

(v) The 12-month follow-up period may be inadequate to observe long-term effects, or the sustainability of AUD reduction associated with Semaglutide treatment. Observing recurrences or late-onset effects effectively is not possible within this timeframe.

(vi) Reliance on electronic health records may result in incomplete data entry concerning certain diagnoses or treatment adherence, potentially underrepresenting the true incidence and recurrence rates of AUD.

4) Probst et al. study:[4]

a) Investigates the effects of a GLP-1 agonist, Dulaglutide, on alcohol consumption in patients undergoing treatment for smoking cessation. This study aims to evaluate whether Dulaglutide can reduce alcohol consumption in a clinical setting. This dual approach addresses two significant public health issues simultaneously. In addition, the study employs a double blinded, randomized, placebo-controlled trial design, which is usually considered, with some reservation, the gold standard for clinical research. This design enhances the reliability and validity of the findings.

b) The results indicate a statistically significant reduction in alcohol consumption among patients treated with Dulaglutide compared to the placebo group (29% reduction, p=0.04). They suggest the potential efficacy of GLP-1 agonists in managing alcohol use disorder. The study reports well-balanced baseline characteristics between the treatment and placebo groups, minimizing confounding variables and strengthening the study's internal validity.

c) Limitations:

(i) Sample size and generalizability: The sample size (n=151) is relatively small, which may limit the generalizability of the findings to broader populations. More studies that are extensive can assist in confirming these results.

(ii) Short duration: The study's duration is limited to 12 weeks. The long-term effects of Dulaglutide on alcohol consumption and smoking cessation remain unknown. Future studies should consider more extended follow-up periods to assess sustained efficacy and safety.

(iii) This study is a secondary analysis of the SKIP study, originally designed for smoking cessation.[41] The primary focus on smoking cessation might introduce biases or limit the robustness of conclusions specifically related to alcohol consumption.

(iv) It does not explicitly mention the inclusion of minority groups or the use of culturally sensitive approaches, which limits its applicability to different socio-cultural contexts.[20,21,27]

Figure 1 Summary of Key findings and limitations in recent AUD studies.

Summary of key findings and limitations in recent AUD studies		
Study	**Positive Findings**	**Limitations**
Miller-Matero et al.[1]	- Significant reduction in alcohol use (45.3% reported decreased intake). - Positive relationship between certain AOMs (e.g., second-generation GLP-1 receptor agonists, bupropion/naltrexone) and reduced alcohol intake. - Consistent reduction across various AOM classes. - Telehealth weight management program increased accessibility.	- Reliance on self-reported data, introducing bias. - No control group limits comparative analysis. - Predominantly female participants (86.0%), limiting generalizability. - Lack of culturally sensitive interventions. - Inclusion of multiple pharmacological agents complicates analysis. - Diagnostic classification limitations

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Lähteenvuo et al.[3]	- Significant reduction in hospitalization risks for AUD with Semaglutide (aHR 0.64) and Liraglutide (aHR 0.72). - No significant correlation with suicide attempts. - Large cohort size (227,866 individuals), enhancing reliability.	- Swedish population focus limits applicability to other contexts. - Potential underrepresentation of minority groups. - Observational study design limits causal inferences. - Socioeconomic differences may affect generalization.
Wang et al.[2]	- Significant reduction in AUD incidence and recurrence with Semaglutide (50%-56% lower risk). - Large cohort size (83,825 patients), improving reliability. - Stratification by demographic factors provides nuanced insights. - Reproducibility across populations with and without T2DM.	- Retrospective design limits ability to establish causality. - Potential unmeasured confounders. - Incomplete representation of marginalized groups. - Short follow-up period (12 months) may not capture long-term effects. - Reliance on electronic health records may result in incomplete data.
Probst et al.[4]	- Innovative approach using Dulaglutide for reducing alcohol consumption in smoking cessation patients. - Double blind, randomized, placebo-controlled trial design. - Statistically significant reduction in alcohol consumption (29% reduction, p=0.04). - Well-balanced characteristics between treatment and placebo groups.	- Small sample size (n=151) limits generalizability. - Short duration (12 weeks) limits understanding of long-term effects. - Secondary analysis of the SKIP study may introduce biases. - No evidence of sociocultural aspect inclusion.

Issues with generalization and sociocultural considerations in anti-obesity medication research

Understanding the impact of anti-obesity medications (AOMs) on alcohol cannot ignore the limitations identified in the reviewed studies. Potential biases in self-reported data; limited sampling; absence of a control group; lack of specific diagnostic, neglect of sociocultural aspects; unclear classifications for alcohol use disorder are relevant issues with impact on clinical decisions. In the treatment of AUDs, SUDs and obesity it is pivotal to adopt a comprehensive approach, taking into account individual patient histories, the sociocultural context and the nuanced effects of both medications and behavioral interventions.[20–32] This careful consideration is critical to ensure that AOMs are prescribed in a way that addresses both weight management and alcohol consumption issues without overlooking the complexities of each patient's histories and sociocultural makeups.

Regarding the studies included in the article, a summary of salient considerations include:

1. Participants may under-report their intake due to societal stigma, complicating the relationship between AOMs and alcohol outcomes.[9,16,42]

2. Selective sampling from programs like Weightwatchers® may introduce significant bias and raise concerns about how well these findings reflect the general population, particularly among those individuals who for sociocultural reasons are less ready to engage in structured weight loss initiatives.[43,44] Typically, individuals who enroll in programs like Weightwatchers® exhibit demographic characteristics such as higher socioeconomic status and better access to healthcare resources. These factors can profoundly influence their motivation and engagement in weight loss efforts.[45,46]

3. While some individuals may actively modify their diets and increase physical activity, leading to significant weight loss, these results may not accurately reflect the experiences of those who are less likely to make lifestyle changes due to various challenges including those related to the sociocultural determinants of health.[43–46]

4. Findings from the studies primarily focused on a specific, more "ready" demographic which may overlook the complex realities faced by individuals struggling with both obesity, alcohol use and a variety of obstacles due to contextual factors.[45,46] The lack of a control group limits the ability to attribute observed changes in alcohol consumption directly to AOMs. For example, without a comparative cohort, the findings may reflect behavioral modifications associated with participation in a weight management program rather than the pharmacological effects of the medications. Additionally, cohorts including predominantly female participants (86.0%), restrict the generalizability of the findings to male populations or other demographic groups. This highlights the need for inclusive research that adequately addresses the treatment needs of diverse populations.[47,48]

5. Similarly, a variety of sociocultural factors significantly affect attitudes towards weight, health, and alcohol consumption. Different cultural backgrounds and inherent biases may influence an individual's willingness to participate in weight loss programs and their responses to AOMs.[43–46] For instance, cultural perceptions of body image and health can shape beliefs and behaviors related to weight management and substance use, complicating the overall narrative regarding effective interventions.[43–46,20–32] Additionally, metabolic responses to weight-loss medications can vary significantly across different ethnic and racial groups. Several studies suggest differences in drug absorption, metabolism, and elimination, potentially affecting the efficacy of these medications.[49–53]

6. In this context, deep-rooted mistrust of healthcare providers, rooted in historical inequalities, can discourage individuals from

seeking medication-assisted treatments for obesity or alcohol use disorders. Mistrust among minority groups is often more pronounced partly from past historical experiences contributing to skepticism about healthcare intentions. Understanding individual responses within these populations is essential for optimizing treatment strategies for obesity and alcohol use disorders.[54,55]

7. In addition, although not explicitly indicated as limitations in the reviewed literature, the potential misuse and side effects of AOMs represent significant clinical concerns that demand attention (ref).While these medications can provide short-term weight loss benefits, their growing use has sparked increased scrutiny about the risks of misuse and the spectrum of potential side effects.[56] One major issue is that individuals relying heavily on AOMs may overlook crucial lifestyle changes, such as adopting healthier eating habits and engaging in regular physical activity.[56,57] Research indicates that these behavioral modifications are essential for achieving sustainable long-term weight loss and promoting overall health.[56,57] Ignoring or minimizing the importance of these lifestyle changes (which could be a very plausible side effect of over optimistic marketing strategies), can significantly undermine the effectiveness of AOMs.[58]

8. Dismissing concerns surrounding the potential for over reliance and misuse of AOMs is not a luxury. This dependence may contribute to rebound weight gain upon discontinuation, as well as a decrease in the medication's effectiveness over time.[59] These issues assume significant implications for public health. One could argue that the inappropriate or excessive use of AOMs might reinforce unhealthy dieting behaviors and discourage physical activity, ultimately exacerbating poor health outcomes.[59] In addition, the high costs of anti-obesity drugs and the need for lifelong use pose significant financial challenges, which could worsen health disparities.[60] While the cited studies frequently monitored and reported common side effects, especially gastrointestinal issues, the potential of long-term side effects warrants further investigation. This area has not received adequate attention, as the clinical focus tends to prioritize immediate and short-term outcomes.[56–60]

9. Furthermore, there is a gap regarding identification of mental health issues within these studies. Numerous research studies have documented the comorbidity of alcohol use disorders and substance use disorders with obesity.[61,62] Mental health issues, including anxiety, depression, and post-traumatic stress disorder (PTSD), frequently coalesce with substance misuse and obesity, creating a complex interplay that deserves more rigor in research.[63] Studies have shown that individuals with alcohol use disorders often have elevated levels of psychological distress,[64] and similarly, those struggling with obesity may experience body image issues and social stigma, exacerbating their mental health challenges.[65]

A significant factor that can underlie both mental health issues and substance abuse problems, often overlooked, is the trauma experienced within a sociocultural context. Trauma can lead to negative coping mechanisms, where individuals may turn to alcohol or drugs to alleviate their emotional burden. Research indicates that a history of trauma, particularly in childhood, is strongly associated with later substance abuse and mental health disorders. The adverse effects of trauma can manifest in various ways, including emotional dysregulation, increased impulsivity, and altered stress responses—all factors that contribute to the development of alcohol and substance use disorders.[66]

These phenomena reside within the psychosocial dimension of health, highlighting the importance of addressing the broader context in which individuals exist. Factors such as social support, socioeconomic status, and access to healthcare services are pivotal in shaping the experiences of those with comorbid conditions.[67] Moreover, the interplay of these factors can perpetuate cycles of substance abuse and obesity, as individuals may find themselves in environments that hinder recovery and promote unhealthy coping strategies.[68]

Consequently, it is crucial to tackle the intricate network of interconnections to create effective interventions and support systems that align with the real-life experiences of those affected. As discussed, incorporating the psychosocial and cultural dimensions related to alcohol and substance use problems, as well as obesity, is vital for constructing successful interventions. Furthermore, highlighting the significance of mental health and the effects of psychological trauma will enhance both research findings and treatment effectiveness for individuals facing these intertwined challenges.

Conclusions

While anti-obesity medications (AOMs) offer an avenue for addressing obesity and potentially affecting alcohol consumption, they cannot independently and sufficiently encompass the psycho-socio-cultural underpinnings that contribute to these disorders. The intersection of AOMs and alcohol consumption necessitates a nuanced understanding of the sociocultural dimensions influencing behavioral health. A reliance on pharmacological interventions for managing weight and alcohol use often overshadows the intricate interplay of psychosocial and cultural factors critical to addressing these complex issues.[18–32]

Medical sociological literature provides insight into these dynamics. Ivan Illich, in his seminal work "Medical Nemesis," argues that over-reliance on medical solutions can obscure deeper sociocultural contexts, leading to a disempowerment of individuals and diverting attention away from personal responsibility and community-based support systems essential for holistic health outcomes.[69,70] Similarly, Waitzkin emphasizes the importance of understanding healthcare delivery within the broader social context, noting that socioeconomic status, cultural norms, and personal histories profoundly influence medical interactions.[71]

In addition, Native psychologist Duran highlights the significance of culturally relevant frameworks in addressing behavioral health challenges, advocating for culturally attuned interventions to enhance efficacy and patient's adherence.[72,73] This perspective is echoed by Rudolf Virchow's historical insights that health is inherently a social issue, urging recognition of the sociopolitical determinants of health and implicitly challenging the notion that pharmacological interventions alone can rectify health disparities related to weight and alcohol consumption.[74,75]

It is essential to adopt a holistic approach that goes beyond pharmacological solutions to pursue the complexities surrounding weight management and alcohol consumption. The current emphasis and developing reliance on AOMs do not fully consider the intricate web of psychological, social, and environmental factors involved.[18–32]

In addition, cultural attitudes toward alcohol and dietary practices differ greatly among communities, influencing individual interactions with both substances. Additionally, stigma can exacerbate challenges, discouraging individuals from seeking help or sticking to treatment plans.[18–32]

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Moreover, varying metabolic responses among different ethnic and racial groups highlight the limitations of a one-size-fits-all pharmacological approach.[50–53] Personalized treatment strategies that incorporate cultural sensitivity and psychosocial factors are necessary.[18–32] As stated previously, clinical providers must carefully consider the long-term side effects of these medications.[56–60]

It is crucial to advocate for research methodologies that include diverse populations and culturally relevant factors.[18–32,56–60] This effort could empower practitioners to implement more comprehensive treatment approaches. The suggestion that AOMs could help reduce alcohol consumption should be approached with caution, especially regarding alcohol use disorders (AUDs), where behavioral modifications and sociocultural support are often more effective than pharmacological interventions alone.[18–32,56–60]

Theoretical approaches, such as the Cultural Influences on Mental Health (CIMH) Model and the Socio-Cultural Model, emphasize the importance of culturally sensitive interventions, community support systems, and the broader social determinants of health. These models recognize the significant role that cultural and social contexts play in shaping health behaviors and outcomes, advocating for holistic and community-based interventions.[76,77–83] Regrettably, even in the absence of clear evidence demonstrating the long-term effectiveness and superiority of narrow pharmacological approaches to behavioral health and substance abuse, these methods, along with similar comprehensive strategies, continue to be undervalued. This persistence is partly due to the significant influence of the pharmaceutical industry. As well documented, the industry shapes clinical guidelines and treatment practices, often prioritizing drug targets and biomedical narratives at the expense of behavioral and sociocultural interventions.[84–87]

Rudolf Virchow's insightful statement that "medicine is a social science, and politics is nothing else but medicine on a large scale" underscores the critical need to incorporate social and cultural contexts into medical practices to identify the root causes of health issues. This perspective is particularly relevant in the management of complex health conditions such as obesity and alcohol consumption, where sociocultural factors play a significant role.[88] For instance, a holistic approach to managing obesity would consider not only the individual's diet and physical activity but also their social environment, cultural norms, and economic conditions. Similarly, addressing alcohol consumption would involve understanding the social contexts in which drinking occurs, the cultural attitudes towards alcohol, and the availability of social support systems. In this context, the relationship between alcohol consumption, dietary intake, and body weight underscores the complex interplay of individual, sociocultural, and environmental factors.[89]

Virchow's statement encapsulates the fundamental idea for management of health conditions like obesity and alcohol consumption, it is crucial to integrate sociocultural dimensions into medical practices. This holistic approach not only addresses the symptoms but also tackles the root causes, leading to more sustainable health outcomes.[18–32,56–60] Given this situation, we must keep in mind the broader potential implications of relying heavily on pharmacological approaches. Henceforth, it is crucial to integrate pharmacological treatments with holistic, culturally sensitive interventions to achieve more comprehensive and sustainable health outcomes. Consequently, future research should incorporate diverse perspectives to develop evidence-based strategies for addressing weight loss and alcohol use disorders that resonate with the lived experiences and sociocultural realities of individuals.[18–32,56–60]

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