

Review

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Review

Impact of Wine on Sleep: A Mini-Review of Recent Evidence

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Abstract

Wine is widely consumed across cultures and is often perceived as a benign or even beneficial alcoholic beverage, particularly when consumed in moderation and within the context of healthy dietary patterns. At the same time, alcohol is one of the most commonly used substances to self-manage sleep problems. This short narrative review critically examines evidence published over the past decade (2015–2025) on the impact of wine and alcohol more broadly on sleep health in community-dwelling adults. Priority was given to systematic reviews and meta-analyses, followed by high-quality observational and experimental studies. Across study designs, evidence consistently demonstrates that although alcohol may reduce sleep onset latency, it disrupts sleep architecture, suppresses rapid eye movement sleep, increases sleep fragmentation, and impairs breathing during sleep, particularly during the second half of the night. Habitual alcohol consumption is associated with poorer subjective sleep quality, insomnia symptoms, and increased risk of sleep-disordered breathing. Mechanistic pathways include effects on neurotransmission, sleep homeostasis, circadian regulation, thermoregulation, and alcohol metabolism during sleep. A short section also examines the reciprocal relationship, highlighting evidence that circadian disruption, shift work, and evening chronotype are associated with higher alcohol consumption. Although wine contains bioactive compounds such as melatonin and polyphenols, current evidence does not support a clinically meaningful protective effect of wine on sleep. Overall, wine should not be considered a sleep aid, and public health messaging should emphasize dose, timing, and regularity of alcohol consumption in relation to sleep health.

Keywords: wine; alcohol; sleep health; insomnia; circadian rhythms; nutrition

1. Introduction

Sleep is a core pillar of health and is essential for cardiometabolic regulation, immune function, mental health, and cognitive performance. Inadequate or disrupted sleep is associated with increased risks of cardiovascular disease, type 2 diabetes, depression, and premature mortality. In parallel, alcohol consumption remains deeply embedded in social and cultural practices worldwide, with wine often occupying a unique position as a symbol of moderation, conviviality, and potential health benefit.

Within this context, many adults report using alcohol, including wine, to facilitate relaxation or sleep initiation. Population surveys indicate that alcohol is among the most commonly used non-prescription sleep aids [1,2]. This practice is reinforced by the acute sedative properties of ethanol and by cultural narratives that portray a glass of wine in the evening as conducive to good sleep.

Despite these perceptions, alcohol is increasingly recognized as a substance that disrupts normal sleep physiology. Acute effects differ markedly from chronic patterns of use, and short-term benefits may mask longer-term adverse consequences. Although the effects of alcohol on sleep have been studied for decades, renewed interest has emerged due to advances in objective sleep measurement,

growing emphasis on sleep regularity and circadian health, and evolving public health guidance on alcohol consumption.

Wine warrants particular consideration for several reasons. First, it is commonly consumed with evening meals, placing ingestion close to bedtime. Second, wine contains non-ethanolic components such as polyphenols and small amounts of melatonin, which have prompted speculation about potential sleep-related benefits. Third, wine is often perceived as healthier than other alcoholic beverages, which may influence both consumption patterns and risk perception.

This short narrative review synthesizes evidence from the past 10 years on the impact of wine and alcohol on sleep in community-dwelling adults. The primary objective is to examine effects on sleep initiation, architecture, continuity, and sleep-disordered breathing. A secondary objective is to briefly review evidence on how sleep patterns, particularly circadian disruption, shift work, and chronotype, may influence alcohol consumption. By integrating mechanistic, experimental, and population-level evidence, this short review of recent evidence aims to inform research, clinical practice, and public health policy, with particular relevance to nutrition-focused audiences.

2. Materials and Methods

This narrative review was informed by searches of MEDLINE, EMBASE, and PsycINFO conducted in December 2025. Eligible studies were published in English between January 2015 and December 2025 and focused on human, community-dwelling adults aged 18 years and older. Search terms included combinations of alcohol, wine, sleep, sleep quality, insomnia, sleep architecture, circadian, chronotype, and shift work.

Priority was given to systematic reviews and meta-analyses, followed by observational studies, including cross-sectional and longitudinal designs, and randomized controlled trials. Only peer-reviewed articles were included. Studies conducted exclusively in clinical populations, such as individuals with alcohol use disorder or diagnosed sleep disorders, were excluded unless findings were clearly generalizable. Conference abstracts, editorials, commentaries, book chapters, dissertations, protocols, and preprints were excluded.

3. Acute Effects of Alcohol and Wine on Sleep

3.1. Sleep Initiation

Alcohol reliably reduces sleep onset latency, reflecting its acute sedative effects mediated primarily through enhanced gamma-aminobutyric acid signaling and increased adenosinergic sleep pressure [3–8]. Laboratory studies and systematic reviews consistently show that this effect is dose dependent and most pronounced during the first half of the night [2,4]. These findings likely underpin the widespread belief that alcohol, including wine, is an effective sleep aid.

However, reductions in sleep onset latency do not equate to improved sleep quality. Experimental studies demonstrate that subjective perceptions of improved sleep often diverge from objective sleep outcomes measured by polysomnography or actigraphy [2,3,9–11].

3.2. Sleep Continuity and Fragmentation

As alcohol is metabolized during sleep, its sedative effects diminish and are replaced by sympathetic activation, increased arousability, and sleep fragmentation [2,4,7,12]. Meta-analytic evidence shows increased wake after sleep onset and reduced sleep efficiency, particularly during the second half of the night [4]. These effects are observed even at low-to-moderate doses and are more pronounced when alcohol is consumed closer to bedtime [13,14].

3.3. Sleep Architecture

Alcohol produces characteristic alterations in sleep architecture. Acute intake increases slow-wave sleep and suppresses rapid eye movement (REM) sleep early in the night, followed by REM

rebound later [4,15–18]. Rapid eye movement suppression has implications for emotional regulation, learning, and memory consolidation. Available evidence indicates that wine does not differ meaningfully from other alcoholic beverages in its effects on sleep architecture when ethanol dose is matched [2].

3.4. Key Recent Evidence on Alcohol and Sleep in Adults

As summarized in **Table 1**, evidence from recent systematic reviews, meta-analyses, and narrative reviews consistently shows that alcohol consumption—including wine—has a net negative effect on sleep health in adults. Although acute alcohol intake reliably reduces sleep onset latency, this short-term sedative effect is followed by increased wake after sleep onset, reduced sleep efficiency, suppression of REM sleep with later rebound, and greater sleep fragmentation. Habitual alcohol consumption is associated with a higher risk of developing sleep disorders over time, including insomnia symptoms and poorer subjective sleep quality. Alcohol also exacerbates snoring and sleep-disordered breathing by increasing apnea–hypopnea index, oxygen desaturation, and respiratory event duration. Importantly, subjective perceptions of improved sleep often conflict with objective sleep measures, and women appear to experience greater sleep disruption at lower doses. Finally, despite interest in wine-specific components such as melatonin and polyphenols, available evidence indicates that their concentrations are insufficient to confer meaningful sleep or circadian benefits.

Table 1. Key recent evidence on alcohol (including wine) and sleep in community-dwelling adults.

| Study (Year) | Design | Population | Exposure | Sleep Outcomes Assessed | Main Findings |
|----------------------------|-------------------------------------|------------------------------|--------------------------------|---|---|
| Gardiner et al. (2025) [2] | Systematic review and meta-analysis | Healthy adults | Acute alcohol intake | Sleep onset latency, wake after sleep onset, sleep efficiency, REM sleep, slow-wave sleep | Alcohol reduced sleep onset latency but increased wake after sleep onset and reduced sleep efficiency; REM sleep was suppressed early with rebound later in the night |
| Webber et al. (2025) [3] | Systematic review | Adults | Alcohol use | Objective and subjective sleep measures | Subjective sleep improvements often conflicted with objective measures; alcohol was consistently associated with sleep fragmentation |
| Meneo et al. (2023) [4] | Systematic review and meta-analysis | Young and middle-aged adults | Sleep habits and substance use | Sleep disturbances (insomnia symptoms, sleep quality), | Poor sleep habits were associated with greater alcohol use, supporting self-medication and bidirectional pathways |

| | | | | | |
|----------------------------------|---|--------------------------|------------------------------|---|---|
| | | | | sleep health dimensions (duration, satisfaction, efficiency, timing, daytime alertness), and circadian characteristics (chronotype) | |
| Hu et al. (2020) [7] | Systematic review and meta-analysis of cohort studies | General adult population | Habitual alcohol consumption | Incident sleep disorders | Regular alcohol consumption was associated with increased risk of developing sleep disorders over time |
| Burgos-Sanchez et al. (2020) [9] | Systematic review and meta-analysis | Adults | Alcohol consumption | Snoring, sleep architecture, apnea–hypopnea index | Alcohol consumption significantly increased snoring and obstructive sleep apnea severity |
| Kolla et al. (2018) [14] | Systematic review and meta-analysis | Adults | Alcohol consumption | Breathing parameters during sleep | Alcohol worsened nocturnal oxygen desaturation and increased respiratory event duration |
| Simou et al. (2018) [15] | Systematic review and meta-analysis | Adults | Alcohol consumption | Sleep apnea risk | Alcohol consumption was associated with an increased risk of sleep apnea |
| Bolling et al. (2025) [1] | Narrative review | Adults | Alcohol use | Sleep quality, insomnia symptoms | Alcohol and sleep disruption showed reciprocal effects; short-term sedative effects masked longer-term impairment |
| Inkelis et al. (2020) [8] | Narrative review | Adult women | Alcohol use | Insomnia symptoms, sleep quality | Women experienced greater sleep disruption at lower alcohol doses than men |
| Marhuenda et al. (2021) [12] | Narrative review | Adults | Wine (melatonin) | Sleep and circadian regulation | Melatonin and polyphenol content in wine was far below |

| | | | | | |
|--|--|--|------------------|--|--|
| | | | and polyphenols) | | doses required to influence sleep; no evidence of meaningful sleep benefit |
|--|--|--|------------------|--|--|

Studies are ordered by level of evidence, with systematic reviews and meta-analyses presented first, followed by narrative reviews. REM: rapid eye movement.

4. Alcohol, Wine, and Sleep-Disordered Breathing

Alcohol has well-documented effects on respiratory physiology during sleep. By relaxing upper airway musculature and blunting ventilatory responses to hypoxia and hypercapnia, alcohol increases snoring and exacerbates obstructive sleep apnea [19–23].

Systematic reviews and meta-analyses demonstrate increases in apnea–hypopnea index, oxygen desaturation, and respiratory event duration following evening alcohol consumption [9,13–15]. These effects are clinically relevant given the high prevalence of undiagnosed sleep-disordered breathing in the general population and the common practice of consuming wine in the evening, often with dinner.

5. Chronic Alcohol Consumption, Insomnia, and Sleep Quality

Epidemiological studies consistently link habitual alcohol consumption with poorer subjective sleep quality, shorter sleep duration, and greater insomnia symptomatology [2,24–29]. Prospective cohort studies suggest that regular alcohol use increases the risk of incident sleep problems over time, rather than serving as an effective long-term coping strategy for sleep complaints [30–33].

Sex-specific differences have been observed, with women experiencing greater sleep disruption at lower doses of alcohol, potentially due to differences in body composition, alcohol metabolism, and hormonal influences [2,8,22]. Age-related changes in sleep architecture and alcohol metabolism may further amplify alcohol-related sleep disruption in older adults [7,13,16,34–36].

6. Mechanisms Linking Alcohol to Sleep Disruption

Alcohol disrupts sleep through multiple interacting biological pathways. These include interference with sleep homeostasis, circadian phase shifting, thermoregulation, nocturnal autonomic balance, and neurotransmitter systems [37–43]. Experimental evidence indicates that alcohol alters the buildup and dissipation of sleep pressure and impairs the normal nocturnal decline in core body temperature [42,43].

Neurobiological models describe feed-forward interactions in which sleep disruption promotes alcohol use as a coping strategy, which in turn further degrades sleep quality [10,44–46]. These reciprocal effects may contribute to the persistence of both poor sleep and regular alcohol consumption in some individuals.

Figure 1 depicts the conceptual pathways linking evening alcohol consumption, including wine, to sleep disruption. Alcohol intake in the evening acutely reduces sleep onset latency via sedative mechanisms but subsequently disrupts sleep continuity, architecture, and breathing through effects on neurotransmission, circadian timing, autonomic balance, thermoregulation, and upper airway physiology. Chronic exposure and circadian misalignment may reinforce bidirectional pathways between poor sleep and alcohol use.

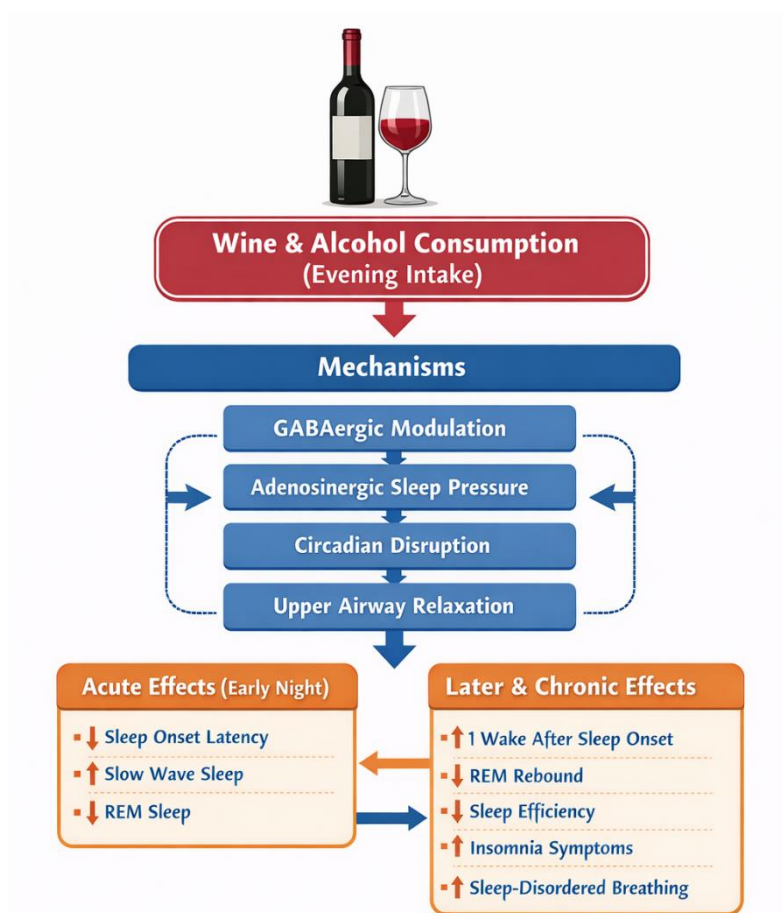


Figure 1. Conceptual pathways linking evening alcohol (including wine) consumption to sleep disruption. .

7. Wine-Specific Considerations Within a Nutritional Context

Wine is often consumed as part of evening meals and dietary patterns such as the Mediterranean diet. While moderate wine consumption has been associated with certain cardiometabolic benefits, these associations do not extend to sleep health [2,12]. The timing of wine intake, particularly in the evening, places alcohol ingestion close to the biological night, when sleep and circadian systems are most vulnerable [19,41,47,48].

7.1. Melatonin and Polyphenols

Wine contains small quantities of melatonin and a variety of polyphenolic compounds with antioxidant and anti-inflammatory properties. Although melatonin plays a key role in circadian regulation, the amounts present in wine are several orders of magnitude lower than doses shown to influence sleep or circadian timing [12,49]. No randomized controlled trials demonstrate clinically meaningful improvements in sleep attributable to melatonin or polyphenols delivered through wine consumption.

8. Effects of Sleep Patterns on Alcohol Consumption

A growing body of evidence supports a bidirectional relationship between sleep and alcohol use. Systematic reviews indicate that circadian disruption, shift work, and evening chronotype are associated with higher alcohol consumption and a greater likelihood of hazardous drinking patterns [5,6,11].

Shift workers often experience chronic sleep restriction and circadian misalignment, which may increase vulnerability to alcohol use through altered reward processing, impaired impulse control,

and increased stress [11,26,45]. Evening chronotype has been consistently associated with later drinking times, higher consumption, and poorer sleep outcomes [5,47,48].

9. Public Health and Clinical Implications

The perception of wine as a sleep aid remains widespread, yet evidence consistently contradicts this belief. From a public health perspective, messaging should emphasize that any short-term sedative effects of alcohol are outweighed by later-night sleep disruption, reduced sleep quality, and impaired breathing during sleep.

Clinicians should routinely assess alcohol quantity and timing when evaluating sleep complaints and should discourage the use of alcohol as a sleep aid. From a nutritional standpoint, guidance should highlight that potential cardiometabolic benefits of moderate wine consumption do not extend to sleep health and that earlier timing and lower frequency may reduce sleep-related harm [2,50].

10. Future Research Directions

Future research should disentangle beverage-specific effects from ethanol dose, examine interactions with sleep regularity and chronotype, and evaluate whether earlier timing of wine consumption mitigates adverse sleep effects. Greater use of objective sleep measures in free-living populations, including repeated-night assessments, is needed. Research integrating sleep, nutrition, and circadian health may be particularly valuable for informing holistic lifestyle recommendations.

11. Conclusions

Despite cultural narratives suggesting that wine may facilitate sleep, evidence from the past decade consistently demonstrates that alcohol produces short-term reductions in sleep onset latency followed by clinically meaningful impairments in sleep architecture, continuity, and breathing. Wine's non-ethanolic components do not meaningfully counteract these effects. Wine should not be considered a sleep aid, and addressing alcohol use and sleep health together is essential for improving population-level sleep outcomes.

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Abbreviations

The following abbreviation is used in this manuscript:

REM Rapid eye movement

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