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Review Article

Intoxication and desire: Unravelling the complex interplay between alcohol consumption and sexual desires

Abdul Khayum¹, Aishwarya Rg², Chandana H N³, Ganavi K N⁴, Jasmeen Kaur Gill⁵, Gayathree Nuguru⁶, Ilham Zaidi⁷

¹Medical Officer, JSS Medical College and Hospital, Mysuru, Karnataka, India

²Junior Medical Officer, MS Ramaiah Medical College, Bengaluru, Karnataka, India

^{3,4}PhD Scholar, JSS Medical College, Mysuru, Karnataka, India

⁵MPH Scholar, Indian Institute of Public Health, New Delhi, India

⁶Scholar, Panineeya Mahavidyalaya Institute of Dental Sciences & Research Centre, Hyderabad, Telengana, India Advisor, International Society for Chronic Illnesses, New Delhi, India

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Abstract

This research explores the factors contributing to the risk of sexual violence, focusing on the role of alcohol consumption. The study highlights the significant impact of alcohol expectancies-beliefs about alcohol,s effects-on behaviour and attitudes, particularly when combined with certain personality traits. Men exhibiting anger, irritability, and lack of empathy are more prone to aggression under alcohol's influence. Perpetrators of sexual violence often display aggression and hostility towards women, emphasizing the need to address these traits in prevention strategies.

This research discusses the reciprocal relationship between alcohol expectancies, consumption patterns, and the commission of sexual violence. Stronger alcohol expectancies are linked to heavier drinking and a higher likelihood of committing alcohol-involved sexual assaults. These expectancies also affect cognitive processes, influencing responses to sexual cues and delaying the recognition of refusal.

The findings highlight the negative effects of alcohol intoxication on decision-making and risky sexual behaviours,

Corresponding author: Dr. Ilham Zaidi Email: ilhamasgher@gmail.com

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increasing the risk of sexually transmitted infections (STIs). Effective prevention must address the combined influences of alcohol expectancies, personality traits, and past experiences. Tailored interventions targeting these interactions are crucial for creating safer environments and reducing sexual violence. These understandings should aid policymakers, educators, and health professionals develop better prevention strategies.

Introduction

Intoxication and desire represent two intricately intertwined facets of human experience, each capable of exerting profound influence over behaviour and perception. The intersection of these phenomena, particularly in the context of alcohol consumption and sexual desires, has long intrigued researchers, clinicians, and societal stakeholders alike. [1,2]

Alcohol consumption is a global phenomenon, exhibiting significant variances across regions and cultures. According to the World Health Organization (WHO), approximately 2.3 billion people worldwide consume alcohol^[3]. By examining the prevalence and cultural embedding of alcohol use, this study aims to provide a comprehensive understanding of how alcohol consumption influences sexual desires and behaviours, contributing to the broader discourse on the prevention of sexual violence and the promotion of healthier interpersonal relationships.

The study of altered states of consciousness (ASC) has shed light on the paradoxical healing potential of such states. [1] Additionally, exploring altered states in romantic relationships under scores the enduring fascination with how intoxication influences intimate connections. [1,4]

Moreover, the historical significance of alcohol's role in shaping cultural norms and behaviours surrounding sexuality cannot be understated. From ancient rituals to modern social gatherings, the consumption of alcohol has often been intertwined with expressions of desire, intimacy, and socialization. Throughout various epochs, depictions in art, literature, and folklore have captured the complex interplay between intoxication and sexual experiences, reflecting societal attitudes and values. Understanding this historical backdrop provides valuable context for contemporary research efforts aimed at disentangling the intricate dynamics between alcohol consumption and sexual desires in today's society.

Historic importance

Throughout history, societies have grappled with the effects of alcohol on human behaviour, including its impact on sexual desires and interactions. The study of altered states of consciousness (ASC] has shed light on the paradoxical healing potential of such states.^[1,2] Additionally, exploring altered states in romantic relationships^[4], underscores the enduring fascination with how intoxication influences intimate connections.

Concerns regarding the link between alcohol consumption and sexual aggression have been well-documented. The perpetration of sexual crimes and the role of alcohol therein have been subject to extensive scrutiny. Furthermore, research has examined the nuanced relationship between alcohol use and risky sexual behaviour.

By synthesizing insights from diverse disciplines, including psychology, neuroscience, and public health, researchers seek to unravel the complexities inherent in the relationship between alcohol consumption and sexual desires. ^[2,8] Such endeavour contribute to our understanding of human behaviour and inform interventions to promote safer and healthier interactions within intimate contexts. As societal attitudes and norms evolve, the need for comprehensive exploration and evidence-based strategies to address intoxication and desire remains ever-pertinent.

Theoretical framework

There are few theories which support that alcohol plays a role in the impact on sexual drive-physically, culturally and psychologically.

The alcohol myopia model proposes that alcohol impairs cognitive processing, leading to a narrowed focus on salient cues while inhibiting the recognition of non-provocative or inhibitory stimuli. In confrontational situations, this myopic attention effect increases the likelihood of aggression by directing attention towards provocative cues, potentially resulting in a violent response.

Alcohol myopia theory suggests that intoxication impairs cognitive processing, leading individuals to focus on immediate, compelling cues while disregarding inhibiting factors like the risk of contracting sexually transmitted diseases. In sexual decision-making, intoxicated individuals prioritize salient aspects, potentially leading to impulsive behaviour. This theory highlights the role of selective attention in influencing decision-making under the influence of alcohol. [9]

A study on red wine consumption among Italian women provided a vivid example. The findings revealed that women who consumed a moderate amount of red wine daily reported elevated levels of sexual desire in comparison to women who abstained from alcohol. [10]

The alcohol myopia theory posits that individuals under the influence of alcohol may display differing levels of risky behaviour based on the available cues. Across four studies, an interaction between intoxication and cue type was identified. In scenarios featuring compelling cues, individuals under the influence expressed greater intentions to engage in unprotected sex compared to their sober counterparts. This suggests that alcohol myopia offers a more comprehensive explanation for alcohol effects compared to disinhibition. [9]

The study focused on alcohol use and high-risk sexual behaviour among collegiate women. The results clearly express the widespread occurrence of adverse sexual outcomes associated with alcohol use among college-aged women, underscoring the effectiveness of the Alcohol Myopia Model (AMT]. [11]

Research involving college-age men found that alcohol intoxication amplifies the influence of sexual arousal on attitudes towards unprotected sex, supporting alcohol myopia theory. Similarly, a study focusing on women showed that alcohol intoxication increases the likelihood of sexual abdication, particularly among those with a history of childhood sexual abuse in high-conflict situations. Interestingly, this interaction between abuse history and intoxication did not affect abdication in low-conflict scenarios. [13]

Intoxicated women with a history of childhood sexual abuse are more likely to engage in unprotected oral sex and less likely to use condoms compared to other groups, suggesting an increased risk of sexually transmitted infections. Expectancy-Value Theory posits that individuals' decisions and behaviors are influenced by their expectations of outcomes and the subjective value they place on those outcomes. [10]

In the context of this theory, the study, rooted in expectancy-value theory, explores individuals' anticipated experiences during sex with a romantic partner. Men generally reported higher orgasm expectancies than women, with this gender

difference more pronounced in college students. Emotional closeness expectancies strongly influenced both men's and women's sexual desire, surpassing the impact of orgasm expectancies. The findings suggest that young adults' expectations play a crucial role in shaping sexual desire, emphasizing the significance of intimacy and pleasure in sexual experiences for both genders. [14]

Structural equation modelling revealed that intoxicated men, especially those with strong alcohol-aggression expectancies, reported heightened sexual aggression and congruent emotions like arousal and anger. These emotions, in turn, predicted increased sexual aggression intentions. Notably, men with higher intentions were less likely to label the situation as sexual assault and expressed less concern about their intended actions. The findings underscore the importance of addressing alcohol expectancies and intoxication in understanding and preventing sexual aggression. [15]

The study revealed a strong link between alcohol consumption and engaging in sex, as well as risky behaviours like having multiple or casual partners. However, this association was inconsistent regarding protective behaviours such as condom use. These connections were observed between individuals and within individuals over time, indicating that stable individual differences cannot fully explain them. The impact of drinking on decreased protective behaviours was particularly notable among younger individuals, during first intercourse experiences, and for events further in the past. [16]

Methodological approaches in studying alcohol and sexual desires

Researching the relationship between alcohol consumption and sexual desires involves methodological approaches which aim at understanding the complex interplay between these two factors.

Methodological approaches like cross-sectional study involve a few variables, such as alcohol consumption and observing the effects on sexual desires. Researchers may administer alcohol to participants in controlled settings and measure changes in sexual arousal, behaviours, or attitudes.

A cross-sectional study conducted at Sohag

University Hospital in Egypt from January 2017 to October 2019 focused on male patients seeking advice for premature ejaculation (PE). Agematched controls without PE were recruited from blood transfusion donors. The analysis showed no significant differences between the control group and those with PE, except for the average intravaginal ejaculatory latency time (AIPE), which was significantly lower in patients with PE than controls.

The cross-sectional study's main limitation is its small sample size, compounded by difficulties in recruiting healthy controls who declined due to social and legal concerns about drug testing costs. The study suggests addressing these limitations by increasing the sample size and diversifying healthy control representation. [17]

A cross-sectional study explored the correlation between alcohol consumption levels and sexual dysfunction comprehensively. It found significant links between sexual dysfunction in individuals with alcohol dependence and paternal alcohol abuse history, lower education, advancing age, and marital discord. Moreover, it identified a negative correlation between sexual functioning domains and both years and lifetime alcohol use. [18]

Excessive alcohol consumption, common in social settings, detrimentally affects various health aspects, particularly social well-being and sexual function. Physiological and psychological factors, including impaired cognitive processing and physiological dysfunction, contribute to decreased sexual desire, arousal, and performance. Recognizing these consequences is vital for promoting informed and responsible alcohol consumption.

Impact of excessive alcohol intake on sexual desire, arousal, and performance

Excessive and prolonged alcohol consumption profoundly influences sexual desire by acting as a central nervous system depressant, disrupting neurotransmitters essential for sexual arousal and leading to a notable reduction in the inclination for sexual activities. Statistical findings from research studies reveal that a substantial 61.5% of men and 55% of women have reported experiencing a decline in sexual desire as a consequence of elevated alcohol consumption. [19,20]

Excessive alcohol intake detrimentally affects sexual arousal in both genders, leading to challenges in maintaining and achieving arousal. Men may experience erectile dysfunction (43.6%), decreased sexual pleasure (71.8%), and lowered arousal (59%), with parallel effects on orgasm (47.85%). Women face a 74% increased risk of sexual dysfunction, an inability to reach orgasm (52.5%), and dissatisfaction with orgasm (50%). [19]

Consistent research highlights alcohol's negative impact on sexual performance, affecting desire and overall sexual functioning [21].

Negative consequences of excessive alcohol intake on sexual desire, arousal, and performance

Persistent alcohol intake affects sexual and reproductive organs differently in men and women. In females, it can lead to pelvic inflammatory diseases, endometriosis, menstrual irregularities, cessation of menses, and premature menopause. In males, it can cause testicular atrophy, reduced sperm count, motility, and abnormal sperm morphology, leading to conditions like teratozoospermia and oligozoospermia. [22]

Continued alcohol consumption disrupts sex hormone synthesis and secretion, including Gonadotropin-releasing hormones (GnRH), follicle-stimulating hormone (FSH), and luteinizing hormone (LH). LH, crucial for testosterone and progesterone production, is affected, impacting sexual activities and reproductive processes. [22,23]

Furthermore, alcohol's impact on sexual performance extends beyond physical consequences to include psychological elements like anxiety and stress. As a CNS depressant, alcohol alters blood flow, hormone levels, and neurotransmitter activity while also increasing feelings of anxiety and stress. This interaction between physiological and psychological factors under alcohol's influence may contribute to sexual performance challenges. [24,25]

Positive effects of alcohol on sexual desires

The correlation between sex and alcohol is intricate and encompasses multiple facets, as investigated by various research studies. While certain research indicates potential positive links between sexual experiences and alcohol consumption, it is crucial to approach this matter with awareness of individual variations, cultural norms, and the possible hazards associated with the intake of alcohol. Here are some overarching viewpoints:

Increased relaxation and socialization: The moderate consumption of alcohol in social environments has the potential to induce heightened relaxation and diminished inhibitions. In such situations, individuals may perceive an improvement in their overall mood and find themselves more at ease when engaging in intimate interactions, potentially fostering positive sexual experiences.

Elevated libido: Certain individuals may report a transient surge in libido or sexual desire following the consumption of moderate amounts of alcohol. This phenomenon is believed to be associated with the release of dopamine, a neurotransmitter linked to pleasure and reward, induced by alcohol. Elevated libido can positively impact consensual sexual relationships by enhancing intimacy and mutual satisfaction, provided that the interactions are respectful and consensual.

Social facilitator: Alcohol is commonly acknowledged as a "social facilitator," aiding in the alleviation of social anxiety and the smooth facilitation of interactions. Particularly in romantic or social settings, this attribute may create a more relaxed ambience that positively influences intimacy.

Perceived performance enhancement: Some individuals may believe that their sexual performance improves when under the influence of alcohol, owing to a reduction in anxiety or inhibition. It is crucial to recognize, however, that this perception may not necessarily align with the actual physiological aspects of performance. In fact, research evidence often contradicts this belief, showing that alcohol can impair sexual performance despite perceived enhancements. [25,26]

Alcohol's impact on testosterone and sexual desire, even with moderate intake, is intricate. While some studies suggest no significant short-term testosterone effect, alcohol's influence on desire varies with context. Moderate consumption may temporarily boost libido due to dopamine release, enhancing mood and comfort in social settings. Balancing potential benefits and risks is crucial.

Awareness of individual health and seeking professional guidance for sexual or hormonal concerns is recommended.^[27,28]

The relationship between alcohol, testosterone, and sexual desire with moderate intake is complex. While it may not significantly affect short-term testosterone levels, moderate alcohol consumption can sometimes temporarily increase libido due to dopamine release. Additionally, as a "social lubricant," alcohol can enhance relaxation and lower inhibitions, improving mood and comfort in intimate interactions. However, balancing potential benefits and risks is crucial. Individuals should consider their health and seek guidance from healthcare professionals regarding alcohol consumption's implications on hormonal balance and sexual well-being. [27,28]

Impact of gender and sexual orientation on alcohol-related sexual behavior

Individual differences and moderators play a crucial role in shaping the relationship between alcohol consumption and sexual desires. These factors can influence how alcohol affects personality, sexual behaviour, arousal, and attitudes. Here are some individual differences and moderators to consider.

Gender differences and personality traits

1. LGBTQI community

Intoxicated participants with stronger alcoholaggression expectancies reported greater sexual aggression congruent emotions/motivations, which suggests that the beliefs or expectations about the relationship between alcohol and aggression play a role in influencing emotional and motivational responses during intoxication. [29]

Additionally, in an experimental study on linking alcohol intoxication and analogue determinants of condom-less anal intercourse (CAI) after beverage administration, participants were to complete a few tasks assessing working memory, approach-avoidance responses to sexual versus condom stimuli, and engaged in video role-play vignettes of high-risk sexual scenarios. Self-reported sexual arousal and CAI intentions were assessed, alongside behavioural skills and risk exposure observed during the role-play. Results revealed the support for the hypothesized mechanisms in predicting CAI intentions. [29]

2. Men

For sober participants, alcohol-aggression expectancies did not influence emotions/ motivations, which indicates that the impact of alcohol-aggression expectancies on emotions and motivations is specific to individuals who are intoxicated.

Also, stronger sexual assault congruent emotions/motivations predicted greater sexual aggression intentions towards sexual minorities (women and gay men), which implies that the emotional and motivational responses, influenced by alcohol and aggression expectancies, contribute to the intention to engage in sexual aggression.

Men with greater sexual aggression intentions were less likely to label the situation as a sexual assault. They reported less concern about their intended actions, which suggests that individuals with stronger intentions for sexual aggression may have reduced awareness or concern about the potential harm associated with their actions.

In an experimental study, the findings underscore the relevance of both alcohol expectancies and alcohol intoxication to sexual aggression perpetration, which in turn highlights the importance of including information about alcohol's influence on both emotional and cognitive responses in sexual aggression prevention work. [15]

3. Women

A study on the association between condom use self-efficacy and condom negotiation intentions was stronger for intoxicated women than for sober women, which indicates that the relationship between confidence in using condoms and intentions to negotiate condom use is more pronounced when women are intoxicated.

The gender-specific difference in the association suggests that interventions addressing condom use self-efficacy and negotiation intentions may need to be tailored differently for intoxicated and sober women. Like, interventions aimed at sober women might focus on enhancing assertiveness skills and providing education about the importance of condom use, while interventions for intoxicated women might need to address barriers related to impaired judgment and decision-making under the

influence of alcohol. [30]

These findings collectively emphasize the complex interplay between alcohol consumption, gender, emotions, cognitive responses, and intentions in the context of sexual behaviour and highlight the need for nuanced and targeted approaches in prevention and intervention efforts.

Alcohol expectancies and sexual violence risk: (Moderators)

The relationship between alcohol intoxication and sexual desires is moderated by a variety of factors, which collectively influence the likelihood of sexual violence perpetration. Alcohol expectancies, representing beliefs about the effects of alcohol, interact with individual characteristics, experiences, and attitudes towards sex to shape behaviour in social and intimate contexts. Understanding these moderators is crucial for comprehensively addressing the complex dynamics at play.

Individuals with strong beliefs about alcohol's effects often consume more, leading to heightened disinhibition and impaired decision-making, especially if they possess traits like anger and lack of empathy. Research suggests these traits may worsen aggressive behaviour under alcohol's influence, increasing the risk of sexual assault. Perpetrators of sexual violence commonly exhibit traits such as aggression and hostility, emphasizing the importance of considering individual characteristics beyond alcohol alone when assessing the risk. Previous experiences and beliefs about alcohol's effects on sexual desire and women's receptivity also influence behaviour, with those endorsing stronger beliefs often consuming more alcohol in anticipation of increased aggression or desire amplification.

The influence of alcohol expectancies extends to sexual attitudes and behaviours. Individuals who believe that alcohol enhances sexual prowess or desire may be more likely to misinterpret or disregard cues of refusal from potential partners, thereby contributing to a higher risk of sexual coercion or assault.^[31]

Understanding these complex interactions between alcohol expectancies, personality traits, and attitudes towards sex is paramount for developing effective prevention strategies against sexual violence. Interventions should address not only alcohol consumption but also the underlying beliefs and attitudes that contribute to risky behaviours. By targeting these factors comprehensively, interventions can be more tailored and impactful in reducing the incidence of sexual violence in society. [31]

Gaps in current literature

The existing research on alcohol consumption, sexual behaviour, and risk perception reveals several notable gaps that hinder a comprehensive understanding of the complex interactions. While studies have established a correlation between atrisk drinking patterns and a higher number of casual sexual partners, they often fall short in assessing whether alcohol consumption and sexual activity coincide. This gap in research leaves crucial questions unanswered regarding the temporal sequencing of alcohol use and engagement in risky sexual behaviours. Understanding whether alcohol consumption precedes, coincides with, or follows sexual encounters is essential for unravelling the dynamics of this relationship and identifying potential intervention points.

While the influence of alcohol intoxication on sexual behaviour has received considerable attention, there remains a dearth of research exploring the concurrent role of sexual arousal in shaping these behaviours. The interplay between alcohol intoxication and sexual arousal is likely multifaceted, yet studies examining this interaction are limited. More investigations or studies on how alcohol consumption and sexual arousal jointly influence decision-making processes related to condom use and sexual risk-taking are necessary to develop targeted interventions aimed at reducing the incidence of unprotected sex and sexually transmitted infections. [32,33]

While decision-making models have been applied to understand men's sexual behaviour, the extension of these models to female sexual decision-making remains under-explored. Gender differences in sexual decision-making processes may influence the likelihood of engaging in risky sexual behaviours, such as condomless sex. Understanding how factors such as alcohol consumption, sexual arousal, and individual characteristics contribute to decision-making among women is crucial for developing gendersensitive prevention strategies. [34]

In addition, despite the potential implications for bystander intervention in preventing sexual violence, little research has examined the role of alcohol expectancies in bystanders' ability to detect risk. Bystander intervention relies on individuals' perception of risk and willingness to intervene in potentially harmful situations. Investigating how alcohol expectancies influence by standers' risk perception and intervention behaviours can provide valuable insights for enhancing bystander intervention programs and reducing the incidence of sexual violence.^[35]

Challenges in estimating adolescent hooking-up prevalence underscore the need for targeted research. Understanding this behaviour is crucial for tailored prevention efforts and promoting healthy sexual decision-making among adolescents. [36]

Limited research on alcohol-involved sexual assault hampers understanding. Cross-sectional data collection obscures temporal relationships and sexual assault researchers often lack expertise in alcohol literature. Interdisciplinary collaboration is needed to design studies capturing temporal dynamics and ensuring comprehensive alcohol assessments, advancing understanding and informing prevention strategies effectively. [57]

Implications of sexual health

Addressing these gaps through rigorous empirical research, comprehensive literature reviews, and interdisciplinary collaborations is essential for advancing knowledge in this field and developing effective interventions to promote safer sexual practices and prevent sexual violence.

In light of the findings from the literature, several implications for sexual health and strategies to promote informed and responsible alcohol use in the context of sexual behaviour emerge. Primarily, there is a pressing need for comprehensive education programs that address the intricate relationship between alcohol consumption and sexual behaviour. These programs should not only highlight the potential risks associated with alcohol-involved sexual encounters, such as increased vulnerability to unprotected sex and sexual violence but also provide individuals with the knowledge and skills to make informed decisions about their alcohol use and sexual activity.

Enhancing risk perception is crucial in promoting sexual health, mental health and safety. By increasing awareness among individuals about the impact of alcohol on risk perception in sexual situations and mental health or psychological health, we can empower them to recognize signs of alcohol intoxication and intervene when they perceive potential risks of sexual assault or unprotected sex. Targeted interventions tailored to high-risk groups, such as adolescents and young adults, can provide these individuals with the necessary skills to resist peer pressure and make informed choices about alcohol consumption and sexual behaviour.^[38]

Educating individuals about alcohol expectancies and responsible drinking is vital for promoting informed alcohol use. Dispelling myths and misconceptions, emphasizing moderation, and encouraging open communication between partners can enhance responsible decision-making and mutual consent regarding alcohol use and sexual behavior.

Equipping individuals with coping skills to resist peer pressure and offering alternative socializing options can reduce reliance on alcohol as a social lubricant. Additionally, promoting bystander intervention educates individuals about the importance of intervening in risky situations, creating safer environments and preventing alcohol-involved sexual assault.

Incorporating these implications and strategies into sexual health promotion efforts can contribute to creating environments that support informed decision-making, responsible alcohol use, and safer sexual behaviours. By empowering individuals with the knowledge, skills, and resources they need, we can work towards preventing alcohol-related harm and sexual violence in our communities.

Conclusion

The research findings presented illuminate a complex and interconnected web of factors contributing to the risk of sexual violence, particularly in the context of alcohol consumption. Alcohol expectancies, encompassing beliefs about the effects of alcohol, play a pivotal role in shaping behaviour and attitudes, interacting with various individual characteristics and experiences.

One notable aspect is the interaction between

alcohol expectancies and personality traits. Men exhibiting traits such as anger, irritability, antisocial characteristics, and lack of empathy are more likely to display aggression when under the influence of alcohol. This intersection of personality traits and alcohol expectancies underscores the importance of considering individual differences in understanding and addressing the risk of sexual violence.

Moreover, the assessment of perpetrators of sexual violence in both alcohol-involved and non-alcohol-involved assaults reveals common prominent personality traits, such as aggression, delinquency, hostility towards women, and sexual dominance. These traits emerge as risk factors irrespective of alcohol involvement, suggesting that addressing these underlying traits is crucial in comprehensive prevention strategies.

The influence of alcohol expectancies extends beyond personality traits, encompassing previous alcohol-related and sexual experiences. Heavier drinkers tend to hold stronger alcohol expectancies, indicating a potential feedback loop where beliefs about alcohol reinforce patterns of heavy drinking. Additionally, perpetrators of alcohol-involved sexual assaults not only have stronger beliefs about alcohol's effects on their sex drive and women's interest but also consume higher amounts of alcohol. This suggests a reciprocal relationship between alcohol expectancies, alcohol consumption, and the commission of sexual violence.

The impact of alcohol expectancies on sexual attitudes is another significant finding. Men who believed they were consuming alcohol demonstrated delayed recognition of a woman's refusal compared to those aware they were not drinking alcohol. This emphasizes the role of cognitive processes influenced by alcohol expectancies in shaping responses to sexual cues.

The findings indicate that alcohol intoxication can adversely affect personality traits, impair decision-making abilities, and increase the likelihood of engaging in risky sexual behaviours, ultimately raising the risk of contracting sexually transmitted infections (STIs).

The evidence underscores the multifaceted nature of the relationship between alcohol, individual characteristics, and the perpetration of sexual violence and involvement in unsafe sex, which leads to sexually transmitted diseases. Comprehensive prevention efforts must consider not only the direct effects of alcohol consumption but also the intertwined influence of alcohol expectancies, personality traits, and previous experiences. Tailored interventions addressing these complex interactions are essential for fostering a safer environment and mitigating the risk of sexual violence. By understanding the nuanced dynamics at play, policymakers, educators, and health professionals can develop more effective strategies to prevent and address sexual violence in diverse contexts.

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