



# Cannabis Use and Emotions in Romantic Relationships

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## Abstract

**Purpose of Review** Increase in the global prevalence of cannabis use has drawn attention to its predictors and psychosocial outcomes. Romantic relationships play a role in psychological well-being, yet data on the bidirectional association between cannabis use and romantic relationships is scarce and inconsistent. This paper aims to review existing literature and gaps in knowledge regarding this association.

**Recent Findings** Over time, cannabis use may negatively affect the outcome of romantic relationships, and vice-versa. Recent methodological advances have suggested that on the one hand, concordance in cannabis use may be associated with decreased conflict and an increased sense of intimacy. On the other hand, cannabis users may perceive their communication as more positive compared to independent raters' evaluation.

**Summary** Several factors may contribute to these conflicting results and should be further explored, including the intensity of cannabis use, gender, age, and the effect of cannabis use on motivation and cognition.

**Keywords** Marijuana · Romantic relationship · Intimacy · Emotions · Motivation · Cognition

## Introduction

### Why Cannabis and Romantic Relationships?

Following caffeine, nicotine, and alcohol, cannabis is the most commonly used psychoactive substance globally, with an estimated 200 million individuals, equivalent to over 4% of the world's population, who used cannabis in 2021 [1]. Among cannabis users, roughly 15% report using cannabis frequently, commonly defined as  $\geq 10$  days during the past month [2, 3]. Frequent cannabis use has been associated with increased risk for several negative consequences, including direct physical harm, fatal vehicle crashes, psychiatric comorbidity, cognitive deficits, and cannabis use disorder (CUD) [4–8]. In recent years, the recreational use of cannabis has been legalized in several countries, including Canada and Uruguay, as well as several US states, while other countries have adopted a decriminalization policy. Due to the global increase in the prevalence of cannabis use and

changes in its legal status, there is growing interest in the effect of cannabis use on additional aspects of psychosocial functioning, including romantic relationships [9], as well as the role of such factors in predicting cannabis use [10].

### Romantic Relationships, Cannabis Use, and Emotions

There are various definitions of a romantic relationship, yet it is generally agreed upon that such relationships include reciprocal intimacy, passion, and commitment. Studies have shown the importance of romantic relationship quality in one's overall well-being [11], suggesting that healthy relationship functioning contributes to mental and physical health, self-esteem, safety, life satisfaction, positive affect, and achieving personal and relational goals [12, 13]. In contrast, difficulties in romantic relationships may lead to negative consequences such as depression, anxiety, violence, and substance use [11, 14].

One aspect of a significant romantic relationship that may be affected by cannabis use is intimacy [15, 16]. Intimacy is often defined as feelings between partners that promote bondedness, connection, and closeness in the relationship. It is commonly agreed that romantic intimacy requires emotional exposure and a suitable emotional response to

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such exposure [16]. The effects of cannabis use on emotional responsiveness vary, depending on motives for use, context, and level of intoxication, ranging from enhanced openness-to-experience to elevated emotional avoidance. On the one hand, cannabis use may enhance openness, which allows attentiveness to one's own and others' emotions, both positive and negative [17]. A study by Testa et al. [15•] pointed out the positive effect of cannabis use on intimate experiences. Analyzing daily dyadic reports on intensity of cannabis use and sense of intimacy using the actor partner interdependence model (APIM), researchers have suggested that in cases when both partners use cannabis simultaneously (at the same hour) or when one of them uses cannabis in the presence of the other, the experience of intimacy increases between both partners in the following hours. On the other hand, cannabis use may elevate emotional avoidance, defined as a maladaptive effort to control or avoid negative emotions as a coping strategy [18]. A study by Haydon and Salvatore [19••], which analyzed lab-based couple interactions, indicated that high frequency of cannabis use was associated with conflict avoidance behaviors, such as skirting, deflecting, or ignoring areas of disagreement.

### The Effect of Cannabis Use on Romantic Relationships

Large-scale surveys allow permit exploration of the longitudinal association between cannabis use, marriage, and divorce. Several studies have suggested that adolescent frequent or dependent cannabis users were less likely to be in a steady romantic relationship as adults compared to non-users or non-frequent cannabis users [20–22]. In a nationally representative sample of American adults, individuals with anxiety disorders who used cannabis and those diagnosed with CUD were at an increased risk for termination of romantic relationships compared to non-users [23]. It thus appears that frequent, dependent, or early-onset cannabis use may result in a persistent, however small, effect on the odds for obtaining and maintaining a steady intimate relationship. However, due to methodological shortcomings, the specific and causal nature of this effect is far from clear [24]. For example, the bivariate correlation between cannabis use and divorce was non-significant when taking into account covariates such as frequency of alcohol and tobacco use [25].

In contrast to epidemiological studies, which often address gross behavioral outcome measures, couple-functioning studies enable us to explore the effect of substance use on more subtle aspects of romantic relationships, such as satisfaction, intimacy, and responsiveness [9]. With alcohol being at the center of attention [26], the literature on couple functioning among cannabis users is scarce. Several longitudinal studies have indicated that individuals who used cannabis in their early 20s, particularly heavy users, tended

to express less satisfaction with their partner and report less marital harmony during their late 20s [20]. However, these studies suffered from similar methodological drawbacks, preventing determination of directionality and causality. In a longitudinal study, level of cannabis use did not predict future quality of intimate partner relationship, after controlling for covariates such as adolescent depression and family socioeconomic status [27]. Clearly, a main limitation of these studies was related to the fact that cannabis use was not assessed within the context of intimate relationships, but rather as an antecedent which may be irrelevant at the time of the relationship.

Several studies explored the effect of cannabis use within the context of intimate relationships. Two early studies conducted among married couples indicated that cannabis use (while married) was associated with an increased risk for divorce, for men and women alike [28, 29]. While these findings do support the notion that cannabis use may be deleterious to intimate relationships, they do not address specific aspects of relationship quality and do not offer any insight into the process by which cannabis use may lead to relationship outcomes.

Notably, discrepancy in patterns of substance use may be a better predictor of intimate relationship quality than substance use per se [30]. That is, higher concordance in frequency of substance use (i.e., when both partners are non-users or frequent users) may serve as a protective factor for intimate relationships, while discrepant substance use (when one partner is a non-user and the other a frequent user) may predict problems in intimate relationships. In a study among moderate-to-heavy alcohol-using romantic partners, four independent raters coded a 15-min conflict resolution task. Neither partner was under cannabis intoxication at the time of interaction, yet both were classified according to frequency of past-year cannabis use. Discrepant couples were rated as exhibiting poorer relationship quality and expressing more anger, more demand-withdrawal, and less constructiveness in their conflict resolution compared to concordant couples [31].

Another study focused on a community sample of newly wedded couples. Even though the researcher analyzed all types of drugs together, cannabis was the most predominant drug used. Results indicated that initial relationship satisfaction at baseline was significantly lower among discrepant compared to concordant couples. However, no significant differences were observed in change of relationship satisfaction over time, which was steadily decreasing among concordant, discrepant and non-using couples alike [32]. In a study by Crane et al. [31], researchers examined the effect of discrepancy in cannabis use on couples' interaction through self-reports and systematic observations. In this study, participants were recorded in a 15-min conflict resolution task. Subsequently, they completed

ratings of the interaction, and four independent observers coded the recorded interactions. Results show that coders rated discordant cannabis use couples as expressing more anger, demand-withdrawal, less open, honest, and respectful exchange, and poorer self-reported relationship satisfaction relative to couples with concordant use or non-use. In addition, participants' self-report post-interaction anger and satisfaction ratings corresponded to this pattern finding.

More recently, Testa et al. [33•] studied the effect of heavy cannabis use on romantic relationships in a sample of heterosexual couples (ages 18–30) in which at least one partner reported using cannabis two or more times per week. In this study, relationship functioning was poorer at times when absolute discrepancy in cannabis use was greater than typical for the couple. A subsequent study which used an ecological momentary assessment (EMA) methodology indicated that using cannabis at the same time as or in the presence of one's partner positively affects subjective experience of intimacy, love, caring, or support during 1–3 h following cannabis use [15•]. In addition, a recent study used dyadic analyses to explore the association between cannabis use and romantic relationship quality among cohabiting couples and reported no significant correlations [19••].

Haydon and Salvatore [19••] compared couples' self-reports regarding their satisfaction with couple interaction and independent raters' coding of this interaction. According to raters' coding, frequent cannabis use was associated with more demand, criticism, blaming, and avoidant behavior during conflict. In contrast, analyzing participants' self-reports, more frequent cannabis use was associated with greater satisfaction with conflict resolution.

Beyond the effects of substance use concordance, studies on alcohol use pointed out the intertwining effect of substance use intensity on relationship quality. For instance, partners who drink concordantly at low to moderate alcohol consumption (measured by quantity of daily alcohol intake and intoxication level) report more intimacy, whereas heavier concordant drinking partners report decreased intimacy [34]. In addition, concordant heavy drinking is associated with a higher risk of marital dissolution than concordant light drinking. Furthermore, the risk for divorce was approximately the same between heavily drinking concordant couples and discordant couples where only the husband drank heavily [35]. These findings indicate that concordance may not be sufficient for assessing the effect of couple substance use on relationship outcomes, and it is also essential to address the intensity of use. However, up to date, this intensity-by-concordance interaction on romantic relationships has not been studied in the context of cannabis use and CUD symptoms.

## The Effect of Romantic Relationship on Cannabis Use

Evidence on the inverse effect of relationship functioning on substance use stems primarily from studies on alcohol users, as evidence concerning cannabis use is scarce. Heavier alcohol use is reported among couples who display greater hostility during conflict [36] and those who report intimate partner aggression [37, 38]. On a similar note, Blumenstock and Papp [39] reported that romantic relationships which were characterized by high levels of support exhibited lower cannabis use frequency.

Another study explored the effect of relationship quality on the prevalence of cannabis use in a one-year follow-up study among participants aged 19–23, who were involved with the criminal justice system at baseline. The quality of romantic relationships was assessed by specific relationship aspects, such as monitoring (partner's awareness of his spouse), and partner's anti-social behaviors. A negative longitudinal association was found between monitoring and lower levels of cannabis use over time, so that among couples who were in a relationship one year later, individuals whose partners were more aware of their behavior were more likely to use cannabis at a lower frequency. In contrast, a positive association was found between the partner's anti-social behavior and the participant's cannabis use among couples who were no longer in a relationship, so individuals who were exposed to their partner's anti-social behaviors in a relationship, such as damaged property, were using cannabis at a high frequency one year later when they were no longer in a relationship [40].

It has been repeatedly suggested that individuals who experience negative emotions in a social context are highly prone to use cannabis as a means of 'self-medication' for their distress [41–43]. Therefore, additional longitudinal studies are needed to further explore the effect of relationship perception and quality of dyadic interactions on future initiation and escalation of cannabis use, as well as onset of CUD.

## Cannabis Use and Romantic Relationships: Gaps in Knowledge

### 1. Cannabis use vs. clinical CUD in romantic relationships

Notably, only few studies compared psychosocial outcomes and consequences between regular cannabis users and those with CUD [44, 45]. For example, a study among adolescents indicated that individuals with CUD report more parent–child relationship problems, more antisocial, and fewer prosocial peers compared to non-CUD cannabis users [45]. However, to our knowledge, no study has examined the

differences between these groups in the context of romantic relationships.

It may well be that the effects of CUD on romantic relationships differ from those of frequent cannabis use per-se. For example, while intensive cannabis use generally infers frequent intoxication that may affect romantic relationships, individuals with CUD additionally suffer from symptoms such as compulsive drug seeking, psychological dependence, and severe cannabis-related functional impairments, all may be deleterious to romantic relationships [46, 47]. Therefore, it is important to further investigate this gap due to the unique clinical and functional characteristics of each phenomenon.

## 2. Better understanding of underlying mechanisms

In a recent review, Derrick et al. [9] concluded that despite the emerging evidence on the intertwining association between substance use and intimate relationships, it lacks theoretical models that account for these effects. It is yet unclear what the underlying mechanism of cannabis' effect on relationship quality is and vice versa. The following topics should be further explored:

### i. The interaction of cannabis use with mechanisms within romantic relationships.

Various theories have suggested possible mechanisms that may positively or negatively affect relationship outcomes. For example, according to the equilibrium model, committed, romantic relationships face threats over time [48]. These threats may stem from increased involvement in couple commitments, household, and childcare, which may be less enjoyable than shared leisure activities [49]. These increasing commitments may result in ineffective support or conflict [48], decrease partners' relationship satisfaction, sense of commitment, and even lead to separation. In order to maintain relationship satisfaction and duration, couples have to cope with these threats that endanger their relationship [48, 50].

According to the motivation-management model of romantic relationships, there are three means for mitigating threats: justifying costs, ensuring mutual dependence, and accommodating rather than retaliating in response to hurting behavior from the partner [50, 51]. The latter may be reflected in one's acute feelings of hurt and rejection and the tendency to inhibit punitive inclinations in reaction to his/her partner's negative communication [48]. Relationship satisfaction and commitment often increase when a hurt spouse inhibits his punitive inclinations [52], while on the contrary, mentioning a spouse's past transgressions as punitive inclinations may provoke hostile thoughts and behavior [53]. Cannabis use may have positive and negative effects on the ability to face relationship threats. For example, on the one hand, it may increase love and intimate experience

in a way that promotes positive communication and conflict resolution [15•]; on the other hand, it may result in increased avoidance which may negatively affect the ability to resolve conflicts [19••]. Therefore, future research should explore the effect of cannabis use on couple's use of constructive and destructive exchanges, and the extent to which such use predicts more accurate outcomes in romantic relationships [54].

### ii. What is the effect of cannabis use on specific emotional and communicative patterns in couple interactions?

Methodological advances in recent years have allowed for further exploration of the effect of cannabis use within the context of romantic relationships. Empirically assessing the nature of romantic couples' interaction via a systematic analysis of communication patterns in a recorded and structured interaction, is a predictive measure for various relationship outcomes. According to Gottman and Notarius [54], observable couple interactions may predict relationships and life transitions, including divorce, marriage, and parenting. Evidence suggests that several patterns observed in couple interactions may predict separation or divorce, including a high ratio of negativity-to-positivity in conversation [55] and the "four horsemen of the apocalypse" [56, p.110]: criticism, defensiveness, stonewalling, and contempt [54, 56, 57].

Evidence suggests that the association between substance use and relationship satisfaction may be mediated by various aspects of dyadic interactions. On the one hand, concordant substance use may serve as a protective factor, by being a leisure activity engaged in by both partners. For example, couples who use alcohol together tend to exhibit less conflict in their interactions, leading to greater intimacy and more positive regard in their relationship, compared to couples in which only one partner uses these substances [15•, 34, 58]. Similarly, discrepant alcohol use may lead to poor relationship quality and lower satisfaction via the mediating effect of aggressive or defiant responses exhibited by the (heavier) user, or alternatively, criticism and/or regulation strategies by the non-/lighter-using partner in an attempt to restrain use [34, 59]. However, the role of these factors in the context of cannabis use is as yet unclear.

### iii. Does decreased motivation due to cannabis use moderate its effect on romantic relationships?

Heavy cannabis use has been repeatedly associated with an amotivational state, in which cannabis use may foster apathy through the depletion of motivation-based constructs such as self-efficacy, initiative and persistence [60]. Amotivational syndrome is defined as an impaired ability to engage in perceived normal daily activities, including social interactions, due to cannabis use [61, 62]. Amotivation in heavy cannabis users may be attributed in part to the fact that cannabis itself may become a major motivator, so that other activities (e.g., social participation) become demoted in the individual's reward hierarchy

[63]. Maintaining romantic relationships requires a certain amount of will, effort, and resources, and motivation plays an important role in various aspects of romantic relationships, such as perceived partner responsiveness, intimacy/sex life and level of commitment [64–66].

iv. What is the role of impaired cognition following cannabis use?

A growing body of evidence supports the notion that heavy cannabis use is associated with impairment in various aspects of cognition, including short-term memory, attention and learning [4, 63, 67, 68]. There is some indication that these impairments are associated with poorer academic functioning (i.e., participating in higher education, drop-out rates and academic performance [22, 69]) and poorer occupational functioning (i.e., unemployment, lower income [70, 71]). Cognitive impairments as well as their functional sequelae (academic, occupational) may be deleterious to romantic relationships.

### 3. Lack of a comprehensive construct for assessing intensity of cannabis use

Addressing level of discrepancy/concordance of cannabis use may be insufficient to predict relationship quality, as it does not sufficiently account for the specific effects of intensive cannabis use on behavior, cognition, and affect which may jeopardize romantic relationships [15•, 33•].

Studies which have investigated the effect of cannabis use on romantic relationships used frequency of cannabis use (i.e., number of days an individual uses cannabis within a certain period of time [72]) as a sole determinant of cannabis use intensity. Quantity measures of cannabis use, commonly defined as the number of "joints" (rolled cannabis cigarettes) smoked, are also common [73]. Notably, assessing intensity levels of cannabis use by a single component has shown insufficient predictive validity [74], accounting for only a small portion of the variance in cannabis-related negative consequences [75] and has been widely criticized [72, 76]. In a recent large-scale study, an integrated Frequency-by-Quantity interaction measure has been shown to be somewhat superior in predicting CUD and cannabis-related problems among cannabis users, compared to frequency ('days using cannabis per-year') or quantity ('joints per day') measures, independently [72].

Cannabis research has long acknowledged that a valid measure of cannabis use intensity should also include some form of potency indices [72, 76]. This has to do with the fact that different cannabis strains vary in concentration level of cannabinoids (i.e., the psychoactive ingredients in cannabis), and therefore has an indeterminate effect on behavior, cognition, and emotion [63]. Specifically, pre-clinical and clinical studies emphasized the negative effect of administering high Delta-9-Tetrahydrocannabinol (THC) concentration on

cognition and behavior [7, 77]. Naturally, exploring cannabis' potency in observational research is more complex, as the majority of studies are technically inadequate to assess its potency in naturalistic environments. Recent epidemiological research which used self-report measures of cannabis potency has pointed to the association between daily use of high-potency cannabis (i.e., high THC concentration) and increased risk for psychopathology onset, including psychosis, CUD, tobacco dependence, and anxiety disorder [7, 78, 79]. Technological advances in toxicology now allow for fast and accurate analysis of THC levels in plant-based cannabis products. Using a mobile laboratory, researchers can now assess cannabis potency on-site and explore its direct effect on behavior [80]. In conclusion, the use of an integrative measure of cannabis use intensity, combining frequency, quantity and potency of cannabis use, may contribute to our understanding of the effect of cannabis use on romantic relationships.

### 4. Assessing the effect of cannabis use in non-emerging adults

Studies on the effect of cannabis use on relationship quality has focused on emerging adults (approximately ages 18–30) [15•, 33•]. Indeed, young adults are highly prone to use cannabis and are at the highest risk to suffer from its negative effects, presumably due to the cannabis' effect on the developing brain at these stages of life [81], yet rates of cannabis use in middle and late adulthood are reported to be on the rise [82]. Based on alcohol-related studies, it is likely that cannabis use may have different effects on romantic relationship in various phases of life. For example, for young adults, who are usually at the beginning of their relationship, it may serve as an enjoyable leisure activity for both partners [83].

Contrarily, romantic couples in middle and late adulthood are more likely to be in a longstanding relationship facing increased demands related to household and childcare which may be drudgery and not enjoyed compared to shared leisure activities [49]. It may well be that during middle and late adulthood, cannabis use shifts from a shared leisure activity, which increases romantic bond and intimacy [15•], to a time and energy consuming activity which may impair partners' ability to cope with the challenges and demands of mutual responsibilities. However, to date, there is insufficient data on age differences in the effect of cannabis use on relationship satisfaction and functioning.

### 5. Gender differences

Gender differences are often reported with regard to patterns of cannabis use, prevalence of CUD symptoms and utilization of CUD treatment [10]. However, little is known concerning gender-differences on the effect of cannabis use on romantic relationships. In one study, women who reported more frequent cannabis use and greater cannabis

use discrepancies relative to other couples reported poorer satisfaction [33•]. This is in line with prior research which indicated that women's substance (non-cannabis) use, particularly when it exceeds male use, results in particularly negative consequences for relationship outcomes [25, 34].

## Conclusions

The global prevalence of cannabis use is constantly on the rise, in part due to changes in its legal status [1]. Heavy cannabis users are highly prone to suffer from various physical, psychiatric, and behavioral adverse effects [4–8], and extensive research is being conducted to identify predictors and outcomes of heavy cannabis use. Committed romantic relationships play an important role in psychological well-being [84], yet data on the association between cannabis use and romantic relationships is scarce and inconsistent [24]. While heavy cannabis use and CUD were historically associated with significantly lower odds for obtaining and maintaining a steady intimate relationship, these findings were based on gross measures (e.g., marriage, divorce) and lacked methodological grounds for inferring causality [30]. In recent years, research has indicated that relationship quality is poorer at times when the discrepancy in cannabis use frequency is greater than typical for the couple [15•, 31, 33•]. However, little is known concerning possible underlying mechanisms through which cannabis use may affect relationship quality [30].

Methodologically, longitudinal studies are needed to explore the bidirectional association between cannabis use and romantic relationship quality. In addition, relying on frequency or quantity of cannabis use has shown insufficient validity and specificity in predicting cannabis-related negative consequences [74, 75]. Therefore, we recommend using an integrative exposure measure, constituting frequency-by-quantity-by-potency interaction, which may allow for a more valid and comprehensive exploration of cannabis use intensity and its correlates among heavy users [85]. Furthermore, it is important to assess the association between cannabis use and romantic relationship quality using both dyadic analyses and between-group (cannabis-use discrepancy) comparisons. Finally, future research should explore the contribution of motivation, cognition, gender, and various age groups to the quality of romantic relationship. With increased prevalence of cannabis use, globally, and emerging changes in its legal status, effort should be made to identify specific beneficial and hazardous effects associated with cannabis use, including its effect on various aspects of romantic relationships.

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## Declarations

**Conflict of Interest** The authors declare no competing interests.

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