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WORKING PAPER

Highlighting the Collective Harm: Socially-framed Appeals Decrease Intention to Use Drugs Among People who Use Drugs

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Abstract

Recreational drug use remains a complex public health topic, as many existing interventions have shown inconsistent outcomes. Whereas prior approaches have often focused on individual health risks, we explored whether framing drug use in terms of its broader social context might improve the effectiveness of harm-reduction messaging. Drawing on bounded ethicality and ethical dissonance theory, we hypothesized that socially-framed appeals would reduce intended future drug use by increasing awareness of social costs associated with drugs "moral awareness"), particularly among people who currently use drugs (vs. those who do not). Across two preregistered experiments — including a two-wave time-lagged design in Study 2 — we tested these hypotheses using text-only (Studies 1 and 2) and combined video-text formats (Study 2), in order to separate the effects of message content from those of delivery format. Results showed that socially-framed appeals consistently reduced intended future drug use among current users, regardless of delivery format, but had no significant effect among non-users. However, these effects did not hold over time, and moral awareness did not appear to explain the relationship between the messaging and reduced use intentions. These findings suggest that messaging which contextualizes drug use within its broader social setting may be a useful component of harm-reduction efforts targeting people who currently use drugs. Possible mechanisms through which such appeals may operate are explored in the discussion.

Keywords: socially-framed appeals, moral awareness, recreational drug use, moral decision-making, anti-drug campaigns

Highlighting the Collective Harm: Socially-framed Appeals Decrease Intention to Use Drugs Among People who Use Drugs

Recreational hard drug use is a widespread social phenomenon that not only has implications for individuals' health, but also for broader society in general. For example, recreational drug use fuels illegal trade, organized crime, and social problems such as human trafficking and environmental pollution (Clarke, 2016; Martin et al., 2008; Morris, 2013). Nevertheless, in many countries, including the Netherlands, the recreational use of drugs has become relatively normalized, with experimentation and casual use considered common, especially among young adults (EMCDDA, 2025; Kunst & Gebhardt, 2018). To counter the recreational use of drugs, multiple interventions have been applied, ranging from legal reforms to educational campaigns. Although some of these interventions have demonstrated effectiveness, results are not uniformly consistent, and many approaches primarily emphasize health risks or legal consequences (Faggiano et al., 2008; Fletcher et al., 2008; Vermeulen-Smit et al., 2015). Comparatively little attention has been devoted to whether framing drug use as an issue with social costs can influence attitudes and intentions, which may represent an underexplored yet potentially influential avenue for intervention. By presenting recreational hard drug use not only as personally harmful but also as socially consequential, a socially-framed appeal may trigger moral awareness and motivate people to stay away from such behaviors (Rest, 1986).

While socially-framed appeals have been applied to various contexts to change people's behaviors (e.g., Andorfer & Liebe, 2015; Mulder & Lokate, 2022) with generally positive effects (Xu et al., 2026), their impact on drug use remains unexplored. A common fear is that socially-framed appeals may evoke defensive reactions. However, as research has shown a positive association between people's moral beliefs about drug use and their engagement in it (e.g., Amonini & Donovan, 2006; Gallupe & Baron, 2014; McMillan &

Conner, 2003; McMillan et al., 2003), an external message highlighting that not using drugs has positive moral consequences (i.e. a socially-framed appeal) may offer a potentially valuable addition in preventing people's future intentions to take recreational drugs. This research, therefore, investigates whether an anti-drug socially-framed appeal reduces future drug use.

Based on the bounded ethicality theory (Bazerman & Sezer, 2016; Chugh & Kern, 2016), this will be the case because the appeal heightens people's awareness that, due to its social costs, drug use has aspects of a moral issue, which the initial step underlying ethical decision-making (Rest, 1986). In testing this pattern, we take the role of people's current drug use into account, as it is known to influence the effectiveness of anti-drug initiatives (Alvaro et al., 2013; Comis & Noto, 2012; McMillan et al., 2003). Drawing on ethical dissonance theory (Barkan et al., 2015), we argue that the socially-framed appeal is likely to have a stronger impact among people who use drugs (vs. people who do not), as people who use drugs are more likely to experience a discrepancy between their behavior and their own standards, creating motivational tension to restore consistency. In sum, we will thus examine the predictive value of a moderated mediation model where current drug use moderates the impact of socially-framed appeal on future drug use intentions via moral awareness.

This research makes several contributions. First, it tests the value of, and hereby extends, psychological theorizing on morality to a socially normalized and yet morally contested domain—recreational drug use. Unlike many contexts examined in moral decision-making research, drug use among young adults is often perceived as commonplace and the potential ethical aspects are neglected. Demonstrating that socially-framed appeals can still heighten moral awareness and reduce intentions among current users suggests that communication about moral aspects (social costs) can operate in context in which even social behavioural norms are permissive. Second, by directly comparing users and non-users, we

can show that socially-framed appeals are most effective when they activate dissonance in individuals whose behavior is implicated. Finally, and practically, these findings suggest that socially-framed appeals may be better suited as a targeted component within intervention campaigns than as a stand-alone prevention tool for general populations. Public health practitioners may therefore benefit from using socially-framed appeals selectively, alongside other message strategies tailored to individuals with different levels of prior involvement in drug use.

Literature Review

Recreational Drug Use and Morality

Recreational drug use has become increasingly prevalent and is often associated with short-term experiential rewards. Yet the demand for these drugs brings about social costs that extend beyond individual health to broader societal externalities, including organized crime and environmental harm. According to the United Nations Office on Drugs and Crime (UNODC, 2024), approximately 292 million people—about 1 in 18 globally—used drugs in 2022, reflecting a 20% increase over the past decade. This expanding market is associated with rising criminal activity. In the Netherlands, for instance, the growth of the recreational drug trade has been linked to drug-related corruption at Schiphol Airport and the Port of Rotterdam (Zürcher et al., 2024), posing risks to the business climate and social stability. More broadly, drug markets contribute to urban violence (Martin et al., 2008; Morris, 2013), money laundering (Morris, 2013), human trafficking (Eski & Buijt, 2017; Shelley, 2012), and the financing of organized crime networks, including terrorism (Clarke, 2016). Beyond criminal consequences, the production and consumption of synthetic drugs also generate environmental damage. Illicit manufacturing produces toxic chemical waste that is often improperly discarded, contaminating soil and groundwater (Pal et al., 2013). Drug residues

have also been detected in wastewater and surface waters, raising concerns about ecological effects (van Nuijs et al., 2011; Zuccato et al., 2008).

These broader harms underscore the societal implications of recreational drug use, based on which one could consider it a moral decision to use drugs or not. Indeed, drug use behavior has been shown to be related to people's personal moral beliefs and perceptions. For instance, Amonini and Donovan (2006) found that youths who perceived marijuana use as "wrong under any circumstance" were less likely to use it compared to those who considered it acceptable in certain situations. Similarly, McMillan and colleagues (2003) demonstrated that stronger beliefs about the immorality of XTC use were associated with lower odds of use. Abide, Richards, and Ramsay (2001) reported that individuals who viewed drug use as morally wrong were less likely to engage in it than peers who regarded such behavior as a personal choice.

Most anti-drug initiatives for changing people's attitudes towards drugs have focused on emphasizing health risks or heightening one's self-esteem, rather than appealing to individuals' sense of collective responsibility (Faggiano et al., 2008; Fletcher et al., 2008; Vermeulen-Smit et al., 2015). This is understandable as drug use clearly brings along health risks. However, the use of socially-framed appeals may provide a promising approach as well. By highlighting how recreational drug use contributes to societal harms, a socially-framed appeal can encourage users to recognize their broader social responsibilities and potentially reduce use.

We acknowledge that policymakers and practitioners are reluctant to use moral framing in health campaigns. After all, research in health domains such as smoking (Rozin & Singh, 1999), obesity (Mulder et al., 2015; Puhl & Heuer, 2010), and substance use (Frank & Nagel, 2017) suggests that the use of moralizing language can trigger defensiveness, shame, and stigma. Such backlash effects may be typical for health behaviors that are relatively

difficult to change, for example, because they involve rigorous lifestyle changes (as is the case with obesity), often involving abstaining from addictive behaviors (as is the case with smoking, alcohol, or drug addiction). However, in health domains involving less rigorous lifestyle changes, these backlash effects of moralization seem less likely occur. For example, the use of socially-framed appeal has been shown to be effective in encouraging influenza vaccination among health practitioners (Mulder & Lokate, 2022). Hence, socially-framed appeals may work effectively in the domain of recreational drug use, where drug use is often experienced as less addictive and occasionally used in the party scene. The following sections elaborate on the reasons why socially-framed appeals could work to reduce recreational drug use.

Socially-framed appeal as a Source of Moral Awareness

According to Rest's classical four-step model of moral decision-making (Rest, 1986) and subsequent extensions (Butterfield et al., 2000; Chugh & Kern, 2016; Jones, 1991; Moore & Gino, 2015; Schwartz, 2016), moral awareness is the first step in a sequence that leads to moral judgment and ultimately to moral behavior. Drawing on the concept of bounded ethicality (Bazerman & Sezer, 2016; Chugh & Kern, 2016), individuals often lack moral awareness, failing to notice or act on ethical issues because of cognitive biases, self-interest, or situational factors that obscure moral considerations. In this state, people engage in acts whose ethical implications remain outside their conscious awareness. Socially-framed appeals help restore this awareness (Chugh & Kern, 2016), thereby motivating moral conduct.

In many contemporary contexts, recreational drug use is often approached pragmatically or framed primarily in terms of personal choice and individual risk. As a result, its broader ethical dimensions may receive comparatively little emphasis in public discourse. When the societal implications of a behavior are not salient, individuals may be less likely to

recognize its moral relevance. Without such recognition, people are unlikely to engage in moral reasoning or adjust their behavior accordingly (Rest, 1986; Butterfield et al., 2000; Chugh & Kern, 2016; Jones, 1991; Moore & Gino, 2015; Schwartz, 2016).

What type of socially-framed appeal would, then, heighten moral awareness and influence drug use? People start to see the moral aspects of an issue when one's action may harm or benefit others (Velasquez & Rostankowski, 1985). A socially-framed appeal against drug use could highlight the collective harms of drugs, such as contributing to urban violence, organized crime, and corruption, which all harm innocent community members (Martin et al., 2008; Morris, 2013; Clarke, 2016; Eski & Buijt, 2017). By highlighting that using drugs means one is contributing to such societal harms, a socially-framed appeal is likely to activate the fundamental moral principle of harm/care (Haidt, 2012; Schein & Gray, 2018; Graham et al., 2013). In doing so, socially-framed appeals shift perceptions of drug use from a private choice to a behavior with societal consequences, potentially prompting individuals to evaluate it via a morally negative lens. This lead to the following hypothesis:

***Hypothesis 1*:** Socially-framed appeal increases moral awareness about hard drug use.

The Moderating Role of Current Drug Use

Although we predict a socially-framed appeal to generally increase moral awareness, we acknowledge its impact may not be uniform across all individuals. One critical factor that may shape the effects of a socially-framed appeal is whether people's own drug use status. The theory of ethical dissonance (Barkan et al., 2015) provides a useful lens for understanding why socially-framed appeals may have differential effects depending on current use.

Ethical dissonance arises when individuals perceive a misalignment between their moral self-concept—how they see themselves in terms of ethical standards—and their behavior. As argued before, socially-framed appeal would first increase awareness of the

moral implications of one's actions (Rest, 1986; Butterfield et al., 2000; Chugh & Kern, 2016; Jones, 1991; Moore & Gino, 2015; Schwartz, 2016). For people who do not use drugs, this increased awareness is largely redundant: their behavior already conforms to the standards this message seeks to promote. Consequently, such an appeal generates little pressure for change, as non-users' choices are already congruent with moral expectations as communicated. By contrast, people who do use drugs engage in behaviors that violate the moral message communicated by the appeal (Comis & Noto, 2012; McMillan et al., 2003). For these individuals, awareness of the moral implications of their actions creates the discrepancy between behavior and moral ideals, thus increasing psychological discomfort (dissonance). According to ethical dissonance theory, individuals are motivated to reduce this discomfort by adjusting their attitudes or behavior to restore alignment between their self-concept and their actions (Barkan et al., 2015). In this way, socially-framed appeal is likely to produce stronger behavioral change among people who use drugs than among those who do not, as awareness triggers dissonance primarily when one's behavior conflicts with moral standards.

***Hypothesis 2*:** Drug use moderates the impact of socially-framed appeal on future drug use intentions and actual drug use such that the effect of a socially-framed appeal will be stronger among drug users (vs. non-users).

***Hypothesis 3*:** The negative indirect relationship between socially-framed appeal and hard drug use via moral awareness will be stronger among drug users (vs. non-users).

Overview of Current Research

To test our hypotheses, we conducted two preregistered studies examining whether exposure to socially-framed appeals highlighting the collective harm of hard drug use can reduce intentions to use (Studies 1 and 2) and actual use (Study 2). Study 1 was an

experimental study, manipulating text-based socially-framed appeals (Message: socially-framed appeal vs. non-socially-framed appeal). Study 2 was a two-wave study conducted among young people attending recreational events where drug use was most prevalent, designed to assess the external validity of our findings in a real-world setting. Moreover, we compared video & text with text-only socially-framed appeals as message format can influence persuasion and engagement (Chaiken & Eagly, 1983; Shen et al., 2015; Paivio, 2013). Participants were exposed to different formats of socially-framed appeals (Message: video & text socially-framed appeal, text-only socially-framed appeal, or non-socially-framed appeal) at Time 1 (T1). Two weeks later, they were invited to complete the Time 2 (T2) survey. Moral awareness and future drug use were measured in both T1 and T2, while self-reported drug use behavior was assessed at T2. This allowed us to examine both short-term (Studies 1 and 2) and longer-term (Study 2) effects of socially-framed appeals. Participants in all studies provided informed consent, and all procedures received ethical approval before data collection. Both Study 1 (https://osf.io/m8thg/?view_only=2becac0e4e9242bf9e76cfd1e83c3ea0)[1] [2]and Study 2 were preregistered in the Open Science Framework (OSF). The preregistration of the Time 1 of Study 2 can be found at https://osf.io/es7hk/?view_only=7513d4b5f20a4a07a96adefa929565c7. The preregistration of Time 2 of Study 2 can be found at

[1] For Study 1, we preregistered an additional dependent variable (public willingness to wear anti-drug stickers) and additional mediators (perceived social norms, reactance, and moral threat). These variables were not included in the main manuscript because they were not central to the focal theoretical model tested here. For the sake of transparency and completeness, all materials, data, and results for these preregistered measures are available on OSF (https://osf.io/v8wc3/overview?view_only=aec181d4ccc74e9da4e3ee5eeb103bbf).

[2] In Study 1, we also preregistered that socially-framed appeals would have a weaker impact among users compared to non-users. In the present manuscript, we instead hypothesize a stronger effect among users. This revision reflects theoretical refinement based on ethical dissonance theory (Barkan et al., 2015), which suggests that individuals whose behavior is implicated are more likely to experience moral tension when confronted with moral framing. Because this directional prediction was not preregistered, it should be interpreted as a theoretically informed but non-confirmatory hypothesis.

https://osf.io/qcp4g/?view_only=e8d92f290ef84739bbf2ee98c22749b0. All data and supplementary materials are available on OSF at: https://osf.io/v8wc3/overview?view_only=aec181d4ccc74e9da4e3ee5eeb103bbf

Study 1

Method

Design and Participants

This study had a 2 (message: socially-framed appeal vs. non-socially-framed appeal) X 2 (Drug use: *Users* vs. *Non-users*) design, with message being manipulated and drug use being measured. This study was part of Bachelor's thesis projects at a Dutch University, where students were responsible for data collection and encouraged to proactively reach out to individuals within their social networks. With this approach, we recruited 244 young participants (18 - 30 years) living in the Netherlands, via students' networks and Prolific. Participants who indicated having provided invalid answers ($N = 5$; Meade & Craig, 2012) were excluded from further analysis. The final sample consisted of 239 young people, with 114 recruited by students and 125 via online (44.35% female; $M_{age} = 23.38$, $SD_{age} = 3.16$; 81.59% with a college education or higher)[3]. Sensitivity power analysis showed that our sample yielded 80% power to detect a small to medium effect size ($f = 0.18$, two-sided) at an alpha level of .05.

Procedure and Manipulations

Participants first answered their demographics (gender, age, education level, nationality, and political orientation), and current drug use. Participants were then randomly

[3] The two samples were similar in demographics. The student-recruited sample consisted of 42.11% female participants ($M_{age} = 22.73$, $SD_{age} = 2.91$; 85.09% with a college education or higher). The online sample included 46.40% female participants ($M_{age} = 23.98$, $SD_{age} = 3.27$; 78.40% with a college education or higher). For robustness, we also conducted analyses separately within each subsample. Although the results were not always fully consistent with those obtained from the full sample, these discrepancies are likely caused by the small subsample sizes, which may have limited statistical power to detect meaningful effects.

exposed to one of the anti-drug campaign materials. As in the Dutch context, the policies regarding soft drug tolerates the selling and using of soft drugs, including soft drugs in the campaign material would make the information about social costs less credible. For this reason we referred to "hard drugs" specifically in the campaign material. The first and last two paragraphs of the texts explicitly ask people to refrain from hard drugs (e.g., "…say "no" to hard drugs…"). In the middle of the texts, we presented the harm of drug use, where the appeals were manipulated. Specifically, the non-socially-framed appeal condition merely described the individual harm of drug use (i.e., *"Experimenting with hard drugs carries great personal risks – it is bad for your health and triggers an addiction. The high you get from drugs will eventually wear off, but the problems brought by them will last forever."*), while the socially-framed appeal condition combined individual and collective harm of drug use. Specifically, following the individual harm identical to the non-socially-framed appeal condition, participants in the socially-framed appeal condition read the following:

"Hard drug consumption increases the demand for hard drugs and contributes to illicit drug financial flows. Hence, when you experiment with hard drugs, you are actually financing the drug industry. This industry threatens our societies both socially and economically. Socially, the drug industry is accompanied by high levels of violence. The money you pay for drugs will be used by organized criminal groups to finance other criminal activities, such as human and weapons trafficking, terrorism, corruption, and illegal mining, all of which pose a serious threat to the security and prosperity of citizens worldwide. Economically, billions of money are annually being spent on combating the crimes caused by the drug industry, which represent foregone tax revenues that could have otherwise been used to promote sustainable economic growth, create jobs, reduce inequality, poverty, and address climate change."

After that, participants answered a series of self-report questionnaires including the manipulation checks, future drug use intentions, and moral awareness. They then proceeded with quality check questions, were debriefed, and paid.

Measures

Manipulation Check. A multiple-answer question was used to check if the socially-framed appeal manipulation worked as intended (i.e., "In the article you read in this study, what type of harm of hard drugs was highlighted?"). Participants could choose from two options: one emphasizing the individual, health harm of drug use (i.e., "… the harm of drugs to one's health") and the other highlighting the collective, social harm (i.e., "… the harm of drugs to society at large"). Participants could select either or both answers.

Drug Use Behaviors. Drug use was measured with a five-point question asking participants whether they had used drugs (e.g., XTC, cocaine, MDMA, LSD…) before (1= *Never used before*, $N = 140$; 2 = *Used drugs once or twice in the past, but I am not using drugs anymore*, $N = 29$; 3 = *Use drugs very occasionally (once a year or less)*, $N = 16$; 4 = *Use drugs sometimes (a few times a year)*, $N = 45$; 5 = *Use drugs regularly (at least once a month)*, $N = 9$). We categorized those who chose the first and the second items into the *Non-users* group ($N = 169$) while all the rest were categorized into the *Users* group ($N = 70$).

Moral Awareness. After the appeal manipulation, and as a proxy for moral awareness, we measured participants' moral evaluations toward drug use, adapted from Pavey & Sparks, 2009; with one item (5-point scale). Participants were asked whether they think the consumption of illicit drugs is *Immoral – Moral*[4]. Items were recoded when conducting data analysis, hence higher scores indicate more negative moral evaluations toward drug use.

[4] The original scale includes four additional items: *Unwise-Wise, Harmful-Beneficial, Unpleasant-Pleasant*, *Bad-Good,* and *Unenjoyable-Enjoyable*. However, we considered these items less relevant to the context of this study, as they are not closely aligned with the focus on morality.

Drug Use Intentions. Drug use intention was measured with one question (i.e., "How likely is it that you would use hard drugs in the future?"; slider; ranging from 0 = *very unlikely*, 100 = *very likely*)

Results

The means, standard deviations, and intercorrelations of the study variables are displayed in Table 1.

Table 1. *Means, standard deviations, and intercorrelations of study variables (Study 1)*

	M	*SD*	1	2	3	4
Socially-framed appeal (vs. non-socially-framed appeal)	0.48	0.5		-.09	.10	-.09
Drug use: users vs. non-users	0.29	0.46			-.34***	.72***
Moral awareness	3.72	0.85				-.52***
Hard drug use intentions	32.66	37.55				

Note. $N = 239$. $p < ,001$ ***

Manipulation Checks

To determine whether the manipulation check was successful, two chi-square tests of independence were conducted for each of the manipulation check questions. The results confirm that the socially-framed appeal manipulations worked as intended. First, there was a statistically significant association between message type and perception of health-related harm from drug use, $\chi^2(1, N = 239) = 50.77$, $p < .001$. Specifically, 119 of 124 (95.97%) participants in the non-socially-framed appeal condition perceived the campaign as highlighting individual harm, compared with 66 of 115 (57.39%) in the socially-framed appeal condition. For perceptions of collective harm, results also revealed a statistically significant association between message type and perceived social harm from drug use, $\chi^2(1, N = 239) = 150.42$, $p < .001$. Specifically, 107 of 115 (93.04%) participants in the socially-framed appeal condition perceived the campaign as highlighting social harm, compared with 17 of 124 (13.71%) in the non-socially-framed appeal condition. Further analysis showed that drug use had no significant effect on any of the three manipulation checks, confirming that the socially-framed appeal manipulation was effective independently of our moderator.

Socially-framed appeals and Moral Awareness

We conducted linear regression with moral awareness as the dependent variable and socially-framed appeal as the independent variable. Supporting Hypothesis 1, participants reported higher moral awareness in the socially-framed appeal condition ($M = 3.66$, $SD = 0.88$), as compared to the non-socially-framed appeal condition ($M = 3.40$, $SD = 1.06$), $B = 0.26$, $SE = 0.13$, $p = .042$, $CI_{95\%}$ [.01, 0.51].

The Moderating Role of Current Drug Use

We used Hayes and Rockwood's (2020) PROCESS macro (Model 1) to test whether prior drug use moderated the effect of socially-framed appeal on future drug-use intentions. The overall model was significant, $R^2 = 0.53$, $F(3, 235) = 88.32$, $p < .001$. Although the

socially-framed appeal alone had no significant main effect, there was a significant interaction between drug use and the socially-framed appeal, B = -16.61, SE = 7.44, p = .037, $CI_{95\%}$ [-30.27; -0.94]. Follow-up analyses showed that the appeal reduced future drug use intentions among current users (B = -13.59, SE = 6.29, p = .032, $CI_{95\%}$ [-25.97; -1.20]) but not among non-users (B = 2.02, SE = 3.99, p = 0.61, $CI_{95\%}$ [-5.84; 9.87]). Hence, Hypothesis 2 was supported.

Moderated Mediation Analysis

Next, we conducted moderated mediation analysis with the PROCESS macro (Model 14, Hayes & Rockwood, 2020), adding moral awareness as the mediator in the overall model. The overall model was significant, R^2 = 0.61, F (4, 234) = 90.01, p < .001. However, while socially-framed appeal increased moral awareness, the impact of moral awareness on future drug use did not differ by drug use (B = -1.28, SE = 3.63, p = 0.726, $CI_{95\%}$ [-8.43; 5.88]). Consequently, the moderated mediation was not significant (moderated mediation index = -0.33, SE = 1.22, $CI_{95\%}$ [-3.03; 2.00]), failing to support Hypothesis 3.

Discussion

Supporting Hypotheses 1 and 2, socially-framed appeal increased moral awareness and was effective among current drug users in reducing future drug use intentions. Yet, the effect of socially-framed appeal on future drug use among current users was not explained by the increased moral awareness, failing to support Hypothesis 3. This warranted further testing of the robustness and generalizability of these findings. Study 2 employed a time-lagged, two-wave experimental design with a larger sample. Recognizing that behavioral intentions do not always translate into actual behavior (Armitage & Conner, 2001), Study 2 aimed to replicate the short-term effects observed in Study 1 and assessed participants' self-reported drug use two weeks after exposure to the socially-framed appeal. This provides a more comprehensive test of its impact on both intentions and behavior.

Study 2 further improved the research design in several ways. First, given evidence that message delivery channels affect persuasion (Shen et al., 2015) and that video-based appeals can enhance engagement (Chaiken & Eagly, 1983; Paivio, 2013), we compared a text-only socially-framed appeal with a combined text-and-video version to examine potential media effects. Second, we refined the moral awareness measure. Instead of using a single-item measure, Study 2 employed a more comprehensive, established measure that incorporates the terms *moral* and *acceptable* to improve construct validity and better capture participants' moral judgments (Feinberg et al., 2020). In addition, it assessed participants' baseline level of moral awareness using the same scale in T1, allowing us to calculate a change score to evaluate treatment effects. Finally, to examine effects in a realistic context, we targeted individuals planning to attend recreational events where recreational drug use is common (Lim et al., 2008). The data collection coincided with major festivals in the Netherlands, such as the Amsterdam Dance Event (18–22 October 2023), allowing us to study socially-framed appeals under natural conditions where social influences and drug-related decisions are salient. To align with this setting and avoid confusion with addictive use, we now also adopted the more precise term "recreational hard drug use".

Study 2

Method

Design and Participants

We conducted a two-wave field study with a two-week interval, which was again part of Bachelor's thesis projects, with students responsible for data collection. It had a 3 (Message: video & text socially-framed appeal, text only socially-framed appeal, or non-socially-framed appeal) X 2 (Drug use: *Users* vs. *Non-users*) between-subject design where we manipulated socially-framed appeals in the first wave. Participants who, in the coming two weeks, planned to attend events (i.e., parties/festivals/discos/nightclubs) where

recreational drug use is prevalent were recruited in the Time 1 wave (T1) and were invited to participate in the Time 2 wave after two weeks (T2). To recruit the targeted participants, students were encouraged to actively reach out to individuals in their social networks who met the criteria and visit the entrance of parties/clubs/festivals to find eligible participants.

Our main variables included future (twelve-month) recreational drug use intentions (T1 & T2) and post-manipulation moral awareness with regard to recreational drug use (T1 & T2). Additionally, we measured event-specific recreational drug use intentions (T1) and self-reported recreational drug use behaviors (T2). Participants who 1) failed the manipulation check ($N = 26$), or 2) indicated to have provided invalid answers ($N = 10$) were excluded from further analysis. The final sample of the T1 wave consists of 684 people from the Netherlands and 236 in T2. For both waves, the sample consists of a young, highly educated population (T1: $M_{age} = 23.62$, $SD_{age} = 7.11$; T2: $M_{age} = 24.27$, $SD_{age} = 8.51$), with 95.03% of T1 participants and 95.34% of T2 participants in higher education or holding a university degree or higher. This sample also had a relatively balanced gender distribution (52.49% female in T1; 55.08% female in T2).

Procedure and Manipulations

The procedure in the T1 wave was similar to that in Study 1. Participants in T1 first answered their demographics (gender, age, education level, nationality, and political orientation), pre-existing awareness of the moral side to drug use, and their own use of recreational drugs. They were then exposed to one of the three conditions. The non-socially-framed appeal and text only socially-framed appeal conditions were the same as in Study 1. The video & text socially-framed appeal condition used the same texts from the socially-framed appeal (text) condition but added a video clip from the satirical Dutch TV program “Even tot Hier”. The video features a song as an ironic response to a famous singer's defense

against drug use allegations, where he claimed that his mood swings were due to diabetes rather than drug use. This song also highlighted the collective damage caused by recreational hard drug use (for details and video link, see online supplemental materials). To reinforce the manipulation, participants were first asked to summarize the main messages from the materials before answering the manipulation checks. After that, participants indicated their recreational drug use intentions and their post-manipulation moral awareness.

After two weeks, participants were invited to participate in the Time 2 Study and reported their recreational hard drug use behaviors in the past two weeks. Then they reported their recreational hard drug use intentions for the upcoming twelve months, and post-manipulation moral awareness (with the same measure as in T1). Lastly, they answered the quality check questions and were debriefed.

Measures

Manipulation Checks (T1). Participants first answered what kind of materials they just saw (1 = *Text only*. 2 = *Text and video*). Next, as in Study 1, a multiple-answer question (i.e., "What kind of consequences of recreational hard drug use were emphasized according to the material you just saw?" was used to check if the socially-framed appeal worked as intended. Participants could choose from 1) damage to health (i.e., personal risks), 2) damage to society as a whole (i.e., collective harm), or 3) Neither. Those who chose 3) Neither were excluded from further analysis ($N = 26$).

Recreational Drug Use (T1). Drug use was measured with the same question as in Study 1, but highlighted the recreational purpose of drug use (i.e., "Have you used hard drugs recreationally before? If so, how often?"; 1= *Never used before*; 2 = *Used drugs once or twice in the past, but I am not using drugs anymore*; 3 = *Use drugs very occasionally (once a year or less)*; 4 = *Use drugs sometimes (a few times a year)*; 5 = *Use drugs regularly (at least*

once a month)). We categorized those who chose the first and the second items into the *Non-users* group, while all the rest were categorized into the *Users* group.

At T1 (n = 684), 268 participants (39.2%) were classified as non-users and 416 (60.8%) as users. The more detailed distribution at T1 was as follows: 32.9% never used (n = 225), 6.3% used once or twice in the past but no longer use (n = 43), 11.0% use very occasionally (n = 75), 33.5% use sometimes (n = 229), and 16.4% use regularly (n = 112). At T2 (n = 236), the distribution remained comparable, with 87 non-users (36.9%) and 149 users (63.1%). More specifically, 31.8% never used (n = 75), 5.1% former users (n = 12), 6.4% very occasional users (n = 15), 39.8% sometimes users (n = 94), and 16.9% regular users (n = 40). Taken together, these distributions suggest no substantial differential attrition across user categories.

Moral Awareness (Baseline, T1 & T2). Moral awareness was assessed at baseline before the manipulation (α = .81), immediately after the manipulation (T1, α = .80), and again two weeks (T2, α = .84) with a two-item scale that asked participants to rate whether recreational hard drug use is (1) moral and (2) acceptable (1 = *strongly disagree*, 7 = *strongly agree*). Items were reverse-coded and averaged so that higher scores indicated higher moral awareness toward drug use. To examine changes over time, difference scores were computed from baseline to T1 and from baseline to T2, thereby capturing immediate and delayed shifts in moral awareness while accounting for initial levels.

Drug Use Intentions (T1 & T2). At both T1 and T2, participants were asked to answer the following question: “How likely is it that you would use (recreational) hard drugs in the coming 12 months?” (slider; ranging from 0 = *very unlikely*, 100 = *very likely*)

Self-reported Drug Use Behaviors (T2). At T2, participants were asked to report their drug use in the past two weeks with one question: “Have you used any form of hard

drugs for recreational purposes on any occasion since the first survey? And how often?"; 0 = *No, I have not used hard drugs*, 1 = *Yes, only once*, 2 = *Yes, more than once*

Results

The means, standard deviations, and intercorrelations of the study variables are displayed in Table 2.

Table 2. *Means, standard deviations, and intercorrelations of study variables (Study 2)*

	M	*SD*	1	2	3	4	5	6	7	8
Video & text socially-framed appeal	0.29	0.46		-.49***	.03	.07	.08	.00	-.04	.05
Text-only socially-framed appeal	0.36	0.48			-.04	.07	.05	-.06	-.12	-.08
Drug use: users vs. non-users	-0.39	0.49				.12**	.00	.82***	.81***	.57***
Moral awareness (T1)	0.56	0.98					.44***	.08*	.09	.15*
Moral awareness (T2)	0.36	0.85						-.07	-.09	-.01
Hard drug use intentions (T1)	50.45	43.86							.93***	.67***
Hard drug use intentions (T2)	52.84	43.53								.68***
Self-reported hard drug use (T2)	0.37	0.48								

Note. N_{T1}=684, N_{T2} = 236; Socially-framed appeal was dummy-coded with non-socially-framed appeal as the reference; Video & text socially-framed appeal: 1 = video & text appeal, 0 = otherwise: Text-only appeals: 1 = text-only appeal, 0 = otherwise; T1 = Time 1, T2 = Time 2; Moral awareness (T1) was calculated as the difference between pre-manipulation awareness (T1) to post-manipulation awareness (T1), Moral awareness (T2) was calculated as the difference between pre-manipulation awareness (T1) to post-manipulation awareness (T2); $p < .05$*, $p < .01$**, $p < .001$***

Manipulation Check

We again conducted chi-square tests of independence for each manipulation check. The results confirm that the socially-framed appeal manipulations worked as intended. First, most participants correctly identified the *format* of the material they had seen (video & text socially-framed appeal: 99%; text-only socially-framed appeal: 98%; non-socially-framed appeal: 99%). The omnibus test indicated significant differences across conditions on this check, $\chi^2(2, N = 684) = 637.06$, $p < .001$. Pairwise comparisons showed that participants in the video & text condition were more likely to report having seen both video and text than those in the text-only condition, $\chi^2(1, N = 449) = 421.16$, $p < .001$, or the non-socially-framed appeal condition, $\chi^2(1, N = 436) = 412.19$, $p < .001$. The text-only and non-moral conditions did not differ significantly, $\chi^2(1, N = 483) = 0.10$, $p = .757$. Second, responses to the *health-related check* differed significantly across conditions, $\chi^2(2, N = 684) = 88.84$, $p < .001$. Participants selecting "Yes" (i.e., the message emphasized health harm) were 71% in the video & text condition, 56% in the text-only condition, and 94% in the non-moral condition. Pairwise tests showed that participants in the non-moral condition were more likely to report health harm than those in the video & text, $\chi^2(1, N = 436) = 42.54$, $p < .001$, and text-only conditions, $\chi^2(1, N = 483) = 98.32$, $p < .001$. The video & text and text-only conditions also differed significantly, $\chi^2(1, N = 449) = 9.58$, $p = .002$. Third, the distribution of responses to the *society-related check* also differed significantly across conditions, $\chi^2(2, N = 684) = 349.17$, $p < .001$. Participants selecting "Yes" (i.e., the message emphasized social harm) were 88% in the video & text condition, 93% in the text-only condition, and 20% in the non-socially framed appeal condition. Pairwise comparisons showed that participants in the non-socially framed appeal condition were less likely to report social harm than those in the video & text, $\chi^2(1, N = 436) = 200.89$, $p < .001$, and text-only conditions, $\chi^2(1, N = 483) = 264.27$, $p < .001$. The text-only and video & text conditions did not differ significantly, $\chi^2(1, N = 449)$

= 3.46, p = .063. Finally, drug use had no significant effect on any of the three manipulation checks.

Socially-framed appeals and Moral Awareness

We conducted linear regression with moral awareness as the dependent variable and two socially-framed appeals (dummy-coded with the non-socially-framed appeal condition as the reference group) as the independent variables. Supporting Hypothesis 1, both socially-framed appeals had a significant impact on short-term moral awareness (text-only: B = 0.27, SE = 0.09, p = .003, $CI_{95\%}$ [0.09, 0.44]; video & text: B = 0.28, SE = 0.09, p = 0.003, $CI_{95\%}$ [0.10, 0.46]). However, neither appeal significantly influenced moral awareness two weeks later.

The Moderating Role of Current Hard Drug Use

T1. We used Hayes and Rockwood's (2020) PROCESS macro (Model 1) to test whether prior drug use moderated the effect of the socially-framed appeal on future drug use intentions (T1). Socially-framed appeals were dummy-coded as a categorical independent variable with the non-socially-framed appeal condition as the reference group. The overall model was significant, R^2 = 0.68, F (5, 678) = 283.12, p < .001. The interaction between drug use and *text-only* socially-framed appeal was not significant, B = -4.99, SE = 4.66, p = .285, $CI_{95\%}$ [-14.13; 4.16]. However, further simple effect analyses revealed that the pattern was largely in line with our prediction; the appeal significantly decreased drug use intention for users, B = -6.07, SE = 2.95, p = .040, $CI_{95\%}$ [-11.85; -0.28], and not for non-users, B = -1.08, SE =3.61, p = 0.76, $CI_{95\%}$ [-8.16; 6.00]. Moreover, the interaction between drug use and *video & text* socially-framed appeal was significant, B = -11.54, SE = 4.97, p = .021, $CI_{95\%}$ [-21.30; -1.78]. For this format, we also observed that the appeal significantly decreased the drug use intentions of users, B = -9.06, SE = 3.04, p = .003, $CI_{95\%}$ [-15.04; -3.09], but not the intentions

of non-users, $B = 2.48$, $SE = 3.93$, $p = 0.53$, $CI_{95\%}$ [-5.24; 10.20], hence supporting Hypothesis 2 for short-term effects.

T2. Similar moderation analysis with the PROCESS macro (Model 1; Hayes & Rockwood, 2020) was used to analyze the effect of socially-framed appeals and drug use on future drug use intentions (T2). The overall model was significant, $R^2 = 0.67$, F (5, 230) = 91.69, $p < .001$. Contrary to our expectations, the interactions between drug use and neither type of socially-framed appeal on future drug use intentions (T2) were significant. Hence, Hypothesis 2 was not supported for long-term effects.

Self-reported Recreational Hard Drug Use. We then conducted a moderation analysis with the PROCESS macro (Model 1; Hayes & Rockwood, 2020) to investigate self-reported recreational hard drug use in the past two weeks. Results showed that neither the main effect of socially-framed appeals on self-reported behaviors, nor the moderating effect of drug use on the impact of socially-framed appeals on self-reported behaviors was supported.

Moderated Mediation Analysis

We used Hayes and Rockwood's (2020) PROCESS macro (Model 14) to test our moderated mediation hypothesis. Socially-framed appeals were dummy-coded as a categorical independent variable with the non-socially-framed appeal condition as the reference group. Moral awareness was added as the mediator, with current drug use added as the moderator, drug use intentions or self-reported drug use added as the dependent variable.

For short-term effects on future use intentions, the overall model was significant, $R^2 = 0.68$, F (6, 232) = 82.92, $p < .001$. Both socially-framed appeals significantly increased moral awareness (text: $B = 0.27$, $SE = 0.09$, $p = 0.003$, $CI_{95\%}$ [0.09, 0.44]; video & text: $B =$

0.28, $SE = 0.09$, $p = 0.003$, $CI_{95\%}$ [0.09, 0.46])[5]. However, moral awareness did not mediate the impact of socially-framed appeals on future use intentions (T1), nor did drug use moderate the impact of moral awareness on future use intentions (T1). We then tested the hypothesized moderated mediation model for the T2 outcomes—future drug use intentions and self-reported drug use in the past two weeks—to examine potential long-term effects. None of the socially-framed appeals influenced moral awareness at T2. Current drug use also did not moderate the impact of moral awareness (T2) on future drug intentions (T2). Hence, our moderated mediation hypothesis (H3) was not supported in both short and long term.

Discussion

The results of Study 2 confirmed and extended the findings from Study 1. First, supporting Hypothesis 1, text-only and video & text socially-framed appeals significantly increased moral awareness, with these effects only emerging in the short but not long term. Second, consistent with Study 1 and supporting Hypothesis 2, the short-term (but not long-term) effects of socially-framed appeal were moderated by current drug use, such that socially-framed appeal only had an impact among people who use drugs. Lastly, consistent with Study 1, and contrary to our expectations, moral awareness did not mediate the effect of socially-framed appeal on future drug use, nor did current drug use moderate the relationship between awareness and future drug use intentions. Hence, our moderated mediation hypothesis (H3) was not supported. Furthermore, socially-framed appeal did not affect self-reported drug use at T2, nor was there any moderating effect of drug use status. Finally, no significant differences emerged between the text-only and video & text socially-framed appeals. We discuss these findings in the general discussion section.

[5] Exploratory analyses using the video-and-text socially-framed appeal as the reference condition revealed no significant differences between the two socially-framed appeal formats with respect to their main effects on drug use intentions, their interaction effects with current drug use, or their main effects on moral awareness.

General Discussion

Using two experiments, one of which included a time-lagged component, we investigated the impact of a socially-framed appeal that highlights the collective harms of drugs on people's future drug use intentions and behavior. Based on Rest's four-step moral decision-making model (Rest, 1986), we predicted that socially-framed appeal would increase moral awareness of drug use (H1). Drawing on ethical dissonance literature (Barkan et al., 2015), we proposed that drug use behaviors would moderate the impact of socially-framed appeals on drug use (H2), such that the impact of socially-framed appeal would be stronger among users (vs. non-users). Furthermore, we explored a moderated mediation model in which current drug use would moderate the negative indirect effect of socially-framed appeals on future drug use via moral awareness (H3) such that the indirect effect would be stronger among users (vs. non-users).

Supporting Hypothesis 1 and consistent with previous literature, we found evidence of the impact of socially-framed appeals on moral awareness. Supporting Hypothesis 2, we found encouraging evidence that socially-framed appeals highlighting the collective harms of drug use can reduce future drug use intentions among people who use drugs, at least in the short term. Across both studies, socially-framed appeals decreased future use intentions among individuals who using drugs, but not among people who do not. Thus, rather than triggering resistance, the appeal appears to resonate with current users and temporarily reduces their motivation to engage in future use.

In contrast, we did not find consistent evidence that this effect operated through increased moral awareness. Although socially-framed appeals increased moral awareness in both studies, moral awareness mediated the relationship between socially-framed appeals and intentions only in Study 1, but not in Study 2. Moreover, the hypothesized moderated

mediation model was not supported. Thus, while socially-framed appeals reliably heightened moral awareness and reduced intentions among users, the evidence does not indicate that their effect operates through moral awareness. In other words, moral awareness functions as an immediate cognitive response to the appeal, but not as a consistent translating mechanism of behavioral intention among people who use drugs.

One possible explanation is that socially-framed appeals exert their influence through alternative psychological pathways in this context. For example, socially-framed appeals may evoke emotional responses such as anticipated guilt (Baumeister et al., 1994; Tangney et al., 2007) that operate in parallel to cognitive moral awareness. Emotional processes play a central role in moral regulation and self-control (Haidt, 2001), suggesting that affective reactions may shape behavioral intentions alongside explicit moral cognition. Alternatively, the appeal may operate by shifting perceived social norms regarding drug use rather than altering moral cognition per se (Cialdini et al., 1990; Bicchieri, 2006). Perceived social norms can influence intentions by signaling what others approve of and expect, thereby shaping behavior through anticipated social evaluation rather than through heightened moral awareness.

Importantly, despite short-term reductions in users' intentions, socially-framed appeals did not produce sustained behavioral change over time. In the two-wave study, the effects were limited to immediate intentions and did not persist in longer-term self-reported behavior. This pattern reflects the well-documented intention–behavior gap (Armitage & Conner, 2001), according to which changes in stated intentions do not necessarily translate into durable behavioral outcomes. It is also possible that a single exposure to the socially-framed appeal was insufficient to generate lasting impact, as repeated or sustained interventions are typically required for enduring behavioral modification (Webb & Sheeran, 2006; Rothman, 2000). This challenge may be particularly pronounced among participants in

Study 2, who were more embedded in active party contexts. In such environments—characterized by strong habits, salient environmental cues, and dependency-related processes (Everitt & Robbins, 2005; Volkow et al., 2016)—long-term change may be especially difficult to achieve. Finally, although video-enhanced messaging is often assumed to amplify persuasive impact, the comparable outcomes of text-only and video-and-text appeals suggest that message format alone does not necessarily strengthen moral influence in this context.

Theoretical Implications

This study makes several significant contributions to the literature. First, it enriches research on socially-framed appeal and moral decision-making by applying socially-framed appeal in the novel and high-stakes context of hard drug use. Our findings challenge the common notion that the use of moral language may "backfire" (Driessen, 2022). Instead, we show that socially-framed appeal can decrease drug use intentions among people who use drugs. This demonstrates that socially-framed appeals, when properly framed, do not generate adverse outcomes and are potentially an effective persuasive tool.

Second, this research advances the bounded ethicality literature by examining whether socially-framed appeals influence behavior through moral awareness. Consistent with prior work (e.g., Mulder & Lokate, 2022), socially-framed appeals reliably increased moral awareness. However, we did not find consistent evidence that moral awareness mediated the effect of socially-framed appeals on behavioral intentions among people who use drugs. Although these null mediation findings may partly reflect methodological constraints—such as limited statistical power to detect conditional indirect effects—they also suggest that anti-drug socially-framed appeals may operate through mechanisms that extend beyond cognition, particularly among individuals with more habitual behavioral patterns. In other words, for those already engaged in drug use, heightened moral awareness may be insufficient to produce intentional change. Instead, alternative appeal formats—such as appeals that trigger

emotional responses (e.g., care or guilt; Tangney et al., 2007) or shifts in perceived social norms (Cialdini et al., 1990; Bicchieri, 2006)—may play a more decisive role. In this sense, our findings challenge prior perspectives that primarily emphasize cognitive mechanisms in moral persuasion (Mulder & Lokate, 2022; Rest, 1986; Xu et al., 2026) and underscore the importance of investigating affective and motivational mediators.

Third, by testing the moderating role of current drug use, this research contributes to the broader debate on the moralization of sensitive issues. Moralization is often assumed to heighten resistance or polarization, particularly among those whose behavior is morally implicated (Brehm & Brehm, 2013; Minson & Monin, 2012). However, consistent with recent reviews suggesting that moralization does not uniformly lead to polarization or harmful outcomes (e.g., D'Amore et al., 2024), our findings indicate that socially-framed appeals can foster constructive engagement rather than resistance. Specifically, among people who use drugs—a group often presumed to be especially defensive—socially-framed appeals reduced future drug use intentions. This contrasts with evidence of moral messaging backfiring in other contested domains, such as climate change (Täuber et al., 2015) and pandemic compliance (Prosser et al., 2020; Ballone et al., 2023). Therefore, our findings support a more nuanced account of moral communication: its effects are not inherently polarizing but depend on the target audience and contextual features. By demonstrating that socially-framed appeals can reduce defensiveness even in a morally contested domain, this study advances theorizing on when moral language is most effective and highlights the context-dependent nature of its persuasive potential.

Practical Implications

Besides its theoretical contributions, this study has several practical implications for policymakers, organizations, and public health practitioners. First, our findings suggest that socially-framed appeal can be an effective enhancer in anti-drug initiatives. While

policymakers have considered moralization to reduce drug use, concerns persist about its potential to backfire (Driessen, 2022). By providing some of the first empirical evidence that anti-drug socially-framed appeal does not backfire—and, in fact, exerts stronger effects among people who use drugs—this research shows that socially-framed appeal may be a valuable top-down strategy to influence the very group most relevant for intervention.

Second, this research offers actionable insights into when and how socially-framed appeals may be most effective. Our findings indicate that text-only appeals—a lower-cost, easily scalable approach—can be as impactful as video-and-text appeals in reducing short-term drug-use intentions. However, it is possible that the video-based appeal used in this study was relatively subtle, and stronger or more emotionally engaging video content may yield different effects. Nonetheless, these results suggest that costly multimedia production may not always be necessary for moral messaging to have an impact.

Moreover, because the influence of socially-framed appeals diminished over time and did not translate into sustained behavioral change, a single exposure is unlikely to be sufficient for durable impact. Practitioners aiming to change behavior may therefore benefit from repeated exposure and from combining socially-framed appeals with complementary strategies—such as social norm feedback, environmental supports, or other intervention components—rather than relying on social-framing alone.

Lastly, the effectiveness of socially-framed appeals varied across populations: they reduced drug use intentions among people who use drugs but not among those who do not. Although caution is warranted when drawing conclusions about prevention—given that non-users in our sample may have had little baseline interest in drug use—our findings suggest that socially-framed appeals may be particularly useful in intervention contexts targeting individuals already engaging in drug use behavior.

Strengths, Limitations, and Future Directions

The strengths of this study lie in both its methodological rigor and theoretical contributions. First, both studies were preregistered, which promotes transparency, reduces researchers' degrees of freedom, and strengthens the credibility of the findings. Second, by combining an experimental design (Study 1) with a time-lagged design (Study 2), we provide robust evidence of the effects of socially-framed appeal on drug-use intentions. The experimental study offered strong internal validity by isolating causal effects, while the two-wave study allowed us to assess both short- and long-term impacts in real-world settings. Third, by recruiting young people attending recreational events—an at-risk population where drug use is especially prevalent—we enhanced the ecological validity of our results and demonstrated the practical relevance of socially-framed appeal for anti-drug efforts.

Despite its merits, this study also has several limitations. First, although combining experimental and field designs provides valuable insights, the sensitive and often stigmatized nature of drug use may have introduced biases, such as social desirability, potentially affecting self-reported data. Future research should address this limitation by incorporating more objective behavioral measures or triangulating self-reports with peer, observational, or digital data. Second, this research focused primarily on recipient-related factors, which limits the understanding of other influences on the effectiveness of socially-framed appeal. Identifying the boundary conditions and moderators shaping socially-framed appeal is crucial to understanding when and how they exert a stronger or weaker influence. We suggest future studies consider three dimensions: the message, the recipient, and the sender. Message-wise, researchers could explore alternative framings, such as using loss-framing, to enhance persuasive power (Xu et al., 2026). Recipient-wise, examining individual differences, such as sensation seeking, social value orientation or moral identity, may clarify who is most responsive to socially-framed appeal. Sender-wise, factors like institutional trust are likely to

influence the credibility and impact of moral messages (Hocevar, Metzger, & Flanagin, 2017). A systematic approach across these dimensions would refine the design and application of socially-framed appeals in anti-drug initiatives. Lastly, because data were collected exclusively in the Netherlands, our findings may not generalize to other cultural contexts. The Netherlands has distinctive drug regulations (Maris, 2018) and a relatively permissive cultural stance toward drug use (Van der Sar et al., 2012), which affects young people's perceptions of accessibility and normalization (van den Bos et al., 2023, 2024). These contextual factors likely influence experimentation and escalation (Graham, Marks, & Hansen, 1991), meaning populations in stricter or more conservative contexts may respond differently to socially-framed appeal. Future research should test these interventions across diverse cultural settings and examine how variations in social norms, peer influence, and cultural attitudes shape the effectiveness of socially-framed appeal.

Conclusions

The present study provides consistent evidence that a socially-framed appeal emphasizing the collective harms of drug use effectively, and at least in the short run, reduced future drug use intentions among people who use drugs, but not among those who do not. However, we found no support for the mediating role of moral awareness in this process, suggesting that alternative mechanisms may be at play in the specific context of drug use. These findings emphasize the potential of socially-framed appeal in anti-drug campaigns, deepen our understanding of the role of social cost information and morality in health behaviors, and offer promising directions for future research on the application of socially-framed appeal in public health settings.

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