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The effect of decision timing on the willingness to costly reward cooperation and punish noncooperation: Sanctioning the past, the present, or the future

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Abstract

Numerous studies have demonstrated that sanctions can promote cooperation. However, it is important to know not only that sanctions can work but also under what conditions people are actually willing to sanction cooperation positively (i.e., reward) or noncooperation negatively (i.e., punish). In this article, we demonstrate that people use sanctions less often and sanction more mildly when they decide about sanctioning before (instead of after) the occurrence of others' (non)cooperation (Experiments 1 and 2), regardless of whether they decide directly afterwards or after a time delay (Experiment 2). Moreover, we reveal that beforehand (as compared with afterwards) people have not yet formed clear sanctioning preferences (Experiment 3). These findings corroborate our reasoning that the decision environment beforehand induces nonconsequential reasoning and thereby hampers people's willingness to sanction. We discuss the theoretical, methodological, and practical implications of our work.

KEYWORDS

(non)cooperation, decision timing, nonconsequential reasoning, punishment, reward

1 | INTRODUCTION

Sanctions are often proposed as effective means to promote cooperation. This proposition is supported by numerous empirical studies demonstrating that positive sanctions (i.e., rewards like bonuses, prices, or privileges) and negative sanctions (i.e., punishments like fines, penalties, or restrictions) stimulate cooperation and minimize noncooperation (for overviews, see Balliet, Mulder, & Van Lange, 2011; Van Dijk, Molenmaker, & De Kwaadsteniet, 2015). However, to successfully implement sanction opportunities, it is not only important to know that sanctions can work. It is also important to know under what conditions people are actually willing to administer sanctions. After all, sanctions can only show their effects if those in control of rewards and punishments are willing to bear the costs of administering them (i.e., money, effort, and/or risk). The current research addresses this critical question by focusing on the timing of sanction decisions. We examine whether decision timing affects the willingness to employ rewards for cooperation and punishments for noncooperation.

Although one can decide to sanction others' behavior at various moments in time, it involves a decision either *before* or *after* the others' behavior. Consider, for instance, managers in organizations who have sanctions at their disposal to steer employees' behavior in the desired direction. When evaluating the past performance of their employees, they can decide whether employees who furthered the success of the organization should be rewarded (e.g., by giving them a bonus) and whether employees who weakened the success of the organization should be punished (e.g., by cancelling their vacation leave). In other words, they can determine the sanctions after the employees' performance. By contrast, managers can also decide beforehand whether those employees who will further the organization's success in the future

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should be rewarded and whether those employees who will weaken the organization's success in the future should be punished. Sanctions are, in fact, quite often contingent on future behavior. Annual performance appraisals, for example, often include binding agreements with employees about their required job performance and contingent positive and negative sanctions (e.g., promotions, terminations, and transfers).

Until now, very little research has investigated whether the willingness to sanction behavior *beforehand* differs from the willingness to sanction behavior *afterwards*. This is unfortunate because a better understanding of the impact of decision timing on the use of sanctions has implications for managers in organizations, policymakers, and sanctioning researchers, as it would demonstrate whether, all else being equal, the decision environment beforehand can be regarded the same as the decision environment afterwards.

1.1 | The need for sanctions

Before further addressing the relevance of timing for sanctioning decisions, we first elaborate on why sanctioning is often needed to promote cooperation. There are many situations (at work, home, or other places) that require people to cooperate with others. Although cooperative behavior is beneficial to the collective, it is not self-evident that individuals will cooperate. To give just one example, employees may be more motivated to further their own careers than to further the success of their organization. Personal interest may thus collide with the collective interest. Situations in which personal interests conflict with collective interests are generally referred to as social dilemmas (for an overview, see Van Lange, Joireman, Parks, & Van Dijk, 2013). It is within this context of social dilemmas that we investigate the willingness to sanction.

Public transport, medical care, clean environments, and also corporate citizenship within organizations are all examples of goods and services that stand or fall with individuals' willingness to provide and maintain these goods and services because they can, in fact, be used freely by everyone (Samuelson, 1954). If too many people choose not to contribute to the provision of these public goods, it may eventually be impossible to provide them and all will be worse off (Dawes, 1980). However, public goods provision is not only a problem on a global, societal, or organizational level; it is a problem for groups in general. After all, the performance of groups is usually based on each group member's effort to attain the goals of the group, and if too many group members withhold their effort (i.e., free ride), the performance of the group may be jeopardized. To prevent collective failure, it is often necessary to make cooperation more attractive and noncooperation less attractive.

Straightforward tools to increase the relative attractiveness of cooperation over noncooperation are rewards for those who cooperate and punishments for those who do not (Messick & Brewer, 1983; Van Lange, Rockenbach, & Yamagishi, 2014). Indeed, several studies have shown that the opportunity to use punishments, even if these incur costs to the punisher, enables people to self-govern social dilemmas (e.g., Fehr & Gächter, 2000; Gürerk, Irlenbusch, & Rockenbach, 2006; Rand, Dreber, Ellingsen, Fudenberg, & Nowak, 2009; Yamagishi, 1986). Ostrom, Walker, and Gardner (1992) demonstrated that in small groups, people tend to punish those group members who free ride on the generosity of others. A sanctioning opportunity enhances the level of cooperation in such groups. Furthermore, despite the fact that sanctioning is generally a costly course of action (Yamagishi, 1986), some people are willing to costly punish others' selfishness even when direct gains for themselves are absent (Fehr & Fischbacher, 2004; Fehr & Gächter, 2002).

Whereas prior research thus demonstrated that people may be willing to use costly punishments for noncooperation, the use of costly rewards for cooperation has received far less attention. This is remarkable, as rewards are just as effective as punishments in promoting cooperation (e.g., Balliet et al., 2011). In addition, the scarce research done on rewarding revealed that people generally prefer to administer rewards over punishments (Molenmaker, De Kwaadsteniet, & Van Dijk, 2014, 2016). Thus, to identify whether the willingness to promote cooperation *before* the behavior differs from the willingness to promote cooperation *after* the behavior, one should address both reward of cooperation and punishment of noncooperation. In the present research, we therefore take both types of sanctions into consideration and investigate their sensitivity to the timing of sanctioning decisions.

1.2 | The timing of sanctioning decisions

Why would the timing of sanctioning decisions affect the willingness to employ costly rewards and punishments? To answer this question, we draw attention to the fact that a decision beforehand differs markedly from a decision afterwards. One of the most apparent differences is that afterwards people decide about the sanctioning of behavior that has actually taken place in the past, whereas beforehand people decide about the sanctioning of behavior that may or may not take place in the future. We argue that this fundamental difference between facing behavior that *did actually occur in the past* (i.e., afterwards) and behavior that *may possibly occur in the future* (i.e., beforehand) radically alters the decision environment. More importantly, we aim to show that this alteration of the decision environment impacts the willingness to reward cooperation and punish noncooperation.

Decision timing matters, first and foremost, because beforehand (as opposed to afterwards) it is not known yet whether particular behavior will actually occur and sanctions thus are contingent on others' future behavior. Research on the disjunction effect (e.g., Shafir, 1994; Shafir, Simonson, & Tversky, 1993; Tversky & Shafir, 1992) has demonstrated that uncertain situations may induce what has been termed "nonconsequential reasoning" (Shafir & Tversky, 1992), which refers to people's tendency to make decisions that are sometimes inconsistent with the decisions that they would make based on an evaluation of the anticipated consequences.[1] If the outcome of a particular situation is unknown, this often leads to a loss of acuity and the discounting of uncertain information. This is because thinking through the reasons and implications of all courses of action may be too cognitively and motivationally demanding (Tversky & Shafir, 1992). The presence of uncertainty, as Tversky and Shafir (1992) put it, "tends to blur the picture and makes it harder for people to see through the implications of each outcome" (p. 306) as "it requires people to assume momentarily as true something that may in fact be false" (Shafir & Tversky, 1992,

[1]Note that (non)consequentialism refers to a much broader account in the philosophical and decision theoretic literature (see, e.g., Kamm, 2013).

p. 469), and even if people may consider all the relevant outcomes, they "may not see their own preferences very clearly" (Shafir & Tversky, 1992, p. 456). Consequently, people discount uncertain information and are often less likely to make decisions based on uncertain information than on certain information (Van Dijk & Zeelenberg, 2003).

To illustrate this, it is informative to consider an example given by Tversky and Shafir (1992). In one of their studies on the disjunction effect, participants were presented the hypothetical scenario in which they had just taken a qualifying exam and had passed the exam, failed the exam, or did not know whether they had passed or failed. Next, their willingness to book a vacation to Hawaii was measured. The majority of the participants were willing to book the vacation when they knew that they had passed the exam. The same preference was observed when they had failed the exam. However, when they did not know whether they had passed or failed the exam, only a minority of the participants were willing to book the vacation. Participants' decisiveness to book the vacation was thus hampered by the uncertainty about the outcome of the exam, which is an example of nonconsequential reasoning. After all, if they would have known their test result, they would have booked the vacation, regardless of whether they had passed or failed the exam.

We believe that a similar disjunction effect may be observed when sanctioning decisions have to be made beforehand. Under these conditions, it may be too cognitively and/or motivationally demanding to think through the reasons and implications of all possible sanction decisions in a social dilemma and to form clear preferences (see Tversky & Shafir, 1992). As a result, the uncertain information about others' possible behavior may be discounted (Van Dijk & Zeelenberg, 2003), and people may be less willing to employ costly sanctions before (as compared with after) the occurrence of others' behavior, regardless of whether they decide about rewarding cooperation or about punishing noncooperation. We thus argue that because others' actual behavior still has to take place in the decision environment beforehand, this may induce nonconsequential reasoning. If we could demonstrate that people are indeed less willing to sanction beforehand than afterwards, this would not only advance the understanding of how people make sanctioning decisions, but this would also reveal that nonconsequential reasoning can hamper people's willingness to employ costly rewards for cooperation and punishments for noncooperation.

1.3 | Strategy method versus direct-response method

To our knowledge, we are the first to investigate whether the willingness to sanction differs between the decision environment beforehand and the decision environment afterwards. However, it should be noted that the timing of decisions does connect to studies that were specifically aimed at investigating the behavioral validity of two experimental methods frequently used in behavioral decision-making research: the *strategy method* and the *direct-response method* (see, e.g., Brandts & Charness, 2011; Brosig, Weimann, & Yang, 2003; Fischbacher, Gächter, & Quercia, 2012; Selten, 1967). The strategy method requires individuals to make precompiled strategies for responding to all feasible choices that others could possibly make (i.e., decide about multiple possible choices), whereas the direct-response method requires individuals to only respond to others' actual choices (i.e., decide about a single choice). Although these two response methods were not designed to study the impact of decision timing, the strategy method resembles situations in which sanction decisions are made beforehand and the direct-response method resembles situations in which sanction decisions are made afterwards.

However, there also are notable differences. First of all, people in the decision environment beforehand do not necessarily have to make full precompiled strategies for all feasible choices that could possibly occur, as is the case with the strategy method. Whereas the strategy method seems to force people to think through the implications of all possible outcomes, in reality, they often lack the cognitive or motivational capacity to do this (e.g., Shafir & Tversky, 1992), thereby giving rise to nonconsequential reasoning. Second, in the literature on the strategy method and the direct-response method, the intensity of experienced emotions is often suggested as an explanation for the observed behavioral differences (e.g., Brandts & Charness, 2011). Scholars from various disciplines have identified emotions as an important proximate mechanism underlying the willingness to employ sanctions (e.g., De Kwaadsteniet, Rijkhoff, & Van Dijk, 2013; Fehr & Gächter, 2002; Pillutla & Murnighan, 1996; Rotemberg, 2008; Wang, Galinsky, & Murnighan, 2009), and emotions may particularly emerge in direct response (and not in strategy response) to others' behavior. Although the experience of emotions can indeed alter the decision environment (e.g., Loewenstein, 1996; Loewenstein & Lerner, 2003), it is important to note that sanctioning does not necessarily have to be attributed to "heated tempers". The willingness to sanction can also result from deliberate reasoning (see Schroeder, Steel, Woodell, & Bembenek, 2003). When, for instance, impartial third parties are in control of sanctions, as often is the case in real-life social dilemmas (e.g., managers in organizations), emotions do not necessarily play a role (e.g., Fehr & Fischbacher, 2004; Whitson, Wang, See, Baker, & Murnighan, 2015). Taken together, the above makes apparent that we have to go beyond prior research that compared the strategy method with the direct-response method to examine whether decision timing has an impact on the willingness to reward cooperation and punish noncooperation.

1.4 | The present research

We test the prediction that people are less willing to sanction when sanctioning decisions are made before (as compared with after) the occurrence of others' behavior. In our first two experiments, we use a third-party sanction paradigm in which participants are impartial observers with the opportunity to reward a cooperator or punish a noncooperator (see Fehr & Fischbacher, 2004; Molenmaker et al., 2014). The reason for using a third-party sanction paradigm is twofold. First of all, it resembles the position of the authorities who are mostly responsible for monitoring and sanctioning others' behavior (e.g., managers in organizations). Second, it eliminates the likelihood that participants' interpretations of others' behavior are colored by self-interest.

We manipulate the timing of the sanction decision by presenting participants with others' behavior either that either might possibly occur in the future (i.e., beforehand) or had actually occurred in the past (i.e., afterwards). Subsequently, we measure participants' willingness to sanction that particular behavior by having them decide whether to employ a sanction (i.e., choice to sanction) and decide about the size of sanction they employed (i.e., sanction size). We examine both the choice to sanction and the sanction size because both are indicators of the willingness to sanction (Molenmaker et al., 2014, 2016). Note that participants who had to make the sanctioning decisions beforehand were informed that their decisions were binding and would actually be executed if the behavior would occur in the future. Thus, their sanction decisions were as real as for those who decided afterwards, the only difference being that their specified sanction decision for a particular behavior would only be executed when that behavior actually occurs (i.e., sanctions were contingent on future behavior).

Moreover, in a third experiment, we used a management scenario as experimental paradigm to test the impact of decision timing on the willingness to sanction and its underlying processes associated with nonconsequential reasoning. Participants had to imagine being in a situation in which one of their employees might behave noncooperatively in the future (i.e., beforehand scenario) or had behaved noncooperatively in the past (i.e., afterwards scenario), and we assessed whether they formed clear sanctioning preferences.

2 | EXPERIMENT 1

In this experiment, participants were third-party observers of a one-shot public good game (see Fehr & Fischbacher, 2004; Molenmaker et al., 2014). As third-party observers, participants themselves were not involved in the public good game but had the opportunity to reward or the opportunity to punish their group members (Sanction Type manipulation). These sanctioning decisions had to be made either before or after the group members had made their choices (Decision Timing manipulation). In addition, we also explored whether the (anticipated and actual) emotional reactions to behavior differed across these two timing moments. We predicted that people would sanction others' behavior less often and more mildly when they had to decide beforehand (as compared with afterwards).

2.1 | Method

2.1.1 | Participants and design

We recruited 159 students from Leiden University (97 women and 62 men; M_{age} = 21.44 years, SD_{age} = 3.74) to participate in an experiment on "group decision making."[2] A 2 (Decision Timing: Beforehand vs. Directly afterwards) × 2 (Sanction Type: Reward vs. Punishment) between-participants factorial design was used.

[2]For Experiments 1 and 2, we aimed to recruit as many participants as possible within the given time available in the lab (approximately 2 weeks per experiment).

2.1.2 | Procedure

Participants were seated in separate cubicles, each containing a personal computer to give instructions and register their responses. Assignment to one of the four conditions was randomly determined by a computer-automated procedure. Participants were instructed that they had to perform a joint task with four fellow participants whose identities were unknown to them. The choices they would make in the joint task determined how much extra money they could earn on top of the standard initial participation fee. Participants learned that whether they would actually receive this extra money would be determined by a lottery after the study was conducted.

The participants were instructed that they were randomly assigned to a different role than the other four persons in the joint task (for a similar procedure, see Molenmaker et al., 2014). Their role was to observe the other four persons performing a one-shot public good game. Each person in the public good game would be endowed with €10 (which is approximately US $12) that they could either keep for themselves or contribute to a common pool. When contributed to the common pool, the €10 would be multiplied by 1.5 and divided equally among the four persons in the public good game (i.e., each would receive €3.75). Thus, the participants learned that the four persons had to make a dichotomous choice between being cooperative (i.e., contributing the €10 to the common pool) or not being cooperative (i.e., keeping the €10 for themselves). After participants read the instructions about the public good game, we posed four practice questions to ensure that they understood the task. The correct answer was disclosed after answering each question.

After this, participants read the instructions about their own role in the joint task. The instructions explained that they would be endowed with 100 points (worth €0.10 each) per person. In the reward conditions, participants could keep these points for themselves, but they could also assign points as increment points (we never used the word "reward"). The value of the assigned increment points would be multiplied by 3 and added to the individual outcome of the person concerned. Thus, it would cost the participant €0.10 to increase a group member's outcome with €0.30. The instructions in the punishment conditions were identical, except that they could assign points as decrement points (we never used the word "punishment") and the value of the assigned decrement points would be multiplied by 3 and subtracted from the individual outcome of the person concerned. Thus, it would cost the participant €0.10 to decrease a group member's outcome with €0.30 (for a similar procedure, see Molenmaker et al., 2014).

In the instructions about participants' role in the joint task, we also introduced our manipulation of decision timing. In the beforehand conditions, participants learned that they had to decide about assigning points before the others actually decided about contributing their €10. That is, participants would have to compose a binding strategy for responding to choices that the persons could make in the public good game. In addition, they were informed that they would have to make separate strategies for each person in the

public good game.[3] In contrast, participants in the directly afterwards conditions learned that they had to decide about assigning points after the group members had decided about contributing their €10. Thus, they would have to respond to the choices that the persons had actually made in the public good game.

Participants in all conditions also learned that the other four persons would be informed beforehand about the presence of a fifth person in the joint task who would have the opportunity to increase (reward conditions) or decrease (punishment conditions) their individual outcomes. Moreover, the instructions in the beforehand conditions also stated that group members would not be informed what this fifth person had decided before they themselves had decided about contributing their €10. Note that we thus merely manipulated when participants would make their sanction decisions, not when their group members would learn about the sanctioning decisions. In this way, we ruled out the possibility that participants in the beforehand conditions would opt for sanctioning to influence the four persons' choices in the public good game, whereas participants in the afterwards conditions would not have this opportunity because the choices in the public good game had already been made. To ensure comprehension of their role in the joint task, we again posed four practice questions with the correct answer disclosed after answering each question.

Subsequently, the joint task started, and participants were endowed with their first 100 points. In the beforehand conditions, we presented participants with the possibility that a person (named person M) would contribute his or her €10 to the common pool in the reward condition or would keep it for himself or herself in the punishment condition.[4] We reminded participants that this was a possible choice that person M could make and that their decision would be executed if it would turn out that person M would actually make this choice (i.e., their decision was binding). In the reward condition, we first asked whether the participants wanted to assign points as increment points and when they decided to assign increment points to person M, they had to indicate how many increment points they assigned. The procedure in the punishment condition was identical, except that they could assign points as decrement points.

In the directly afterwards conditions, we first asked participants to wait until all four persons had read their instructions and had made their choice in the public good game, which took about a minute. Next, they received the (bogus) feedback that a person (named M) had contributed his or her €10 to the common pool in the reward condition or had kept it for himself or herself in the punishment condition. In response to this actual choice that person M had made, we first asked participants whether they wanted to assign points as increment points in the reward condition or as decrement points in the punishment condition, and if they decided to assign points to person M, they indicated how many points they assigned. In all conditions, the maximum number of points participants could assign to person M was 100 points (and the minimum was zero points).

Next, we asked participants about their emotional reactions to the (*possible*) choice by person M. On a 9-point rating scale ranging from 1 (*not at all*) to 9 (*totally*), participants in the directly afterwards conditions indicated to what extent nine statements currently applied to them, whereas participants in the beforehand conditions indicated to what extent they anticipated that these statements would apply to them when later on it would turn out that person M had actually made this choice. To measure participants' positive emotional reactions, we asked them about their experience of happiness, joy, pride, admiration, and elevation (e.g., "This choice by person M makes me feel happy"). To measure participants' negative emotional reactions, we asked them about their experience of anger, fury, disappointment, and contempt (e.g., "This choice by person M makes me feel angry").[5]

At this point, participants in all conditions had only learned about person M's (*possible*) choice in the public good game and were asked about their sanction response and (*anticipated*) emotional reactions. Next, participants were informed that the joint task was ended. Before the participants were thoroughly debriefed and paid (1 course credit or €3 monetary compensation), we first checked our manipulations and the credibility and comprehension of the joint task. Finally, after the experiment was completed by all the participants, 10 participants were randomly selected who received their actual earnings from the joint task.

2.2 | Results

2.2.1 | Manipulation checks

The manipulation of sanction type was checked by asking participants whether they could assign increment or decrement points. All participants (100%) answered this question correctly. We checked the manipulation of decision timing by asking participants whether they had to decide about assigning increment points (*decrement points*) before or after the other four persons made their choices in the public good game. All participants except three (98.1%) answered this question correctly.[6] On the basis of these results, we concluded that our manipulations were successful, and we included the data of all 159 participants in the analyses.

2.2.2 | Choice to sanction

We started by analyzing the effect of Decision Timing (Beforehand vs. Directly afterwards) and Sanction Type (Reward vs. Punishment) on the proportion of participants choosing to sanction (N = 159). In accordance with our prediction, a binary (Sanction Choice: 0 = not sanctioned, 1 = sanctioned) logistic regression yielded a significant Decision Timing main effect, B = 1.04, SE = 0.47, Wald (df = 1) = 4.97, p = .026, odds ratio = 2.84, 95% CI [1.13, 7.12]. This main effect

[3]We decided to ensure that the participants would make a sanction decision in response to an identifiable (but anonymized) person in both the beforehand and afterwards conditions (instead of one strategy in the beforehand conditions that would apply to all persons in the public good game) because research by Small and Loewenstein (2003, 2005) has shown that identifiability can influence people's sanctioning decisions.

[4]To keep the beforehand and afterwards conditions as identical as possible, we instructed participants that we would present each feasible choice one by one instead of presenting all feasible choices at once, as in the strategy method (Selten, 1967).

[5]In our experiments, we also asked participants about their judgments to the (*possible*) choice by person M, and about their sanction motives. The results of these additional measures did not provide additional insights about the current findings.

[6]Exclusion of the data of these participants did not alter the pattern of results.

indicated that the proportion of participants choosing to sanction beforehand (75.6%) was lower than the proportion of participants choosing to sanction directly afterwards (88.8%). Moreover, the analysis yielded a significant Sanction Type main effect, $B = 2.19$, $SE = 0.58$, Wald ($df = 1$) = 14.37, $p < .001$, odds ratio = 8.91, CI [2.87, 27.58], which showed that the proportion of participants choosing to punish (69.6%) was lower than the proportion of participants choosing to reward (95.0%). The impact of Decision Timing did not differ between reward and punishment, as indicated by the nonsignificant Decision Timing × Sanction Type interaction effect, $B = 0.13$, $SE = 1.28$, Wald ($df = 1$) = 0.01, $p = .921$, odds ratio = 1.14, CI [0.09, 14.07]. See Table 1 for the frequencies.

2.2.3 | Sanction size

A 2 (Decision Timing: Beforehand vs. Directly afterwards) × 2 (Sanction Type: Reward vs. Punishment) analysis of variance (ANOVA) on the number of points ($N = 159$) yielded a marginal significant Decision Timing main effect, $F(1, 155) = 3.06$, $p = .082$, $\eta^2 = .01$, 90% CI [.00, .06]. As predicted, the size of the sanctions administered beforehand ($M = 32.72$, $SD = 31.98$) was smaller than the size of the sanctions administered directly afterwards ($M = 40.80$, $SD = 36.59$). Furthermore, the analysis yielded a significant Sanction Type main effect, $F(1, 155) = 52.90$, $p < .001$, $\eta^2 = .25$, CI [.16, .34], which showed that the size of the punishments ($M = 19.51$, $SD = 27.19$) was smaller than the size of the rewards ($M = 53.85$, $SD = 32.52$). The impact of Decision Timing did again not differ between reward and punishment, as indicated by nonsignificant Decision Timing × Sanction Type interaction effect, $F(1, 155) = 1.09$, $p = .298$, $\eta^2 = .01$, CI [.00, .04]. See Table 2 for the mean number of points and standard deviation per condition.

2.2.4 | Emotional reactions

We also analyzed the effects of Decision Timing (Beforehand vs. Directly afterwards) on participants' emotional reactions. As we gave different feedback in the reward conditions (i.e., a cooperative choice) and punishment conditions (i.e., a noncooperative choice), we analyzed participants' positive emotions to the cooperative choice (i.e., the reward conditions; $N = 79$) and negative emotions to the noncooperative choice (i.e., the punishment conditions; $N = 78$) in separate analyses. A multivariate ANOVA (MANOVA) on positive emotions about the cooperative choice yielded no significant effect of Decision Timing, $V = 0.086$, $F(5, 74) = 1.386$, $p = .24$, $\eta_p^2 = .086$. A MANOVA on negative emotions about the noncooperative choice also yielded no significant effect of Decision Timing, $V = 0.038$, $F(4, 74) = 0.726$, $p = .58$, $\eta_p^2 = .038$. See Table 3 for the overall means and standard deviations. Taken together, these results indicated that there was no significant difference between the (anticipated) emotional reactions beforehand and the (actual) emotional reactions afterwards.

TABLE 2 Number of points assigned by decision timing and sanction type in Experiments 1 and 2

Experiment	Decision timing	Sanction type	Sanction size	
			M	*SD*
1	Beforehand	Overall	32.72	31.98
		Punishment	17.82	28.05
		Reward	47.25	29.00
	Afterwards	Overall	40.80	36.59
		Punishment	21.15	26.59
		Reward	60.45	34.82
2	Beforehand	Overall	22.69	31.44
		Punishment	11.43	24.35
		Reward	34.60	33.81
	Afterwards	Overall	42.30	37.04
		Punishment	24.44	27.03
		Reward	59.42	37.40
	Directly afterwards	Overall	44.95	36.11
		Punishment	26.89	28.75
		Reward	62.51	34.07
	Delayed afterwards	Overall	39.54	38.05
		Punishment	21.85	25.25
		Reward	56.25	40.77

2.3 | Discussion

The results of Experiment 1 provide first evidence for our reasoning that decision timing impacts the willingness to employ costly rewards

TABLE 1 Number and percentage of participants choosing to sanction by decision timing and sanction type in Experiments 1 and 2

Experiment	Decision timing	Sanction type	Choice to sanction	
			Yes	No
1	Beforehand	Overall	60 (76.0%)	19 (24.0%)
		Punishment	23 (59.0%)	16 (41.0%)
		Reward	37 (92.5%)	3 (7.5%)
	Afterwards	Overall	71 (88.8%)	9 (11.2%)
		Punishment	32 (80.0%)	8 (20.0%)
		Reward	39 (97.5%)	1 (2.5%)
2	Beforehand	Overall	45 (65.2%)	24 (34.8%)
		Punishment	15 (40.5%)	22 (59.5%)
		Reward	30 (93.8%)	2 (6.3%)
	Afterwards	Overall	127 (88.8%)	16 (11.2%)
		Punishment	61 (87.1%)	9 (12.9%)
		Reward	66 (90.4%)	7 (9.6%)
	Directly afterwards	Overall	68 (93.2%)	5 (6.8%)
		Punishment	34 (94.4%)	2 (5.6%)
		Reward	34 (91.9%)	3 (8.1%)
	Delayed afterwards	Overall	59 (84.3%)	11 (15.7%)
		Punishment	27 (79.4%)	7 (20.6%)
		Reward	32 (88.9%)	4 (11.1%)

TABLE 3 Emotional reactions to the cooperative or noncooperative choice in Experiments 1 and 2

		Experiment 1		Experiment 2	
Feedback	**Emotions**	***M***	***SD***	***M***	***SD***
Cooperative choice	Happiness	6.64	2.06	6.46	1.76
	Joy	6.50	1.79	6.44	1.77
	Pride	5.77	2.05	6.43	2.12
	Admiration	6.65	1.92	6.77	2.02
	Elevation	3.97	2.47	3.91	2.05
Noncooperative choice	Anger	3.57	2.23	4.08	2.19
	Fury	2.96	2.20	3.28	1.99
	Disappointment	5.22	2.31	5.16	2.34
	Contempt	4.14	2.33	4.84	2.19

for cooperation and punishments for noncooperation. The willingness to sanction was lower when participants decided before the behavior than when they decided after the behavior. Participants both rewarded and punished less often and more mildly in the decision environment beforehand than in the decision environment afterwards. Furthermore, the emotional reactions participants anticipated beforehand did not seem to differ from participants' actual emotional reactions directly afterwards, which is consistent with our reasoning that sanctioning and decision timing effects do not necessarily have to be attributed to "heated tempers", especially when it concerns impartial third parties, as was the case in Experiment 1. To further investigate the reasons as to why people are less willing to sanction behavior beforehand than afterwards, we designed Experiment 2.

3 | EXPERIMENT 2

Our first experiment demonstrated that people are not as willing to sanction beforehand as they are willing to sanction afterwards. These results fit an explanation in terms of nonconsequential reasoning (see also, e.g., Shafir & Tversky, 1992; Van Dijk & Zeelenberg, 2003), which presupposes more nonconsequential reasoning before rather than after others' behavior. After all, only in the decision environment beforehand, and not in the decision environment afterwards, are sanctions contingent on behavior of which the occurrence is not known yet.

However, an alternative explanation for the results of Experiment 1 would be that, although participants were impartial third parties, and the (anticipated) emotional reactions beforehand did not seem to differ from the (actual) emotional reactions afterwards, they might have had a different emotional experience of the other's behavior in the decision environment beforehand than in the decision environment afterwards. Therefore, they might have been less willing to employ costly sanctions before (instead of after) the occurrence of others' behavior. Indeed, emotional experiences of future events often differ in intensity and quality from emotional experiences of present or past events (e.g., Loewenstein, 1996; Loewenstein & Lerner, 2003; Miceli & Castelfranchi, 2015). In fact, decision environments are usually characterized as "cold" when decisions are made about future events and as "hot" when decisions are made about present events (see Loewenstein, 1996; Loewenstein & Schkade, 1999; Wang et al., 2011). Therefore, the aim of Experiment 2 is to further explore *why* decision timing has an impact on the willingness to reward cooperation and punish noncooperation.

Although we argue that the willingness to sanction beforehand differs from the willingness to sanction afterwards, this is not the only temporal distinction that may alter the decision environment. In real life, it is often the case that sanctioning decisions are not made *directly* after others' behavior but at a later moment in time. Importantly, deciding directly afterwards versus after a time delay has also been related to the distinction between hot and cold decision environments (see, e.g., Harinck & De Dreu, 2008; Wang et al., 2011). The fact that emotions tend to have a relatively short life span (Fridhandler & Averill, 1982) suggests that "hot" decision environments become less emotionally charged after some time has passed and thus turn into colder decision environments (see Loewenstein, 1996; Loewenstein & Lerner, 2003; Loewenstein & Schkade, 1999). The intensity of emotions may thus be lower after a time delay than directly afterwards (see also Gross, 1998; Ray, Wilhelm, & Gross, 2008). To further examine the impact of decision timing on the willingness to sanction, we therefore focused not only on the willingness to sanction beforehand and directly afterwards but also on the willingness to sanction after a time delay (i.e., delayed afterwards).

Given that emotions have been identified as drivers of the willingness to employ sanctions (e.g., De Kwaadsteniet et al., 2013; Fehr & Gächter, 2002; Seip, Van Dijk, & Rotteveel, 2014), but also tend to have a relative short life span (Fridhandler & Averill, 1982), it may very well be that people are less willing to sanction after a time delay than directly afterwards. Preliminary support for this reasoning can be found in research by Wang et al. (2011) who demonstrated that people react less punitively to others' norm transgressions after a short time delay than when they react directly afterwards. Their research also showed, however, that such an effect is only observed if people are distracted during the time delay, such that they cannot re-arouse the experienced anger by ruminating about the anger-arousing stimulus (see also Fridhandler & Averill, 1982; Gross, 1998; Harinck & De Dreu, 2008; Ray et al., 2008). In Experiment 2, we therefore manipulated the time delay by using the same distraction task as Wang et al. (2011) used in one of their experiments (i.e., the dots-estimation task; e.g., Gerard & Hoyt, 1974). If people experience intense emotions about others' behavior, we expect that they would be particularly willing to sanction in the decision environment directly afterwards, and less so in the decision environment after a time delay (and the decision environment beforehand).

More importantly, however, a nonconsequential reasoning account does not distinguish between whether decisions are made directly after the behavior or only after a time delay (as in both cases, people may be expected to engage in consequential reasoning). An interesting implication of this is that adding a decision environment with a time delay provides us with a useful paradigm to test whether nonconsequential reasoning or a hot/cold distinction may explain the results of Experiment 1. In Experiment 2, we thus provided another test of the impact that decision timing has on the willingness to sanction by focusing on the willingness to sanction beforehand, directly afterwards, and after a time delay. Our main prediction is that people would sanction others' behavior less often and more mildly when they decide beforehand than when they decide afterwards, thereby replicating the findings of Experiment 1. This pattern of results would, first and foremost, fit the explanation in terms of nonconsequential reasoning because this account only distinguishes between a decision environment beforehand and a decision environment afterwards, and not between a decision environment directly afterwards and a decision environment after a time delay. If the hot/cold distinction would have explanatory power for the sanctioning decisions in our research, we may also expect that people would sanction others' behavior less often and more mildly when they decide in the decision environment after a time delay than in the decision environment directly afterwards. Therefore, we also again measured the (anticipated and actual) emotional reactions to the behavior.

3.1 | Method

3.1.1 | Participants and design

Two hundred fifteen students from Leiden University (148 women and 67 men; M_{age} = 20.47 years, SD_{age} = 4.09) participated in an experiment on "group decision making" (see Footnote 1). We used a 3 (Decision Timing: Beforehand vs. Directly afterwards vs. Delayed afterwards) × 2 (Sanction Type: Reward vs. Punishment) between-participants factorial design.

3.1.2 | Procedure

The procedure was almost identical to the procedure of Experiment 1. Thus, the instructions explained that the participants' role was to observe the four other persons performing a one-shot public good game. Whereas participants in Experiment 1 learned that the four persons in the public good game had to decide whether they would contribute their endowment of €10 to the common pool or keep it for themselves (i.e., dichotomous choice), participants in Experiment 2 learned that the persons had to decide *how many* euros from their endowment of €10 they would contribute to the common pool and *how many* euros they would thus keep for themselves (i.e., a continuous choice). Thus, instead of the dichotomous choice that we used in our first experiment, the persons in the public good game determined their degree of (non)cooperativeness in our second experiment. The (bogus) feedback about the decision that a person (named person M) would possibly make (beforehand conditions) or had actually made (afterwards conditions) was, however, again the choice to contribute all his or her €10 to the common pool in the reward conditions or to keep it all for himself or herself in the punishment conditions.

The delayed afterwards conditions were almost identical to the directly afterwards conditions. However, after participants in the delayed afterwards conditions received the feedback (but before we asked them whether they wanted to assign points), they first had to perform a dots-estimation task (Gerard & Hoyt, 1974; Sivanathan, Molden, Galinsky, & Ku, 2008; Wang et al., 2011). In this 5-min task —which has been shown to decrease the intensity of emotions because it interferes with emotional thoughts (see Wang et al., 2011)—participants had to make a series of estimations about the number of dots that were presented on their computer screen for 5 s. The feedback about Person M's (*possible*) choice remained on the screen during the task. To rule out the possibility that performing the dots-estimation task itself (and not its distracting nature) would influence our results, participants in the beforehand and directly afterwards conditions also had to perform the dots-estimation task. However, they performed the task both before we presented the feedback and they could make their sanction decision. As such, participants in all conditions performed the dots-estimation task before they made their sanctioning decision, but only in the delayed afterwards conditions did it serve as a filler task between the feedback and the sanctioning decision.

As in Experiment 1, participants were asked whether they wanted to assign decrement/increment points, and if they decided to assign points to person M, they indicated how many points they assigned. In the beforehand conditions, participants were again reminded that their decision would be executed if it would turn out that person M had actually made this choice (i.e., their decision was binding). The maximum number of points participants could assign to person M was again 100 points (and the minimum was zero points), and each assigned point would cost the participant €0.10 but increased the personal outcome of person M with €0.30 in the reward conditions or decreased the personal outcome of person M with €0.30 in the punishment conditions. In addition, we again asked participants about their emotional reactions to the (*possible*) choice by person M.

3.2 | Results

3.2.1 | Manipulation check

The manipulation of sanction type was checked by asking participants whether they could assign increment or decrement points. All participants except one (99.1%) answered this question correctly. The manipulation of decision timing was checked by asking participants whether they had to decide about assigning increment points (*decrement points*) beforehand, directly afterwards, or after a time delay. This question was answered correctly by all participants except 15 (93%). These 15 participants who gave an incorrect answer were mainly part of the delayed afterwards conditions (11 participants), which suggests that they did not recognize the filler task as a time delay. We conclude that our manipulations were successful and included the data of all 215 participants in the analyses.

3.2.2 | Choice to sanction

We first performed a binary (Sanction Choice: 0 = not sanctioned, 1 = sanctioned) logistic regression (N = 215) to analyze the effects of Decision Timing (Beforehand vs. Directly afterwards vs. Delayed afterwards) and Sanction Type (Reward vs. Punishment) on the proportion of participants choosing to sanction. As predicted, the analysis yielded a significant Decision Timing main effect, Wald (df = 2) = 19.70, p < .001. Planned contrasts revealed that the proportion of participants choosing to sanction beforehand (65.2%) was significantly lower than the proportion of participants choosing to sanction afterwards (88.8%), regardless of whether they decided directly afterwards or after a delay, B = 1.70, SE = 0.39, Wald (df = 1) = 19.29, p = .001, odds ratio = 5.50, 95% CI [2.57, 11.76]. In addition, the proportion of participants choosing to sanction directly afterwards (93.2%) did not differ significantly from the proportion of participants choosing to sanction after a delay (84.3%), B = 0.97, SE = 0.58, Wald (df = 1) = 2.84, p = .092, odds ratio = 2.64, CI [0.85, 8.19]. Moreover, the significant Sanction Type main effect, B = 1.29, SE = 0.40, Wald (df = 1) = 10.57, p = .001, odds ratio = 3.62, CI [1.67, 7.85], showed that the proportion of participants choosing to punish (71.0%) was lower than the proportion of participants choosing to reward (88.9%).

Furthermore, the Decision Timing × Sanction Type interaction effect was significant, Wald (df = 2) = 6.12, p = .047, not because Sanction Type altered the difference in proportions of participants choosing to sanction directly afterwards and after delay, B = 1.14, SE = 1.16, Wald (df = 1) = 0.95, p = .329, odds ratio = 3.11, 95% CI [0.32, 30.42], but because Sanction Type significantly altered the difference in proportions of participants choosing to sanction beforehand versus afterwards, B = 2.01, SE = 0.83, Wald (df = 1) = 5.93, p = .015, odds ratio = 7.48, CI [1.48, 37.84]. That is, the proportion of participants choosing to punish beforehand (40.5%) was significantly lower than the proportion of participants choosing to punish afterwards (87.1%), regardless of whether they decided directly afterwards (94.4%) or after a delay (79.4%), $\chi^2(1) = 25.55$, p < .001, odds ratio = 9.94, CI [3.81, 25.95]. In contrast, the proportion of participants choosing to reward beforehand (93.8%) did not differ significantly from the proportion of participants choosing to reward afterwards (90.4%), regardless of whether they decided directly afterwards (91.9%) or after a delay (88.9%), $\chi^2(1) = 0.53$, p = .467, odds ratio = 1.57, CI [0.46, 5.36]. A possible explanation might be that, due to the fact that, in Experiment 2, the persons in the public good game had to determine their degree of cooperativeness (instead of the dichotomous choice used in Experiment 1) and Person M cooperated maximally (i.e., contributed all his or her €10 to the common pool), the willingness to reward was now so high (Molenmaker et al., 2014, 2016) that a potential difference in the choice to reward between the beforehand and directly afterwards conditions could not be observed (i.e., a ceiling effect). See Table 1 for the frequencies.

3.2.3 | Sanction size

We analyzed the effect of Decision Timing and Sanction Type on the number of points with a 3 (Decision Timing: Beforehand vs. Directly afterwards vs. Delayed afterwards) × 2 (Sanction Type: Reward vs. Punishment) ANOVA (N = 215), which yielded a significant Decision Timing effect, $F(2, 209) = 9.07$, p < .001, η^2 = .12, 90% CI [.06, .19]. Planned contrasts revealed that the size of the sanctions administered beforehand (M = 22.69, SD = 31.44) was significantly smaller than the size of the sanctions administered afterwards (M = 42.30, SD = 31.44), regardless of whether they decided directly afterwards or after a delay, $t(209) = 4.11$, p < .001, d = 0.59, 95% CI [0.30, 0.88]. In addition, the size of the sanctions administered directly afterwards (M = 44.95, SD = 36.11) did not differ significantly from the size of the sanctions administered after a delay (M = 39.54, SD = 38.05), $t(209) = 1.06$, p = .289, d = 0.18, CI [−0.15, 0.51]. Moreover, the analysis yielded a significant Sanction Type main effect, $F(1,209) = 51.46$, p < .001, η^2 = .18, CI [.11, .26], indicating that the size of the punishments (M = 19.94, SD = 28.81) was smaller than the size of the rewards (M = 51.38, SD = 37.95). Furthermore, the impact of Decision Timing did not differ between reward and punishment, as indicated by the nonsignificant Decision Timing × Sanction Type interaction effect, $F(2, 209) = 0.84$, p = .432, η^2 = .01, CI [.00, .04]. See Table 2 for the mean number of points and standard deviation per condition.

3.2.4 | Emotional reactions

The effects of Decision Timing (Beforehand vs. Directly afterwards vs. Delayed afterwards) on participants' positive emotions to the cooperative choice (i.e., the reward conditions; N = 108) and negative emotions to the noncooperative choice (i.e., the punishment conditions; N = 107) were analyzed in separate analyses. A MANOVA on positive emotions about the cooperative choice showed no significant (but marginal) effect of Decision Timing, V = 0.157, $F(10, 204) = 1.738$, p = .074, η_p^2 = .078. A MANOVA on negative emotions about the noncooperative choice also showed no significant effect of Decision Timing, V = 0.108, $F(8, 204) = 1.461$, p = .17, η_p^2 = .054. See Table 3 for the overall means and standard deviations. Taken together, these results again indicated that there was no difference between the anticipated emotional reactions beforehand and the actual emotional reactions directly afterwards, nor after a time delay.

3.3 | Discussion

The results of Experiment 2 further corroborated our reasoning that decision timing (beforehand vs. afterwards) impacts the willingness to employ costly rewards for cooperation and punishments for noncooperation. Participants sanctioned less often and more mildly before than after others' behavior. Experiment 2 also showed that the willingness to sanction directly afterwards was not significantly different from the willingness to sanction after a time delay. In addition, the emotional reactions that participants reported did not differ between conditions (as in Experiment 1). These findings are in line with our explanation in terms of nonconsequential reasoning.

4 | EXPERIMENT 3

In Experiments 1 and 2, we used a public good game to operationalize (non)cooperative behavior, and we demonstrated that deciding about

sanctioning before rather than after its occurrence hampered participants' willingness to sanction. In Experiment 3, we aimed to replicate this effect by using a different experimental paradigm. More specifically, we presented participants with a management scenario in which they were department head of a company and one of their employees *might behave* noncooperatively in the future (beforehand scenario) or *had behaved* noncooperatively in the past (afterwards scenario).

An additional aim of this third experiment was to test whether the beforehand scenario (but not the afterwards scenario) indeed induces nonconsequential reasoning. As nonconsequential reasoning may manifest itself in various ways (see also Shafir et al., 1993; Shafir & Tversky, 1992; Tversky & Shafir, 1992), we assessed participants attitude towards the employee's noncooperative behavior, their willingness to sanction the employee, and the ease with which they could justify punishment of the employee. If more nonconsequential reasoning occurs in the beforehand scenario (than in the afterwards scenario), we expect that participants would hold a more ambiguous attitude towards the employee's noncooperative behavior because they may not yet have formed a clear (positive or negative) opinion about it. Moreover, we expect that this would lead to a lesser willingness to punish the employee and more difficulty to justify punishment of the employee.

4.1 | Method

4.1.1 | Participants and design

Of the 133 participants we recruited from the Mechanical Turk website, 102 participants (52 women and 50 men; M_{age} = 38.37 years, SD_{age} = 10.24) completed the whole experiment. Participants were randomly assigned to be presented with either the beforehand scenario (n = 49) or the afterwards scenario (n = 53).

4.1.2 | Procedure

All participants first indicated their demographics before they were introduced to the scenario. In the scenario, participants were instructed to imagine that they—as department head of a technology company—were conducting an annual performance appraisal with one of their employees (named Mike[7]), who either might violate a mutual agreement in the next year (beforehand scenario) or had violated this mutual agreement in the past year (afterwards scenario). Next, participants completed our dependent variables.

[7]For exploratory reasons, we also administered a version of the same scenarios in which the employee was named Mary. This version did not replicate the findings we obtained with the scenarios in which the employee was named Mike. We acknowledge that the explicit mentioning of a female (vs. male) name in the scenario might have had some unintended effects that could be of interest (e.g., by being related to stereotypes among the research population). We felt that a further exploration was beyond the scope of the current article, also because in our laboratory experiments, participants were not informed about the gender of the other group members.

4.1.3 | Attitude

First, participants' attitude towards the (potential or actual) agreement violation was assessed with three bipolar 11-point scales ranging from −5 via 0 to +5. Participants indicated how they judged (−5 = *strongly disapprove*; 0 = *neither disapprove nor approve*; +5 = *strongly approve*), perceived (−5 = *very inappropriate*; 0 = *neither inappropriate nor appropriate*; +5 = *very appropriate*), and evaluated (−5 = *predominantly negative*; 0 = *neither negative nor positive*; +5 = *predominantly positive*) this behavior. An attitude score was computed by averaging the three items (Cronbach's α = .97).

4.1.4 | Willingness to punish

Next, participants' willingness to punish the (potential or actual) violator was measured with six bipolar 11-point scales ranging from −5 (*very unlikely*) via 0 (*neither unlikely nor likely*) to +5 (*very likely*). Participants indicated how likely it was that they would reprimand, suspend, terminate, discipline, reproof, and punish the employee. A punishment score was computed by averaging the six items (Cronbach's α = .92).

4.1.5 | Ease to justify

Then, the ease with which participants could justify punishment of the (potential or actual) violator was assessed. Participants were asked to provide four pro-arguments for punishing the employee,[8] and subsequently they indicated on two bipolar 11-point scales ranging from −5 (*very easy*) via 0 (*neither easy nor difficult*) to +5 (*very difficult*) how difficult it was to find proarguments and how difficult it would have been to find additional proarguments for punishing the employee (for a comparable procedure, see Herzog, Hansen, & Wänke, 2007). An ease-to-justify score was computed by averaging the two items (Cronbach's α = .84).

4.1.6 | Manipulation check

Lastly, to check the manipulation of decision timing between scenarios, participants were asked to indicate whether the agreement was about the next year or about the past year. Four participants (3.9%) answered this question incorrectly and were, therefore, left out of the analyses, although including or excluding their data did not alter the pattern of results.

4.2 | Results and discussion

In line with our reasoning, participants hold a more ambiguous attitude towards the agreement violation beforehand (M = −0.18, SD = 2.53) than afterwards (M = −1.77, SD = 2.10), $t(96)$ = 3.386, p = .001, d = 0.68, 95% CI [0.28, 1.09], they were less willing to punish

[8]We also asked participants to provide four arguments for *not* punishing the employee and subsequently measured the ease with which they could justify *not* to punish. The results of this measure showed no significant difference between the two scenarios, $t(96)$ = −1.324, p = .189, d = −0.20, 95% CI [−0.60, 0.20], possibly because participants were asked to indicate their willingness to sanction (and not their willingness *not* to sanction) in a prior question.

the employee beforehand (M = −0.88, SD = 2.42) than afterwards (M = 0.21, SD = 2.37), $t(96)$ = −2.250, p = .027, d = −0.46, CI [−0.86, −0.05], and they found it more difficult to justify punishment of the employee beforehand (M = 0.83, SD = 2.91) than afterwards (M = −0.93, SD = 3.08), $t(96)$ = 2.913, p = .004, d = 0.59, CI [0.18, 0.99].

Moreover, two bootstrapping analyses (with 10,000 resamples and bias-corrected and accelerated confidence intervals) using the PROCESS Macro (Hayes, 2018) indicated that participants' attitude towards the agreement violation mediated their willingness to punish the employee (b = −0.57, p < .001, indirect effect = 0.90, 95% bootstrapping CI [0.34, 1.61]) and the ease with which they could justify punishment of the employee (b = 0.35, p = .007, indirect effect = −0.56, 95% bootstrapping CI [−1.09, −0.09]). More specifically, the significant effect of decision timing (beforehand vs. afterwards) on the willingness to punish (total effect = 1.09, p = .027) and the ease to justify (total effect = −1.76, p = .004) became nonsignificant (direct effect = 0.19, p = .668) and marginally significant (direct effect = −1.21, p = .054), respectively, when participants' attitude was included in the models.

Taken together, these findings further demonstrate that deciding beforehand induces nonconsequential reasoning—and thereby hampers the willingness to sanction—because people have not yet formed clear sanctioning preferences.

5 | GENERAL DISCUSSION

The decision to reward cooperation and to punish noncooperation can be made at various moments in time. However, it involves a decision either *before* or *after* others' behavior. In the present article, we argued and showed that people are less willing to employ costly sanctions when deciding beforehand than when deciding afterwards. Research on the disjunction effect revealed that the presence of uncertainty about outcomes may induce nonconsequential reasoning and hamper decisiveness (e.g., Shafir & Tversky, 1992; Van Dijk & Zeelenberg, 2003). In accordance with this work, we demonstrated that people are less willing to administer sanctions that are contingent on others' future behavior than on others' behavior that did actually occur in the past. More specifically, people sanctioned less often and sanctioned more mildly when decisions were made before (instead of after) the occurrence of others' behavior (Experiments 1 and 2), regardless of whether they decided directly afterwards or after a time delay (Experiment 2). Moreover, we showed that beforehand (as compared with afterwards) people have not yet formed clear sanctioning preferences (Experiment 3). Thus, we revealed that, due to nonconsequential reasoning, people are less willing to employ costly sanctions if these sanctions are contingent on others' future behavior.

The current findings not only increase the understanding of how people make sanctioning decisions, but they also extend the literature on the disjunction effect. Prior research has identified a disjunction effect in the realm of social dilemmas, as people are more likely to cooperate when they *do not know* whether their interaction partner will cooperate compared with when they *do know* that their interaction partner had (not) cooperated (Shafir & Tversky, 1992, study 1). Note that these conditions resemble the decision environment beforehand (in which another's behavior is also unknown) and the decision environment afterwards (in which another's behavior is also known), respectively. Although uncertainty about another person's (non)cooperation may thus enhance the willingness to cooperate, we add to this insight that, at the same time, it also hampers the willingness to reward cooperation and punish noncooperation. An interesting avenue for future research would be—besides investigating whether our findings conceptually replicate in other domains than social dilemmas—to explore how people prefer to deal with this uncertainty about another person's (non)cooperation. In our experiments, but also in many real-world social dilemmas, the sanctioning decision had to be made. However, people might also be tempted to wait with deciding about sanctioning until after others' behavior is known (i.e., to avoid the uncertainty; cf. Keren & Gerritsen, 1999), they might want to be able to adjust their sanctioning decisions afterwards (i.e., to make a decision that is not binding), or they might opt for rewarding cooperation instead of punishing noncooperation (i.e., to avoid inflicting harm on another person; cf. Molenmaker et al., 2014).

In our experiments, the (anticipated) emotional reactions beforehand versus the (actual) emotional reactions afterwards did not differ from each other (Experiments 1 and 2), nor did the emotional reactions (and the sanctioning decisions) directly afterwards versus after a distracting time delay (Experiment 2). This suggests that the effect of decision timing was not driven by the experience of emotions. It is important to stress, however, that we do not claim that emotional experiences may never be related to the impact that decision timing can have on the willingness to employ costly sanctions. After all, emotions have been identified as a potential driving force of sanctioning decisions (e.g., De Kwaadsteniet et al., 2013; Nelissen & Zeelenberg, 2009; Seip et al., 2014), and the emotions that people experience may differ in intensity and quality between the decision environment beforehand and the decision environment afterwards (e.g., Loewenstein, 1996; Loewenstein & Lerner, 2003; Loewenstein & Schkade, 1999; Miceli & Castelfranchi, 2015). The present research revealed, however, that the experience of emotions directly afterwards does not seem to be a necessary precondition of differences in the willingness to employ costly sanctions before versus after others' behavior. It would therefore be a good idea for future research to investigate whether the experience of (intense) emotions would amplify the impact that decision timing (beforehand vs. afterwards) has on sanctioning decisions, for example, by experimentally manipulating such emotions (see Seip et al., 2014).

In this respect, it is also important to note that we used a third-party paradigm in our experiments. In particular, in Experiments 1 and 2, participants were not involved in the public good game they observed as third party (Fehr & Fischbacher, 2004; Molenmaker et al., 2014). Whereas this procedure eliminated the possibility that participants' interpretation of the behavior was colored by self-interest, the willingness to sanction may be higher when they would have taken part in the social dilemma themselves (i.e., a second-party paradigm) because in such situations revenge-like motives might drive the infliction of harm (e.g., see De Quervain et al., 2004). As such, the

impact of decision timing might be different when people's personal outcomes are affected by others' behavior. However, this is an empirical question that has to be addressed in future research.

Although one should always be cautious when generalizing experimental results to practice, some important implications may be derived from our results. For instance, a large body of research indicates that people are willing to sanction others' past behavior, though, our findings indicate that one cannot immediately infer that people are as willing to make binding sanctioning strategies in anticipation of that particular behavior in the future, nor that people will support systems that sanction future behavior. These insights are relevant not only for researchers who study the implementation and effectiveness of sanctioning systems but also for company leaders and policymakers, as they often are the ones who install sanctioning systems within their organization or society to promote future cooperation. For instance, company leaders should realize that the managers in their organization may find it difficult to make binding agreements with their employees about the required job performance and the contingent positive and/or negative sanctions. Moreover, policymakers should realize that the sanctioning systems they install beforehand may deviate from what the general public afterwards may consider the appropriate course of action. As such, our work may provide a novel perspective on why there tends to be a punitiveness gap in many Western countries between the sentences that are actually administered in, for instance, court—which largely depends on the present laws—and the sentences preferred by the public (e.g., Barber & Doob, 2004; De Keijser, van Koppen, & Elffers, 2007; Hutton, 2005; Roberts & Hough, 2005). It would, therefore, be interesting to explore in future research whether this gap is related to the fact that laws (and the type of punishment for breaking them) are determined beforehand, whereas the public's perception is usually assessed afterwards.

Finally, we believe that our work makes an interesting contribution to the methodological debate about the behavioral validity of the strategy method and the direct-response method (e.g., Brandts & Charness, 2011; Brosig et al., 2003; Fischbacher et al., 2012; Selten, 1967). Given that there are similarities between the two response methods and the two timing moments that we distinguished in our experiments (beforehand vs. afterwards), the insight that varying the timing of sanctioning decisions can lead to a disjunction effect in the willingness to sanction (non)cooperation may, to some extent, also apply to the strategy method. Although the strategy method asks people to respond to all feasible choices that could possibly occur (in contrast to our experimental designs), the occurrence of a disjunction effect in costly sanctioning suggests that it is doubtful whether people have the cognitive and motivational capacities to actually think through the implications of all possible outcomes and form clear preferences (see Shafir & Tversky, 1992; Tversky & Shafir, 1992). As such, it may very well be that the mixed results of the studies comparing the strategy method with the direct-response method (see Brandts & Charness, 2011) could be related to nonconsequential reasoning. Note, however, that we do not argue that it is methodologically inappropriate to use the strategy method. We mainly suggest that the strategy method may invite nonconsequential reasoning because people are asked to respond to others' choices before its occurrence. At the same time, however, participants do so for all feasible choices that could possibly occur, which may actually attenuate nonconsequential reasoning. To further clarify this issue, future research should, therefore, investigate whether the strategy method invites or attenuates the occurrence of nonconsequential reasoning.

6 | CONCLUSION

The present work substantiates that decision timing (beforehand vs. afterwards) impacts the willingness to costly sanction. In our research, we demonstrated that people sanction less often and more mildly beforehand than afterwards, regardless of whether they decide directly afterwards or after a time delay. Moreover, we showed that beforehand (as compared with afterwards) people have not yet formed clear sanctioning preferences. These findings imply that people are less willing to use sanctions that are contingent on future behavior than on behavior that did actually occur in the past. As such, our findings shed new light on the willingness to costly reward cooperation and punish noncooperation. At the same time, we provide a better understanding of the use of sanction opportunities to promote future cooperation.

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