HHS Public Access

Author manuscript

J Exp Soc Psychol. Author manuscript; available in PMC 2020 March 13.

Published in final edited form as:

J Exp Soc Psychol. 2017 March ; 69: 111–120. doi:10.1016/j.jesp.2016.07.009.

Norm theory and the action-effect: The role of social norms in regret following action and inaction

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Abstract

The action-effect (Kahneman & Tversky, 1982) is one of the most widely cited and replicated effects in the regret literature, showing that negative outcomes are regretted more when they are a result of action compared to inaction. Building on theoretical arguments by norm theory (Kahneman & Miller, 1986) and the concept of normality, we examine the role of social norms for action and inaction in affecting regret. In four experiments we manipulated social norms and action-effect scenarios and found that social norms matter. For decisions resulting in negative outcomes, action is regretted more than inaction when social norms are for inaction, but when social norms are for action the effect is significantly weakened (Experiments 1 and 4) or reversed (Experiments 2 and 3).

Keywords

Action; Norm theory; Social norms; Action-effect; Normality

1. Introduction

Life is filled with regrets, negative emotions associated with the perception that a choice should have been made differently. Some of the regrets are about actions taken, like “I should not have chosen this line of work”, whereas other regrets are about actions that were not taken (inaction), such as “I should have continued to a do a masters’ degree”. However, actions and inaction are not regretted equally, even if they lead to exactly the same outcome. There are fundamental biases associated with regrets of actions and inactions that have been shown to impact many aspects of life, including but not limited to decision-making (Connolly & Zeelenberg, 2002; Inman, Dyer, & Jia, 1997; Zeelenberg & Pieters, 2007), self-regulation, well-being, and health (Mandel, Hilton, & Catellani, 2007; Roese, 1997, 2005; Zeelenberg, 1999).

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Appendix A. Supplementary data

Supplementary data to this article can be found online at http://dx.doi.org/10.1016/j.jesp.2016.07.009.

The action-effect (Kahneman & Tversky, 1982) describes a phenomenon in which people regret actions leading to negative outcomes more than they do inactions leading to the same negative outcomes. It is considered one of themostwell-known replicable findings in the regret literature (Gilovich & Medvec, 1995) and has been shown to generalize across domains and cultures (Baron & Ritov, 1994; Connolly, Ordonez, & Coughlan, 1997; Gilovich & Medvec, 1994, 1995; Gilovich, Medvec, & Chen, 1995; Landman, 1987; N'gbala & Branscombe, 1997; Ritov & Baron, 1995; Zeelenberg, Van Dijk, & Manstead, 1998).

Over the last two decades, researchers have begun revealing factors that moderate and even reverse the action-effect. One of these factors, for example, is temporal distance, and studies have shown that the action-effect happens for current or recent decisions ("hot" strong emotions), but when contemplating temporally distant events in the past the action-effect is reversed and inactions are regretted more than actions ("wistful" nostalgia) (Bonnefon & Zhang, 2008; Gilovich & Medvec, 1994, 1995; Gilovich, Medvec, & Kahneman, 1998; Kahneman, 1995). Other examples are individual differences (e.g., regulatory focus; Roese, Hur, & Pennington, 1999), cognitive accessibility (Rajagopal, Raju, & Unnava, 2006), and controllability (N'gbala & Branscombe, 1995). Meaning, that there are various factors which affect how actions and inactions are perceived and processed, and these in turn lead to a weaker action-effect or even a reversal to an inaction-effect.

The present investigation extends previous literature by incorporating a social perspective to highlight social norms as an important factor that moderates the action-effect. Studies of norms (norm theory, Kahneman &Miller, 1986) in the context of the action-effect havemainly focused on past behavior (Baron & Ritov, 1994; Ritov & Baron, 1992) and expected contextual behavior (Zeelenberg, Van den Bos, Van Dijk, & Pieters, 2002). However, the role of broad social norms remains unclear with inconsistent findings regarding the impact of cultural social norms for the action-effect and related action-inaction biases. For example, some scholars found no cross-cultural differences in regrets for action and inaction (Gilovich,Wang, Regan, & Nishina, 2003) whereas others found cultural differences in regret for action and inaction in some domains (Chen, Chiu, Roese, Tam, & Lau, 2006; Komiya, Watabe, Miyamoto, & Kusumi, 2013).We therefore aimed for a direct investigation of the role of social norms for the action-effect.

We begin by reviewing norm theory and findings related to the underlying core concept of normality, proceed to discuss the different normality categories and related findings regarding the action-effect, then highlight gaps and inconsistencies in the normality category of social norms, and finally theorize and test the role of social norms for the action-effect.

1.1. Normality

Regret occurs when a person is faced with an outcome that triggers the thought of what could have happened differently to result in a different outcome (counterfactual thinking). Norm theory (Kahneman & Miller, 1986) offered a conceptual framework highlighting normality as an important factor in the experience of regret. The theory argues that the affective response to an outcome is affected by the magnitude of the difference between the expected outcome and the actual outcome. Events are cognitively classified as normal or

abnormal, with abnormal outcomes being more cognitively mutable than normal outcomes. Meaning, that it is harder to elicit alternatives to an expected normal behavior than it is to imagine alternatives to an unexpected abnormal behavior. Therefore, higher mutability and more abnormal outcomes elicit more counterfactual thought and therefore more regret. For example, the decision to take a certain road from point A to point B is evaluated in regards to whether taking this road deviates from one's typical behavior. If taking a certain road is an unusual behavior and something bad happens, then the negative outcome would elicit more counterfactual thought of what might have been and hence higher likelihood for regret, but if a chosen road is perceived as normal for the person then there is lower likelihood for counterfactual thinking and regret. To act consistently with normal and accepted behavior reflects a more careful and justified decision process (Connolly & Zeelenberg, 2002; Reb & Connolly, 2010), which affects the degree to which the involved actor is held accountable when events turn bad (Connolly & Zeelenberg, 2002) and also the degree to which the person would feel bad and regretful about the decision.

The perception of normality, whether a behavior is normal or abnormal, affects feelings of regret, but what is normal? Normal can be evaluated using several types of normality (Koonce, Miller, & Winchel, 2015), most notably – (1) the extent to which a behavior is similar to past behavior (sometimes referred to as intrapersonal normality; Roese, 1997), (2) the extent to which an event or a behavior is unusual or unexpected, and (3) the extent to which a behavior resembles or conforms to the behavior of others.

Kahneman and Miller (1986) discussed an example highlighting the contrast between different types of normality and their impact on regret:

Mr. Jones almost never takes hitch-hikers in his car. Yesterday he gave a man a ride and was robbed. Mr. Smith frequently takes hitch-hikers in his car. Yesterday he gave a man a ride and was robbed. Who do you expect to experience greater regret over the episode?

The normality discussed in the above scenario is in regards to the person's past behavior. In their sample, 88% of 138 participants answered that Mr. Jones – who acted abnormally in comparison to his usual behavior - would be more regretful than Mr. Smith who acted as he normally would. Meaning, that the degree to which the action is perceived normal in the person's life would impact feelings of regret when things go wrong. However, Kahneman and Miller (1986) also asked "who will be criticized most severely by others?", which refers to social norms for behavior, and in response to the norms question 77% of participants rated that Mr. Smith - who typically takes hitchhikers - would be criticized more. Their findings suggest that the feelings of regret in the above scenario were more about normality in terms of the person's past behavior rather than the social norms of what society perceives to be as normal and acceptable.

1.2. Normality and the action-effect

Normality, therefore, plays a role in feelings of regret in decision making, in that abnormal easily-mutable behavior is regretted more than normal behavior. To address implications of norm theory for the regret for action versus inaction, Kahneman and Miller (1986) suggested that the action-effect could be interpreted using the concept of normality. Inactions could be

seen as normal and actions considered unusual, which makes it cognitively easier to think of counterfactuals for action than for inaction, and as a result actions are more regretted than inactions (Roese, 1997). However, Kahneman and Miller (1986) did not discuss or contrast between the different types of normality in terms of the action-effect, and their arguments seem as if assuming inaction social norms (Landman, 1987). The literature regarding actioneffect that followed has largely used normality as a broad term but focused mainly on intrapersonal normality (Roese, 1997).

In reference to the types of normality discussed in the previous section, the normality explanation for the action-effect could either be that - (1) the perceived typical past behavior in the action-effect scenarios is to not act, (2) inaction is the typical expected behavior in the situation or role in the action-effect scenarios, or that (3) the perceived general social norms in the action-effect scenarios are for the person to not act. In terms of the implications for norm theory, the action-effect would be weakened and possibly reversed when – (1) perceived past behavior is to act, (2) the expected behavior in the situation or role is to act, (3) the perceived general social norms are to act. Below, we discuss the literature regarding each of those categories.

First, the implications of the past behavior normality on action-inaction biases were examined in a number of studies looking at the omission-bias. The omission-bias is an action-inaction bias regarding people's preference for inaction (omission) over action (commission) under risky situations with possible negative outcomes (Anderson, 2003; Ritov & Baron, 1990). Building on the action-effect, the theory is that actions are generally perceived as being more intentional and accountable and people aim to minimize the risk of being held accountable for negative outcomes. The effect was initially illustrated using decision making regarding vaccinations – that people consider the risk of harm from vaccinations (action) side-effects as more serious than the risk of harm from not vaccinating (inaction) and getting sick (for a summary, see Baron & Ritov, 2004). Similar to the action-effect, there have been findings showing a weakening of the bias, even at times resulting in a commission-bias or action-bias (Reb & Connolly, 2010), arguably due to various moderating factors, such as personal responsibility (Baron & Ritov, 2004). Studies on the omission bias have generally concluded that the action-inaction biases were stronger than past behavior and that the higher regret for action over inaction was not affected by what the typical behavior for the person was (Baron & Ritov, 1994; Ritov & Baron, 1992). These findings may seem surprising given the strong evidence for the past behavior normality for feelings of regret in general situations (Kahneman & Miller, 1986), which we discussed in the previous section. However, it might mean that the social expectations or norms for inaction over action are so strong, that they render one's own past behavior less relevant.

Second, looking at normality in terms of expected behavior, Bar-Eli, Azar, Ritov, Keidar-Levin, and Schein (2007) studied soccer goalkeepers. They showed that the expected behavior for soccer goal-keepers was to jump to either side in order to appear trying to prevent a goal rather than to remain at the center and appear passive, even if the chances of blocking the ball were essentially the same (25 versus 7 goalkeepers surveyed perceived action as the norm, p. 615). In such cases, they argued, regret over not preventing a goal – a negative outcome for the goalkeeper and the team - is higher following an inaction of

remaining in the center than it is for taking action to jump to either side. Their data was only partly supportive and there was no manipulation or comparison to other expected behaviors, yet it suggests that the action-effect could be reversed if the behavioral expectations for a specific role were to act. In this context, the irrelevance of personal past behavior seems logical, as even a goal keeper's own behavioral record of remaining inactive in the center may not reduce the regret associated with not jumping to either side, if the normative expectations are for the goal keeper to jump. Zeelenberg et al. (2002) attempted to more directly manipulate behavioral expectations. They demonstrated that prior negative outcomes reversed the action-effect to an inaction-effect resulting in higher regret associated with inaction, presumably because prior negative actions are informative of the need to take corrective action rather than remain passive and do nothing.

Finally, looking at normality in terms of social norms, several studies have looked at cross-cultural differences in the action-effect. Gilovich et al. (2003) found that across cultures people more easily elicit additive counterfactuals than subtractive counterfactuals. However, there are indications for some cross-cultural differences in regret. Chen et al. (2006) found general consistency regarding regret for inaction for both Americans and Chinese, but also showed that Chinese regretted action more than Americans, especially in certain life domains (school and family). Komiya et al. (2013) found that for Americans the action-effect was mainly about regret for negative outcomes for the self, whereas for Japanese the action-effect was mainly about regret for negative outcomes affecting other people. These findings are suggestive of the subtle nuances of social norms in terms of feelings of regret.

Studies on the related omission-bias regarding vaccination decisions further examined whether omission-bias would be affected by manipulating normality through perceptions of the perceived standard treatment (Baron & Ritov, 2004) or the perceptions of close others' behavior (Reb & Connolly, 2010). Interestingly, there is a heated debate whether the omission-bias is real for vaccination decisions, with Baron and Ritov claiming consistent evidence for social norms to not vaccinate (inaction), and Connolly and Reb raising doubts over these findings claiming social norms to vaccinate (action), but regardless, both groups of scholars concluded no effect for the manipulation of normality for the action-inaction bias (Baron & Ritov, 2004; Reb & Connolly, 2010). Given the different assumptions and findings regarding the social norms for vaccination by the two groups of scholars, it is difficult to draw conclusions regarding the role of social norms. It could very well be that normality reflected by perceptions of what close others would do or not do in terms of vaccinations (Reb & Connolly, 2010) or the perceptions of the default option in terms of standard treatment (Baron & Ritov, 2004) simply did not matter given stronger social norms about whether to vaccinate or not.

1.3. The present investigation

The present investigation examines the implications of social norms for regret experienced following action versus inaction, to address the empirical gap in testing norm theory theoretical arguments regarding the role of social norms normality in the action-effect. In four experiments we tested the impact of corporate norms (Experiment 1), workplace behavioral norms (Experiment 2), society norms (Experiment 3), and family norms

(Experiment 4) for the classic action-effect investment scenario by Kahneman and Tversky (1982). The supplementary file includes power analyses and full materials for the four experiments, and data and code were made available on the Open Science Framework (https://osf.io/gj5re/).

2. Experiment 1

2.1. Method

A total of 76 American participants were recruited online using Amazon Mechanical Turk in return for 0.25US$ (M_{age} = 35.25, SD_{age} = 12.10; 36 females). Participants were randomly assigned to one of three norm conditions of action, inaction, and control.

The classic Kahneman and Tversky (1982) investment scenario was adjusted for the purpose of the study. In all conditions, the scenario described two stock traders working for a financial firm: George, who switched investments (action), and Paul, who refrained from switching investments (inaction).

> Mr. Paul and Mr. George are stock traders who work for [Company] [...]
>
> Paul has made the decision to invest in company A. During the past year he considered switching to invest stock in company C, but he decided against it. He now finds out that the investment would have been better off by $1,000,000 if he had switched to the stock of company C.
>
> George has made the decision to invest in company B. During the past year he switched the investment to stock in company A. He now finds out that the investment would have been better off by $1,000,000 if he had kept his investment in stock for company B.

The scenario above represents a slight adjustment to the classic scenario in that in this experiment Paul and George invested on behalf of a company rather than investing independently. Departing from prior studies, the scenario also included a direct manipulation of the company norms presented in the first sentence of the scenario above, as follows:

> *Action condition:* A&M Finance strongly emphasizes actions and proactive decision making, shows a clear preference for action over inaction, and evaluates its employees based on their ability to act and actively seek out good investments.
>
> *Inaction condition:* B&N Finance strongly emphasizes cautious and responsible decision making, shows a clear preference for inaction over action, and evaluates its employees based on their ability to refrain from undertaking bad investments.

The control condition for the norm manipulation did not indicate a preference for either action or inaction. The scenario was followed by four quiz questions the participants had to answer correctly before proceeding, meant to verify the understanding of the scenario.

Following the scenario, participants were presented with a manipulation check examining company preference for action versus inaction ("who do you think the company considers to be a better stock broker?"; 1 = *Paul – didn't switch;* 2 = *George - switched*), followed by the original question by Kahneman and Tversky (1982) regarding which of the two persons

experienced higher regret ("who feels greater regret over his investment decision?"; 1 = *Paul – didn't switch;* 2 = *George - switched*).

2.2. Results and discussion

An analysis of the manipulation-check indicated that the manipulation of norms was successful, and the company in the action condition was perceived as favoring action-taking more than the inaction and control conditions (inaction: 87% indicating inaction as more normative; control: 76%; action: 48%; χ^2 (2, N = 76) = 10.02, p = 0.007; see Fig. 1).

In support of the hypothesis that social norms influence regret, the manipulation of company norms significantly influenced perceived regret (χ^2 (2, N = 76) = 6.32, p = 0.042; see Fig. 1 for a summary). Specifically, the highest percentage of participants who perceived greater regret for action was in the inaction norms condition (88%), with a lower rate in the control condition (72%), and the lowest rate in the action norms condition (56%). Action and inaction norms conditions were significantly different from each other (χ^2 (1, N = 51) = 6.25, p = 0.012, d = 0.75) but not from the control condition (χ^2 < 1.8, p > 0.18).

Examining participants' responses to perceived social norms over perceived regret for action versus inaction across conditions, the effect was much stronger. Most participants who rated company norms as inaction indicated higher regret for action over inaction (87% action), whereas most participants who rated company norms as action indicated higher regret for inaction over action (35% action; χ^2 (1, N = 76) = 21.10, p < 0.001, d = 1.24).

In summary, findings showed initial support for the hypothesis that social norms affect perceptions of regret.

3. Experiment 2

Experiment 2 was designed to replicate Experiment 1 using another conceptualization of norms and then extend Experiment 1 by also addressing the possibility of an alternative explanation for the findings - intent. Together with the action-effect, perceived intent and responsibility are the key factors leading to the omission-bias, the preference for inaction over action when there is the possibility of harm, presumably in order to avoid the assumption of responsibility (Baron & Ritov, 1994). Previous research has also shown that the perceived intent affects counterfactual thinking and regret, as deliberate intentional behavior is more easily mutable (Girotto, Legrenzi, & Rizzo, 1991; Markman, Gavanski, Sherman, & McMullen, 1995). Normality and social norms can be seen as factors that constrain control and reduce responsibility. We therefore added a manipulation of intent.

3.1. Method

A total of 154 American participants were recruited online using Amazon Mechanical Turk (M_{age} = 36.42, SD_{age} = 12.42; 84 females) in return for 0.25US$. Participants were randomly assigned to one of six conditions in a 2 × 3 between-subject design with two manipulations – perceived norms (action, inaction, neutral) and intent (deliberate, random). A manipulation check question was used to verify the manipulation for perceived norms,

and it was followed by questions examining regret, perceived responsibility, and perceived intent.

3.1.1. Perceived norms manipulation—As in Experiment 1 we manipulated perceived behavioral norms with three conditions - action norms, inaction norms, neutral. The norms manipulation differed slightly from Experiment 1. We sought to replicate and extend norms perception to include perceptions of others' behavior, to more closely capture the idea of social behavior rather than corporate policy. Using social behavioral norms also reduces concerns that the change in regret is due to fear of corporate sanctions for non-conforming behavior. Therefore, the adjusted manipulation varied information about the common values and behavior of company employees, as described below:

> *Action behavioral norms condition:* Stock traders working for A&M Finance are very action driven, eager and proactive decision makers, strongly valuing *action* over inaction. The norms in this company are for people to keep looking for new opportunities for investment with the unofficial motto of "go for it!".
>
> *Inaction behavioral norms condition:* Stock traders working for B&N Finance are very careful and cautious decision makers, strongly valuing the *status-quo* over taking action. The norms in this company are for people to not act unless they are certain it is necessary, with the unofficial motto of "if it isn't broken, don't fix it!".

The *neutral condition* did not indicate other employees' preference for action or inaction.

3.1.2. Intent manipulation—We introduced a manipulation of intent to examine whether intent interacted with norms. The intent conditions were identical to the scenarios detailed in Experiment 1, describing the decision that Paul and George as their own intentional decision. In the no-intent conditions we ruled out intent by indicating that Paul and George reached their decisions whether to act or not solely based on a random coin toss. Hence, in the no-intent conditions the decision of whether to switch or not switch was random and not deliberate, and therefore did not reflect any personal preference for action or inaction.

3.1.3. Dependent measures—As in Experiment 1, participants were asked to compare the two employees on various dimensions. Participants were asked which of the two experienced higher regret ("Who feels greater regret over his investment decision?"; 1 = *Paul – didn't switch;* 2 = *George - switched*), was more intentional and deliberate ("Whose decision was more deliberate and intentional?"; 1 = *Paul – didn't switch;* 2 = *George-switched),* and more responsible for the outcome of their decision ("Who is more responsible for the bad outcome of their decision?"; 1 = *Paul – didn't switch;* 2 = *George - switched).*

3.2. Results and discussion

The intent manipulation had no effect on the results and did not interact with the norms manipulation. There were no significant differences between the random versus non-random conditions regarding perceptions of norms ($\chi^2(1,154) = 0.06$, $p = .868$ ns), regret ($\chi^2(1, 154) = 2.84$, $p = .119$ ns), responsibility ($\chi^2(1, 154) = 0.16$, $p = .705$ ns), or intent

($\chi^2(1,154) = 1.67$, $p = .236$ ns). Meaning, the action and norm related biases were not affected by whether the decision was made based on deliberation or was completely random. We therefore proceeded to report the results below for the entire sample regardless of the intent manipulation.

An analysis of the manipulation-check indicated that the manipulation of norms was successful (total: $\chi^2(2, N = 154) = 42.86$, $p < 0.001$; as explained above - with no effect for randomness manipulations - not-random: $\chi^2(2, N = 79) = 31.54$, $p < 0.001$; random: $\chi^2(2, N = 75) = 13.20$, $p = 0.001$; see Fig. 2), with 93.5% of participants in the inaction condition indicating inaction as the norm but only 30% of those in the action condition indicating that the inaction investment decision was the more normative behavior. In the neutral condition, which had no indication of norms, 69% indicated that the inaction decision was the norm.

The inaction norms and neutral conditions replicated the classic Kahneman and Tversky action-effect in which most participants rated higher regret for taking action (inaction: 87%; neutral: 70.7%). But, shifting the norms to action affected the classic Kahneman and Tversky action-effect with significantly lower percentage of participants indicating higher regret for action (48%; $\chi^2(2, N = 154) = 17.03$, $p < 0.001$; see Fig. 2). Action and inaction norms conditions were significantly different from each other ($\chi^2(1, N = 96) = 16.36$, $p < 0.001$, $d = 0.91$) and from the control condition (action versus control: $\chi^2(1, N = 108) = 5.77$, $p = 0.016$, $d = 0.48$; inaction versus control: $\chi^2(1, N = 104) = 3.95$, $p = 0.047$, $d = 0.40$).

The effect was stronger when directly examining participants' rated social norms with perceived regret. Most participants that rated company norms were for inaction rated higher regret for action over inaction (84% action), whereas most participants that rated company norms were for action rated higher regret for inaction over action (41% action; $\chi^2(1, N = 154) = 29.81$, $p < 0.001$, $d = 0.98$).

The manipulation of norms did not affect perceived responsibility ($\chi^2(2, N = 154) = 2.39$, $p = .303$ ns) or perceived intent ($\chi^2(2, N = 154) = 2.01$, $p = .366$ ns). Examining intent across all conditions, in accordance with findings from the omission bias literature, a higher percentage of participants perceived actions as more intentional than inactions (65.6%) and a higher percentage of participant perceived acting agents as more responsible for the outcome of the investment (77.3%). Therefore, we conclude that the impact of social norms normality over the action-effect was not due to differences in perceptions of intent.

4. Experiment 3

Experiment 3 was designed to replicate and extend Experiments 1 and 2 in several ways. First, we used a between-subject design separating action from inaction rather than an action-inaction comparison. Second, we manipulated society norms rather than institutional norms, to examine the generalizability of the findings to society more broadly. Finally, we made an adjustment to the investment scenario so that the decision was taken by the self, rather than by others.

4.1. Method

A total of 122 American participants were recruited online using Amazon Mechanical Turk in return for 0.25US$. Seven of the participants failed comprehension checks in the scenario for the social norms manipulation and were therefore excluded leaving a sample of 116 (M_{age} = 34.32, SD_{age} = 11.76; 44 females), although removing these participants did not significantly affect the results (see full sample results in the supplementary). Participants were randomly assigned to one of four conditions in a 2 × 2 between-subject design manipulating social norms (action versus inaction) and the investment decision (action versus inaction).

Participants were first presented with a hypothetical society either driven by action or by inaction social norms:

> *Action social norms condition:* Imagine a society that is mostly driven by action. Most, if not all, of the people living in this society are very proactive and action oriented, strongly valuing action over inaction. The norms in this society are for people to keep busy and minimize idle time.
>
> *Inaction social norms condition:* Imagine a society that is mostly driven by inaction. Most, if not all, of the people living in this society are very passive and oriented towards inaction, strongly valuing the status-quo over taking action. The norms in this society are for people to refrain from action and maximize idle time.

The description was followed by comprehension checks to make sure the scenario was understood. Next, participants were asked to imagine that they were members of the described society and were then presented with an investment scenario. Participants were presented with either the action or the inaction in a between-subject design. The scenarios were:

> *Action decision condition:* You have recently inherited 1,000,000US$ which were already invested in the stocks of company Y. Credible reports indicated that the stock of a different company, company X, shows greater promise and potential for earnings. You have taken action and changed the investment from company Y to company X. At the end of the year you realize that you would have been better off by 200,000US$ had you not made the switch in investment.
>
> *Inaction decision condition:* You have recently inherited 1,000,000US$ which were already invested in the stocks of company X. Credible reports indicated that the stock of a different company, company Z, shows greater promise and potential for earnings. However, you have not taken action and left the investment in company X instead of shifting the investment to company Z. At the end of the year you realize that you would have been better off by 200,000US$ had you decided to make the switch in investment.

Participants then answered regarding perceptions of regret ("in such a society, how likely are you to feel regret over your behavior in this situation?") on a seven-item scale (0 = *Not at all;* 6 = *Very much*).

4.2. Results and discussion

Means, standard deviations, and Cohen *d* are detailed in Table 1 and the findings are plotted in Fig. 3.

Replicating the findings from Experiments 1 and 2, a two-way ANOVA revealed that the social norms manipulation significantly moderated these effects and the interaction between the two manipulations was positive ($F(1,112) = 36.98$, $p < 0.001$, $\eta_p^2 = 0.25$, $d = 1.15$). In the society with the inaction social norms, the decision to switch (action) was perceived as higher regret ($t(38.72) = 7.26$, $p < 0.001$; $d = 1.89$), whereas in the action social norms society the regret for action decision was perceived marginally lower than the inaction decision ($t(56.26) = 1.68$, $p = 0.098$; $d = -0.43$).

Examining main effects, compared to inactions (decision not to switch), actions (decision to switch) leading to a negative outcome were attributed higher regret (action: $N = 58$, $M = 4.74$, $SD = 1.68$; inaction: N = 58, $M = 3.55$, $SD = 2.26$; $d = 0.60$; $F(1,112) = 14.31$, $p < 0.001$; $\eta_p^2 = 0.11$).

5. Experiment 4

Experiment 4 was designed to replicate and extend Experiments 1–3 in several ways. First, we examined the role of decision justifiability and perceived sanctions for social norms over the action-effect (explained in detail below). Second, we adjusted the norms manipulation to family norms to examine social norms for close others in society rather than workplace norms (Experiments 1 and 2) or society norms more broadly (Experiment 3). Lastly, we aimed for a large sample and high power (0.99).

Decision Justifiability Theory (DJT; Connolly & Zeelenberg, 2002) argues that people tend to experience higher regret when decisions are not justifiable, and it is possible that social norms affect the perceived justifiability of action and inaction. Using DJT arguments, social norms for action may cause inaction to seem less justifiable and more regrettable, whereas social norms for inaction might make action less justifiable and more regrettable, offering an explanation for the effect found. We therefore added a measure of justifiability for action and inaction.

Social norms may affect regret through perceptions of approval and sanctions (injunctive norms) or by means of setting the interpretive frame for what is the normative behavioral norm (descriptive norms) (Cialdini, 2003; Morris, Hong, Chiu, & Liu, 2015). It is possible that our manipulation of social norms affected regret because non-conforming agents were expected to receive stronger sanctions by the company (Experiment 1), others in the company (Experiment 2), or society (Experiment 3). In Experiment 4 we aimed to examine the more conservative descriptive norms, by making the decision of whether to switch the investment or not private, thereby eliminating the possibility of sanctions due to non-conformity. We expected that social norms would affect regret for action and inaction even when the decision is private.

5.1. Method

A total of 329 American participants were recruited online using Amazon Mechanical Turk in return for 0.35US$ (M_{age} = 39.97, SD_{age} = 12.70; 178 females, 12 unreported). Participants were randomly assigned to one of three conditions manipulating family social norms (action, inaction, and control). As in Experiments 1–3 participants were presented with the classic Kahneman and Tversky (1982) investment scenario adjusted for a manipulation of norms. The norms manipulation differed from previous experiments in that inaction-Paul and action-George were from the same family and the description of the family norms varied between conditions, as described below:

> *Action family norms condition:* Paul and George are cousins who grew up in a family that values action. Most, if not all, of the family members are very proactive and action-oriented, strongly valuing taking action over inaction. The norms in this family are for family members to keep busy and minimize idle time.
>
> *Inaction family norms condition:* Paul and George are cousins who grew up in a family that values inaction. Most, if not all, of the family members are very passive and oriented towards inaction, strongly valuing the status-quo over taking action. The norms in this family are for family members to refrain from unnecessary action and maximize idle time.
>
> *Control condition:* Paul and George are cousins who grew up in the same family.

At the end of the description, we also added the following to indicate the decision to switch or not was private:

> Paul and George's investment decisions are private, but the outcomes are public. Meaning, that the family never knows of the investment decisions made at any time, and Paul and George do not know of each other's decisions, but everyone in the family knows about the outcomes of both investment decisions.

Participants answered six comprehension questions before proceeding to the next page, and two of these questions verified that participants understood that the decision whether to switch or not was private and that only the outcome was known ("Paul and George's investment decision regarding whether to switch the investment or not are..." and "The outcomes of Paul and George's investment decision are..." with a validated choice between Private/Public/We don't know).

Participants then proceeded to rate perceived justification for Paul and George's decisions – "Paul's decision not to switch the investment is well justified" and "George's decision to switch the investment is well justified" (1 = *Strongly disagree;* 7 = *Strongly agree*), perceived family normative decision as the manipulation check – "Whose decision is probably more common in Paul and George's family?", and perceived regret – "In your opinion, who feels greater regret over his investment decision" (1 = *Definitely Paul's decision not to switch;* 6 = *Definitely George's decision to switch*).

5.2. Results and discussion

Means and standard deviations for all conditions with one-way ANOVA analyses results are detailed in Table 2 and plotted in Fig. 4. Comparisons between the conditions with Cohen *d* effect size are detailed in Table 3.

The manipulation of norms was successful ($F(2, 326) = 173.59$, $p < 0.001$, $\eta_p^2 = 0.52$), and norms affected perceived regret ($F(2, 326) = 9.11$, $p < 0.001$, $\eta_p^2 = 0.05$). Participants rated perceived regret for action over inaction in the action norms condition as lower than the control condition ($M_{diff} = -0.47$, $p < 0.001$, $d = -0.36$, CI [−0.90, −0.05]) and the inaction condition ($M_{diff} = -0.74$, $p < 0.001$, $d = -0.56$, CI [−1.16, −0.32]), but the differences in regret between the inaction and control condition were not significant ($M_{diff} = 21$, $p = 0.404$, $d = 0.21$, CI [−0.16, 0.68]). The norm manipulation did not significantly affect perceived justification for action ($F(2, 326) = 1.83$, $p = .162$ ns, $\eta_p^2 = 0.01$; comparisons $d < 0.24$) or inaction ($F(2, 326) = 0.93$, $p = .394$ ns, $\eta_p^2 = 0.01$; comparisons $d < 0.07$).

Experiment 4 replicated the findings in Experiment 1–3, using a manipulation of family social norms and affecting regret over a private decision. The experiment demonstrated the generalizability of the effect to descriptive norms without possible social sanctions. Justifications for action and inaction were not affected by social norms.

6. General discussion

This research examined the role of perceived social norms for the classic Kahneman and Tversky (1982) action-effect. In the action-effect, negative outcomes resulting from action are regretted more than the same negative outcomes resulting from inactions. Kahneman and Miller's (1986) norm theory postulated that the action-effect can be explained by normality, meaning that actions are more abnormal than inactions and therefore more mutable, eliciting counterfactual thinking of what could have been and therefore higher regret. According to this theory, if normality would change such that actions would be perceived as more normal, then the action-effect may be weakened or even reversed. Our findings are in support of norm theory's theoretical arguments and are summarized in Table 4. A manipulation of social norms showed that the action-effect with higher perceived regret for action than for inaction occurred when norms were for inaction, but when norms were for taking action the action-effect was significantly weakened (Experiments 1 and 4) and even reversed (Experiments 2 and 3). Social norms were examined by a number of different ways, either as corporate set norms (Experiment 1), coworkers' behavior (Experiment 2), family norms (Experiment 4), oras norms for society as a whole (Experiment 3). The action-effect was examined either using the classic Kahneman and Tversky (1982) paradigm comparing action and inaction in the same scenario (Experiments 1, 2, and 4), or by manipulating action and inaction in a between-subject design (Experiment 3).

These findings contribute to the extant literature on the action-effect. Action-effect has long been considered one of the most replicated finding in the regret literature (Gilovich & Medvec, 1995), and the control conditions in Experiments 1, 2, and 4 replicated the action-effect that most people perceived regret for action as higher than regret for inaction. In the

last two decades, studies revealed various factors which moderate the action-effect, such as temporal distance (Gilovich & Medvec, 1994, 1995), or individual differences (Roese et al., 1999), and our findings highlight perceived social norms as one such factor.

Our findings also contribute to the understanding of action-effect in regards to the theoretical arguments made by norm theory (Kahneman & Miller, 1986). Norm theory refers to the higher mutability of abnormal compared to normal events leading to higher regret for abnormal behaviors, yet normality can be either in terms of past behavior, situational or role expectations, or social norms. Norm theory and related literature have not clearly linked between the different normality categories and the action-effect, vaguely referring to actions being more abnormal than inaction. Previous attempts examining normality for the action-effect have shown mixed results with some studies finding no effect (Baron & Ritov, 1994, 2004; Reb & Connolly, 2010; Ritov & Baron, 1992), some studies finding an effect through indirect proxies (prior outcomes; Zeelenberg et al., 2002), and some cross-cultural studies suggestive of some differences in regret between cultures that differ on action-inaction norms (Chen et al., 2006; Komiya et al., 2013). Importantly, these studies examined normality in different ways referring to different normality categories, which may partially explain the inconsistencies. We therefore recognized the need to evaluate and discuss findings on norm theory and the action-effect based on the type of normality assessed. We also identified that the findings regarding normality in terms of social norms have so far been inconsistent. We therefore set out to directly examine the implications of social norms normality for the action-effect, and our findings consistently showed that social norms do indeed matter.

6.1. How social norms affect regret

We found consistent support for the social norms as moderating the action-effect. According to norm theory this effect is caused by actions being perceived as less normal, and it is the higher mutability of unusual action behavior compared to normative inaction behavior which leads to stronger counterfactual thinking resulting in higher regret for action. Decision Justifiability Theory (DJT; Connolly & Zeelenberg, 2002) offers a complementary explanation for the action-effect focusing on justifiability, meaning that actions are less justifiable than inactions when outcomes are negative, and are therefore regretted more. Social norms, therefore, may affect the justifiability of actions and inactions, thereby affecting regret. In Experiment 4 we tested DJT by measuring action and inaction justifiability but found no support for a shift in justifiability as a result of the changing norms.

Social norms can be categorized into injunctive norms and descriptive norms (Cialdini, 2003). Injunctive norms capture perceptions of what is socially acceptable, whereas descriptive norms are about perceptions of the behaviors usually performed by others. Regret for action and inaction may be affected by both, so that those who deviate from social norms regret their choices because they worry that others would disapprove or sanction them (injunctive) or they may regret their choices because their choices were different than that of others (descriptive) (Morris et al., 2015). In Experiment 4 we specifically targeted descriptive norms and found that the impact of social norms over the action-effect replicated

even when the decision whether to act or not was private, meaning that regret is most likely not due to fear of sanctions or disapproval over the decision made. Therefore, both types of social norms can affect regret, and we expect that the change in regret would be strongest when there is a change in both injunctive and descriptive norms (Cialdini, 2003).

6.2. Implications and future directions

Norm theory assumptions regarding the action-effect were that in the decision between switching (action) and not switching (inaction) an investment the normal behavior would be not to switch (inaction). In Experiments 1 and 2, 76% and 69% of the participants in the control condition perceived inaction to be the norm, respectively. These descriptive findings support the norm theory assumptions, yet raise an interesting question as to why the social norms in the investment scenario are for inaction. Interestingly, recent findings in the action-inaction values literature argue for the opposite, suggesting that the broad norms in society are to take action, even more so in the west (Ireland, Hepler, Li, & Albarracín, 2015; Levine & Norenzayan, 1999; Zell et al., 2013). The inaction norms in the action-effect investment scenario in an action driven society may reflect a cognitive bias. Meaning, that the mere presentation of the negative outcomes in the investment scenario shifts perceived norms from action to inaction.

The action-effect has mainly focused on negative outcomes, but it has been shown that the action-effect also extends to positive outcomes and feelings of elation, meaning that positive outcomes are more enjoyable when they are a result of actions compared to inactions (Landman, 1987). While it may seem that the same norm theory assumptions and arguments would extend to positive outcomes, we are not aware of studies examining the effects of normality for the action-effect for positive feelings in the context of positive outcomes. Some of the previous research has shown that some moderators do not moderate regret and elation in the same way (van Dijk & van der Pligt, 1997) and recent findings found asymmetries between positive and negative outcomes on the omission-bias (Bostyn & Roets, 2016). It is possible that the effect of perceived social norms over positive outcomes would be different, as well as the way by which social norms affect processing of actions and inaction in that situation.

We found that social norms matter, and we can therefore expect that different cultures with different values and attitudes towards action and inaction would show differences in the action-effect. Cross-cultural studies of action and inaction values revealed significant differences between countries in action-inaction related attitudes, especially showing a contrast between east and west (Zell et al., 2013). Several studies have shown consistency in counterfactual thinking and regret across cultures (Gilovich et al., 2003), which could be interpreted as consistency in the action-effect, yet other follow-up studies have revealed some cultural differences between Americans and Chinese (Chen et al., 2006) and between Americans and Japanese (Komiya et al., 2013), which suggests that social norms do play a role. The impact of social norms may extend beyond action-inaction norms to other cultural aspects, such as whether a behavior is thought of as mainly intended for the self (e.g., individualism) or for others (e.g., collectivism, power distance), or time-related beliefs and values (e.g., long-term orientation).

The classic action-effect investment scenario by Kahneman and Tversky (1982) asked participants to evaluate and compare others' feelings of regret, making a dichotomous choice about who experiences higher regret between an action actor and an inaction actor. Over the years, many adjustments to this scenario have been proposed and tested, and while the action-effect has been shown to replicate well, research has identified several methodological moderators that impact the strength of the effect. Experiments 1 and 2 used the original experimental stimuli to establish social norms as a moderator, yet in Experiment 3 we adjusted the experimental paradigm to address many of the possible moderators. Experiment 3 used a between-subject design for action and inaction to address comparisons to address possible concerns of weaker effects in between-subject designs (Zhang, Walsh, & Bonnefon, 2005), and the scenario was adjusted to be about the self rather than about others to address possible actor-observer biases (Hsee & Weber, 1997; Malle, 2006). In Experiments 3 and 4 we also changed the traditional dichotomous choice to a scale. The consistent findings across the four experiments with moderate to strong effect size show support for the generalizability of findings across experimental designs. However, we note that the effect size could vary as a result of design, and future research should take these possible moderators into account in designing follow-up studies.

7. Conclusion

The widely replicated classic action-effect posits that negative outcomes resulting from action are regretted more than when resulting from inaction (Kahneman & Tversky, 1982). But, social norms matter. Building on the theoretical arguments made by norm theory (Kahneman & Miller, 1986), our findings from four experiments clearly show that the action-effect is strongest when social norms are for inaction, but is weakened and even reversed when social norms are for action.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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HIGHLIGHTS

- Four experiments investigated the impact of social norms over the action-effect.
- Social norms affected perceived regret following action versus inaction.
- Action was regretted more than inaction when social norms were for inaction.
- The effect was significantly weakened or completely reversed for inaction norms.
- Findings support norm theory arguments for role of normality in the action-effect.

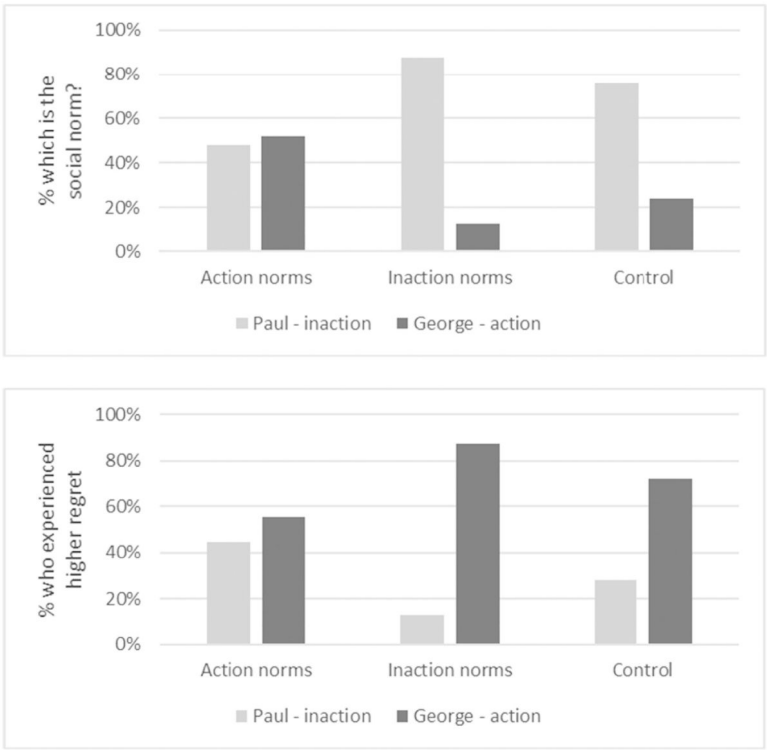

Fig. 1.

Experiment 1 plots of the perceived norms and perceived regret. The first plot indicates the percentage of participants choosing either action or inaction as the perceived norms (manipulation check). The second plot indicates the percentage of participants choosing either inaction Paul or action George as having experienced higher regret following the negative outcome.

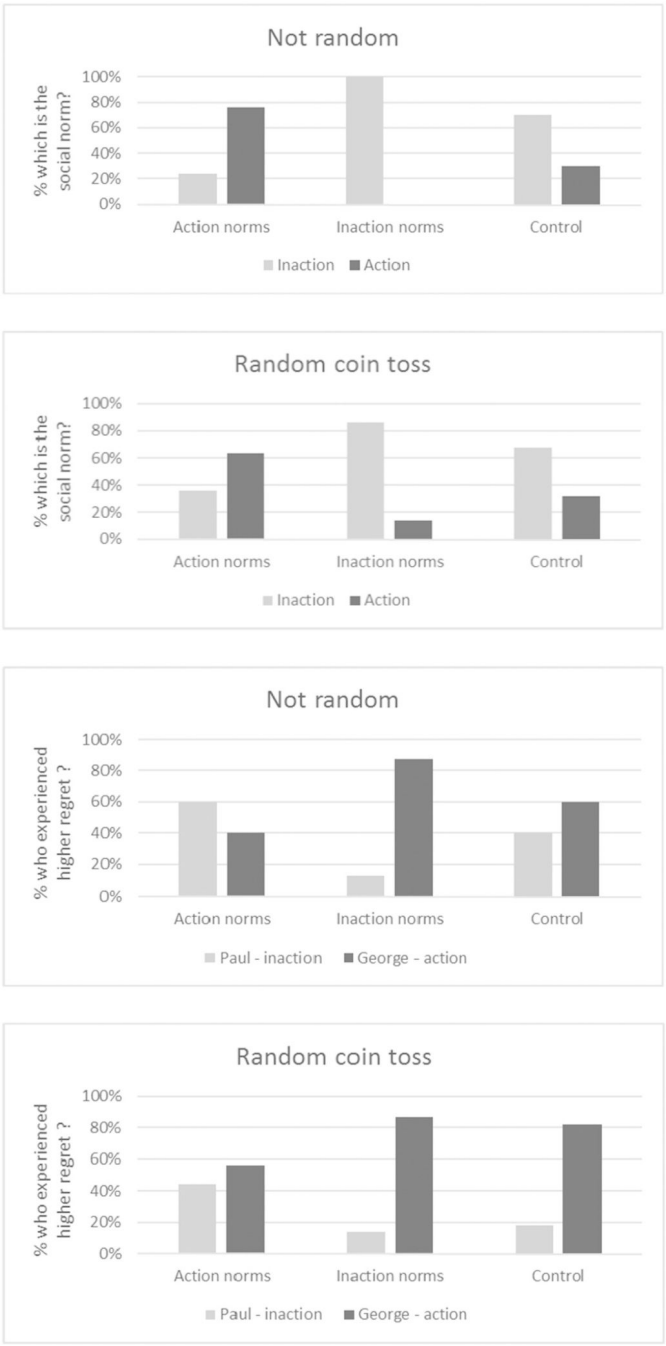

Fig. 2.

Experiment 2 plots of the manipulation check and perceived regret. The first two plots indicate the percentage of participants choosing either action or inaction as the perceived norms. The third and fourth plots indicate the percentage of participants choosing either inaction Paul or action George as having experienced higher regret following the negative outcome. “Not random” indicates that the decision was made by George and Paul, and “Random coin toss” indicates that the decision was made based on a random coin toss.

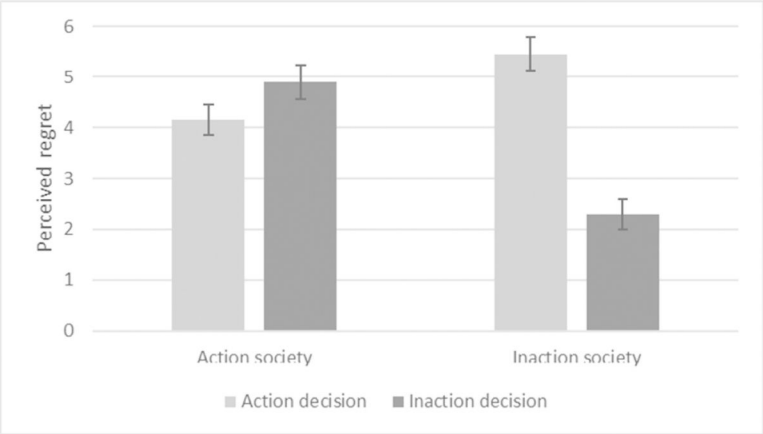

Fig. 3.

Experiment 3 plot of perceived regret (0 = *Not at all;* 6 = *Very much*). Error bars indicate standard error.

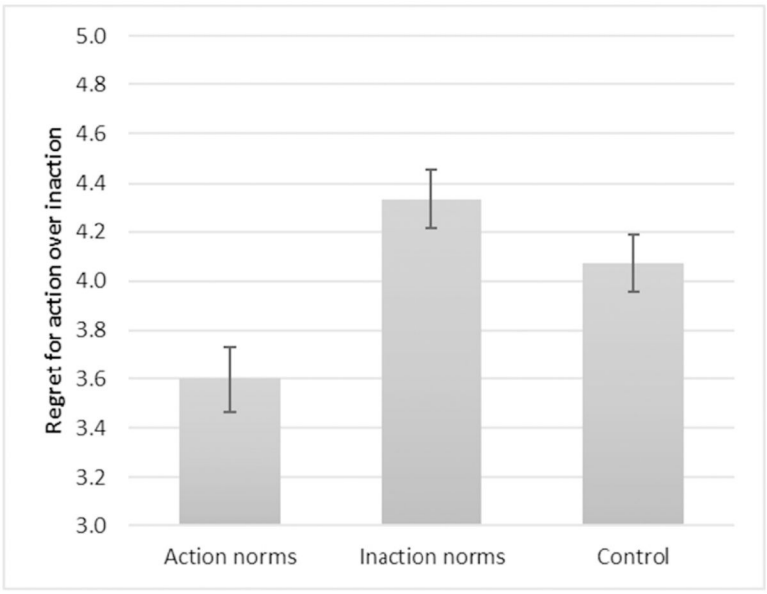

Fig. 4.

Experiment 4 plot of perceived regret for action over inaction (1 = higher regret for inaction; 6 = higher regret for action). Error bars indicate standard error.

Table 1

Experiment 3: Means and standard deviations for perceived regret.

	Action decision	**Inaction decision**	**Cohen *d***	**Total**
Action society	4.16 (1.95) [32]	4.89 (1.42) [28]	−0.43	4.50 (1.75) [60]
Inaction society	5.46 (0.86) [26]	2.30 (2.20) [30]	1.89	3.77 (2.33) [56]
Cohen d	−0.86	1.40	–	0.35
Total	4.74 (1.68) [58]	4.55 (2.26) [58]	0.60	4.15 (2.07) [116]

Note. Parentheses indicate standard deviation. Brackets indicate the number of participants.

Table 2

Experiment 4: Means and standard deviation for all conditions and variables.

		Action-inaction norms		Inaction justification		Action justification		Regret	
Condition	**N**	***M***	***SD***	***M***	***SD***	***M***	***SD***	***M***	***SD***
Action norms	110	4.65	1.06	4.05	1.24	3.98	1.31	3.60	1.40
Inaction norms	110	1.94	1.16	3.89	1.42	3.65	1.40	4.34	1.26
Control	109	3.25	1.02	4.13	1.26	3.89	1.20	4.07	1.22
F		173.59***		0.93		1.83		9.11***	
η_p^2		0.52		0.01		0.01		0.05	

Note:

*** $p < 0.001$

** $p < 0.01$

* $p < 0.05$.

Table 3

Experiment 4: Comparisons between conditions on justification and regret.

	Action-inaction		Action-control		Inaction-control	
	Diff	***d***	***Diff***	***d***	***Diff***	***d***
Manipulation check	2.72***	2.46	1.41***	1.36	−1.31***	−1.21
	[2.37, 3.07]		[1.05, 1.76]		[−1.66, −0.96]	
Inaction justification	0.15	0.12	−0.08	−0.07	−0.24	−0.18
	[−0.27, 0.58]		[−0.51, 0.34]		[−0.66, 0.19]	
Action justification	0.53	0.24	0.09	0.07	−0.24	−0.18
	[−0.10, 0.75]		[−0.33, 0.52]		[−0.66, 0.19]	
Regret	−0.74***	−0.56	−0.47*	−0.36	0.26	0.21
	[−1.16, −0.32]		[−0.90, −0.05]		[−0.16, 0.68]	

Note:

*** $p < 0.001$

** $p < 0.01$

* $p < 0.05$.

Diff indicates mean difference; d stands for Cohen's d. Brackets indicate 95% confidence intervals. Comparisons are using Bonferroni post-hoc tests.

Table 4

Summary of studies and main findings.

#	N	Manipulation	Inaction norms	Control	Action norms	Effect size *d*	Contribution
1	76	Company policy norms	88%[a]	72%[a]	56%[a]	0.75	Baseline effect
2	154	Coworkers' behavior norms	87%[a]	70.7%[a]	48%[a]	0.91	Direct replication; intent manipulation
3	116	1: Society norms 2: Action-inaction	Regret: action > inaction		Regret: inaction > action	1.15	Conceptual replication; Action-inaction manipulation
4	329	Family norms	4.34 (1.26)	4.07(1.22)	3.60 (1.40)	0.56	Descriptive norms; Addressing justification

Note:

[a]value indicates the percent of people who perceived higher regret for action than for inaction

***$p < 0.001$

**$p < 0.01$

*$p < 0.05$.

Effect size *d* is calculated as contrasts between action versus inaction (Experiment 1, 2, and 4) or the interaction (Experiment 3), and is converted from chi-square and η_p^2 values.