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Journal

Proceedings of the Annual Meeting of the Cognitive Science Society, 48(0)

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Publication Date

2026

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Peer reviewed

The Temporal Discounting of Moral Judgments

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Abstract

When in time do people stop judging past actions by today's moral standards? Across two experiments, we tested whether and how time—ranging from today to medieval times—affects moral condemnation. In Experiment 1, we found that as temporal distance increased, blameworthiness decreased, and participants were less likely to say their moral standards applied. However, actions high in harmfulness (e.g., sexual assault) showed attenuated discounting rates. Experiment 2 replicated and extended these findings to investigate the role of harmfulness and knowledge in shaping these judgments. We found that beliefs about what someone from the past could have known help to explain blameworthiness and whether people decide to apply their current moral standards. We also found that harmfulness moderates these effects. Together, the results suggest both harmfulness and beliefs about knowledge shape when in time, and whether, people feel their current moral standards no longer apply.

Keywords: morality; temporal discounting; blame; past

Introduction

Imagine you learn about a person who lived 250 years ago and owned slaves. How should you judge that person's character? One might judge them harshly, drawing on present day moral values, or one might temper their judgment, taking historical context into account. If the same action occurred today, one's intuition probably differs—such an action would seem clearly morally reprehensible in today's world. But what determines when in time people decide their moral judgments should no longer rely on present day moral standards?

One possibility is that people's moral evaluations don't change at all, regardless of the time point in which an action occurred. Research shows that people see moral character as both essential and enduring across time (Strohming & Nichols, 2014). Moral views are often stable over a person's life (Colby et al., 1983; Graham et al., 2011; Rehren & Sinnott-Armstrong, 2023), and strongly held moral convictions tend to emerge regardless of context (Skitka, 2010; Reifen et al., 2014). This work suggests that people likely continue to apply their current moral standards regardless of when a wrong occurred. This would be broadly consistent with moral absolutism—that certain actions are simply right or wrong, regardless of other factors (e.g., Forsyth, 1980; Goyal et al., 2025; Skitka & Morgan, 2014).

Another possibility is that people's moral evaluations are shaped by temporal context. Indeed, research suggests everything from a person's cultural environment (Atari et al., 2023; Graham et al., 2016; Vauclair & Fischer, 2011) and the rules and norms around them (Bostyn & Knobe, 2025;

Chudek & Henrich, 2011; Monroe et al., 2018), to the history of the person being evaluated (Gill & Ungson, 2018; Kliemann et al., 2008) influence moral judgments.

Time may be yet another one of these influences. Indeed, research shows that people make harsher moral judgments about actions when they occur in the distant future compared to the present (Agerström & Björklund, 2009), and view those of the future as more worthy of punishment than those of the recent past (Caruso, 2010; Caouette et al., 2012; Sjästad & Baumeister, 2019). While this work has tended to focus on short periods of time (e.g., 1 month, 1 year) and future actions, it nonetheless suggests that, in alignment with more relativist accounts of moral judgments, people are sensitive to the context in which an action occurred (e.g., Gowans, 2004; Sarkissian et al., 2011; Stich et al., 2019).

Further, there are other reasons to expect that moral judgments about historically distant time periods may be distinct from those about recent or future events. What someone sees as morally good or bad today has changed over time (Wheeler et al., 2019; Leach et al., 2023) and people are broadly aware of the shifts in moral standards over time (e.g., Lewry et al., 2024; Mastroianni & Gilbert, 2023). For example, research suggests that moral judgments about divorce have shifted dramatically—most people in Western societies now view divorce as more acceptable than they did in the past (Brown & Wright, 2019; Rozin, 1999; Rhee et al., 2019; Thornton 1985). Historical distance may prompt people to question whether contemporary moral standards should apply at all.

Historical distance also likely affects beliefs about knowledge. Research has suggested that knowledge plays a special role in moral evaluations: judgments of blame and moral wrongness are contingent on the capacity to have known an act was wrong (Malle et al., 2014), to have acted intentionally (Alicke, 2000; Cushman et al., 2009; Malle et al., 2014; Young & Saxe, 2009), and having sufficient information about relevant facts (Kirfel et al., 2025). But people from the past may be perceived as lacking the necessary capacity, intention, or knowledge to be seen as relevant targets of moral censure. Here, we explore how time affects moral judgment, and critically, whether beliefs about the knowledge someone from the past could have possessed helps to explain when in time people think their current moral standards no longer apply.

Experiment 1

Experiment 1 investigated how historical time influences when, and to which actions, people think their current moral values should be applied, and how blameworthy those acts were. We predicted that, on average, people would show evidence of temporal discounting. That is, as historical distance increases, the probability that a person would apply their current moral standards should decrease. Prior research has also found that blameworthiness judgments are sensitive to norm information (Bostyn & Knobe, 2025), historical narratives (Gill & Ungson, 2018), and ignorance (Kirfel & Phillips, 2023). As such, we predicted that blameworthiness judgments would also show similar patterns of temporal discounting.

We also suspected that time may not affect all actions equally. Actions that are more severe and more harmful may be less susceptible to contextual influence (see e.g., Wylie et al., 2025). As such, it is possible that there are some acts where time doesn't attenuate moral censure. Some acts may be seen to be so clearly wrong that it is not possible to imagine a context in which their commission would be acceptable, regardless of time. We explore that possibility here by examining the extent to which these effects vary based on action type.

All experiments were approved by Cornell University's IRB and were pre-registered. All code, materials, and data are available on the project's OSF page¹.

Methods

Participants We recruited a US sample of 300 participants from Prolific. An *a priori* power analysis with alpha set to .05 suggested that 246 participants would be sufficient for 90% power. We removed 11 participants for failing the bot check item, and no participants failed the attention check. This left us with a final sample of 289 participants ($M_{\text{Age}} = 48.8$ (± 13.7), 55% women, 74% white). Participants were paid \$0.77 for their participation.

Stimuli We selected seven moral actions (Action Type) that varied in harmfulness and along the different Moral Foundations (Graham et al., 2011). We selected three harm actions (killed someone in a duel, sexually assaulted a woman, make a homophobic comment), a fairness action (did not pay someone for work they completed), a disgust/purity action (married their stepdaughter), an authority action (refused to bow to royalty), and a loyalty action (took land away from their community and gave it to outsiders).

Time Manipulation Each action was presented at seven different time points: a person today (2025), 25 years ago (2000s), 50 years ago (~1970s), 100 years ago (~1920s), 250 years ago (~1700s), 500 years ago (~1500s) and from Medieval times (~1200s years ago). An example trial read as follows: "A person 500 years ago killed a man in a duel."

Time was log transformed² to account for uneven spacing of time intervals.

Applicability and Blame At each time point, participants answered "Should this person be judged by today's moral standards?" with a binary yes/no response. We also asked about blame. Participants answered, "How blameworthy is this person?" on a scale of 1 = *Not at all blameworthy* to 7 = *Definitely blameworthy*.

Additional Measures

To understand participants' explicit views on when in time their moral standards are applicable, we asked "At what point in the past do you think people's actions should stop being judged by today's moral standards?" and "At what point in the past do you think society as a whole should stop judging people's actions by today's moral standards?". Participants answered each on a scale from 1 = *People should always apply modern moral standards* to 8 = *People should never apply modern moral standards*.

Lastly, we assessed general views about moral progress by asking: "Do you think moral standards have changed over time?" (Yes/No) and "Do you think morality has, over the last 250 years, stayed the same, improved, or gotten worse?" on a scale from 1 = *Gotten much worse* to 5 = *Gotten much better*.

Design & Procedure We used a mixed within-subjects (Time Period) and between-subjects (Action Type) design. Participants were randomly assigned to see one action and indicate whether their moral standards are applicable and rate blameworthiness across all seven time points, in random order. Overall, each action was rated by at least 26 participants. Notably, the combination of a binary and continuous measure captures the magnitude and direction of the applicability of people's moral standards. After rating all time points on applicability and blame, participants completed the additional measures about explicit views and beliefs about moral progress, followed by demographic questions, and then were debriefed and compensated.

Results

All analyses were conducted using R programming software (R Core Team, 2025). Our primary hypothesis was that people will be less likely to apply their current moral standards as distance into the past increases. To test this, we specified a generalized linear mixed-effects model with the log-transformed measure of time as a fixed effect and included by-participant and by-action random intercepts. As hypothesized, we found evidence of temporal discounting: there was a significant negative relationship between application of moral standards across time, $\beta = -3.70$, $SE = 0.27$, $z = -13.70$, 95% $CI [-4.23, -3.17]$, $p < .001$. The further back in time, the fewer the participants who believed they

¹https://osf.io/u9krb/overview?view_only=60a172d12f924bcaa086c75eb5a6ed40

² Trends remain identical when time is not log-transformed.

should apply their current moral standards when assessing a given action.

Next, we tested whether blameworthiness judgments also showed evidence of temporal discounting. Here again, results matched our predictions. Using a linear mixed-effects model with the same specification as above, we found that blame significantly reduced over time, $\beta = -0.24$, $SE = 0.01$, 95% $CI [-0.26, -0.21]$, $t = -20.22$, $p < .001$. As historical distance increases, blame decreases.

The Effect of Action Type

We next explored whether discounting rates were consistent across the different types of actions, and therefore across the different levels of harmfulness. We specified a model similar to the one above, but including action and the interaction between action and time as fixed effects. Temporal distance remained a statistically significant predictor ($p < .001$), and critically, action type moderated the relationship between time and discounting. Pairwise comparisons found that bowing to authority was significantly different from all other actions ($p < 0.03$) except sexual assault. The magnitudes of the slopes suggested that temporal discounting of moral standards rate was steepest for the dueling ($b = -10.37$, $SE = 1.40$, 95% $CI [-13.11, -7.64]$) and marrying one's stepdaughter ($b = -8.89$, $SE = 1.63$, 95% $CI [-12.07, -5.70]$). In contrast, actions like sexual assault ($b = -7.22$, $SE = 1.00$, 95% $CI [-10.30, -4.13]$), the most harmful of the actions included, and refusing to bow to royalty ($b = -3.55$, $SE = 0.53$, 95% $CI [-4.60, -0.51]$) showed attenuated temporal discounting rates. Similar patterns emerge for judgments of blameworthiness.

We also preregistered testing whether the effect of time was moderated by moral foundation. Relative to the harm foundation, authority was significantly different (shifted toward the present, $\beta = 0.54$, $SE = 1.37$, $z = 4.63$, 95% $CI [1.43, 3.54]$, $p < .001$), all others were not significant ($p > 0.7$, see Figure 1).

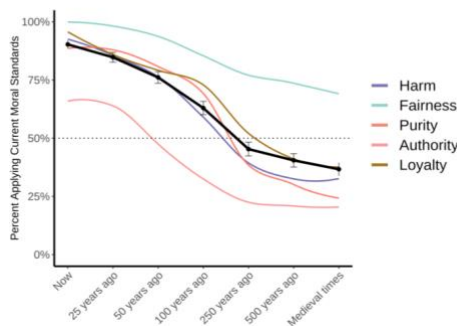


Figure 1. Discounting of moral standards over time by moral foundation (Experiment 1). Error bars represent $\pm 1SE$.

Exploratory Measures

We explored whether participants demonstrated more moral “absolutist” (i.e., insensitive to time) vs moral “relativist”

(i.e., sensitive to time) tendencies by categorizing them based on the consistency of their decisions across time. People were considered moral absolutists if they responded “yes” to all time points. Participants were considered a moral relativist if they answered “no” to at least one time point. 43.3% participants responded in a way characteristic with moral absolutism and 56.8% responded in a way consistent with moral revivalism. A larger percentage of participants were morally absolutist (69.2%) when judging the sexual assault action. In contrast, fewer people were morally absolutist when judging the dueling action (19.6%). Overall, a majority of participants showed moral “relativist” tendencies over time, but this depended on action type (see Figure 2).

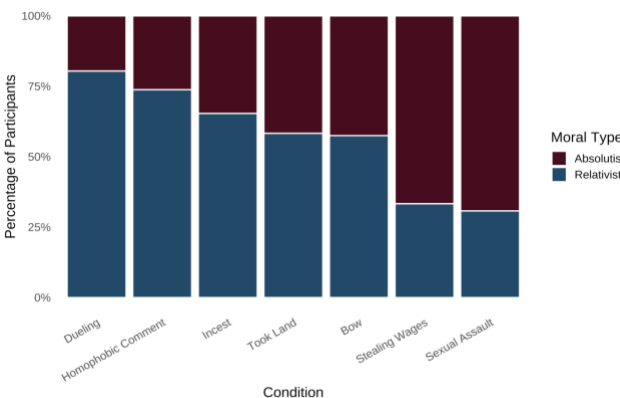


Figure 2. The percentage of people classified as moral relativists and absolutists per action.

Finally, we also explored whether there was correspondence between participant’s explicit judgments about the applicability of morality across time and their actual responses in the task. When looking at explicit judgments, the most common response was that moral standards should always be applied (31.8%), 29.1% of participants indicated that society would stop judging people between 250 years (16.6%) and 500 years (12.5%). These patterns align with the point at which the average temporal discounting rate (i.e., averaged across action type) crosses the 50% point in endorsement, which was between 100 and 250 years. The least common responses were to stop applying them after 800 years (5.5%) and to never apply current moral standards (5.2%).

Interim Discussion

Most people discount their moral judgments over time. A numerical majority of participants stop consistently applying current moral standards to actions which occur in the past, and they also view them as being less blameworthy. However, we also found that this effect depends on the type of action: people apply moral standards more consistently over time for sexual assault. In a norming study conducted after Experiment 1, we found that both sexual assault, and dueling were all rated highest in harmfulness relative to the other actions included in this experiment. That is, actions high in harmfulness showed a different discounting rate than

those lower in harmfulness. Interestingly, though dueling was seen as harmful, it still showed steep temporal discounting. This suggests that harmfulness alone is not sufficient to explain variation in moral applicability judgments. In Experiment 2, we explore this further by testing a wider range of actions and examining how beliefs about the knowledge of a person in a given time affect whether they decide to apply their current moral standards or not.

Experiment 2

In Experiment 2, we sought to replicate and extend the findings from Experiment 1 by examining *why* temporal discounting occurs. We predicted that beliefs that someone could have known an act was wrong would mediate the relationship between time and applicability of moral standards. We also aimed to confirm the role of harm in understanding which actions are more susceptible to temporal discounting of moral judgments—predicting that higher harmfulness of an action would reduce discounting.

Methods

Participants We recruited 1217 participants from Prolific representative of the US in terms of age, gender, race, and political ideology. An *a priori* power analysis with alpha set to .05 suggested that 1200 participants would be sufficient for 90% power to detect a small effect. We removed 58 participants for failing the bot check item, and 1 for failing the attention check. This left us with a final sample of 1158 participants ($M_{\text{Age}} = 45.5(\pm 15.2)$, 51% women, 61% white) were recruited in the study. Participants were paid \$1.50 for their participation.

Stimuli We selected 21 moral actions to be presented to participants from a norming study. We selected stimuli to vary in harmfulness and cover each of the moral foundations. We also selected several items specifically due to their moral standards being reversed over time (i.e., becoming less blameworthy, historically contingent). The 21 selected actions, separated into their moral foundations are: *Harm*: killed a person, killed man in a duel (Duel), hit their child (Hit Child), prescribed a lead-based treatment (Lead Treatment), cut off someone's finger (Cut-Off Finger), sexually assaulted a woman (Sexual Assault), wrote a homophobic comment (Homophobic Comment), and murdered a person in cold blood (Murder); *Fairness*: stole wages from workers (Stole wages), prevented a person going to school because of their race (Racist Act), or because of their sex (Sexist Act); *Disgust/Purity*: married someone 12 years old (Child Marriage), had sex with another man (Gay Sex), and married their stepdaughter (Incest); *Authority*: refused to bow to royalty (Refused to Bow), made a blasphemous comment (Blasphemy), bribed an official (Bribery); *Loyalty*: took land from own community and gave it to outsiders (Took Land); *Other*: got a divorce (Divorce), owned a slave (Slavery), and broke an unjust law (Unjust law).

Time Manipulation We showed participants the actions at the same time points as described in Experiment 1.

Applicability and Blame We used a similar measure as in Experiment 1. Participants answered a yes/no to the question “Should this person be judged by the moral standards you hold today?” and answered the same blameworthiness question from Experiment 1 at the trial level.

Knowledge Judgments To test the impact of perceived knowledge of the moral agent, participants were asked how much “did this person”, “could this person”, “should this person”, know the action was morally wrong rated from 1 = *Not at all* to 7 = *Completely*. As preregistered, we created a composite knowledge score by taking the mean of these three knowledge items (Cronbach's alpha = .97).

Additional Measures Participants also rated “How harmful is this action when considered at this time period?” from 1 = *Not harmful at all* to 7 = *Extremely harmful*.

Design & Procedure We used the same design and basic procedure as in Experiment 1. Participants were randomly assigned to see one action and rate it on moral standards applicability, blameworthiness, knowledge (presented in a random order), and harm across all seven time points (in random order). Each action was rated by at least 58 participants. After rating all time points, participants completed demographic questions and were debriefed and compensated for their time.

Results

We used the same model specification as in Experiment 1. We predicted and found a significant negative relationship between application of moral standards across time, $\beta = -1.41$, $SE = 0.05$, $z = -29.49$, 95% $CI [-1.51, 1.32]$, $p < .001$. The further back in time, the fewer the participants who believed they should apply modern moral standards across all actions (see Figure 3).

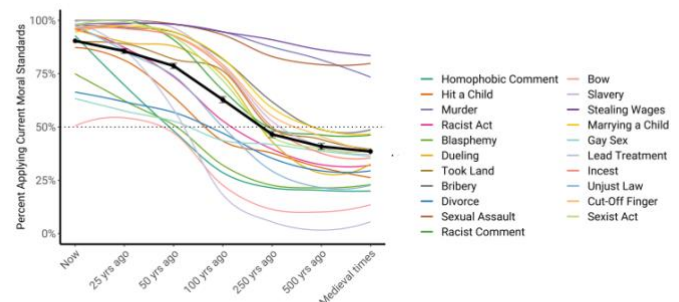


Figure 3. Discounting of application of moral standards over time. Error bars represent $\pm 1SE$.

We next tested temporal discounting of blame judgments. Again, results matched our predictions: We found that blame significantly reduced over time, $\beta = -0.31$, $SE = 0.007$, $t = -47.83$, 95% $CI [-0.33, -0.30]$, $p < .001$ (see Figure 4). We

also found the same pattern of discounting for harm judgments (as reported at each time point), $\beta = -0.23$, $SE < 0.001$, $t = -33.62$, 95% $CI [-0.25, -0.22]$, $p < .001$. That is, as time into past increased, actions were also rated both as less blameworthy and less harmful.

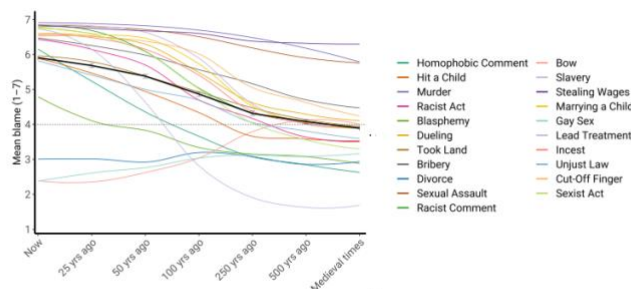


Figure 4. Discounting of blame judgments over time. Error bars represent $\pm 1SE$.

Knowledge Analysis

We predicted that knowledge would significantly mediate the relationship between application of moral standards and time. We first tested whether the path from time to knowledge was statistically significant and found a significant negative relationship between knowledge and time, $b = -1.22$, $SE = 0.04$, $t = -27.90$, 95% $CI [-1.03, -1.13]$, $p < .001$. The further back in time, the less knowledge people attributed to the agent. We also tested the path from knowledge to moral applicability and found that knowledge significantly positively predicted judgments, $b = 1.48$, $SE = 0.04$, $z = 32.85$, 95% $CI [1.39, 1.57]$, $p < .001$. Finally, we used a Monte Carlo simulation to test the indirect effect of knowledge on moral applicability. This analysis indicated a significant mediation effect (median indirect effect = -1.68 , 95% $CI [-1.83, -1.53]$). Increases in time reduced knowledge, which in turn reduced the likelihood of applying one's moral standards. As a robustness check, we also averaged across the different stimuli and estimated a single level mediation model with cluster-robust standard errors using the *lavaan* package (Rosseel et al., 2025). This analysis yielded the same directional pattern (indirect effect = -0.154 , $p < .001$). The same pattern emerges when we use blame as the outcome.

The Effect of Harmfulness on Discounting

We hypothesized that moral standards judgments would be moderated by the harmfulness of the action. To test this, we specified a generalized linear mixed-effects model that included the interaction between log-transformed time and normed harm ratings (i.e., ratings from an independent sample) and included by-participant random intercepts. As time increased, the application of current moral standards decreased ($\beta = -3.36$, $SE = 0.11$, $z = -29.63$, 95% $CI [-3.58, -3.14]$, $p < .001$)—the further back in time, the less frequently people applied their moral standards. We also found that harmfulness predicted moral applicability, $\beta = 1.99$, $SE = 0.16$, $z = 12.31$, 95% $CI [1.67, 2.30]$, $p < .001$. The more

harmful an action, the more likely people were to apply their moral standards. Critically, as predicted, there was a significant interaction between harmfulness and time on the applicability of moral standards, $\beta = 0.86$, $SE = 0.07$, $z = 12.15$, 95% $CI [0.99, 0.72]$, $p < .001$. Actions rated more harmful showed less discounting than those lower in harmfulness (p 's $< .001$). We further explore these differing rates for each action in more detail below.

Exploratory Analysis

To better understand how the type of action influences rates of moral acceptability, we computed the area under the predicted probability–time curve (AUC). While the regression models establish that moral evaluations are discounted over time, they do not directly capture how far back present-day moral standards continue to apply for the different domains of wrongs. As such, we computed AUC for each action condition separately. The AUC captures the cumulative extent to which actions in the past are judged using today's moral standards. Higher AUC values indicate greater persistence of today's moral standards into the past, whereas lower values indicate sharper or earlier moral cutoffs of the applicability of those standards (see Figure 5).

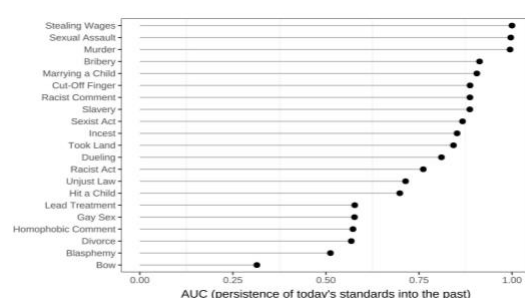


Figure 5. Domain specific discounting AUC rates. Larger AUC values indicate that present-day standards persist farther back in time.

Lastly, we explored when in time participant's judgments hit the 50% mark. That is, when in time intuitions about whether to apply one's moral standards are no longer consistent. To do this, we averaged discounting rates across actions. We found that people roughly stopped applying their moral standards at 218.48 years ago (4.79 on the 1-7 time point scale).

Interim Discussion

Experiment 2 replicated and extended the results of Experiment 1. We again found evidence of temporal discounting—people roughly stopped applying their moral standards around 219 years ago. These results confirmed that the temporal discounting of one's moral judgments is, at least partially, based on beliefs about what people of the past could have known. When people decide to apply their current moral standards, they take into account whether the actor knew what they were doing was wrong. Our results also further confirmed the role in harmfulness. Actions seen as high in

harm showed greater persistence of today's moral standards into the past.

General Discussion

When in time do people stop applying their current moral standards? Across two studies, we show that the applicability of people's moral standards, and the blameworthiness of acts both decrease over time. Though research has emphasized the stability of moral evaluations (e.g., Colby et al, 1983; Skitka & Morgan, 2014), we find evidence most consistent with prior work showing that moral judgments are sensitive to context (e.g., Vauclair & Fischer, 2011; Bostyn & Knobe, 2025). Most people are sensitive to when an action occurred, at least for most actions.

But this effect was not uniform across actions. Indeed, for acts like murder or sexual assault, people tend to be more absolutist—showing markedly less sensitivity to temporal context than more moderate harms. This suggests that people may use harm as a threshold for moral judgment—where temporal context matters up to a point but after which actions are treated as invariant (see also Stich et al., 2019).

We also found that these patterns varied by individual. Some people held broadly absolutist positions—applying their moral blame, regardless of time point. Others showed broadly relativistic tendencies (i.e. discounting their standards even for very harmful actions). However, participants in the present studies only rated a single action. To better understand how frequent, and for what actions, people are likely to hold absolutist vs. relativist positions, future research should test whether similar patterns and rates emerge when people provide judgments across not just time, but also actions.

We also sought to understand why temporal discounting occurs for the actions that it does. Specifically, we tested whether people's understanding of others' epistemic states explains their decision to apply moral standards and blame judgments. We indeed found that this is the case—people tend to assume that those of the past didn't know the actions included here were wrong, and as a result, see them as less blameworthy and less relevant a target of their moral censure. Critically, some actions showed the opposite pattern of effects—they became more blameworthy as time into the past increased (e.g. refusing to bow to royalty). These help to further elucidate the role of knowledge: For these actions, people tended to believe people of the past, unlike people today, knew these actions were wrong. Future work should expand the number of actions which have changed positively over time (i.e. become less blameworthy) to allow for further analysis of this reverse effect.

Here, we focused on the role of knowledge about what people knew as a core mediator in temporal discounting of moral judgments. However, as noted in the introduction, alternative explanations may also explain this effect. It is possible that beliefs about an individual's capacity or intention, or beliefs about the norms of the time may also help to explain moral discounting into the past. Further research

should both experimentally manipulate knowledge, as well as explore alternative mechanisms.

The present work suggests that many people hold a belief that people of the past did not reach a necessary level of moral understanding as to be targets of blame. However, it is possible that these patterns are not restricted to judgments of the past and instead emerge for any kind of contextual manipulation. For example, a great deal of work has shown that people from different cultures (Rai & Fiske, 2011) and even from differing political ideologies (e.g., Graham et al., 2011) hold different moral values. People may view different cultures as having different norms and knowledge than one's own, leading to similar patterns as we've shown here. However, there is reason to expect that the effect of temporal context actually differs from that of cultural context. In a globalized world, it is likely that people may view other cultures as sharing, at least partially, the same epistemic foundation (see Anand, 2024). Future research should explore whether people discount at similar rates and for similar acts across cultures, and what cognitive mechanisms explain discounting in those contexts.

Finally, our results broadly speak to and clarify ongoing debates about how people hold those from the past accountable for their moral failings. In recent years, people have criticized philosopher David Hume for a racist remark in one of his works (Malik, 2020) and the artist Pablo Picasso for his misogynistic attitude towards women (Jones, 2016). The surrounding controversies likely reflect the different moral perspectives that people have—as we have shown here, some people see past moral wrongs as worthy of opprobrium and some people do not in part because people have differing sensitivities to context, but also because people have differing beliefs about the starting harmfulness of a given action. Divergent intuitions about the harmfulness, and potentially about whether those harms linger today may ultimately undergird these disagreements. Future research should explore these themes further, including how acute compared to chronic harms affect moral applicability judgments.

Conclusion

Most people's willingness to apply current moral standards depends on historical distance. When people hear about a person in the past committing a moral wrong, they are less likely to hold them to account as the distance from today increases. This effect primarily emerges for actions that are low and moderate in harm (compared to those high in harm). Critically, people do this by considering the knowledge a person could have possessed at that time. Time heals most wounds, including moral ones.

Acknowledgments

We would like to the members of the WyLab and Pizarro lab, David Pizarro, Audun Dahl, and Shaun Nichols for their helpful feedback.

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