Journal of Experimental Social Psychology 110 (2024) 104529

Contents lists available at ScienceDirect

Journal of Experimental Social Psychology

journal homepage: www.elsevier.com/locate/jesp

If negligence is intentionality's cousin, recklessness is it's sibling: Differentiating negligence and recklessness from accidents and intentional harm

Cassandra Flick [a], Narina Nuñez [a], Sean M. Laurent [b,c,*]

[a] Department of Psychology, University of Wyoming, 100 E. University Ave., Laramie, WY 82071, USA
[b] Department of Psychology, University of Illinois at Urbana-Champaign, 603 E. Daniel St, Champaign, IL 61802, USA
[c] Department of Psychology, The Pennsylvania State University, 140 Moore Building, University Park, PA 16802, USA

ARTICLE INFO

Editor: Prof. Shlomo Hareli

Keywords:
Blame
Intentionality
Mental states
Negligence
Recklessness
Moral decision-making

ABSTRACT

Previous research has examined lay conceptualizations of intentionality and negligence. This work has shown that intentionality is attributed when several key mental states are perceived as simultaneously present (i.e., knowledge, desire, awareness, and intent), suggesting an actor was trying to bring about an outcome by acting in a particular way. Following this, research has shown that attributions of negligence—a judgment that is applied when a person's actions unintentionally lead to material or physical harm—rely on beliefs that similar mental states are present (e.g., knowledge and awareness), but when intent to harm is absent. Yet, no in-depth investigations into recklessness and its relation to negligence and intentionality have been reported, despite recklessness being theorized as occupying a conceptual space between negligent and intentional harm. Across four studies ($N = 2{,}092$), the current research begins filling this gap. Results show that folk conceptualizations of recklessness are associated with similar (e.g., knowledge) but distinct (e.g., uncaring desire, disregard of risk) mental states from those of intentionality and negligence. In addition, the current studies also demonstrate how negativity in evaluations respectively track a full continuum of harm judgments running from accidents through negligence to recklessness and intentional harm. Moreover, the current work shows how evaluations of recklessness are situated between negligent and intentional harm, with negligence situated between accidents (i.e., where harm was not caused by an actor's actions) and recklessness, with each concept sharing some features (but not others) with both adjacent concepts. Implications for social and legal psychology are discussed.

1. Introduction

"Recklessness is one of the oldest concepts in Anglo-American tort law, and it is also one of the most poorly understood." – Geoffrey Christopher Rapp (2008, p. 111)

The concept of recklessness has been around since Roman Law (Green, 1874), yet a precise understanding of the construct still eludes scholars and practitioners. The U.S. Supreme Court has applied a recklessness standard since the 1840s (N.J. Steam Navigation Co. v. Merchant's Bank, 1848), but recklessness still remains a murky concept and an ill-defined tort law (Rapp, 2008; Viscusi, 2004). To complicate matters further, empirical investigation into the construct has remained largely unexamined (Rapp, 2008). Although legal, psychological, and sociological scholars alike have studied individuals' conceptualizations of intentionality and negligence (Laurent, Clark, & Schweitzer, 2015; Laurent, Nuñez, & Schweitzer, 2016; Malle & Knobe, 1997; Nuñez, Laurent, & Gray, 2014), recklessness remains virtually unexamined (but see, e.g., Laurent, Reich, & Skorinko, 2019, 2021, for related work).

Beyond the many benefits that a well-defined conceptualization of recklessness would offer the legal system, an accurate definition of the concept and an understanding of what elements of actors' cognitions or behaviors are associated with it is imperative for social psychological research. Psychological findings indicate that individuals naturally infer causal and mental state information about persons involved in notable outcomes, particularly harmful ones (e.g., Alicke, 2000; Weiner, 1985, 1986; Weiner, Graham, & Reyna, 1997). In other words, individuals spontaneously engage in attributional thinking in an attempt to make causal inferences relating actors to outcomes (Weiner, 1980, 1986,

* Corresponding author at: The Pennsylvania State University, 140 Moore Building, University Park, PA 16802, United States.
E-mail address: slaurent@psu.edu (S.M. Laurent).

https://doi.org/10.1016/j.jesp.2023.104529
Received 4 November 2022; Received in revised form 18 August 2023; Accepted 24 August 2023
Available online 1 September 2023

1995). Further, previous research on intentionality (Laurent, Clark, & Schweitzer, 2015; Malle & Knobe, 1997; Malle & Nelson, 2003) and negligence (Laurent et al., 2016; Nuñez et al., 2014) has shown that beliefs about specific mental states (e.g., knowledge) consistently underlie laypersons' understanding of these concepts and attributions. Additionally, legal definitions and scholarly work situate recklessness somewhere between negligence and intentional tort regarding blame and related judgments such as need to punish actions (Best & Barnes, 2022; Darley & Pittman, 2003; Rapp, 2008; Vetri, Levine, Vogel, & Gassama, 2011). Although an overarching legal definition of recklessness does not exist, several definitions emphasize that recklessness is similar to, yet distinct from, negligent acts or intentional acts. For instance, the Oxford Dictionary of Law defines recklessness as "a form of mens rea that amounts to less than intention but more than negligence" (Law & Martin, 2014, para. 1). Other definitions emphasize that an actor's reckless behavior is "an *extreme* departure from the care a reasonable person would exercise" (Legal Information Institute, 2020, para. 1, emphasis added), which is similar to but distinct from some legal definitions of negligent or intentional acts, such as "failing to use the degree of care required of a reasonable person" (Law Insider, 2023a, para. 1) or a subjective state of mind that involves purposely causing an outcome (Law Insider, 2023b), respectively. However, an empirical examination of this claim that examines how laypersons conceptualize these constructs has, to our knowledge, not yet been undertaken. The current research fills this gap by examining how individuals conceptualize recklessness and how inferences about the mental states associated with negligence and intentionality converge or diverge with those related to recklessness.

2. Causal thinking, attribution, and responsibility

Lay psychology and scientific findings both indicate that when individuals perceive a notable outcome, individuals attribute the causality of that outcome to either internal or external forces, which ultimately impact their attitudes and behaviors (Heider, 1958). In other words, individuals spontaneously engage in attributional thinking in an attempt to attribute a cause to a notable outcome (Weiner et al., 1997). Weiner's causal attribution model (1980, 1985, 1986) suggests that three dimensions of causality exist. First, individuals determine the locus of the cause (i.e., the extent to which the cause was internal or external to the actor). Next, individuals determine the stability of that cause (i.e., the extent to which the attributed cause is likely to remain consistent over time). Last, individuals determine the controllability of the cause (i.e., to what extent did the actor have control over the causal mechanism). For instance, if a student fails an exam, the cause of that failure may be attributed to an internal locus (e.g., lack of ability) or an external locus (e.g., the exam was unfairly difficult). In terms of stability, the internal locus could be perceived as more stable in this situation, while the external locus (i.e., test difficulty) may be perceived as less stable. Regarding controllability, both of these causal explanations could be perceived as uncontrollable by the actor, (i.e., they have limited control over their ability and no control over test difficulty level), or a more controllable internal attribution could be made (e.g., the student's lack of effort). Overall, all three components impact the causal attributions made by social perceivers when a notable outcome occurs.

Importantly, prior work indicates that individuals' perceptions of these various dimensions of causality impact perceivers' thoughts, feelings, and behaviors (Weiner et al., 1997). For instance, negative affect (e.g., anger) is increased when people believe an actor could have controlled a negative outcome, but did not (Weiner et al., 1997). These changes in negative affect, or other thoughts and feelings, impact important outcomes, such as helping behavior (Weiner, 1980, 1985) and punishment decisions (Weiner et al., 1997). Thus, an activation of various dimensions of causality "give[s] rise to particular thoughts, feelings, and actions" (Weiner et al., 1997, p. 436) that have important implications for social psychological understanding, as well as legal psychological outcomes. As previously mentioned, some scholars have explored the extent to which actions that vary in intentionality (e.g., intentional actions and negligent actions) give rise to "particular thoughts and feelings" (i.e., perceived mental states) as they relate to causality and blame attribution.

3. Conceptualizations of intentionality and negligence

Malle and colleagues began examining how laypersons conceptualize intentionality and intentional behavior across a series of studies beginning in the late 1990s (e.g., Malle & Holbrook, 2012; Malle & Knobe, 1997; Malle & Nelson, 2003). These foundational studies indicated that laypeople have a common definition of intentionality, and that their conceptualizations differ from those of unintentional action (Malle & Knobe, 1997). Five key features were shown to underlie attribution of intentionality. In addition to acting agents needing sufficient skill to causally bring about outcomes, perceiving intentionality requires perceiving that actors *know* (i.e., *believe*) that their acts will lead to specific outcomes, *desire* the outcomes their acts cause, *intend* to perform these actions (i.e., in expectation of foreseen outcomes), and are *aware* of performing the actions (Malle & Knobe, 1997). For instance, consider an actor, Greg, who is accused of shooting and killing a woman named Sally. In order to determine intentionality, individuals would consider the extent to which Greg (a) knows that aiming a loaded gun at someone and pulling the trigger can kill them (*knowledge*), (b) wanted to kill Sally (*desire*), (c) had an intention to fire the loaded gun at Sally (*intent*), and (d) was aware that he was firing a loaded gun at Sally as he was doing it (*awareness*). Thus, along with skill, perceiving these key mental states in the actor—knowledge, desire, intent, and awareness—constitute and outline necessary features of how laypersons define the concept.

Further refining our understanding of how people conceptualize intentionality, work by Laurent, Clark, and Schweitzer (2015) indicated that individuals generally conceptualize intentionality as related to actions that lead to outcomes, rather than outcomes brought about by actions. In other words, when judging intentionality, laypersons typically rely on the key mental states of intentionality as articulated by Malle and Knobe (1997) in terms of whether the actor possessed specific mental states as they relate to the actor's *action*, rather than the outcome of the actor's action.

Given the importance of others' mental states to perceivers' understanding of intentional action and the importance of intentionality to jurisprudence, some researchers have also explored the extent to which these themes are related to how people reason about the *unintended* outcomes commonly seen in the legal system. One such legal concept is negligence. Previous findings indicate that lay understanding of negligence involves consideration of mental states similar to those underlying evaluation of intentional harm; however, notable differences in how people reason about the two concepts exist (e.g., Laurent et al., 2016; Nobes, Panagiotaki, & Pawson, 2009; Nuñez et al., 2014; Shultz & Wright, 1985; Simons, 2002).

Nuñez et al. (2014) studied lay definitions of negligence and found both similar and dissimilar themes to intentionality. Similar to intentionality, individuals' definitions of negligence consistently contained themes involving knowledge and awareness, such as whether an actor knew or should have known what might result from their action or was aware or should have been aware of their action, when acting. However, definitions also commonly included themes of neglect (e.g., "the person failed to follow through, failed to carry out, or failed to perform"; Nuñez et al., 2014, p. 61), which have not been found in definitions of intentionality. Also, in contrast to intentionality, definitions of negligence did not mention desire, suggesting that the presence of desire is a key distinction between intentionality and negligence judgments (Nuñez et al., 2014). Continuing the example of Greg and Sally above, Greg's actions may be perceived as negligent if Greg knew that pulling the trigger on a gun he was aiming at Sally could kill her (i.e., *if* the gun was

loaded) and was aware of pulling the trigger while he was doing it. Yet, if Greg can convincingly claim that he did not believe the gun was loaded, as a way of demonstrating that he did not *want* to shoot Sally (i.e., he lacked *desire* for that outcome), his actions may be perceived as negligent rather than intentional.

Thus, Nuñez et al.' (2014) work on negligence and additional findings (e.g., Nobes et al., 2009) suggest that negligent acts are perceived as acts in which an actor *knows* that an act might lead to a specific (harmful) outcome and is *aware* of performing such an act (or reasonably *should have* known and/or been aware), but fails to exercise reasonable care to avoid such an outcome. Additional findings stress the importance of awareness and suggest that the influence of awareness on negligence judgments can be impacted by individuals' feelings of anger towards the negligent actor (Laurent et al., 2016). In other words, anger towards an actor (possibly for not exercising reasonable care) has been shown to statistically mediate the relationship between awareness of performing a harmful action and perceptions of negligence. Importantly, however, this anger rests on an actor possessing outcome-related knowledge and awareness of actions that might cause harm (or failing to possess knowledge or awareness when these mental states should reasonably be present), while not desiring the harmful outcome. These findings are in line with research on causal attribution that suggests if individuals attribute the cause of an outcome as controllable to an actor, individuals' anger towards that actor increases (Weiner et al., 1997).

Overall, both empirical findings (e.g., Jones & Davis, 1965; Laurent et al., 2016; Laurent, Clark, & Schweitzer, 2015; Malle & Knobe, 1997; Nuñez et al., 2014) and theoretical accounts (e.g., Alicke, 2000, 2008; Cushman, 2008; Malle, Guglielmo, & Monroe, 2014; Shaver, 1985) indicate the importance of perceived mental states for evaluation of an actor's involvement in a harmful outcome. Critically, this is the case whether harm was intended or not. Further, although these mental states (e.g., knowledge and desire) are important for conceptualizing these concepts, they are also significant predictors of how individuals assess blameworthiness and assign punishment for unintended harm (e.g., Cushman, 2008; Laurent, Nuñez, & Schweitzer, 2015; Nuñez et al., 2014; Reich & Laurent, 2022). Desire has been shown to be particularly influential in this context, such that when an actor's desire for a harmful outcome is present, they are blamed significantly more than actors without desire (Cushman, 2008; Laurent, Nuñez, & Schweitzer, 2015). Absent desire, knowledge (and causal role) appears to drive individuals' judgments of blame and punishment, given that actors who foresee that their actions might cause harm are viewed more harshly than actors who do not have knowledge, even if the resulting harmful outcome was not intended (Cushman, 2008). Additional research stresses the influence of these mental states on perceptions of blame and indicates that knowledge and desire each have independent influential effects on blameworthiness judgments (Laurent, Nuñez, & Schweitzer, 2015).

These findings suggest that wanting to harm someone and doing so is judged harshly and leads to a high desire to punish (e.g., Darley & Pittman, 2003; Laurent, Nuñez, & Schweitzer, 2015; Malle & Nelson, 2003). This is consistent with Weiner's (1985, 1986) work on causal attribution, suggesting that when individuals perceive an actor's internal and controllable feature to be the cause of harmful outcome, various negative attitudes, thoughts, and mental states will result. Notably, recent work on when and why people sometimes label unintended harm as "intentional" has also discussed recklessness as a hybrid state somewhere between negligence and intentional harm, in cases where an actor pursues one goal, *knowing* that this goal pursuit will lead to unintended harm but not caring about this outcome (Laurent et al., 2019, 2021; see also Darley & Pittman, 2003). However, this work did not directly examine perception of recklessness. Thus, although court decisions (e.g., Williamson, 1960), modern legal casebooks (e.g., Best & Barnes, 2022), and legal scholars (e.g., Rapp, 2008; Simons, 1992, 2002) suggest recklessness falls somewhere along the spectrum between negligence and intentionality in tort law, this has not been empirically examined. Likewise, there is no research to date exploring folk conceptualizations of the concept and the mental states that may underlie its attribution. However, given that negligence is associated with a lack of desire—and a likely inference that the actor would not have acted if they had known it would cause harm—and inferences about intentional harm involve inferences that the actor *wanted* to harm, it makes sense that recklessness would be viewed as in between the two, as the actor knows their action will cause harm but does not care whether it does.

4. The current research

Recklessness is a "relative" of both intentionality and negligence. It has been conceptualized by scholars, the courts, laws, and legal casebooks as sitting on "the borderline between intent and negligence" (Sebok, 2001, p. 1181). Further, some words used in legal definitions of recklessness (e.g., knowingly) are the same as those (e.g., knowledge) found in empirical research on intentionality and negligence (e.g., Laurent, Clark, & Schweitzer, 2015; Nuñez et al., 2014). Theoretical accounts and related evidence likewise suggest that reckless actions are closely associated with intentional actions, such that reckless actions provoke similar reactions in individuals to intentional actions (e.g., moral outrage; Darley & Pittman, 2003) and may influence people to label unintended (harmful) outcomes as intentional (Laurent et al., 2019, 2021). However, while these concepts may share conceptual features and similarly drive affective responses, the two are not legally or conceptually identical. We argue they are also not psychologically identical.

The current research explores how recklessness is related to and distinct from intentionality and negligence, also probing how negligence is similar to and distinct from accidents (i.e., where an actor's behavior is not the cause of a resultant harmful outcome) and recklessness. Across four studies, we show how key components underlying inferences about intentionality and negligence underlie judgments of recklessness, yet also show how recklessness is distinct from the two. In Study 1, similar to methods used to study negligence (Nuñez et al., 2014) and intentionality (Malle & Knobe, 1997), laypeople provided definitions of recklessness, allowing us to discover naïve lay theories of the concept. In Study 2, also similar to this previous work, we used common themes from these lay definitions to create brief vignettes, with an aim of examining whether people a) reliably classify actions as reckless versus negligent when using an a priori conceptualization, and b) reliably differentiate recklessness from negligence. In other words, Study 2 examined whether individuals use these commonly mentioned mental-state components to distinguish between negligence and recklessness. Following this, Study 3 explored the same question using more elaborate and coherent narratives, also comparing both negligent and reckless actions with control actions that resulted in the same outcome but were not caused by the agent's action (i.e., "pure accidents"). Lastly, in Study 4, we extended this further using similar methods to explore judgments about a full range of behavior from accidents (i.e., where an actor's actions do not cause the harmful outcome that follows) to intentional harm (i.e., when an actor clearly succeeds in a goal of bringing about harm). Jointly, these studies allowed us to show how beliefs about the same mental states that underlie intentionality judgments (and associated outcomes such as desired punishment) underlie reasoning about unintended negative outcomes, also showing the ways in which judgments of recklessness are similar to and different from those of negligence and intentional wrongdoing. Additionally, these designs allow us to demonstrate how judgments of negligent acts are similar and different from those of accidents.

5. Open science

We report all exclusions, measures, and manipulations. Data for all studies and an Online Supplemental Materials (OSM) document that contains verbatim instructions and measures is hosted at the Open Science Framework website, accessible at https://bit.ly/3TXnN2R. Studies

were conducted between 2019 and 2022. For each study, all sample sizes were determined a priori, and no data were analyzed until data collection was completed. None of the studies were preregistered.

6. Study 1

Following work by Malle and Knobe (1997) and Nuñez and colleauges (2014), Study 1 asked laypeople to define recklessness using their own words. Trained coders then extracted key features of lay understanding of the concept by examining each definition and coding for the absence or presence of theoretically derived features.

6.1. Method

6.1.1. Participants

Participants (N = 200) were recruited from Amazon's Mechanical Turk (*MTurk*) through the CloudResearch platform (Litman, Robinson, & Abberbock, 2017) and paid a small fee for their participation. Eligible participants were U.S. Citizens over the age of 18. The sample consisted of 118 females, 81 males and 1 person who identified as non-binary, with a mean age of 41.17 years old (*SD*= 13.87). Most of the sample identified as White or European American ($n = 155$) with the remaining participants identifying as Asian or Pacific Islander ($n = 13$), Hispanic or Latino ($n = 9$), Black or African American ($n = 14$), Native American ($n = 2$), or multicultural ($n = 5$). Two participants declined to describe their race or ethnicity.

6.1.2. Materials and procedure

After consenting to participate, participants were asked the following open-ended question: *What does it mean to say that someone was reckless, or that someone acted recklessly?* After the prompt, participants were given a text box in which they could type their responses. Following their response, participants provided basic demographic information.

6.1.3. Coding the definitions

Of the 200 responses we received, responses from 39 participants were used as a training set for two blind coders. Following training, raters first coded whether the responses from the remaining 161 participants were codable (i.e., was the response a clear and understandable attempt to respond to the prompt). Five responses were removed. For example, one participant described recklessness as people "who do not know how to express themselves correctly." This left 156 definitions of that could be coded further. Disagreements were resolved by a third coder who was also blind to the study goals.

Each response was coded (0 = "no," 1 = "yes") for whether it contained the following information:

1. Knowledge: Does the response mention anything about knowledge (foreknowledge, foresight, beliefs, etc.) related to an outcome (e.g., what the agent knows or knew, didn't know, should know or should have known, could have or couldn't have known, common knowledge, common sense, what the agent thought would happen, etc.) (κ =.86; 96% agreement). Examples: "*when one knows that actions have a negative or dangerous*," "*cast aside caution and common sense*," "*when one knows that actions have a negative or dangerous impact.*"

   a. Has/Had Foreknowledge: Does the response mention that the agent knew, expected, anticipated, or considered that some (probably bad) outcome would or might occur? (κ =.86; 95% agreement) Example: "*when a person acts and knows … that serious harm will result from the actions*"
   b. Did not have foreknowledge or could not have known: Does the response mention that the agent didn't know, believe, expect, anticipate, etc., that some outcome might occur? Or does the response mention that the agent could not have known that some outcome could occur? (98% agreement[1]) No response was coded for this condition, as the third coder indicated that the theme was absent.
   c. Should have had foreknowledge: Does the response mention or otherwise suggest that the agent did *not* have knowledge that some outcome would or could occur, but *should have* had? (κ =1.00; 100% agreement) Examples: "*when a person acts and ….should know with a substantial certainty that serious harm will result*," "*If someone should have known that their actions,*" "*should have known better or had more common sense*"

2. Desire: Does the response mention any component of desire, such as the agent a) (not) having an active desire (wanting) for some outcome (e.g., through expressing hope or a wish that some outcome would occur), b) (not) being actively against some outcome occurring (e.g., indicating that the actor does not want something bad to happen), or c) caring or not caring whether some bad outcome occurs? (κ =.91; 98% agreement). Examples of desire always included statements about lack of care: "*acted without care for them or others*," "*doing things without caring about the consequences*," "*don't care about something.*"

   a. Pro Desire: Does the response cite active desire for an outcome, such as mentioning that an agent wants, would be pleased with, or is in favor of (etc.) some (bad) outcome, for example, through an expressed wish or request? (99% agreement) Only one example of pro-desire was coded: "*they might be trying to impress someone of prove something.*"
   b. Con Desire: Does the response cite active desire against some outcome occurring, such as mentioning that the agent doesn't want (didn't want) something to happen? (100% agreement) No response was coded for this condition.
   c. Uncaring Desire: Does the response cite that an agent does not care about an outcome, such as mentioning that it doesn't matter what happens (or might happen), that they don't care what happens, that they aren't interested in what happens, or that they are ambivalent about what happens? This can also be captured in words such as thoughtless, indifferent (i.e., to consequences). (κ =.91; 97% agreement) Examples: "*acting like they don't care*," "*did not care,*" "*to be uncaring.*"

3. Intent: Does the response refer to an agent (not) having an intent to act, an intention (or no intention) to bring about some outcome, or that they intentionally acted (did not intentionally act) in order to bring about some outcome? (κ =.73; 94% agreement) Examples include: "*they consciously chose to behave in that way,*" "*knew an action could cause negative consequences but they did it anyway,*" "*purposely acting.*"

   a. Intent to act OR bring about an outcome: Cites the agent having the intention to perform some action or to bring about a (harmful) outcome that occurs, such that the agent intended that outcome (meant for it to occur, was trying to bring it about, etc.). (κ =.73; 96% agreement) Example: "*knows that actions have a negative or dangerous impact and they decide to act in that way regardless.*"
   b. No intent to act or to bring about an outcome: Specifically cites the agent not intending some outcome (e.g., when a person doesn't mean to hurt someone, but does). (99% agreement) Examples include: "*unplanned… that showed little regard*," "*disregard the consequences of their actions.*"
   c. Intentionality: Specifically states that the agent intentionally acted (acted on purpose, meant to act, did something as an attempt/trying

[1] Kappa could not be computed because the base rate of the variable was zero (i.e., the variable was consistently zero in the coding).

to achieve some goal, etc.) in order to bring about an outcome. Note that the outcome *might not* be the same one as has caused harm (e.g., "when someone, on purpose, drives really fast to get somewhere but ends up running someone over"). Also note that intentionality might reference an outcome directly (e.g., "when a person intentionally hurts someone else"). (κ =.72; 97% agreement) Examples include: "*they know perfectly well what the outcome could be and are willing to risk the worst,*" "*knew an action could cause negative consequences but they did it anyway.*"

d. No intentionality: Cites that the agent did not intentionally act in order to cause an outcome. (98% agreement) Examples include: *Intention does not matter when considering recklessness*," "*lack of thoughtful concern prior to the action or words*."

4. Disregard of risk: Does the response mention the agent disregarding a known risk (e.g., ignoring it, being unconcerned about it, acting despite it, etc.)? (κ =.78; 91% agreement) Examples include: "*they know perfectly well what the outcome could be and are willing to risk the worst no matter how slight the chance is of a better outcome.*"
5. Harm- Does the response mention harm, such as the agent doing something that causes injury, damage, or someone to be hurt? (κ =.88; 96% agreement) Examples include: "*had a bad consequence,*" "*actions could cause harm.*"
6. Causality: Does the definition mention that the agent's action causes a bad outcome? (κ =.36[2]; 81% agreement) Examples include: "*actions could cause,*" "*effect their behavior will have on other people,*"
   a. Any mention that someone did something without thinking of consequences implies causality.
   b. Statement with action or behavior and an outcome

7. Agent is responsible: Does the definition mention that the agent is responsible (culpable, at fault, etc.) for some outcome? (100% agreement) No response was coded for this condition.
8. Agent is not responsible: Does the response mention that the agent is not responsible (etc.) for some outcome? (100% agreement) No response was coded for this condition.

9. Carelessly: Does the definition use the words "careless" or "carelessly?" (κ =.96; 99% agreement) Examples: "*unreasonably careless*," "*acted foolishly or carelessly*," "*someone was careless*."

Nine possible dimensions were coded with three (Knowledge, Desire, and Intention) having separate subcategories. Thus, each definition received a code for 19 different dimensions. When coding responses, participants often indicated that the agent acted without thought or was thoughtless. Thus, the number of times thoughtlessness was mentioned was added to the coding (κ =.89), bringing our coding categories to 20. Examples of thoughtlessness include: "*Thoughtlessly*," "*someone acted without thinking*," "*acted without any thought*."

6.2. Results

Results indicated adequate agreement among coders on most themes present in the writing samples. As can be seen in Table 1, laypersons' definitions of recklessness included themes of knowledge, desire, intention, disregard of known risk, harm, and thoughtlessness.[3] Although no participant specifically mentioned that the agent was responsible for the harm, participants often referenced a causal link between the actor's action and a harmful outcome. Participants also frequently mentioned that the actor had knowledge or should have had knowledge, but no one indicated that the actor lacked knowledge. When desire was mentioned, most participants indicated that the actor did not care about the outcome (i.e., uncaring desire) rather than desiring a specific outcome. Participants varied in whether they thought a reckless actor intended a specific outcome. In sum, the most common sub-themes for knowledge were "had knowledge" or "should have had knowledge." Additionally, the most common sub-theme for desire was "uncaring desire," suggesting that an agent does not care about an outcome.

Table 1
Frequencies of Lay Definitions of Recklessness in Study 1

Category	Subcategory	Number of Times Mentioned (Percentage)
Knowledge		122 (78%)
	Had knowledge/ foreknowledge	45
	Did not have knowledge/ foreknowledge	0
	Should have known/had foreknowledge	4
Desire		38 (24%)
	Pro desire	1
	Con desire	0
	Uncaring desire	37
Intent		21 (13%)
	Intent to bring about an outcome	17
	No intent to bring about an outcome	9
	Acted intentionally	8
Disregarded risk		52 (33%)
Resulted in harm		82 (53%)
Causality		134 (86%)
Responsibility		0
	Agent is responsible	0
	Agent is not responsible	0
Carelessness		13 (8%)
Thoughtlessness		90 (58%)

While no participants defined recklessness as including knowledge, desire, and intent, some mental state combinations were common. For example, although most people (n = 122) mentioned that recklessness includes having knowledge, 80 participants (67%) included thoughtlessness with knowledge in their definition. Participants who mentioned knowledge were also likely to mention uncaring desire (30%) and a disregard of risk (40%) in their definitions. Of the 38 participants that mentioned desire (most of whom mentioned uncaring desire), most (n = 24, 63%) also mentioned knowledge in their definition. Finally, although only 22 participants included intent in their definitions, 92% of these also referenced knowledge (n = 20) in their definitions, with 59% mentioning a disregard of harm, and 45% including thoughtlessness (n = 10). Thus, lay conceptualizations of recklessness imply an actor who had knowledge, acted thoughtlessly, or disregarded a known risk, was indifferent to potential negative outcomes, and whose behavior caused harm. Intention, when mentioned, was likely to include intentional behavior without necessarily indicating that the behavior was to achieve a specific outcome.

[2] Although percentage agreement among coders was relatively high (89%), the kappa value only suggests "fair agreement" (Cohen, 1960). We hypothesize that this may be due to the high prevalence rate of causality being present in participant responses. Research indicates that high prevalence rates can bias Cohen's kappa values to be low even when percentage agreement is high (Feinstein & Cicchetti, 1990).

[3] Because codes were derived from free-responses and participants were able to mention more than one feature of recklessness, frequencies of different responses are not independent.

6.3. Discussion

Similar to negligence (Nuñez et al., 2014), individuals have a common folk conceptualization of what constitutes recklessness, evidenced in a few essential features. That is, certain themes (e.g., uncaring desire, had knowledge, disregard of risk) were frequently mentioned by participants, often cited together, and thus appear to be essential features of lay perceptions of recklessness. Considered together with previous work on negligence (Nuñez et al., 2014), laypeople appear to conceptualize negligence and recklessness in distinct ways, although some features are shared. Specifically, recklessness is defined as an actor knowing an action could cause harm and engaging in that behavior anyway, demonstrating a disregard of risk. This is in contrast to negligence, which is conceptualized as a failure to consider how an action might cause harm, or failure to act to prevent harm (Laurent, Clark, & Schweitzer, 2015; Nuñez et al., 2014). However, it is important to note that definitions were not directly compared with this previous work, nor were any analyses conducted to compare differences in counts across studies. Thus, drawing definitive conclusions about differences in how laypeople conceptualize and define negligence and recklessness cannot be reached on the basis of these qualitative comparisons. This limitation is addressed in the remaining studies by directly comparison results across differing vignettes.

7. Study 2

Study 2 again used methods similar to those employed in previous research (Malle & Knobe, 1997; Nuñez et al., 2014) to examine whether people reliably agree that six different actions—based on a priori conceptualizations derived in part from definitions in Study 1—should be classified as reckless or negligent. Short vignettes were crafted in which an agent acts or fails to act, leading to a harmful outcome. To manipulate whether actions represented instances of negligence or recklessness, we manipulated whether the actor *knew* that the actions were allowed or might potentially lead to harm, such that in negligent versions, the actor did not know (but perhaps should have known), and in reckless versions, the actor did know. To increase generalizability, several vignettes were used, and each participant evaluated six different vignettes, three negligent and three reckless. Importantly, participants did not evaluate the *same* vignettes in both forms; instead, a method factor was created wherein some participants saw particular vignettes in their negligent form and others saw the same vignettes in their reckless form.

7.1. Method

7.1.1. Participants

Participants were 520 adults from the US, recruited through *MTurk* and paid (~$0.15/minute) for participating. After exclusions for not completing all measures or incorrect responses to questions assessing attention, the final sample was N = 490 (M_{age} = 40.48, SD = 12.35; 250 men, 235 women, remaining participants responded "other/prefer not to say"). Participants reported residing in 49 states (none from Delaware). Most reported some college, graduation from college, or postgraduate education (90.2%). Sensitivity analyses using G*Power 3.1 (Faul, Erdfelder, Buchner, & Lang, 2007) indicated that this sample size was sufficient to capture pairwise effect sizes as small as d_z = 0.13 (α = .05, two-tailed) with 80% power for within-participants' analyses and pairwise effect sizes as small as d = 0.25 (α = .05, two-tailed) with 80% power for between-participants' analyses.

7.1.2. Procedure

After consenting to participate, participants read and responded to questions about six brief vignettes wherein an agent ("Annie"), based on a priori conceptualization, behaved negligently or recklessly. Participants read and rated three negligent and three reckless vignettes, with the order of vignettes individually randomized. Twelve vignettes were used in total (see Table 2 for brief descriptions and the OSM for full vignettes). Half of the vignettes involved a person who was physically harmed; the other half involved non-physical harm, and participants were randomly assigned to either a physical harm (Conditions 1 and 2; vignettes 1-6) or non-physical harm (Conditions 3 and 4; vignettes 7-12) condition. To allow for analyses that matched vignette and harm, each vignette came in two forms: negligent and reckless. Participants never read the *same* vignette in both forms but instead were randomly assigned to read vignettes in one form or the other (see Figure 1).

7.1.3. Measures

For each vignette, questions were presented in blocks with a fixed order. Question order was fixed in the same order that items are presented here. Vignettes were repeated at the top of each page where questions were asked, with brief descriptive names appended as reminders (e.g., "Car Set 3"). The first question asked participants whether they agreed with the statement "Annie was negligent and/or reckless (i.e., she acted negligently and/or recklessly)" (0 = *I disagree*, 1 = *I agree*). Only those participants who agreed were asked, "By behaving as she did, Annie was…" (1 = *negligent, but not reckless [i.e., she acted negligently, but not recklessly]*, 7 = *reckless [i.e., she acted recklessly]*).[4] Next, participants rated the following items on a 7-point scale (1 = *not at all*, 7 =

Table 2
Brief Descriptions of Vignettes from Study 2

Vignette	Physical Harm Conditions (Conditions 1 and 2)
1	Annie is watching her friend's young child and allows the child to play on a playset in the backyard. The child falls and breaks her arm.
2	Annie hikes up a bluff above a river and throws a stone to see if she can reach the river. A swimmer gets hit in the back, causing a serious injury.
3	Annie is out drinking and drives home, hitting a bicyclist and knocking them off their bike. The bicyclist's leg is broken, and the bike is destroyed.
4	Annie goes skiing with a friend and lends her a pair of skis. The binding, which does not always work, pops open and the friend breaks their leg.
5	At a Christmas party, Annie's daughter drinks eggnog spiked with rum, gets very drunk and falls, breaking her nose.
6	Annie gives her young child strong cold medicine that is dangerous for children to take. The child has convulsions and is rushed to the hospital.
	Non-Physical Harm Conditions (Conditions 3 and 4)
7	Annie checks her email on a friend's computer and downloads an attachment containing a virus that scrambles all the files on the friend's hard drive.
8	Annie backpacks alone in the mountain, and a fire she makes to cook breakfast ends up causing a fire that takes weeks and considerable resources to put out.
9	Annie borrows a friend's car and drives it to her office in a high-crime area. Annie forgets to remove the keys from the ignition and the car is stolen.
10	Annie cleans up papers a housemate has scattered around, throwing away the housemate's notes for an exam. The housemate fails the exam and the class.
11	Annie fails to fully extinguish her cigarette when she dumps the ashtray in the garbage at a friend's house. A resultant fire burns the house down.
12	Annie waters a friend's plants while the friend is away and does not lock the door to the house. When she returns days later, the house has been looted.

Note. In the negligent form of vignettes, Annie does not know whether her actions are or should be allowed (e.g., in Vignette 1, Annie does not know that the child is not allowed to play on a playset in the backyard by herself; in Vignette 7, Annie does not know that the attachment she receives in an email might contain a virus). In the reckless form of vignettes, Annie knows these things (e.g., that the child is not allowed to play; that the attachment might contain a virus). No information regarding Annie's attitudes about outcomes is ever given. See the OSM for the full vignettes.

[4] The question was framed this way because recklessness is by its nature also negligent.

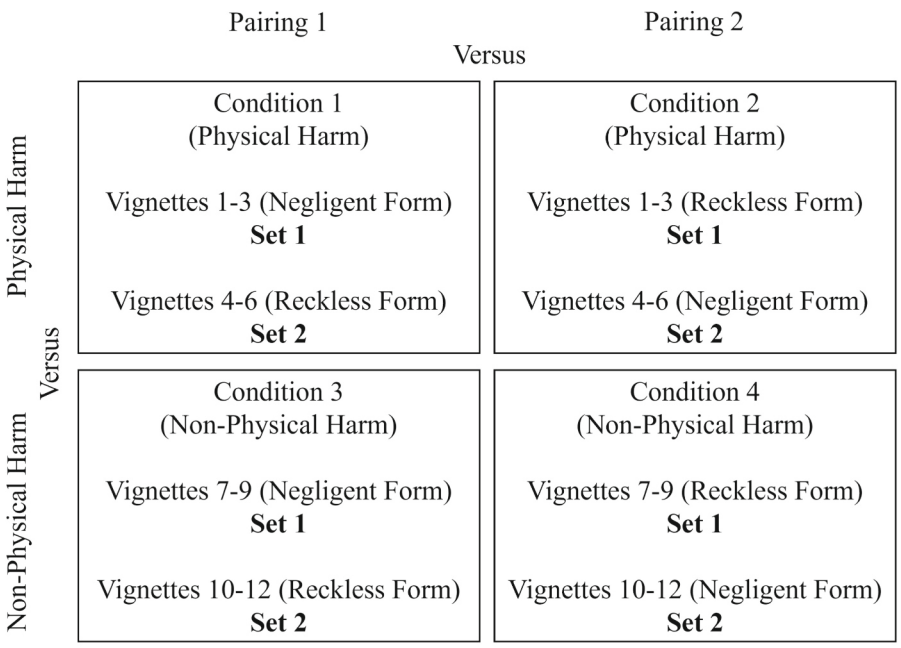

Fig. 1. Vignettes in Conditions 1-4 in Study 2
Note. Pairing is a method factor that refers to which vignettes were seen in which form for between-groups comparisons. Thus, for Pairing 1, participants saw vignettes 1-3 (physical harm conditions) or 7-9 (non-physical harm conditions) in their negligent form and 4-6 (physical harm) or 10-12 (non-physical harm) in their reckless form. In Pairing 2, participants read the same vignettes in the other form (e.g., vignettes 1-3 in their *reckless* form).

completely): "To what extent would you agree that what happened was an accident?" (*accident*), "Did Annie want something bad to happen?" (*desire*), "Did Annie know that something bad might happen?" (*knowledge*), "To what extent should Annie be blamed for what happened?" (*blame*), "Was it Annie's intention for something bad to happen?" (*intent*). Scores on each question were aggregated across vignettes separately for negligent and reckless vignettes.

7.2. Results

Reliabilities (Cronbach's alpha) were computed by treating participants as items and items as cases. We randomly drew 10 samples of $n = 10$ participants and computed alpha for each random subsample. On average, alphas were within an acceptable range (see OSM for *M*, *SD*, and the median of these analyses). For our main analyses, all dependent measures except initial classification were averaged across vignettes and separately for negligent and reckless forms of vignettes. Initial classification was summed separately for negligent and reckless forms, with possible values ranging from 0 (no vignettes rated as negligent and/or reckless) to 3 (all three vignettes rated as negligent and/or reckless). Data were then restructured so that responses to the *same* vignettes, which were rated by *different* people in *different* forms across conditions, could be directly compared as a between-participants factor. Specifically, people in Conditions 1 and 3 respectively rated vignettes 1-3 [4-6] and 7-9 [10-12] in a negligent [reckless] form, while people in Conditions 2 and 4 rated the same vignettes in the other form. Thus, rather than focusing on within-person analyses of the same people rating different vignettes in different forms, this enabled us to focus more conservatively on between-participants analyses involving different people rating the *same* vignettes in *different* forms. Beyond being a more conservative test, it is also more precise and simplifies the most critical tests to what is essentially pairwise comparisons of responses to the same vignettes (i.e., which include the same action/inaction and outcome) in negligent versus reckless forms. However, to represent what would otherwise be a repeated measure (negligent vs. reckless forms of different vignettes), two tests were required for each variable. Thus, analyses initially examined all dependent measures using 2 (outcome type: physical harm [Conditions 1 and 2] vs. non-physical harm [Conditions 3 and 4]) × 2 (Pairing: Conditions 1 and 3 vs. Conditions 2 and 4) ANOVAs.[5] Note that "pairing" represents the critical pairwise tests (i.e., main effect) of responses to the same vignettes presented in negligent versus reckless forms to different people. All *df* for each analysis are 1, 486. Each test was conducted twice, once for each set of vignettes. Set 1 respectively analyzed responses to vignettes 1-3 [7-9] for participants who read them in their physical harm [non-physical harm] forms. Set 2 respectively involved vignettes 4-6 [10-12] for participants who read about physical harm [non-physical harm].

The first variable asked participants whether they agreed each vignette was an example of negligence and/or recklessness.[6] In line with expectations, most (91%) vignettes were classified as negligent and/or reckless. Further, showing that participants were more likely to classify vignettes as representative of negligence and/or recklessness (vs. neither) when they were presented in their reckless (vs. negligent) form, pairing was significant in both Set 1 and Set 2, respectively, $Fs = 55.84$ and 56.33, $ps < .001$, both $ds = 0.67$. Thus, people were more likely to believe the same actions were negligent and/or reckless when they read the vignettes in their reckless (vs. negligent) forms. See Table 3 for *M* and *SD* for all variables.

[5] Additional analyses were conducted using the full factorial design of outcome type x pairing x harm type (i.e., negligence vs. recklessness). In each of these, the critical harm type x pairing interaction was significant and led to the same general conclusions as are outlined here.

[6] Occasionally, main effects of harm type were significant, typically showing that harm (vs. non-harm) vignettes were viewed more negatively. Similarly, occasional interactions of harm type with pairing were significant, usually showing that evaluative differences for negligent versus reckless vignettes were greater when a person was harmed (vs. not). For brevity and because these effects are of little theoretical importance, they are only discussed if results would substantively alter conclusions (e.g., the pairing effect was only significant within one level of harm). However, harm condition main effects and harm x pairing interactions are accounted for in all models.

Table 3
Means and Standard Deviations for All Variables in Study 2

	Set 1				Set 2			
	Conditions 1 and 3 (Negligent)		Conditions 2 and 4 (Reckless)		Conditions 1 and 3 (Reckless)		Conditions 2 and 4 (Negligent)	
Variable	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Initial Classification	2.62	0.66	2.95	0.23	2.89	0.37	2.50	0.73
Negligent vs. Reckless 1	4.30	1.60	5.30	1.33	4.94	1.64	3.28	1.67
Negligent vs. Reckless 2	3.71	1.66	5.22	1.39	4.73	1.72	2.71	1.57
Accident	5.12	1.35	3.79	1.51	3.22	1.50	5.36	1.28
Desire	1.68	1.05	2.43	1.26	2.95	1.27	1.56	0.93
Knowledge	3.25	1.43	5.29	1.46	5.24	1.34	2.88	1.30
Blame	5.40	1.19	6.30	0.91	6.22	0.88	4.77	1.47
Intent	1.61	1.01	2.17	1.26	2.80	1.30	1.51	0.96

Note. Variables are averaged across vignettes within negligent and reckless forms. Conditions 1 and 2 rated physical harm vignettes. Conditions 3 and 4 rated non-physical harm vignettes. For Set 1, ratings for Conditions 1 and 3 (2 and 4) are for negligent (reckless) vignettes. For Set 2, ratings for Conditions 1 and 3 (2 and 4) are for reckless (negligent) vignettes. The variables "negligent vs. reckless 1 and 2" respectively include averages only for those vignettes initially classified as negligent and/or reckless (vs. not) and all vignettes regardless of initial classification (zeros replaced missing values). Initial classification was a sum score representing how many of each type of vignette were classified as negligent and/or reckless (vs. not) and could range from 0-3. Other variables were on 7-point scales (1-7).

For any given vignette, only those participants who agreed that a vignette was an example of negligence and/or recklessness completed a follow-up question asking to what extent the behavior in the vignette was an example of negligence (but not recklessness) versus recklessness. However, because we assumed that if participants did not agree with that initial statement, their ratings would reflect a greater sense that the acting agent was *not* reckless, we calculated an additional variable that replaced missing values with zeros (i.e., a value lower than "negligent, but not reckless"). We present analyses of both variables, respectively labeled "negligence vs. recklessness 1" and "negligence vs. recklessness 2" for convenience.

Pairing was significant for the original variable (negligence vs. recklessness 1) for Set 1 and Set 2, respectively, $Fs = 58.75$ and 124.16, $ps < .001$, $ds = 0.68$ and 1.00. The effects of pairing in Set 1 and Set 2 were even stronger when missing values were replaced with zeros (negligence vs. recklessness 2), respectively, $Fs = 119.51$ and 191.22, $ps < .001$, $ds = 0.98$ and 1.22. As Table 3 and the associated effect sizes reported here show, reckless vignettes were rated as substantially more reckless than negligent vignettes.

Similar findings emerged for all other dependent measures. For example, although all actions were seen as relatively accidental and low in desire and intent, reckless (vs. negligent) actions were viewed as less accidental, more desired, and more intended (accidental Sets 1 and 2, respectively: $Fs = 108.62$ and 288.43, $ps < .001$, $ds = 0.93$ and 1.23; desire Sets 1 and Set 2: $Fs = 51.93$ and 193.98, $ps < .001$, $ds = 0.65$ and 1.25; intent Sets 1 and 2: $Fs = 23.31$ and 204.18, $ps < .001$, $ds = 0.49$ and 1.13). Similarly, although knowledge and blame ratings were moderate to high, each was viewed as higher for vignettes in their reckless (vs. negligent) form (knowledge Sets 1 and 2: $Fs = 247.86$ and 403.29, $ps < .001$, $ds = 1.41$ and 1.79; blame Sets 1 and 2: $Fs = 90.00$ and 179.94, $ps < .001$, $ds = 0.85$ and 1.20). Overall, and supporting our primary hypothesis, these results show that people evaluated the *same* action/outcome combinations more negatively when viewed in reckless rather than negligent forms. See Table 4 for correlations among all variables.

Table 4
Correlations Among Dependent Measures in Study 2

	1.	2.	3.	4.	5.	6.	7.
1. Negligence vs. Recklessness 1		.83	-.34	.34	.33	.24	.33
2. Negligence vs. Recklessness 2	.95		-.41	.36	.43	.53	.32
3. Accident	-.15	-.19		-.23	-.35	-.26	-.24
4. Desire	.18	.18	-.26		.51	.17	.89
5. Knowledge	.23	.26	-.29	.30		.37	.48
6. Blame	.30	.36	-.31	.11	.40		.13
7. Intent	.14	.15	-.25	.85	.27	.07	

Note. Correlations above (below) the diagonal are for responses to negligent (reckless) vignettes. Initial selection is not included as it is not a rating averaged across vignettes; instead, it is a sum across vignettes of whether vignettes were classified as negligent and/or reckless (vs. not).

7.3. Discussion

Overall, the results of Study 2 were consistent with our theorizing. Participants reliably differentiated negligent acts from reckless ones and reached a high level of agreement even though a small number of "cases" (i.e., vignettes) were used in each reliability analysis. Consistent with our a priori conceptualization, almost all vignettes were classified by almost all participants as negligent and/or reckless. Of interest, correlations of negligence vs. recklessness and accidents with intent revealed that correlations were smaller than might be expected, suggesting that intent is only one factor in how people think about negligence and recklessness or accidentally caused outcomes. In contrast, stronger findings involved the relationship of knowledge with accident ratings, and the relationship of desire with intent, although knowledge did share some variance with desire as well.

For main analyses, which focused on pairing—the comparison of responses to the same sets of vignettes, seen by some people in negligent form and by others in reckless form—all analyses were consistent with our theorizing. That is, although negligent vignettes were rated near the middle of the negligent vs. reckless scale, reckless vignettes were on average rated as more reckless than negligent vignettes, and were rated more negatively (e.g., less accidental, more blameworthy) on all variables. Moreover, although some interactions of pairing with outcome type (i.e., physical vs. non-physical harm) were found, pairing was always significant and consistent with hypotheses within both types of harm. Indeed, these interactions tended to show the same thing that was found for the frequent main effects of outcome type: Agents who physically harmed others were viewed more negatively than agents whose actions did not cause physical harm. The same was true for interactions with pairing. Specifically, effect sizes for pairing (i.e., the negligent vs. reckless form in which vignettes were presented) were often larger within the physical harm (vs. non-physical harm) condition, but as noted earlier, effects were significant within both conditions.

8. Study 3

Study 3 was designed to examine differences in how people understand and evaluate negligence versus recklessness more fully. Rather than providing people with brief vignettes that simply described a person's action and an outcome, participants were presented with a

contextualized story about a person whose inactions (in negligent and reckless conditions) directly led to a negative outcome. In addition to providing participants with key information about negligence and recklessness, additional non-relevant information (i.e., background) about the actor and the contexts in which the actor's action led to harm (i.e., information suggesting why they behaved negligently or recklessly) was provided. Thus, stimuli were more detailed and realistic and provided explanations for the actor's behavior. Negligence was operationalized as a person unknowingly failing to perform an act that they reasonably should have performed. In contrast, the actor in the reckless condition knowingly failed to perform the same action.

Beyond this, several new and theoretically relevant dependent measures were collected, such as whether the actor foresaw the outcome that resulted and would have cared about the outcome had they foreseen it. This latter question is of theoretical interest. If an actor pursues a goal while knowing this goal pursuit might cause harm (e.g., a person drives their car home while knowing they are too intoxicated to drive safely), it suggests insufficient care about the possible outcome, which makes their action reckless (see Darley & Pittman, 2003; Laurent et al., 2019, 2021). Importantly, the stimulus materials and this measure made no assumptions about whether the actor, in fact, anticipated the outcome. We expected that ratings on this "would have cared" item would be higher in the negligent (vs. reckless) condition, as it might be safe to assume that a negligent actor—whose failure to perform an action is attributable to a lack of knowledge (or awareness that they had failed to perform the action)—*would have* cared about the outcome, whereas a person who knew the outcome might occur but failed to act anyway would have cared less. Additional measures captured the extent to which participants believed the actor should pay for the costs associated with the outcome and how much punishment the actor deserved.

An accidental condition was also included as a baseline control measure. In this condition, the actor performs the action the other actors failed to perform, and the same outcome occurs through other means. Relative to ratings in this condition, we expected ratings to be higher in both negligent and reckless conditions on variables such as blame and punishment. However, we also expected similarities between the accident and negligent conditions on variables such as the actor's desire for the outcome (see Nuñez et al., 2014), how much they would have cared about the outcome, or whether they anticipated the outcome. Finally, for greater generalization, we included two different types of negative outcome; in both, damage to property occurred, but in only one, a person was also injured.

8.1. Method

8.1.1. Participants

Participants were 601 US residents (599 self-reported citizens; 73 self-reported as having served previously on a jury; 316 self-identified as female, 216 as male, 9 as other; $M_{age} = 34.07$, $SD = 12.48$) recruited from Prolific and paid a small fee for their participation. Sensitivity analyses suggested that a sample of this size would have 80% power ($\alpha = .05$, two-tailed) to capture omnibus effect sizes as small as $f = .13$ or pairwise differences (based on a sample size of $n = 400$ for comparisons between two conditions) as small as $d = 0.28$. Self-reported highest educational attainment was 12th grade or less (6), high school diploma or equivalent (58), some college (157), associate degree (59), bachelor's degree (233), post-graduate degree (88). Self-reported race/ethnicity was as follows: 40 Asian/Pacific Islander, 36 Black/African American, 477 Caucasian/White, 22 Hispanic, 2 Native American/Pacific Islander, 24 Other/Multiracial. On a 7-point scale capturing self-reported political orientation (1 = *extremely liberal*, 7 = *extremely conservative*), participants leaned liberal ($M = 2.94$, $SD = 1.62$).

8.1.2. Procedure

In a between-participants design, after providing consent, participants were randomly assigned to read one of three versions (harm type: accidental, negligent, reckless) of one of two stories (outcome type: mechanic, fire) about a person named "AJ," broken into several parts. In the mechanic story, a mechanic fails to fix a brake correctly (or in the accidental version, fixes it correctly but the brakes are damaged in another way), resulting in damage to a customer's car and injury to the customer. In the fire story, a camper fails to adequately extinguish a cooking fire (or in the accidental version, the fire starts another way), resulting in a costly fire but no physical harm to anyone. Thus, story—which was included primarily for greater generalization rather than theoretical nuance—is both a manipulation of outcome type (i.e., physical harm and monetary costs vs. monetary costs only) and context in which the harm takes place.

In all versions, irrelevant information about AJ was initially presented (e.g., AJ has a few close friends, uses social media frequently, is not in a romantic relationship, is typically friendly but some people do not like him, and other irrelevant details; see the OSM for a full description of experimental stimuli). Following this, in the accidental versions, AJ performs actions that he fails to perform in the negligent and reckless versions. Thus, in the accidental versions (but not the negligent and reckless versions), his actions are not the direct cause of the negative outcomes that follow, which are held constant across all conditions (mechanic: a customer's automobile brakes seized up, keeping the wheel from spinning and causing a crash that led to minor injury and $4,500 in damage to the automobile; fire: a forest fire burned down a small hunting shack and several acres of forest, costing $30,000 to put out the fire and replace the shack). In the negligent versions, AJ makes a mistake (failing to perform a critical action) that could have been avoided with greater care. In the reckless versions, AJ knowingly chooses not to perform the same action that was mistakenly not performed in the negligent version, leading again to the same outcome.

8.1.3. Measures

All questions were presented in the same fixed order described below. After reading the story, participants first answered the following the question: "Choose which of the following responses most closely describes what you think about AJ's involvement in the [incident]" (incident was replaced with "car crash" or "wildfire" dependent on condition throughout). There were two response options: "The [incident] was not a result of AJ's action; what happened was not AJ's fault" or "The [incident] was the result of AJ's negligence or recklessness; what happened was, to some extent, AJ's fault." Only participants who selected the latter response (result of negligence/recklessness) were then asked to select a point on the following scale to describe AJ's behavior (1 = *negligent, but not reckless*, 7 = *reckless*). All participants responded to the remaining questions, and each question was measured on a 7-point scale. Two questions ($r = .99$) were used to assess blame ("The [incident] was AJ's fault" and "AJ is to blame for the [incident]; 1 = *totally disagree*, 7 = *totally agree*). A single question on the same agreement scale assessed participants' perceptions of whether what happened was an accident ("To what extent would you agree that what happened (i.e., the [incident]) was an accident?"). Two questions assessed desire ($r = .54$) ("Did AJ want [the customer to crash their care/to start a wildfire]?" and "Did AJ hope that [the customer would crash their car/there would be a wildfire]?"; 1 = *not at all*, 7 = *completely*). Two questions ($r = .76$) on the same scale assessed knowledge ("Did AJ know that [the customer would crash their car/there would be a wildfire]?" and "Did AJ anticipate that [the customer would crash their car/there would be a wildfire]?"). A single item assessed care ("If AJ had foreseen that the [incident] would occur, do you think he would have cared about the outcome (i.e., would it have bothered him)?"; 1 = *wouldn't have cared/wouldn't have bothered him at all*, 7 = *would have cared/bothered him a lot*). A single item ("How much of the costs/expenses associated with the [incident] should AJ have to pay?"; 1 = *none of the costs*, 7 = *all of the costs*) assessed cost. A single item assessed punishment ("How much punishment, if any, does AJ deserve as regards the [incident]?"; 1 = *no punishment at all*, 7 = *maximum punishment*

allowed).

8.2. Results

Consistent with expectations, almost all participants in both story versions indicated that AJ was not at fault in the accident conditions (mechanic: 97/100; fire: 95/101), which differed significantly from choices in the negligent and reckless conditions (mechanic: 6/201; fire: 5/199), $ps < .001$, $\varphi s > .91$. There were no differences in choice across negligent and reckless conditions within either story condition, $ps > .385$. Critically, when comparing only participants who selected that AJ's behavior was negligent or reckless in the negligent and reckless conditions, there was a significant main effect of condition, with negligent story versions being rated as more negligent/less reckless ($M = 2.84$, $SD = 1.80$) than reckless story versions ($M = 4.66$, $SD = 1.92$), $F(1, 385) = 94.51$, $p < .001$, $d = 0.98$. A interaction associated with a small effect size emerged between outcome type (i.e., mechanic vs. fire story) and harm type, suggesting that the effect of harm type (i.e., negligent vs. reckless) was stronger for the mechanic (vs. fire) story, $F(1, 385) = 6.63$, $p = .010$, $\eta_p^2 = .02$. Within both outcome types, the effects of harm type were significant, $ps < .001$. Moreover, responses were significantly below the scale midpoint in both negligence story conditions and significantly above the scale midpoint in the reckless condition/mechanic story, $ps < .001$. In the reckless condition of the fire story, the mean ($M = 4.33$) was not significantly above the scale midpoint, $p = .100$.

Remaining variables were examined using 3 (harm type: accident, negligent, reckless) × 2 (outcome type: mechanic, fire) ANOVAs ($df = 2, 595$ for main effect of harm type and interactions with outcome type, and $df = 1, 595$ for outcome effects), followed by post-hoc Tukey HSD tests to examine pairwise condition-based differences. Main effects of outcome type were not of theoretical interest, but when they emerged, typically suggested that the actor in the fire story—associated with greater financial cost but no physical harm—was viewed less negatively than in the mechanic story. In addition, although interactions of outcome and harm type were significant ($ps < .05$) for all variables except blame ($p = .627$), the ordering of means and significance of pairwise comparisons was identical across stories for all variables except desire and cost, so reported analyses collapse across the story factor except for these variables. Table 5 provides *M, SD,* and between-condition effect sizes.

The omnibus effect of harm type condition was significant for all dependent measures, with *F*s ranging from a low of 7.39 ($\eta_p^2 = .02$) for desire to a high of 1116.60 ($\eta_p^2 = .79$) for blame. *F* statistics and associated effect sizes for remaining variables ranged from 42.39 ($\eta_p^2 = .19$) for care to 540.70 ($\eta_p^2 = .65$) for costs that AJ should pay. In general, post-hoc tests suggested that AJ's actions in the reckless condition were viewed most negatively (e.g., highest blame), followed by the negligent condition and the accident condition. However, a different pattern emerged for desire, knowledge, and care, with post-hoc tests finding no significant differences between the negligent and accident conditions ($ps > .460$) and significant differences between both of these conditions and the reckless condition ($ps < .001$, except for the comparison of negligent and reckless conditions for desire, $p = .010$).

The interaction of outcome type with harm type for desire ($F = 3.92$, $p = .020$, $\eta_p^2 = .01$) and cost ($F = 4.99$, $p = .007$, $\eta_p^2 = .02$) suggested different patterns of response for harm type across outcomes. The main effect of harm type was significant for mechanic ($F = 10.34$, $p < .001$, $\eta_p^2 = .07$), with participants in negligent and accident conditions perceiving less desire than in the reckless condition ($ps \leq .001$) but not differing from one another, $p = .827$. For fire, the omnibus main effect was not significant ($p = .205$) and no significant pairwise differences were found, $ps > .251$. For cost, the omnibus main effect was significant within both outcome conditions, $Fs > 219.96$, $ps < .001$, $\eta_p^2 > .59$. However, for the mechanic story, means across all three harm type conditions significantly differed ($ps < .001$); for the fire story, the accident condition significantly differed from the other two ($ps < .001$), which did not differ from one another, $p = .271$.

8.3. Discussion

Important differences across the conditions emerged on all dependent measures, distinguishing participants' judgments about accidents from those about both negligence and recklessness, but also showing when judgments about negligence and recklessness converge and diverge. Recklessness was viewed most negatively and accidents least negatively across all variables. Negligence was intermediate for blame and perception of the harm as accidental, although blame was low for accidents and high for both negligence and recklessness. Likewise, judgments regarding costs and punishment in the negligent condition were in between those in the accident and reckless conditions, although the small effect size for costs when comparing them in the negligent and reckless conditions suggests similarities in how people think about the need to compensate costs regardless of whether a negative outcome is caused by negligence or recklessness. For punishment, although the effect size for the comparison of negligence and recklessness was large, so also was the effect size for the comparison of negligence and accident, suggesting people believe negligent actors do deserve some punishment. Importantly, these latter findings emerged even though evaluations in the accidental and negligent conditions were similar for care and foreknowledge. That is, people believed that like the agent in the accidental stories, the negligent agent did not foresee harm in their actions and would have cared more (i.e., than those in reckless conditions) about the outcome if they had foreseen it. However, despite these similarities, the negligent agent seemed more deserving of punishment. Likely, this is due not to beliefs about the actor's mental states but is attributable to the negligent actor's causal role in causing harm and the lack of a causal role in the accident condition.

Table 5
Descriptive Statistics for Harm Type Condition and Associated Effect Sizes in Study 3

	Accident (A)		Negligent (N)		Reckless (R)		A vs. N	A vs. R	N vs. R
	M	*SD*	*M*	*SD*	*M*	*SD*	*d*	*d*	*d*
Blame	1.42_a	0.88	5.61_b	1.16	6.01_c	1.17	4.07	4.43	0.34
Accident	6.49_a	1.03	5.18_b	1.73	4.12_c	1.91	0.92	1.54	0.58
Desire	1.12_a	0.51	1.16_a	0.57	1.33_b	0.68	0.07	0.35	0.27
Knew	1.21_a	0.54	1.31_a	0.66	2.15_b	1.27	0.17	0.96	0.83
Care	6.29_a	1.07	6.35_a	1.03	5.35_b	1.54	0.06	0.71	0.76
Cost	1.30_a	0.93	5.01_b	1.73	5.55_c	1.56	2.67	3.31	0.33
Punish	1.25_a	0.74	3.86_b	1.47	4.80_c	1.46	2.24	3.07	0.64

Note. Within rows, means with different subscripts differ significantly ($p < .05$) using Tukey's HSD. Although main effect means are presented here, for desire, the simple omnibus main effect was significant only for the mechanic story ($p < .001$), not the fire story, $p = .205$. For cost, for the mechanic story, all means differed significantly ($ps < .001$ using Tukey's HSD). For the fire story, costs in the accident condition differed from those in the other two ($ps < .001$), but the negligent and reckless conditions did not significantly differ, $p = .271$.

Finally, it is important to note that these findings emerged even using a "milder" version of recklessness, which is typically defined (and also demonstrated in Study 1) as an agent foreseeing but disregarding the potential for harm in their actions (i.e., by choosing to act anyway), which suggests that they do not really care whether their actions cause harm. That is, even for participants who read the reckless versions, desire and foreknowledge were rated as low overall and people believed the agent would have cared to some extent about the harm and damage their actions caused, had they foreseen it. Thus, a manipulation of recklessness that makes it clearer that the acting agent either a) did not care about causing harm or damage when they acted, or b) clearly foresaw that their actions would likely cause harm or damage, would likely clarify how recklessness is psychologically distinguished from negligence across all measures (except, potentially, costs).

9. Study 4

Study 4 had two primary aims. First, it strengthened the reckless condition by describing that the actor clearly knew what might result from their inaction and did not care about the outcome. Second, it introduced a new condition wherein the actor intentionally tries to bring about the negative outcome. This condition was included to examine how evaluations of intentional action differ from those of recklessness when the same outcomes occur, as past theorizing has suggested recklessness is psychologically "close" to intentionality because in both cases, the agent clearly foresees the outcomes their actions might cause (Darley & Pittman, 2003). Inclusion of this condition allowed an empirical examination of this assumption, as well as allowing an examination of the effect size differences across a range of harm types from accidental (the least culpability) to intentional (the greatest culpability). We hypothesized that across most measures (e.g., desire, blame, punishment), the ordering of means would show that participants view accidents least negatively, followed by negligence, then recklessness, then intentional harm.

9.1. Method

9.1.1. Participants

Participants were 801 US residents (recruited from Prolific and paid a small fee for their participation) who did not participate in Study 3 (797 self-reported citizens; 131 self-reported as having served previously on a jury; 450 self-identified as female, 340 as male, 11 as other; $M_{age} = 36.16$, $SD = 12.63$). Sensitivity analyses suggested that a sample this size had 80% power ($\alpha = .05$) to detect omnibus main effects as small as $f = .12$ and pairwise differences between conditions (based on $n = 400$ for two conditions; two-tailed) as small as $d = 0.28$. Self-reported highest educational attainment was 12th grade or less (10), high school diploma or equivalent (107), some college (185), associate degree (78), bachelor's degree (298), post-graduate degree (123). Self-reported race/ethnicity was as follows: 41 Asian/Pacific Islander, 57 Black/African American, 618 Caucasian/White, 42 Hispanic, 3 Native American/Pacific Islander, 40 Other/Multiracial. On a 7-point scale capturing self-reported political orientation (1 = *extremely liberal*, 7 = *extremely conservative*), participants leaned liberal ($M = 3.06$, $SD = 1.73$).

9.1.2. Procedure and measures

Procedures were essentially identical to Study 3, except for two changes. First, an intentional condition was included, wherein the target was trying to bring about the negative outcome that resulted from their action. Second, the reckless condition was slightly altered to indicate that the target expected the likely negative outcome due to their inaction. Thus, rather than simply describing that the target knowingly failed to perform an action and did not care what the results of that failure might be, it was specified that the target failed to act because they did not care what happened and did not feel like performing the action, and that they knew what the likely consequences of their inaction would be.

Measures were very similar to Study 3, except for a few small changes. For the initial choice question, participants were now asked the extent to which the target's action was an example of an accident, negligence and/or recklessness, or intentional harm, using the same question prompt from Study 3 with the following response options: "The [incident] was a freak accident that AJ could not have foreseen and was therefore not AJ's fault," "The [incident] was the result of AJ's negligence or recklessness; what happened was, to some extent, AJ's fault," or "AJ was intentionally trying to cause [the incident]; it is fair to say that he intentionally caused the [incident]." For those who chose that AJ was negligent/reckless, the same follow-up question from Study 3 was used to specify the degree to which the action was viewed as negligent (but not reckless) versus reckless. There were again two-item aggregate measures of blame ($r = .97$), desire ($r = .96$), and knowledge ($r = .91$), and single-item measures of whether the outcome was accidental, care, costs, and punishment, which were all identical to Study 3.

9.2. Results

Again, consistent with hypotheses, almost all participants thought that the target was not at fault in the accident conditions (mechanic 95/98, fire 100/100). Likewise, in the negligent and reckless conditions, most people selected "negligent/reckless" (negligent condition: mechanic 101/101, fire 96/101; reckless condition: mechanic 96/100, fire 95/100). Finally, in the intentional conditions, most participants selected "intentional" (mechanic 82/100, fire 96/101). These condition-based differences were reflected in significant χ^2 tests: mechanic $\chi^2(6) = 660.13$, $p < .001$, Cramer's V = .91; fire $\chi^2(6) = 715.58$, $p < .001$, Cramer's V = .94. When including only participants in the negligent and reckless conditions, there was a significant difference in rated negligence versus recklessness, with participants in the negligent condition rating the target's behavior as more negligent (but not reckless) and participants in the reckless condition rating their behavior as more reckless, $F(1, 384) = 177.60$, $p < .001$, $d = 1.35$. There was no main effect of outcome type (i.e., mechanic vs. fire; $p = .167$) and no interaction of outcome type with harm type, $p = .276$. Further suggesting that people saw the negligent story versions as negligent and the reckless versions as reckless, responses were respectively significantly below and above the scale midpoint ($ps < .001$) across and within both stories.

Remaining variables were examined using 4 (harm type: accident, negligent, reckless, intentional) × 2 (outcome type: mechanic, fire) ANOVAs ($df = 3, 793$ for main effects of harm type, $df = 1, 793$ for main effects of story, and $df = 3, 793$ for interactions between harm type and story), followed by post-hoc Tukey HSD tests to examine pairwise condition-based (i.e., harm type) differences. Analyses controlled for outcome type and interactions of outcome with harm type, but these latter effects were of little theoretical significance. Although interactions ($p < .05$) were significant for six of the eight dependent measures, the ordering of means was always the same across both stories, and in only two cases (foreknowledge and costs) were there differences in post-hoc pairwise differences in harm type.[7] Thus, remaining analyses focused only on the main effects of harm type. Condition-based means and standard deviations can be found in Table 6, along with effect sizes for pairwise comparisons. Notably, with the exceptions of desire and care, where accidental and negligent conditions did not significantly differ (respectively, $ps = .504$ and $.852$), all pairwise differences were

[7] For foreknowledge, in the mechanic story, all pairwise differences were significant ($ps < .001$); in the fire scenario, all pairwise differences were significant ($ps < .001$) except for a comparison between the accident and negligent conditions, $p = .134$. For costs, in the mechanic story, all pairwise differences were significant ($ps < .001$) except for the comparison between the reckless and intentional conditions ($p = .702$); in the fire story, all comparisons were significant, $ps < .001$.

Table 6
Means, Standard Deviations, and Pairwise Effect Sizes for all Dependent Measures in Study 4

	Accident (A)	Negligent (N)	Reckless (R)	Intentional (I)	A vs. N	N vs. R	R vs. I
	M (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)	*d*	*d*	*d*
Negligence vs. Recklessness	—	2.63 (1.60)	4.99 (1.89)	—	—	1.35	—
Accident	6.84 (0.82)	4.88 (1.76)	3.51 (1.93)	1.68 (1.41)	1.43	0.74	1.08
Blame	1.30 (0.76)	5.45 (1.39)	6.11 (1.08)	6.72 (0.70)	3.70	0.53	0.67
Desire	1.05 (0.41)	1.17 (0.55)	1.82 (1.08)	6.59 (1.04)	0.25	0.76	4.50
Foreknowledge	1.26 (0.70)	1.87 (1.24)	4.51 (1.86)	6.64 (0.74)	0.61	1.67	1.50
Care	5.55 (1.28)	5.66 (1.27)	3.10 (1.62)	1.64 (1.15)	0.09	1.76	1.04
Costs	1.34 (0.94)	5.00 (1.69)	5.97 (1.44)	6.59 (1.06)	2.68	0.62	0.49
Punishment	1.23 (0.70)	3.90 (1.45)	5.44 (1.27)	6.54 (0.88)	2.35	1.13	1.01

Note. With the exceptions of desire and care, where accident and negligent conditions did not significantly differ (respectively, *ps* = .504 and .852), pairwise Tukey HSD tests showed that pairwise differences in means for harm type significantly differed, *ps* < .001.

significant, *ps* < .001.

The omnibus effect of harm type was significant for all dependent measures, with *F*s ranging from a low of 374.76 ($\eta_p^2 = .59$) for whether the outcome was accidental to a high of 2065.32 ($\eta_p^2 = .89$) for whether the target wanted the outcome to occur. *F* statistics and associated effects sizes for other variables ranged from 427.11 ($\eta_p^2 = .63$) for whether the actor would have cared if they knew the outcome to 1242.23 ($\eta_p^2 = .83$) for whether the target foresaw the outcomes.

9.3. Discussion

Moving beyond Study 3, Study 4 contributes not only to our understanding of how perception of negligence and recklessness differ from each other (and how both differ from the way people think about accidents), but sheds light on how judgments of recklessness differ from those of intentional action. This latter point is important, as recklessness has received very little empirical attention, and the current results situate it squarely between negligence and intentional harm (i.e., in terms of how it is evaluated). Specifically, across all variables except desire and care (where accidents and negligence did not differ), significant pairwise differences were found for all dependent measures. The ordering across measures was also stable, with accidents being seen as the least "bad" (e.g., lowest blame), followed by negligence, then recklessness, with intentional harm being seen as the worst. Together with the results of Study 3, this suggests that people not only understand and evaluate accidents differently from intentional actions, but also distinguish between harms that are not directly intended (i.e., negligence vs. recklessness), evaluating them differently from each other but also from accidents and intentional harm.

10. General discussion

Across a series of four studies, we examined how inferences about mental states previously known to be associated with intentionality and negligence are related to perceptions of recklessness. Particularly, we were interested in the extent to which recklessness, an understudied construct in this context, would be conceptualized similarly to versus distinctly from negligence, another important construct that has been examined by previous researchers (e.g., Nuñez et al., 2014). In Studies 1 and 2, using methodologies similar to those employed by previous researchers (e.g., Malle & Knobe, 1997; Nuñez et al., 2014), we found consistent evidence for similarities and differences between recklessness and these other concepts. Study 1 showed that a common lay definition of recklessness exists and includes frequent mention of perceived mental states such as knowledge, uncaring desire, and disregard of risk. Study 2 results indicated that laypersons reliably distinguish between negligent and reckless acts, and that this distinction is not solely made based on perceived intent of the actor. Study 2 also provided evidence that reckless actions are consistently perceived more negatively than negligent actions, lending initial credibility to a continuum-based approach to where recklessness is situated in evaluations (Best & Barnes, 2022; Rapp, 2008; Vetri et al., 2011) that is consistent with some legal definitions of recklessness (e.g., Law & Martin, 2014).

Studies 3 and 4 expanded on these findings by presenting reckless and negligent actions within contextualized descriptions, and by comparing negligent and reckless harm to accidental and intentional harm. Results indicated that reckless actions that make no reference to (Study 3) or specifically cite (Study 4) the presence of an actor's uncaring desire (a mental state commonly associated with folk definitions of recklessness; Study 1) were perceived more negatively than accidents and negligence, but less negatively than intentional harm. These findings provide additional evidence of a stable ordering of actions from those perceived as least negative to most negative, respectively, accidental, negligent, reckless, and intentional. Further, results provide empirical evidence that laypersons view recklessness as "deliberate indifference," as suggested by Stark (2016). This is evidenced in themes present in layperson-generated definitions of reckless (e.g., uncaring desire, disregard of risk) and in participants' low ratings of care for reckless and intentional conditions. Specifically, participants felt that both a reckless and intentional actor do *not* care about a subsequent and foreknown harmful outcome, suggesting reckless actors are "deliberately indifferent" to the harm.

Our findings lend credence to the notion that recklessness is perceived as being similar to but distinct from negligence. This notion has implications for multiple disciplines including the law and legal psychology, as well as social psychology more broadly. In terms of law and legal psychology, our findings are in line with the handful of previous empirical studies that have theoretically or empirically explored recklessness (e.g., Darley & Pittman, 2003; Laurent et al., 2019, 2021; Nuñez et al., 2014; Nuñez, Flick, Sturges, Smith, & Schweitzer, 2022). For instance, our findings show that reckless actors are perceived by laypersons as possessing somewhat similar mental states to intentional actors, in line with the idea that reckless actions provoke similar reactions in people to intentional actions (Darley & Pittman, 2003). Further, within the context of Covid-19 lawsuits, Nuñez et al. (2022) found results similar to our current finding that reckless actions result in greater punishment (compared to negligent actions), as mock jurors were more likely to award punitive damages to a plaintiff (i.e., damages meant to punish the defendant) when finding the defendant reckless compared to negligent. In sum, the current work replicates previous theorizing (e.g., Rapp, 2008) and empirical studies (e.g., Nuñez et al., 2014; Nuñez et al., 2022) on differences between negligence and recklessness in the legal psychology literature. Further, our results extend these findings to better understand laypersons' conceptualizations of these concepts in relation to accidental and intentional harm.

Importantly, in addition to legal psychology, our novel findings also have important social psychological implications. For example, scholars have long proposed and empirically investigated theories of blame (e.g., Alicke, 2000; Malle et al., 2014; Shaver, 1985) in a quest to understand how and why people morally condemn others' antisocial actions. Likewise, explorations of how people understand intentional action (e.g.,

Malle & Knobe, 1997) and explain behaviors more generally (e.g., Malle, 1999) have helped the field to understand everyday person perception and how people think about different types of acts. Moreover, this work joins others in examining how people evaluate and understand immoral acts (e.g., Graham et al., 2013; Gray, Young, & Waytz, 2012; Mikhail, 2007; Shweder, Much, Mahapatra, & Park, 1997), extending a focus beyond a consideration of intentionality alone to incorporate how people reason about unintended harms.

Thus, the current work is well situated within a broader field of inquiry related to intentionality, blame, and morality, with a particular emphasis on the ways that conceptualizations of reckless action are both similar to and distinct from those of negligence and intentionality. That is, recklessness represents a unique type of social/moral judgment that is related to both perception of intentional harm and negligent acts, but distinct from each and intermediate in terms of how negatively it is perceived. Ultimately, since individuals arguably attempt to infer others' mental states in most social interactions (particularly those involving "bad" behavior), the current work adds substantial nuance beyond what is already known. An understanding of the mental states that individuals assume are driving others' behavior is vital as individuals' beliefs about others' minds impact their reactions towards them (Alicke, 2000; Malle & Hodges, 2005), and as our and others' studies have shown, influence their desire to punish when they disapprove of others' actions.

Along those lines, our findings may also have implications for impression management theory. Impression management is the process by which individuals attempt to control how others perceive them (Leary & Kowalski, 1990), and involves an individual attempting to alter their image to some target observer or audience, usually to be perceived more positively (Bozeman & Kacmar, 1997). Although previous research on impression management has most notably occurred in the field of organizational psychology (Bolino, Kacmar, Turnley, & Gilstrap, 2008), we believe our findings are uniquely related as well. For instance, if an actor is viewed as the causal agent in a transgression, that actor may attempt to engage in retroactive impression management to improve others' perceptions of them. According to our findings, this actor should attempt to portray their mindset, or mental state, more similarly to a negligent actor than a reckless actor (assuming an accidental justification is unreasonable). Thus, actors could emphasize how they did not want the outcome to occur, and downplay their foreknowledge, noting that they would have acted differently had they anticipated the outcome. However, given the dynamic nature of impression management and interpersonal perception more generally, it is vital that perceivers be convinced of the actors' mental states (e.g., lack of desire) as well. Thus, if an actor is able to make a convincing argument about their lack of knowledge or desire at the time a transgression occurred, they may improve others' perceptions of them, reducing the likelihood that they will be blamed or punished.

11. Limitations and future directions

Although our novel findings provide unique insight, our research is not without potential limitations. First, our use of participants from online labor markets may be seen as a limitation. However, research suggests that *MTurk* samples are more diverse than college student samples (Buhrmester, Kwang, & Gosling, 2011; Gosling, Vazire, Srivastava, & John, 2004), and although the data quality of *MTurk* samples has arguably decreased in recent years, data from *Prolific*—similarly diverse in terms of age, gender, and other demographics—does provide reasonable quality (Peer, Rothschild, Gordon, Evernden, & Damer, 2022). Thus, although online data markets come with a potential increase in diversity relative to the types of samples used most frequently in the past (i.e., college students), there are potential limitations, and future research might replicate findings such as ours in a variety of different samples (e.g., field samples).

Although commonly used in research on person perception, the use of vignettes poses potential issues (e.g., Huby, 2002; Hughes & Huby, 2004). For example, it could be argued that we may have created vignettes in ways that support our hypotheses. However, similar arguments might be raised for many types of research designs beyond these. Importantly, the consistency of findings across participants' own definitions, the apparent reliability in how people rated brief descriptions that were based in part on those definitions, and the clear differentiation across harm types suggests that the stimuli used are reasonably representative of naïve concepts of negligence and recklessness. Still, it is fair to note that responses to vignettes may differ from how people make evaluations in other contexts (e.g., a jury). That is, although people learn most information in situations such as these through others' utterances (e.g., being told how someone has behaved), it is difficult to know without future research whether similar findings would emerge in more naturalistic contexts. Future research might investigate these limitations, perhaps by embedding similar stimuli within the context of a trial transcript and allowing mock jurors to deliberate and make decisions jointly.

Last, both of the scenarios that were used in Studies 3 and 4 examined harms that primarily involved damage to property, although one of the vignettes also featured harm to an agent. Similarly, in both vignettes, harm was fixed across conditions. Given that judgments tended to be harsher when physical harm was involved, it is possible that extent of harm is an important contextual factor. Future research should examine whether the extent of harm, or even the extent of costs more generally, impacts perception of negligence and recklessness, and systematically investigate whether material versus physical harm is associated with greater perception of either concept. That is, it might be that more severe (or costly) outcomes lead to greater perception of negligence and/or recklessness.

12. Conclusion

Although past research has demonstrated a clear connection between the presence of various mental states, blame judgements, and desired punishment associated with unintentional (i.e., accidental), negligent, and intentional action, no research to this point has examined the role of reckless action in this context. This works represents an important step in understanding how individuals conceptualize recklessness and the consequences associated with it, also bridging between research that has investigated negligence and that which has investigated intentional harms. This work indicates that when evaluating recklessness, participants consider mental states similar to those that have previously been found to underlie judgments of intentionality and negligence. However, the important differences that also exist in how each of these types of actions are understood by laypersons suggests that recklessness is a distinct concept, associated with a unique set of expected mental states and leading to reliable differences in judgments that situate it between evaluations of negligence and those of intended harm.

We have no known conflict of interest to disclose.

Research support

This research received no external financial or non-financial support.

Relationships

There are no additional relationships to disclose.

Patents and intellectual property

There are no patents to disclose.

Other activities

There are no additional activities to disclose.

Declaration of Competing Interest

None.

Data availability

Data for all studies is hosted at the Open Science Framework website, accessible at https://bit.ly/3TXnN2R

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.jesp.2023.104529.

References

Alicke, M. (2008). Blaming badly. *Journal of Cognition and Culture, 8*(1-2), 179–186. https://doi.org/10.1163/156770908X289279

Alicke, M. D. (2000). Culpable control and the psychology of blame. *Psychological Bulletin, 126*(4), 556–574. https://doi.org/10.1037/0033-2909.126.4.556

Best, A., & Barnes, D. W. (2022). *Basic Tort Law: Cases, Statues, and Problems* ((6th ed).). Wolters Kluwer Law & Business.

Bolino, M. C., Kacmar, K. M., Turnley, W. H., & Gilstrap, J. B. (2008). A multi-level review of impression management motives and behaviors. *Journal of Management, 34*, 1080–1109.

Bozeman, D. P., & Kacmar, K. M. (1997). A cybernetic model of impression management processes in organizations. *Organizational Behavior and Human Decision Processes, 69*(1), 9–30. https://doi.org/10.1006/obhd.1996.2669.

Buhrmester, M., Kwang, T., & Gosling, S. D. (2011). Amazon's mechanical turk: A new source of inexpensive, yet high-quality, data? *Perspectives on Psychological Science, 6*(1), 3–5. https://doi.org/10.1177/1745691610393980

Cohen, J. (1960). A coefficient of agreement for nominal scales. *Educational and Psychological Measurement, 20*(1), 37–46. https://doi.org/10.1177/001316446002000104

Cushman, F. (2008). Crime and punishment: Distinguishing the roles of causal and intentional analyses in moral judgment. *Cognition, 108*(2), 353–380. https://doi.org/10.1016/j.cognition.2008.03.006

Darley, J. M., & Pittman, T. S. (2003). The psychology of compensatory and retributive justice. *Personality and Social Psychology Review, 7*(4), 324–336. https://doi.org/10.1207/S15327957PSPR0704_05

Faul, F., Erdfelder, E., Buchner, A., & Lang, A.-G. (2007). Statistical power analyses using G*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods, 41*(4), 1149–1160. https://doi.org/10.3758/BRM.41.4.1149

Feinstein, A. R., & Cicchetti, D. V. (1990). High agreement but low kappa: I. the problems of two paradoxes. *Journal of Clinical Epidemiology, 43*(6), 543–549. https://doi.org/10.1016/0895-4356(90)90158-L

Gosling, S. D., Vazire, S., Srivastava, S., & John, O. P. (2004). Should we trust web-based studies? A comparative analysis of six preconceptions about internet questionnaires. *American Psychologist, 59*(2), 93–104. https://doi.org/10.1037/0003-066X.59.2.93

Graham, J., Haidt, J., Koleva, S., Motyl, M., Iyer, R., Wojcik, S. P., & Ditto, P. H. (2013). Moral foundations theory: The pragmatic validity of moral pluralism. In *, 47. Advances in Experimental Social Psychology* (pp. 55–130). Academic Press. https://doi.org/10.1016/B978-0-12-407236-7.00002-4.

Gray, K., Young, L., & Waytz, A. (2012). Mind perception is the essence of morality. *Psychological Inquiry, 23*(2), 101–124. https://doi.org/10.1080/1047840X.2012.651387

Green, N. S. J. (1874). The three degrees of negligence. *American Law Review, 8*, 649.

Heider, F. (1958). *The psychology of interpersonal relations*. Wiley.

Hughes, & Huby, M. (2002). The application of vignettes in social and nursing research. *Journal of Advanced Nursing, 37*(4), 382–386. https://doi.org/10.1046/j.1365-2648.2002.02100.x

Hughes, R., & Huby, M. (2004). The construction and interpretation of vignettes in social research. *Social Work and Social Sciences Review, 11*(1), 36–51. https://doi.org/10.1921/17466105.11.1.36

Jones, E. E., & Davis, K. E. (1965). From acts to dispositions: The attribution process in person perception. In L. Berkowitz (Ed.), *2. Advances in experimental social psychology* (pp. 371–388). Erlbaum.

Laurent, S. M., Clark, B. A. M., & Schweitzer, K. A. (2015). Why side-effect outcomes do not affect intuitions about intentional actions: Properly shifting the focus from intentional outcomes back to intentional actions. *Journal of Personality and Social Psychology, 108*(1), 18–36. https://doi.org/10.1037/pspa0000011

Laurent, S. M., Nuñez, N. L., & Schweitzer, K. A. (2015). The influence of desire and knowledge on perception of each other and related mental states, and different mechanisms for blame. *Journal of Experimental Social Psychology, 60*, 27–38. https://doi.org/10.1016/j.jesp.2015.04.009

Laurent, S. M., Nuñez, N. L., & Schweitzer, K. A. (2016). Unintended, but still blameworthy: The roles of awareness, desire, and anger in negligence, restitution, and punishment. *Cognition and Emotion, 30*(7), 1271–1288. https://doi.org/10.1080/02699931.2015.1058242

Laurent, S. M., Reich, B. J., & Skorinko, J. L. M. (2019). Reconstructing the side-effect effect: A new way of understanding how moral considerations drive intentionality asymmetries. *Journal of Experimental Psychology: General, 148*(10), 1747–1766. https://doi.org/10.1037/xge0000554

Laurent, S. M., Reich, B. J., & Skorinko, J. L. M. (2021). Understanding side-effect intentionality asymmetries: Meaning, morality, or attitudes and defaults? *Personality and Social Psychology Bulletin, 47*(3), 413–425. https://doi.org/10.1177/0146167220928237

Law Insider. (2023a). Negligence act definition. In *Law insider.com dictionary*. Retrieved April 27, 2023, from https://www.lawinsider.com/dictionary/negligent-act.

Law Insider. (2023b). Intentional act definition. In *Law insider.com dictionary*. Retrieved April 27, 2023, from https://www.lawinsider.com/dictionary/intentional-act.

Law, J., & Martin, E. A. (2014). A dictionary of law. In *Oxford Reference* ((7 ed).). Oxford University Press. Retrieved April 28, 2023, from https://www.oxfordreference.com/display/10.1093/acref/9780199551248.001.0001/acref-9780199551248-e-3254?rskey=LbfivZ&result=3421.

Leary, M. R., & Kowalski, R. M. (1990). Impression management: A literature review and two-component model. *Psychological Bulletin, 107*(1), 34–47. https://doi.org/10.1037/0033-2909.107.1.34.

Legal Information Institute. (2020). Reckless. In *Wex legal dictionary and encyclopedia*. Cornell Law School. Retrieved April 27, 2023, from https://www.law.cornell.edu/wex/reckless.

Litman, L., Robinson, J., & Abberbock, T. (2017). TurkPrime.com: a versatile crowdsourcing data acquisition platform for the behavioral sciences. *Behavior Research Methods, 49*, 433–442. https://doi.org/10.3758/s13428-016-0727-z

Malle, B. F. (1999). How people explain behavior: A new theoretical framework. *Personality and Social Psychology Review, 3*(1), 23–48. https://doi.org/10.1207/s15327957pspr0301_2

Malle, B. F., Guglielmo, S., & Monroe, A. E. (2014). A theory of blame. *Psychological Inquiry, 25*(2), 147–186. https://doi.org/10.1080/1047840X.2014.877340

Malle, B. F., & Hodges, S. D. (2005). *Other minds: How humans bridge the divide between self and other*. Guilford Press.

Malle, B. F., & Holbrook, J. (2012). Is there a hierarchy of social inferences? The likelihood and speed of inferring intentionality, mind, and personality. *Journal of Personality and Social Psychology, 102*(4), 661–684. https://doi.org/10.1037/a0026790

Malle, B. F., & Knobe, J. (1997). The folk concept of intentionality. *Journal of Experimental Social Psychology, 33*(2), 101–121. https://doi.org/10.1006/jesp.1996.1314

Malle, B. F., & Nelson, S. E. (2003). Judging mens rea: The tension between folk concepts and legal concepts of intentionality. *Behavioral Sciences & the Law, 21*(5), 563–580. https://doi.org/10.1002/bsl.554

Mikhail, J. (2007). Universal moral grammar: Theory, evidence and the future. *Trends in Cognitive Sciences, 11*(4), 143–152. https://doi.org/10.1016/j.tics.2006.12.007

N.J. Steam Navigation Co. (1848). *Merchant's Bank*, 47 U.S. 344.

Nobes, G., Panagiotaki, G., & Pawson, C. (2009). The influence of negligence, intention, and outcome on children's moral judgments. *Journal of Experimental Child Psychology, 104*(4), 382–397. https://doi.org/10.1016/j.jecp.2009.08.001

Nuñez, N., Flick, C., Sturges, H. A., Smith, O. K., & Schweitzer, K. (2022). COVID-19 in the courtroom: the role of mask mandates and source of exposure on negligence and recklessness decisions. *Psychological Injury and Law*. https://doi.org/10.1007/s12207-022-09464-y. Advance online publication.

Nuñez, N., Laurent, S., & Gray, J. M. (2014). Is negligence a first cousin to intentionality? lay conceptions of negligence and its relationship to intentionality. *Applied Cognitive Psychology, 28*(1), 55–65. https://doi.org/10.1002/acp.2957

Peer, E., Rothschild, D., Gordon, A., Evernden, Z., & Damer, E. (2022). Data quality of platforms and panels for online behavioral research. *Behavior Research Methods, 54*(4), 1643–1662. https://doi.org/10.3758/s13428-021-01694-3

Rapp, G. C. (2008). The wreckage of recklessness. *Washington University Law Review, 86*(1), 111–180.

Reich, B. J., & Laurent, S. M. (2022). You ought to know: Why consumers think companies can foresee bad (but not good) side effects. *Psychology and Marketing*. https://doi.org/10.1002/mar.21747

Sebok, A. J. (2001). Purpose, belief, and recklessness: Pruning the restatement (third)'s definition of intent. *Vanderbilt Law Review, 54*(3), 1165–1186.

Shaver, K. G. (1985). *The attribution of blame*. Springer.

Shultz, T. R., & Wright, K. (1985). Concepts of negligence and intention in the assignment of moral responsibility. *Canadian Journal of Behavioral Science, 17*(2), 97–108. https://doi.org/10.1037/h0080138

Shweder, R. A., Much, N. C., Mahapatra, M., & Park, L. (1997). The "big three" of morality (autonomy, community, divinity) and the "big three" explanations of suffering. In A. M. Brandt, & P. Rozin (Eds.), *Morality and health* (pp. 119–169). Routledge.

Simons, K. W. (1992). Rethinking mental states. *Boston University Law Review, 72*(3), 463–554.

Simons, K. W. (2002). Dimensions of negligence in criminal and tort law. *Theoretical Inquiries in Law, 3*(2), 1–49. https://doi.org/10.2202/1565-3404.1053

Stark, F. (2016). *Culpable carelessness: Recklessness and negligence in the criminal law*. Cambridge University Press.

Vetri, D., Levine, L. C., Vogel, J. E., & Gassama, I. J. (2011). *Tort Law and Practice* ((4th ed).). LexisNexis.

Viscusi, W. K. (2004). The denominator blindness effect: Accident frequencies and the misjudgment of recklessness. *American Law and Economics Review, 6*(1), 72–94. https://doi.org/10.1093/aler/ahg012

Weiner, B. (1980). A cognitive (attribution)-emotion-action model of motivated behavior: An analysis of judgments of help-giving. *Journal of Personality and Social Psychology, 39*(2), 186–200. https://doi.org/10.1037/0022-3514.39.2.186

Weiner, B. (1985). An attributional theory of achievement motivation and emotion. *Psychological Review, 92*(4), 548–573. https://doi.org/10.1037/0033-295X.92.4.548
Weiner, B. (1986). *An attributional theory of motivation and emotion.* Springer-Verlag.
Weiner, B. (1995). *Judgments of responsibility: A foundation for a theory of social conduct.* Guilford.
Weiner, B., Graham, S., & Reyna, C. (1997). An attributional examination of retributive versus utilitarian philosophies of punishment. *Social Justice Research, 10*(4), 431–452. https://doi.org/10.1007/BF02683293
Williamson, V. (1960). *McKenna*, 223 Or. 366.