Journal of Experimental Social Psychology 73 (2017) 147–150

Contents lists available at ScienceDirect

Journal of Experimental Social Psychology

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

Technologically facilitated remoteness increases killing behavior

Abraham M. Rutchick*, Ryan M. McManus, Denise M. Barth, Robert J. Youmans, Andrew T. Ainsworth, H. Johnny Goukassian

California State University, Northridge, United States

ARTICLE INFO

Keywords:
Killing
Distance
Decision making
Violence
Morality

ABSTRACT

Technology now enables killing from remote locations. Killing remotely might be psychologically easier than killing face to face, which could promote more killing behavior and incur less severe emotional consequences. The current study manipulated the medium via which participants completed an ostensible ladybug-killing task. Participants who were in the same room as the insects killed fewer of them than participants who killed remotely via videoconference. Remoteness exerted an indirect effect on self-reported emotional consequences of killing. There was no additional effect of varying the ostensible location of the remote targets (same building vs. different state). This research emphasizes the importance of considering the psychological consequences of the remoteness technology affords.

1. Introduction

Although humans have killed at range since the Paleolithic (Churchill & Rhodes, 2009), only recently has technology made it possible to hunt prey and fight enemies from an entirely different place. The proliferation of armed unmanned aerial vehicles ("drones") and debate about the morality of their use (Coeckelbergh, 2013; Sharkey, 2012) have raised the question of whether this technology is a "moral buffer," reducing the impact of killing (Cummings, 2003). However, there is little empirical research on the psychological effects of remoteness on killing. The current paper uses an insect-killing paradigm to provide experimental evidence of the effect of remoteness on killing and its emotional consequences.

Scholars of military psychology have argued that direct, intimate killing is psychologically difficult. For example, soldiers who experience combat (and particularly those who kill) are more likely to experience maladaptive mental health outcomes (Sareen et al., 2007), including post-traumatic stress (Maguen et al., 2010; Van Winkle and Safer, 2011), suicidality (Maguen et al., 2011), and increased risk-taking behavior (Killgore et al., 2008). One prominent perspective holds that training soldiers entails overcoming a natural aversion to life-taking (Grossman, 2009). However, killing from elsewhere may entail fewer such inhibitions. Indeed, although there is no evidence for differences in mental health diagnoses (Otto & Webber, 2013), subclinical symptoms of post-traumatic stress in drone operators are less common than in the general population of soldiers returning from deployment (Chappelle, Goodman, Reardon, & Thompson, 2014).

Other evidence suggests that decreasing intimacy between aggressors and targets can increase aggression. For example, in Milgram's (1974) studies of obedience, when remoteness between the teacher and learner was greater (no audio connection vs. audio connection vs. same room vs. physical contact), the learner inflicted more harm, and indeed this was among the largest observed effects (Haslam, Loughnan, & Perry, 2014). Relatedly, neurological evidence indicates that moral judgments involving personal closeness are processed differently than other judgments. Greene and colleagues (Greene, Sommerville, Nystrom, Darley, and Cohen, 2001) examined a version of the "trolley problem," in which participants decide between allowing a runaway trolley to kill five people and sacrificing one person to prevent the five deaths. Greene, Sommerville, Nystrom, Darley, and Cohen (2001) found that, when people considered "personal" dilemmas (e.g., pushing a man onto the track to stop the trolley), reaction times were slower and different brain regions were activated than when people considered less personal dilemmas (e.g., pulling a switch to divert the trolley).

From a social-cognitive perspective, Construal Level Theory (Trope & Liberman, 2010) suggests that remoteness might reduce inhibitions against killing. This theory posits that distance (whether physical, temporal, or social) causes more abstract processing (i.e., holistic, broad mental representations) and less concrete processing (i.e., subordinate, narrow representations). People who are thinking more abstractly base their judgments and behavior more on moral values (Eyal, Liberman, & Trope, 2008; Giacomantonio, De Dreu, Shalvi, Sligte, & Leder, 2010), placing more weight on broad principles and less

* Corresponding author at: Department of Psychology, California State University, Northridge, 18111 Nordhoff Street, Northridge, CA 91330-8255, United States.
E-mail address: rutchick@csun.edu (A.M. Rutchick).

http://dx.doi.org/10.1016/j.jesp.2017.07.001
Received 4 April 2017; Received in revised form 21 June 2017; Accepted 4 July 2017
Available online 08 July 2017

weight on context and detail. Thus, a cognitive shift toward abstract concepts might induce people to think about the broader purposes of killing, which are often framed positively (e.g., patriotism, justice, victory, security), rather than the concrete (and unpleasant) details of the act of life-taking. Via this mechanism, increasing distance could increase killing.

Thus, there is evidence suggesting that remoteness could facilitate the act of killing. However, this hypothesis lacks direct experimental support. There are obvious limits on investigations that directly examine human killing. One approach might be to examine a different behavior between humans, such as aggression (e.g., administering hot sauce to an unwilling recipient; McGregor et al., 1998). However, killing a living being is qualitatively different from other acts of aggression — it is a permanent action that cannot be undone. We therefore studied remote killing using a non-human analog: a remote-controlled machine that (ostensibly) killed ladybugs. Previous research examining killing using an insect paradigm has been informative, showing that the act of killing self-reinforces, leading to more subsequent killing (Martens & Kosloff, 2012; Martens, Kosloff, Greenberg, Landau, & Schmader, 2007; Martens, Kosloff, & Jackson, 2010). This approach, though it uses insect rather than human targets, has the advantage of examining actual killing behavior.

Remoteness was manipulated in the current study: some participants were in the same room as the machine, whereas others interacted with the machine via videoconference. We hypothesized that participants who killed insects in the same room would kill less, and would subsequently be more upset, than those who killed from another place (Hypothesis 1). Secondarily, we hypothesized that the effect of remoteness would be stronger for participants who believed the insects were in another state (vs. another room; Hypothesis 2).

2. Method

2.1. Participant recruitment and assignment

Undergraduates were recruited and compensated with partial fulfillment of a course requirement. At recruitment, they were told that the study ("Machine Usability Study") entailed testing an apparatus; the psychology department at the participants' university historically focused on human factors, and participants were accustomed to engaging in usability tests. Upon arriving, potential participants were informed that the study involved using a machine to kill insects; four declined to participate at this time, yielding 330 participants (71.2% female, $M_{age} = 19.3$).

Participants were randomly assigned to one of three conditions: Close ($n = 132$, 40% of sample), Remote-California ($n = 99$, 30% of sample), and Remote-Virginia ($n = 99$, 30% of sample). We chose this sample size and assignment weighting to maximize our ability to test Hypothesis 1 (i.e., close vs. remote killing), while still enabling a well-powered test of Hypothesis 2 (the difference between the remote conditions). With at least 99 participants/condition, planned comparisons had a power of at least 0.80 to detect Cohen's $d = 0.40$, per GPower (Faul, Erdfelder, Lang, & Buchner, 2007).

2.2. Procedure

Participants were reminded that the task involved using a remote-controlled machine to kill insects — specifically, ladybugs (*Hippodamia convergens*). As ladybugs are often viewed as lucky or cute (Jones, 2015; Newman et al., 1938), we reasoned that participants would hold inhibitions against killing them. Participants were given a cover story that reminded them of the "usability test" and explained why the machine could be useful (producing biological samples or dye at industrial scale). They were then shown the machine (a black box on which a conveyor belt was mounted; see Supplementary Material), and the experimenter demonstrated how to use a remote control to operate the conveyor belt and a grinder inside the box.

A second experimenter (the "assistant") then placed one living ladybug, encased in a transparent plastic capsule, on the conveyor belt. The experimenter demonstrated the machine's use by advancing the belt, which dropped the capsule into the machine, and operating the grinder, which ostensibly crushed the capsule (and the ladybug). The assistant then opened the machine, removed a tray containing a shattered capsule and a crushed ladybug, and showed its contents.

Next, participants practiced operating the machine, crushing two capsules containing puffed cereal, and were shown that the tray now also contained crushed cereal. Once participants had practiced, the conveyor belt was loaded with ten capsules containing living ladybugs. Participants were instructed thusly: "Please use the machine to kill as many insects as you'd like. Make sure you kill at least two so that we have a good test." Thus, participants could kill from two to ten insects. Participants then began the task.

Once participants indicated that they had finished the task, they completed a computer-based questionnaire. First, participants answered an open-ended question about their experience using the machine. Next, they reported their mood using two sliding scales, one anchored at 100/pleasant-0/unpleasant and the other at 100/stressed-0/relaxed. Participants then indicated, on 9-point Likert-type scales, the extent to which they thought the machine was difficult to operate, how effective the machine was in grinding ladybugs, how comfortable they felt, how enjoyable and upsetting the task was, and how troubled they were by the task.[1]

Participants were then probed for suspicion using a funnel debriefing procedure, fully debriefed (and told that in actuality, the "grinder" was a noisemaker, and thus that participants and the experimenter did not actually kill ladybugs during the experimental session), and dismissed.

2.3. Manipulation of experimental conditions

Participants in the Close condition completed the study in the same room as the machine, seated two feet from it. Participants in the Remote conditions completed the study in a different room than the machine, and saw and heard the machine using videoconference software; they were seated two feet from the computer screen. In both conditions, the experimenter was in the same room as the participant and the assistant was in the same room as the machine.

In the Remote-California condition, participants were told that the machine was located in the same building. This was reinforced by the videoconference's username, which corresponded to the participants' California university. In the Remote-Virginia condition, participants were told that the machine was located in another laboratory in Virginia; again, this was reinforced by the videoconference's username ("insect.grinder.Virginia").

All measures, manipulations, and exclusions in the study are disclosed, as well as the method of determining the final sample size.

3. Results

3.1. Believability of the cover story

Examination of open-ended responses (contained in Supplementary Material) and funnel debriefing revealed that fourteen participants (six/4.5% in the Close condition, four/4.0% in the Remote-California condition, and three/3.0% in the Remote-Virginia condition) did not believe that they were actually killing ladybugs; they were excluded. The final sample consisted of 317 participants (126 in the Close condition, 95 in the Remote-California condition, and 96 in the Remote-Virginia

[1] Participants next completed the MFQ-20 (Graham et al., 2011) for exploratory purposes unrelated to this paper.