Replication of Caruso et al. 2016
"Slow motion increases perceived intent"
PNAS 113(33), 9250-9255.
https://www.pnas.org/content/113/33/9250

The original paper includes several studies. We randomly chose experiment 3. In this between-subject experiment, participants are randomized to one of four conditions in a 2x2 design (regular/slow motion video speed × yes/no time salient) and are asked to imagine that they are jury members in a case where the defendant shot and killed a store clerk during an armed robbery. Participants first watch a video in regular or slow motion video speed. Before viewing the video a second time, the time of three seconds of the defendant's actions is either made salient or not. After a third viewing, participants are asked about the extent to which the defendant's actions were willful, deliberate, or premeditated. Participants in the slow motion conditions report that the action was performed with a more willful, deliberate, and premeditated intent to kill than participants in the regular speed conditions.

Hypothesis to replicate and bet on: People report that a killing during an armed robbery is an action with more willful, deliberate, and premeditated intent to kill if they watch a video of the action in slow motion compared to regular speed. To evaluate this hypothesis, the authors perform an ANOVA ($F(1, 405) = 10.80$, $p = 0.001$, $\eta^2_p = 0.026$); p. 9252.

Criteria for replication: The criteria for replication are an effect in the same direction as the original study and a p-value < 0.05 in a two-sided F-test.

Power analysis: The original study had 410 participants. The standardized effect size (Cohen's d) was $d = 0.325$. To have 90% power to detect 67% of the original effect size, a sample size of $n = 898$ is required.

Sample: Only individuals in the US were allowed to participate. Participants who reported technical difficulties or claimed they had taken the survey before were excluded. Participants who were jury ineligible were also excluded. Participants who gave incomplete answers for the dependent variables were included in the responses they provided. We will apply the same criteria and we will make sure that participants can only participate once from the same account in this specific study, and we will only recruit participants with a HIT approval rate of 95% or higher. We will also check all IP addresses via https://www.ipqualityscore.com/; and we will remove any participants where one or more of the following is true: fraud score >= 85; TOR = True; VPN = True; Bot = True; abuse velocity = high. The replication sample size is the sample size after any exclusions of participants.

Materials: We will use the same material as in the original study, kindly provided by the original authors. In particular, we will use the original *Qualtrics* survey and the same video material.

Procedure: We will closely follow the procedure of the original study. The following summary of the experimental procedure is therefore largely based on the description of the experiment in the article's Materials and Methods section (p. 9254).

Participants will first be shown a Captcha, and will thereafter provide informed consent. After this we will include an attention check that participants will need to pass to continue to the study. This attention check is in addition to any other potential attention check(s) used in the original study. Participants will then be asked to imagine they are members of a jury in a case where the defendant killed a store clerk during an armed robbery, but that the prosecution and defense disagree whether the act constituted first-degree or second-degree murder. They will be provided with legal definitions of first- and second-degree murder and watch a video of a murder outside a convenience store. In the regular speed treatment, this video will be shown at normal speed, while in the slow-motion treatment the video will be shown at 2.25 times slower speed.

Participants will then be reminded of their task as jury members, and subjects in the time salient treatment will read that approximately three seconds elapse in the video's crucial moment and that this is relevant for their judgement of intent. Participants will then be shown the video again, after which they will reread the statement, before watching the video a third time.

After the third viewing, participants will judge how long, from zero to ten seconds, the shooter had to assess the situation before firing. Participants will then indicate how much time the shooter had to assess the situation before firing and to what extent they believed the actions were performed with "willful, deliberate, and premeditated intent to kill". Perceived time will be measured using a slider from zero (*"Almost no time at all"*) to one hundred (*"Quite a lot of time"*). Perceived intent will also be measured on a slider assessing the extent to which the incident exemplified "willful, deliberate, and premeditated intent to kill" from zero (*"Not at all"*) to one hundred (*"Completely"*). Lastly, subjects will answer demographic questions and indicate whether they are allowed to serve on a jury in the United States.

Please note that we will use custom tracking to ensure that participants view the video the desired number of times at the appropriate times.

Analysis: The analysis will be performed as in the original article. In particular, we will perform a two-way ANOVA and test whether participants in the slow motion treatment compared to regular speed treatment feel like the action is performed with more willful, deliberate, and premeditated intent to kill.

Subject payments: We are standardizing payments across all replications so that studies have a certain show-up fee depending on the expected length of the study, with an hourly wage from the show-up fee of $8 and a minimum payment of $1 (for studies with incentive payment we use the same incentive payment as in the original study; and this payment is paid in addition to the show-up fee). If we have problems recruiting, we will increase the show-up fee.