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**The effects of social distance and gender on moral decisions and judgments:**

**A reanalysis, replication, and extension of Singer et al. (2019)**

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This study was pre-registered and all additional materials (i.e., reanalysis, preregistration form,

data files, and analyses script) are available on the project OSF page: <https://osf.io/j49k2>

### **Abstract**

In morality, social distance should influence judgments and decisions. Singer et al.'s (2019) Everyday Moral Conflict Situations (EMCS) scale was created to assess altruistic versus egoistic choices in everyday moral contexts depending on social distance manipulated at item level. Via a reanalysis of their data, we found an unreported interaction effect between social distance and gender on behavioral choices. We conducted a conceptual replication (part 1) and extended previous research by empirically assessing the link between altruism and morality (part 2). This preregistered study ( $N = 299$ ) confirmed the gender-by-social distance interaction, with a stronger social distance effect for males and for egoistic behaviors. Furthermore, behavioral choices were linked with moral judgments of wrongness. Limitations and future directions are discussed.

*Keywords:* social distance, moral decision making, altruism, replication, gender differences

**The effects of social distance and gender on everyday moral decisions and judgments: A reanalysis, replication, and extension of Singer et al. (2019)**

When we talk about moral dilemmas, we think ‘*trolley*’ (Greene et al., 2001; Navarrete et al., 2012). We think about the unlikely dilemma of killing one person to save three or choosing between saving our mother or our spouse. However, we are faced with moral decisions daily. Students may have to choose between studying or helping a friend with homework, and parents between screaming at their child or asking for help. In the present research, we first examined how moral decision making in everyday settings is influenced by social distance and participants’ gender, with the aim to clarify and conceptually replicate previous findings (Singer et al., 2019; Singer et al., 2021a; Singer et al., 2021b). Secondly, we extended previous research in an important way by empirically assessing the assumed—but yet to be tested—partial overlap between altruism and morality.

**Moral Decision Making**

Moral decision making involves cognitive factors such as attributions (Gibbs, 2019; Hoffman, 2000; Pearce & DeNisi, 1983), affective factors including intuition (Haidt, 2001; Lamond & Thompson, 2000) and emotion recognition (Anderson & Beauchamp, 2012). It also implies social factors, namely social competences (Yeates et al., 2012). Furthermore, moral decision making depends on culture (Bago et al., 2022; Yates & de Oliveira, 2016) and other factors including personality (Dewberry et al., 2013; Kagan, 2008) and social information processing (Arsenio & Lemerise, 2004). Moral decision making, like decision making more generally, is thus influenced by situational, personality, affective, and social factors (Guglielmo, 2015). However, what is specific about moral decision making is that it involves moral principles requiring moral reasoning and the activation of morally relevant schemas (i.e., structured

knowledge of past events) from memory (Garrigan et al., 2018). Among factors influencing moral decision making, social distance has been suggested to be particularly relevant (Eyal et al., 2008; Gino & Galinsky, 2012; Žeželj & Jokić, 2014).

### **Social Distance**

When choosing between helping a stranger or helping a friend, we would not behave in the same manner because of the relationship we have with friends versus strangers. This relative closeness refers to social distance. Social distance is a subdimension of psychological distance, which is conceptualized so that a psychologically distant (vs. close) event remains far (vs. close) from the direct experience of the individual (Trope et al., 2007). Applied to social distance, a high social distance relationship with someone reflects that we know very few about this person given limited experience (i.e., someone we just met once or a stranger). Low social distance with someone reflects that the person is very close to oneself (e.g., a close friend, a family member). Social distance can also be defined through the similarity perceived between individuals in terms of social context, personality, values, or power (Liviatan et al., 2008). Accordingly, social distance—as other types of psychological distances—can influence thought processing leading to a behavioral response in a given situation (e.g., Trope et al., 2007) and this can also happen in a moral setting (Eyal et al., 2008; O’Gorman et al., 2005; Tassy et al., 2013). However, results in the literature remain inconsistent regarding the effect of social distance on moral decision making.

Social distance with the victim in moral dilemmas has been found to have a greater influence on behavioral choices than on moral judgments in trolley-like settings (Tassy et al., 2013), but social distance had no significant effect on wrongness judgments in moral scenarios (Linke, 2012). Social distance was found to modulate altruistic versus egoistic decision processes

by resolving conflicts more efficiently (Zhan et al., 2018), but did not significantly influence altruistic (vs. egoistic) choices when using the Everyday Moral Conflict Situations (EMCS, Singer et al., 2019). Using the same EMCS in other research, the authors found an effect of social distance in altruistic (vs. egoistic) choices on a male-only sample (Singer et al., 2021a) and again did not find this social distance effect with a mixed-sample including female and male participants (Singer et al., 2021b).

To sum it up, social distance seems to differently impact moral decision making depending on the nature of the decision (e.g., type of moral question) and other potentially relevant variables such as gender or the setting of the situation (e.g., who is the person with whom social distance is manipulated, what is the perspective of the person judging [first-person vs. third-person perspective]). However, given the lack of commensurability in methodology and social distance operationalization, comparing findings from the literature remains problematic, an issue raised by others for the behavioral sciences more generally (Almaatouq et al., 2022).

### **Altruism and morality**

Of particular interest for the present research is the assumed link between altruism/egoism and morality. Indeed, Singer et al. (2019) presented the EMCS scale to first assess decision making in everyday moral situations and with a secondary aim to measure the effect of social distance in morality. They operationalized morality with a dichotomous choice between altruistic or egoistic behaviors, implicitly equating higher morality with more altruistic responses. As Singer et al. (2019) did not further expand on the link between morality and altruism, they seemed to assume that these constructs influence behaviors in a similar way. However, the link between altruism/egoism and morality may not be as direct as assumed by Singer et al. (2019) and others (e.g., Eisenberg-Berg, 1979; Henrich et al., 2005; Kekes, 1981).

Indeed, morality can be defined as the description of certain codes of conduct made by society, a social group, an individual or that refers to social norms (Gert & Gert, 2020). Altruism instead is an intentional behavior that is motivated by a desire to benefit others over the self, to help others (Kraut, 2020). Through these definitions, morality can be defined as a value, a code of conduct whereas altruism is a behavior that may be caused by a code of conduct such as morality. In other words, while morality and altruism are related, they are distinct constructs. In this vein, even if moral reasoning is correlated with prosocial behavior (Underwood & Moore, 1982) and morality and altruism should partially overlap, being altruistic/egoistic cannot simply be equated with or explained by being moral/immoral.

DeScioli and Kurzban (2009) exposed the limitations of moral theories based on altruism. They suggested that altruism does not explain why people are morally judging others and why people want to give punishments when exposed to moral scenarios (DeScioli & Kurzban, 2009; Lieberman & Linke, 2007; Tetlock, 2002). Another reason for why people make moral judgments toward others could be that it serves a regulatory function in the social group to which they belong (Ellemers et al., 2013). Other authors distinguish moral norms from social norms not by their content or form, but more in the way they are grounded in the judge's mind (e.g., Brennan et al., 2013), making it more an individually dependent construct than a properly culturally dependent one (even if both are definitively related). In the present research, our aim was to clearly distinguish altruism and morality by using different measures for these constructs. This aimed at overcoming limitations of past research that equated higher morality with more altruistic responses, hence drawing conclusions on morality based on measures of altruism (Singer et al., 2019).

Relying on altruistic/egoistic responses to assess morality is even more surprising as there are more straightforward measures to assess morality. Following Malle's (2021) recent work on classifications used in moral psychology, wrongness judgments seem to be the most suited for the current research. Indeed, they rely on judgments of norm-violating actions (i.e., violating social norms such as helping the elderly to cross the street) and wrongness judgments have mainly been used in literature to assess the morality of intentional violations of moral norms (Malle, 2021). As our focus is on factors guiding judgments in everyday moral decision making, with materials/scenarios depicting intentional violations of moral norms, social contexts and norms should be involved (Yeates et al., 2012) and wrongness judgments are particularly appropriate here to assess moral judgments and test the assumed link with altruistic choices.

Distinguishing measures of morality and altruism also allows testing the influence of social distance on both, an important endeavor as findings concerning the influence of social distance on wrongness judgments are mixed. Linke (2012) did not find an effect of social distance on wrongness judgments. An explanation could be that children are still developing and therefore have a less complex moral system compared to adults (Carpendale, 2000; Kohlberg, 1971; Piaget, 1932). Consistent with this explanation, Žeželj and Jokić (2014, study 2) found—as a replication of Eyal et al. (2008, study 3)—a significant effect of social distance on wrongness judgments with an adult sample (undergraduates). In the present research, along with testing the link between altruism and wrongness judgments, we also expect social distance to influence both variables. In this endeavor, given our reliance on Singer et al.'s (2019) EMCS scale and their social distance manipulation, we first performed a reanalysis of their data (mainly from study 3, but also from study 1 for initial analyses) to clarify some unresolved issues and perform an accurate a priori power analysis.



**Reanalysis of Singer et al. (2019, study 3)**

Singer et al.'s (2019) EMCS scale was developed first to assess moral decision making in everyday situations and with a secondary aim to study the effect of social distance in morality. In the EMCS, social distance is manipulated by varying the scenario's victim, as the scale is composed of 40 moral scenarios of everyday life, 20 involving a socially close one (e.g., a friend, a family member) and 20 involving a socially distant one (e.g., a stranger) (see Supplementary Material of Singer et al., 2019). After each scenario, participants have to decide how they would act in such a situation by choosing between an altruistic or an egoistic behavior. The EMCS measures the percentage of altruistic responses on the scenarios.

As our aim was to replicate and extend Singer et al.'s (2019) results given our interest in the EMCS scale, we realized after thoroughly reading studies 1 and 3 that we needed further clarifications. Indeed, Singer et al. (2019) did not detail which items were used for analyses (i.e., study 1 contained 60 scenarios and study 3 contained 40 scenarios). Also, they analyzed the data of study 1 and study 3 together which, given the differences between the two studies, made it difficult to draw clear conclusions<sup>1</sup>. Finally, it was not systematically clear whether the authors performed an analysis of variance (ANOVA) per item or per participant. Therefore, we performed a reanalysis of their data which were freely available online (see 'Reanalysis' of the OSF project).

We started by strictly reproducing their results regarding social distance, which required combining participants from study 1 and study 3 data ( $N = 150$ ) and retaining 40 scenarios. We conducted a Welch  $t$ -test at scenario level (aggregating over participants). Following this procedure, we found the exact same results as reported in their manuscript, which signaled a

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<sup>1</sup> This may have been done because, when using only their study 3 data, number of scenarios and participants (i.e., 40 scenarios and 100 participants) may have resulted in an underpowered study.

non-significant effect of social distance on behavioral choices ( $t(35.04) = -0.37, p = 0.72, d = -0.12$ ). In our reanalysis of Singer et al. (2019, study 3), relying on the 40 final scenarios, we also found a significant interaction effect between social distance and participants' gender on behavioral choices not reported by the original authors,  $b = -0.10, SE = 0.03, t(98) = -2.86, p = .005, 95\% CI [-0.16, -0.03], d = -0.30$  (cf. 'Reanalysis' on the OSF page, here reported using an ANOVA F1 equivalent analysis, which was confirmed using ANOVA F2 and binomial GLMM). Male participants had a percentage of altruistic responses significantly higher for scenarios with a close one ( $M = 0.64, SD = 0.19$ ) than for scenarios with a distant one ( $M = 0.56, SD = 0.16$ ). Although this gender-by-social distance interaction effect was not reported in Singer et al. (2019), it is in accordance with findings of Singer et al. (2021a). They reported, with an all-male sample, an effect of social distance on behavioral choices ( $t(39) = -2.15, p = 0.038, d = -0.37$ ), which goes in the same direction as in the present reanalysis of Singer et al. (2019, study 3). In sum, this reanalysis points at the importance of taking into account both social distance and gender and helps reconciling Singer et al.'s (2019) and Singer et al.'s (2021a) own findings which may otherwise be puzzling given the inconsistency for social distance effects. In yet another study by Singer et al. (2021b), inconsistency emerged again as they did not find an effect of gender or social distance on behavioral choices under normal conditions (i.e., no stress manipulation).

Gender differences in moral psychology have been investigated in past research, with meta-analytic findings indicating stronger deontological inclinations for women compared to men (Friesdorf et al., 2015), and differences in care orientation favoring females (Jaffee & Hyde, 2000). Of particular interest is that deontological judgments ought to be shaped by affective processes as women's responses to emotional triggers tend to be stronger compared to those of

men (see Friesdorf et al., 2015, for an overview). They may be driven, in part, by gender stereotypic expectations (Baez et al., 2017; Ellemers, 2018). In the same vein, care and empathy are domains stereotypically ascribed to women (Gilligan, 1982). This literature is particularly enlightening regarding the expected gender-by-social distance interaction effect in the present research. Indeed, following gender-role expectations, women ought to be empathic and nurturing overall, resulting in more altruistic decisions for everyone (close and distant). Consequently, they may decide to act more altruistically overall, with high altruistic scores on average, and no effect of social distance, as found in our reanalysis of Singer et al. (2019). Men instead, with (slightly) stronger utilitarian inclinations compared to women (Friesdorf et al., 2015) may be more easily concerned about kin only, with greater freedom to act egoistically with more distant individuals. The reanalysis of Singer et al. (2019, study 3) together with the theoretical evidence of gender differences in the moral psychology literature were sufficient evidence to expect a confirmatory gender-by-social distance interaction effect on the EMCS scale in the current study.

### **Research Overview**

In part 1 of the present pre-registered study, we aimed at replicating the interaction effect between participants' gender and social distance on behavioral choices found with our reanalysis of Singer et al.'s data (2019, study 3). To avoid ambiguity regarding level of analysis—participant or item level—we preregistered an analysis of variance per participant (ANOVA F1) and per item (ANOVA F2). For clarity and brevity reasons, we reported only the results of the participant-level analyses, with the per-item level analyses reported on the project OSF page (along with the [G]LMM analyses). We expected the number of altruistic responses to be higher when the scenario involved a socially close one than when it involved a socially distant one, and that this effect would be stronger for male than for female participants.

Beyond this replication aim, the second purpose of the present study (part 2) was to substantially extend previous research by empirically testing the—often implicit—assumption that altruism and moral judgments partially overlap. We retained wrongness judgments as they were the most suited to assess the moral value of intentional behaviors such as altruistic/egoistic actions. We hypothesized that altruistic behaviors would be judged as more morally right than egoistic behaviors. In addition, we predicted that the effect of social distance on moral judgments would be stronger for egoistic behaviors than for altruistic behaviors. This hypothesis was derived from and refines a finding by Singer et al. (2019, study 2) signaling an effect of social distance for egoistic scenarios only (on an altruism/egoism judgment scale). Also, we expected an interaction effect between the scenario version and social distance on moral judgments, with participants judging egoistic scenarios more morally wrong when involving a distant (vs. close) one. Finally, linking part 1 and part 2, participants who chose more altruistic behaviors in part 1 would judge egoistic [altruistic] behaviors more morally wrong [right] in part 2 compared to participants who chose less altruistic behaviors.

## Method

### Power Analysis

We ran a power analysis using G\*Power (version 3.1.9.7) based on our reanalysis of Singer et al. (2019) (see SupplementaryAnalysis\_1 on the project OSF page). We retained the smallest effect size of interest (SESOI), which was the effect of social distance on behavioral choices:  $d = 0.17$  (when including both social distance and gender in the analyses). With a power of 80%, 274 participants were required. We rounded up the required sample size to 300 participants in case we would have to a posteriori exclude participants. Preregistered exclusion criteria can be found on the project OSF page.

## Participants

We recruited 300 participants via the Prolific platform. As the questionnaire was originally in English, we ensured that their first language was English, that they were currently living in the United Kingdom, and that they had the British nationality. An equal number of female and male participants was recruited to test the effect of gender. Participants were compensated £3.13 for study completion. The final participants sample was composed of 299 participants (149 females, 149 males, one unreported,  $M_{age} = 39.93$ ,  $SD_{age} = 13.77$ ), as one participant's data were excluded for having failed the three attention checks. The study was conducted in accordance with the ethical standards of the ethical board and the ethical principles of the American Psychological Association and the Declaration of Helsinki.

## Materials

We used the EMCS created by Singer et al. (2019). In their original material, after each scenario the question “What do I do?” is asked and participants are invited to choose between an altruistic versus an egoistic behavior (see examples in Singer et al., 2019). In part 1 of the current study, for psychometric and statistical reasons, we replaced this dichotomous response mode with a continuous response scale. The original behavioral choices served as the endpoints of the scale and were counterbalanced in terms of right/left order. Participants could thus respond at the endpoints or anywhere in between (see Figure 1).

In part 2, for moral judgments, we adapted the EMCS so that for each scenario, either the corresponding egoistic or altruistic behavior was automatically associated in advance in a counterbalanced manner. This resulted for each participant in 20 altruistic scenarios and 20 egoistic scenarios, varying across participants (see Singer et al., 2019, study 2 for a similar procedure for altruistic/egoistic judgments). After each scenario, the question “How right or

wrong is the behavior in this scenario?” was asked and participants provided their moral judgments on a scale from 1 (*very wrong*) to 7 (*very right*). Participants did not see the numbers of the scale during the task (see Figure 2).

### Figure 1

*Example of EMCS Items (a) with a Close Protagonist and (b) with a Distant Protagonist for Behavioral Choices (part 1)*

(a)

I buy concert tickets on the internet for my brother and myself. I can get two seats side by side. However, the tickets fall into two different price categories, so that one ticket is £10 more expensive than the other. What do I do?

I take the more expensive ticket. I take the cheaper ticket.

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●

(b)

While pulling out of a supermarket parking space, I accidentally bump the car parking next to mine. At first glance, I cannot detect any damages on my car. It is already dark and nobody else has seen anything. What do I do?

I leave a message for the owner of the car. I drive away quickly.

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●

### Figure 2

*Example of EMCS Items (a) with a Close Protagonist and (b) with a Distant Protagonist for Moral Judgments (part 2)*

(a)

I have promised my partner to go to the company party with him/her. He/she has already signed both of us up. Now I realize that I would urgently need the time to prepare for an important exam.

I prepare for the exam.

**How right or wrong is the behavior in this scenario?**

Very wrong                      Neither right nor wrong                      Very right

(b)

It is the soccer world cup and the final match is on TV. I am a big soccer fan and very excited about the game. All the sudden, a friend of mine who is not feeling well gives me a call and wants to meet up with me right now.

I meet up with my friend.

**How right or wrong is the behavior in this scenario?**

Very wrong                      Neither right nor wrong                      Very right

### Procedure and Design

The questionnaire was presented as follows: Participants gave their informed consent, read the instructions and first completed the EMCS scale as in Singer et al. (2019, study 3), using a slider to answer (part 1) (see Figure 1). At the onset of each trial, the slider was placed in the middle of the scale. All participants completed the 40 scenarios and the order of items presentation was randomized for each participant. Participants subsequently provided in part 2 moral judgments for the 20 altruistic and 20 egoistic scenarios, which were randomized across participants, again using a slider (see Figure 2). Participants finally provided age and gender. The questionnaire took about 25 minutes to complete. Three attention check items were included in the questionnaire (cf. ‘Attention checks items’ on the OSF page). The entire survey, as presented to participants, can be found on the project OSF page.

For behavioral choices (part 1), gender was a between-participant independent variable and social distance a within-participant and between-scenario independent variable. For moral judgments (part 2), the scenario version (i.e., 20 altruistic and 20 egoistic scenarios) was added as a third independent within-participant and within-scenario variable.

## Results

### Analytical Strategy

Analyses were performed with *R* programming language (*RStudio*, version 4.1.1) with the *lme4*, *DHARMA*, and *emmeans* packages. Results of the per participant analyses using mixed effects models were reported in the main text. For behavioral choices (part 1), as we counterbalanced the altruistic/egoistic choices position, we reversed half of the items, resulting in all items ranging from 0 (*egoistic*) to 100 (*altruistic*). Moral judgments (part 2) were coded with a continuous scale ranging from 1 (*very wrong*) to 7 (*very right*). We recoded gender, social distance, and the scenario version variables with the following contrasts: female (-0.5) versus male (0.5), close (-0.5) versus distant (0.5), and egoistic (-0.5) versus altruistic (0.5). All relevant variables and their interactions were entered in the models for parts 1 and 2. The alpha threshold was set at .05.

### Behavioral Choices (part 1)

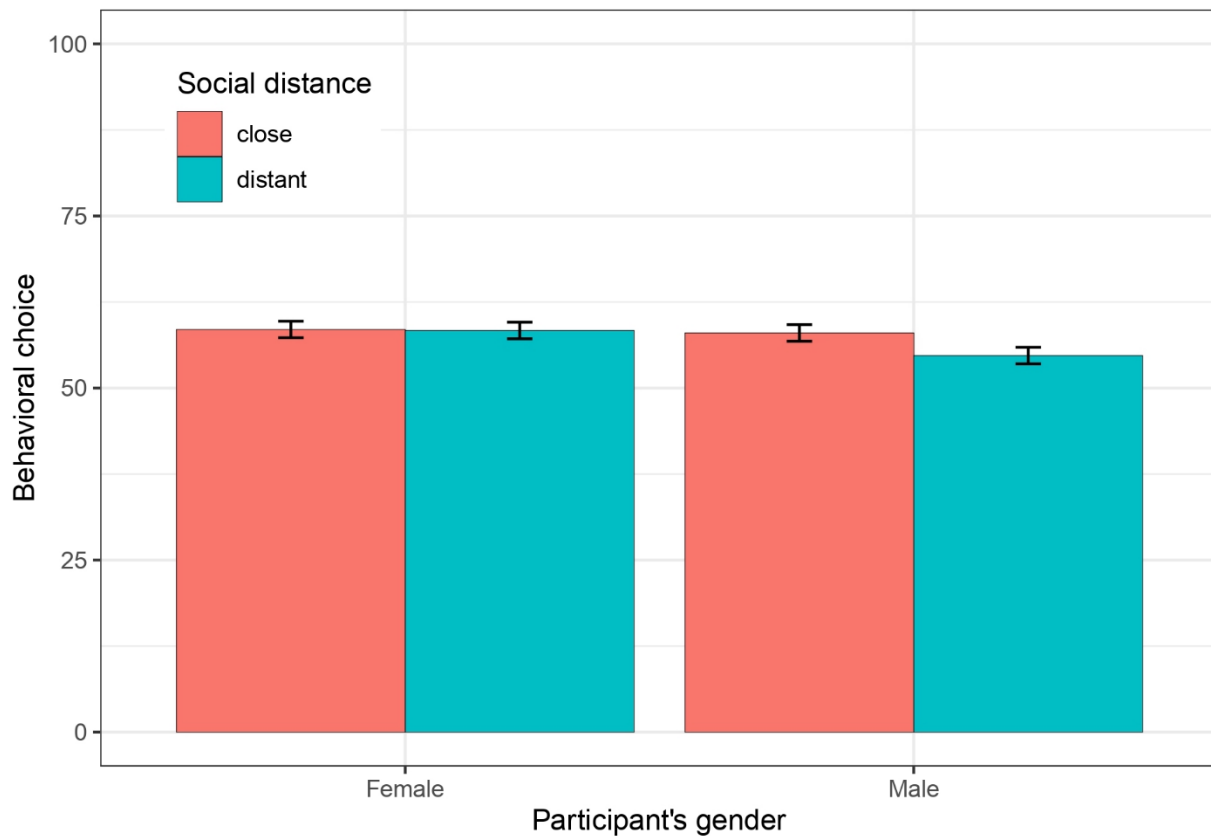
We found a significant effect of social distance on behavioral choices, with participants reporting more altruistic behavioral choices when a close one was involved than when a distant one was involved,  $b = -1.72$ ,  $SE = 0.74$ ,  $t(296) = -2.32$ ,  $p = .021$ , 95% CI [-3.18, -0.26],  $d = -0.12$ . The effect of gender was not significant,  $b = -2.08$ ,  $SE = 1.53$ ,  $t(296) = -1.36$ ,  $p = .175$ , 95% CI [-5.09, 0.93],  $d = -0.14$ . As expected, these main effects were qualified by a significant interaction effect between social distance and gender,  $b = -3.14$ ,  $SE = 1.48$ ,  $t(296) = -2.11$ ,  $p =$



.035, 95% CI [-6.06, -0.22],  $d = -0.11$  (see Figure 3). Precisely, the effect of social distance on behavioral choices was significant for males,  $b = -3.29$ ,  $SE = 1.05$ ,  $t(296) = -3.14$ ,  $p = .002$ , 95% CI [-5.36, -1.23]. When the protagonist in the scenario was a close one, males reported more altruistic choices ( $M = 58.00$ ,  $SD = 13.71$ ) in comparison to when it was a distant one ( $M = 54.71$ ,  $SD = 17.01$ ). For females, this difference was not significant,  $b = -0.15$ ,  $SE = 1.05$ ,  $t(296) = -0.15$ ,  $p = .88$ , 95% CI [-2.22, 1.91]. They reported almost identical amount of altruistic choices for close scenarios ( $M = 58.51$ ,  $SD = 12.05$ ) and for distant ones ( $M = 58.35$ ,  $SD = 15.46$ ).

### Figure 3

*Behavioral Choices (part 1) Depending on Participant's Gender and Social Distance*



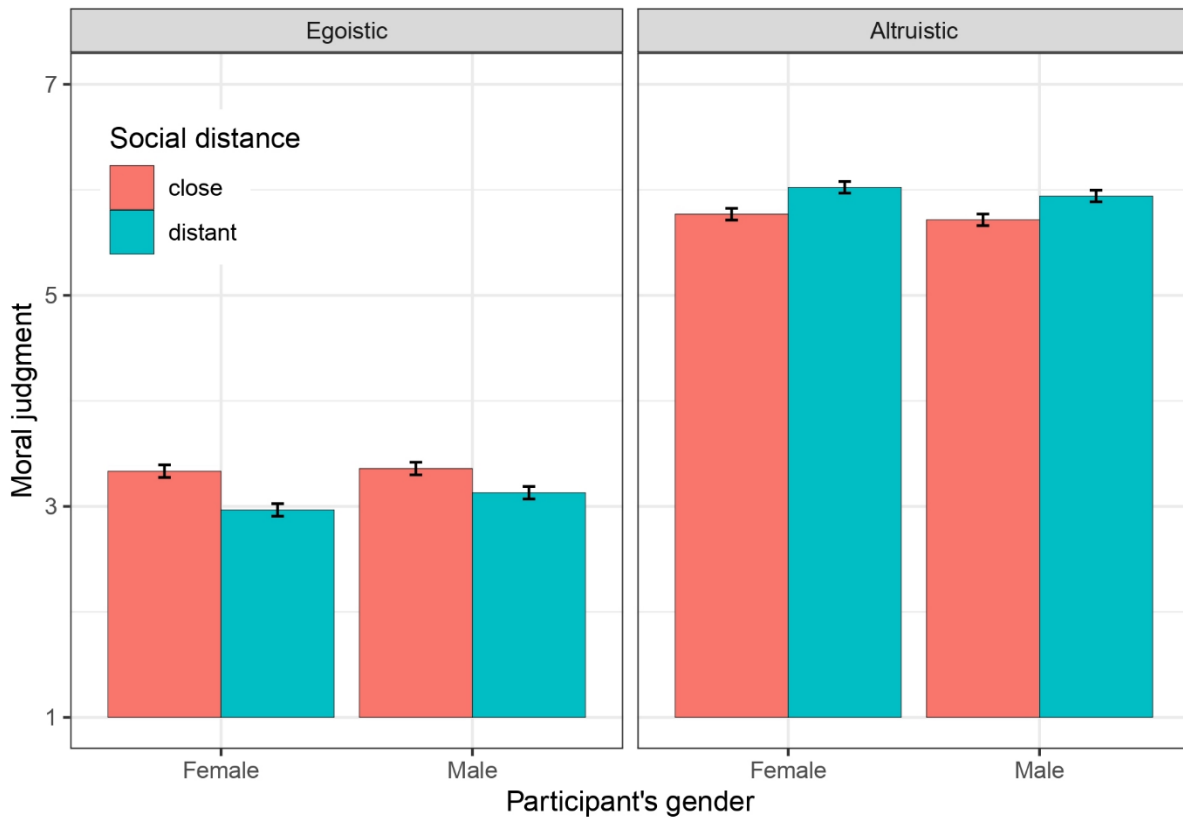
*Note.* Error bars represent standard errors of the means at participant level; higher values correspond to more altruistic choices.

### **Moral Judgments (part 2)**

We found a significant and large effect of the scenario version (i.e., egoistic or altruistic scenario) on moral judgments,  $b = 2.67$ ,  $SE = .06$ ,  $t(296) = 41.89$ ,  $p < .001$ , 95% CI [2.54, 2.79],  $d = 3.80$ , with participants judging egoistic scenarios more morally wrong ( $M = 3.20$ ,  $SD = 0.73$ ) than altruistic scenarios ( $M = 5.86$ ,  $SD = 0.67$ ). As expected, this effect was qualified by a significant interaction effect between the scenario version and social distance on moral judgments,  $b = 0.54$ ,  $SE = .05$ ,  $t(592) = 11.65$ ,  $p < .001$ , 95% CI [0.45, 0.63],  $d = 0.38$ . The effect of social distance on moral judgments for egoistic scenarios was significant,  $b = -0.30$ ,  $SE = 0.03$ ,  $t(592) = -9.12$ ,  $p < .001$ , 95% CI [-0.36, -0.23], with participants judging egoistic scenarios as less morally wrong when the protagonist in the scenario was a close one ( $M = 3.35$ ,  $SD = 0.70$ ) than when it was a distant one ( $M = 3.05$ ,  $SD = 0.75$ ) (see Figure 4). The effect of social distance on moral judgments for altruistic scenarios was also significant but reverted,  $b = 0.24$ ,  $SE = 0.03$ ,  $t(592) = 7.35$ ,  $p < .001$ , 95% CI [0.18, 0.30], with participants judging altruistic scenarios more morally right when the protagonist involved was a distant one ( $M = 5.98$ ,  $SD = 0.68$ ) than when it was a close one ( $M = 5.74$ ,  $SD = 0.66$ ). Finally, the exploratory analyses revealed that the three-way interaction effect between the scenario version, social distance, and gender was not significant,  $b = -0.17$ ,  $SE = 0.09$ ,  $t(592) = -1.81$ ,  $p = .071$ , 95% CI [-0.35, 0.01],  $d = -0.06$ . For altruistic scenarios, the two-way interaction between social distance and gender was not significant,  $b = -0.03$ ,  $SE = 0.07$ ,  $t(592) = -0.45$ ,  $p = .65$ , while it was significant for egoistic scenarios,  $b = 0.14$ ,  $SE = 0.07$ ,  $t(592) = 2.11$ ,  $p = .035$ . No other significant main or interaction effects were found ( $|ts| \leq 1.27$ ,  $ps \geq 0.20$ ).

**Figure 4**

*Moral Judgments (part 2) Depending on Participants' Gender, Social Distance, and the Scenario Version*



*Note.* Error bars represent standard errors of the means at participant level; higher values correspond to more morally right judgments.

### **Correlation between Behavioral Choices (part 1) and Moral Judgments (part 2)**

Relying on Pearson's correlations across participants, there was a significant link between the answers given in part 1 as behavioral choices and those given in part 2 as moral judgments of wrongness. As expected, the more altruistic responses participants gave in part 1, the more they judged as morally wrong the egoistic scenarios in part 2,  $r = -.49$ ,  $t(296) = -9.76$ ,  $p < .001$ , 95% CI [-.57, -.40]. Symmetrically, the more altruistic responses participants gave in part

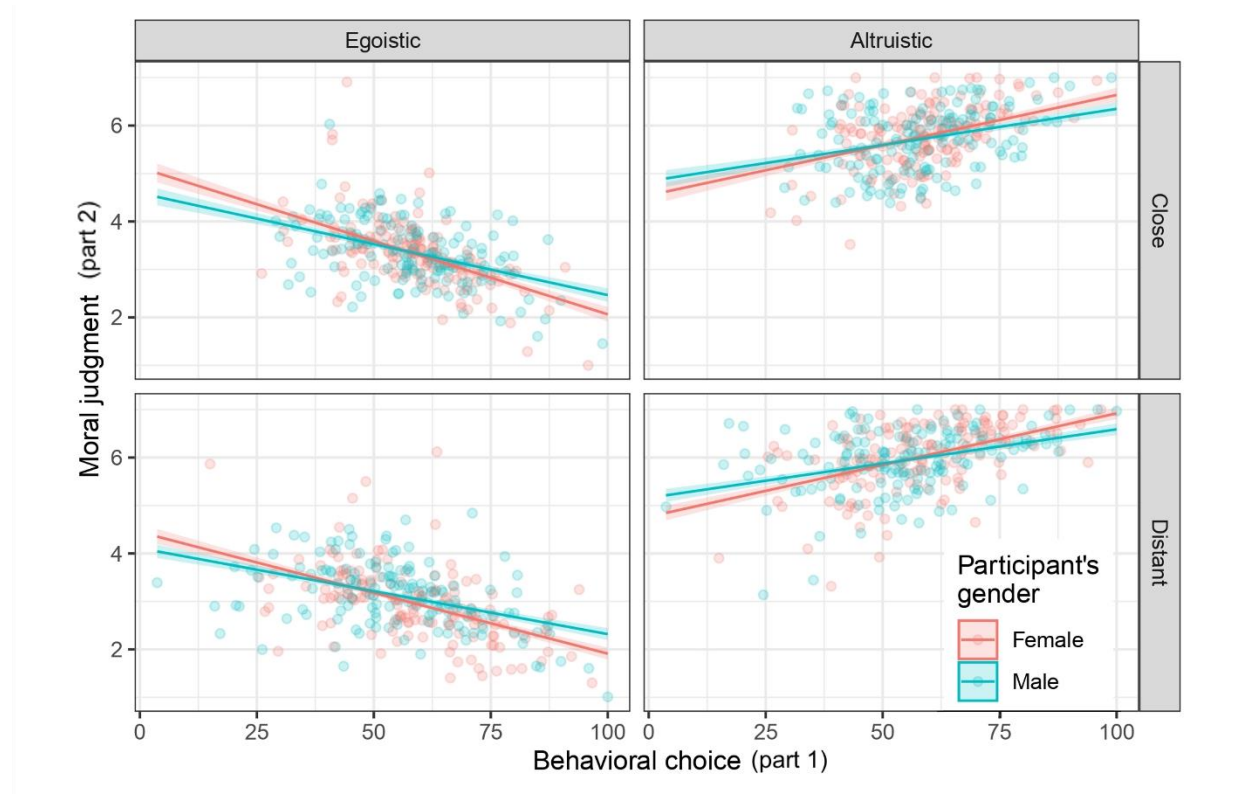
1, the more they judged as morally right the altruistic scenarios in part 2,  $r = .42$ ,  $t(296) = 8.03$ ,  $p < .001$ , 95% CI [.32, .51].

To refine the results for part 2 and the reported correlations, we performed additional and exploratory linear mixed model analyses including all variables of interest and their interactions. Beyond the exact confirmation of results reported for part 2 (i.e., main effect of the scenario version on moral judgments, and its moderation by social distance), we also found a significant interaction effect between the scenario version (in part 2) and behavioral choices (in part 1),  $b = 0.04$ ,  $SE = 0.003$ ,  $t(863.97) = 15.83$ ,  $p < .001$ , 95% CI [0.04, 0.05]. The decomposition of this interaction while controlling for the other factors confirmed the zero-order correlations, with a significant negative relationship between behavioral choices (part 1) and judgments for egoistic scenarios (part 2),  $b = -0.02$ ,  $SE = 0.002$ ,  $t(823.07) = -13.59$ ,  $p < .001$ , 95% CI [-0.03, -0.02], and a significant positive relationship for altruistic scenarios,  $b = 0.02$ ,  $SE = 0.002$ ,  $t(802.83) = 10.49$ ,  $p < .001$ , 95% CI [0.01, 0.02].

This interaction was furthermore qualified by a three-way interaction effect with gender,  $b = -0.01$ ,  $SE = 0.005$ ,  $t(863.97) = -2.84$ ,  $p = .005$ , 95% CI [-0.03, -0.005], with a significant gender-by-behavioral choices interaction for egoistic scenarios,  $b = 0.008$ ,  $SE = 0.004$ ,  $t(823.07) = 2.40$ ,  $p = .02$ , 95% CI [0.002, 0.02], and a reversed yet non-significant interaction for altruistic scenarios,  $b = -0.007$ ,  $SE = 0.003$ ,  $t(802.83) = -1.92$ ,  $p = .06$ , 95% CI [-0.01, 0.0002] (see Figure 5). The simple effects of behavioral choices were all significant, and their amplitudes were larger for female participants than for male participants for both egoistic and altruistic scenarios ( $|bs| \geq 0.01$ ,  $SE \leq 0.003$ ,  $|ts| \geq 6.32$ ,  $ps \leq .001$ ). All other interaction effects were not significant ( $|ts| \leq 1.35$ ,  $ps \geq .17$ ).

**Figure 5**

*Relationship between Behavioral Choices (part 1) and Moral Judgments (part 2) Depending on Participant's Gender, the Scenario Version, and Social Distance*



*Note.* Error bands represent estimated conditional standard errors of the regression; points represent the associated participants' mean responses; higher values correspond to more altruistic behavioral choices on abscissa, and more morally right judgments on ordinates.

### Discussion

In this study, our first objective was to examine how moral decision making in everyday settings was influenced by social distance and participants' gender, which necessitated to clarify through a reanalysis and to conceptually replicate previous findings (Singer et al., 2019). A second objective was to extend Singer et al.'s findings (2019) by investigating the assumed link

between altruism and morality. We therefore analyzed how participant's gender, social distance, and the scenario version (i.e., altruistic vs. egoistic) influenced participants' moral judgments of wrongness in everyday moral settings.

### **Social Distance and Gender Effects on Behavioral Choices**

Based on our reanalysis of Singer et al. (2019, study 3), we expected a gender-by-social distance interaction effect on the EMCS scale. Indeed, it pointed at the importance of considering both social distance and gender and helped reconciling Singer et al.'s (2019) and Singer et al.'s (2021a) own findings which would otherwise have been inconsistent. In part 1 of the present study, using an adapted version of the EMCS scale with a continuous mode of response, we found a main effect of social distance on behavioral choices, with participants choosing to be more altruistic with close persons than with distant persons. This result is consistent with Jones' (2021) literature review on the effect of social distance on altruistic behaviors and confirms Brañas-Garza et al.'s (2010) claim that social distance is a determinant of altruistic behavior. Importantly, we also found the expected interaction effect between social distance and participants' gender on behavioral choices. As in Singer et al. (2021a) and in our reanalysis of Singer et al. (2019, study 3) but not reported in the original research, males chose to be more altruistic toward a close one than toward a stranger. For females, the difference in altruistic behavioral choices between situations involving close and distant persons was not significant.

Although other findings in the literature (e.g., Friesdorf et al., 2015; Youssef et al., 2012) reported gender differences in moral decision making, only our reanalysis and integration of Singer et al. (2019) and Singer et al. (2021a) pointed at the possibility of a gender-by-social distance interaction effect. The present research thus provides integrated and sound empirical evidence but did not investigate possible explanatory mechanisms. These gender differences

could be explained by the fact that females tend to be more egalitarian (i.e., desire to treat people equally) than males, while males tend to have more polarized behaviors (i.e., being perfectly selfless or totally selfish) (Andreoni & Vesterlund, 2001). Another explanation may be related to gender-stereotypic dimensions which differ for women and men. While stereotypes targeting females involve being gentle, supportive, kind, nurturing, and subordinating the self to others, those targeting males involve being egotistical and unprincipled (Diekmann & Eagly, 2000). As stereotypes are widely shared, they may explain more altruism among females for everyone (close and distant). This would only hold for males when involved protagonists are close to the self. Such an interpretation also aligns with work on the development of group-specific social norms, which contribute to individuals' group identity and membership (Ellemers et al., 2013), here related to gender. These interpretative paths need to be further investigated to better understand gender differences as a function of social distance.

### **Altruism and Morality**

As the link between altruism and morality is often assumed in the literature without providing empirical evidence, it was of paramount importance in the present study to demonstrate this link. We used an adapted version of the EMCS and observed a large effect of the scenario version on moral judgments, which means that egoistic scenarios were perceived as more morally wrong than altruistic scenarios and vice versa. This link between altruism and morality, established by assessing the relationship between behavioral altruistic choices and wrongness judgments respectively, makes it possible to move beyond assumptions and base it on initial empirical evidence. We acknowledge that the measures of altruism and morality were not the same, as one captured behavioral choices and the other evaluative judgments, which may have triggered some differences in moral decision making (e.g., Tassy et al., 2013). On the other

hand, the use of different measures was desirable, as otherwise the strong relation between scenario version and moral judgments could have been attributed to common-method variance.

Moreover, the scenario version effect depended on social distance. Participants judged a stranger's egoistic behavior as more morally wrong than their close one's egoistic behavior but judged a stranger's altruistic behavior as more morally right than their close one's altruistic behavior. Participants were thus a bit more lenient when judging the egoistic behaviors of a close one compared to a distant one, but also judged a bit more praiseworthy a distant one's altruistic behavior compared to that of a close one. This asymmetrical tendency is consistent with other research. Eyal et al.'s (2008) study 3 showed this asymmetrical tendency for wrongness judgments even though they manipulated social distance by a first- versus third-person perspective (i.e., participants had to answer according to their own thoughts [socially close] vs. to another specific person thoughts [socially distant]). McManus et al. (2020) demonstrated that participants judged more positively agents who helped strangers than agents who helped kin. Together, previous and present findings point at the generalizability of this asymmetrical tendency.

In the current study we found that the interaction effect between social distance and the scenario version on moral judgments was not significantly influenced by participants' gender. However, in an exploratory way, it was found that the effect of social distance depended on the participants' gender for egoistic scenarios but not for altruistic scenarios. The lack of literature on the effect of gender, social distance, and altruistic/egoistic behaviors on moral judgments makes it difficult to explain this exploratory finding. Nonetheless, as the present study confirms that scenario version influences moral judgments and past literature shows that participant's gender and social distance separately impact moral judgments (Atari et al., 2020; Linke, 2012;



McManus et al., 2020), it would be relevant for future research to include all three variables in a systematic way to clarify their effects.

### **Limitations and Perspectives**

While the present research clarified and reconciled some inconsistencies in the literature (Singer et al., 2019; Singer et al., 2021a; Singer et al., 2021b) and provided novel findings contributing to moral psychology, it is not without limitations. To clarify Singer et al.'s (2019) findings and to generalize on one hand to items and on the other hand to both items and participants, we also conducted an ANOVA per item and a LMM (i.e., with two random factors) reported on the project OSF page. Given the restricted number of items in the EMCS (i.e., 20 socially close and 20 socially distant items) and the social distance manipulation (i.e., between-item variable), these analyses lacked statistical power. Therefore, in future research, the EMCS should be adapted so that social distance could be manipulated within items. In addition, to increase the item sample size and make the EMCS less oriented toward norm transgression, several new scenarios should be created, as there are many dimensions in the moral domain to take into account (e.g., authority/subversion) according to the moral foundation theory (Graham et al., 2013).

In the same methodological vein, we adapted the EMCS with a continuous measure to better nuance participants' behavioral choices. This took us slightly away from an exact replication of Singer et al. (2019). However, when dichotomizing the present continuous choices, results were the same (see 'Analysis (Qualtrics survey)' on the OSF page). Benefits related to continuous scales may therefore outweigh possible drawbacks, which does not prevent future research to specifically investigate how continuous (vs. dichotomous) response modes may influence moral decision making.

At a more theoretical level, considering the Construal Level Theory (Trope et al., 2007) framework, predictions could have been derived in accordance with the fact that high (vs. low) psychological distance generally enhances an abstract (vs. concrete) representation of the situation. As this theoretical framework is rather general, it did not seem the most directly relevant to develop the present research rationale. However, future research may investigate whether such predictions specifically apply to moral contexts and social distance.

Finally, according to literature, culture can influence moral decision making (Anderson & Beauchamp, 2012; Graham et al., 2016; Haidt, 2001; Yates & de Oliveira, 2016) and more specifically altruistic behaviors (Jones, 2021; Strombach et al., 2014). In the current study, our sample was of only British people whereas the original material was created on a German sample (Singer et al., 2019). Even if there are differences between British and German cultures, they share a lot of similar occidental values (considered as individualistic societies) which probably minimizes differences, resulting in consistent findings. However, as Strombach et al.'s (2014) indicated that Western and Eastern cultures differ in altruistic behaviors, future studies may replicate the present research on a sample from an Eastern culture (see also the multilab replication study by Bago et al. in 2022 focusing on moral trolley-like dilemmas specifically across US, Western, Eastern, and Southern cultural clusters).

## **Conclusion**

The present research contributes to better understand the influence of social distance and gender on everyday moral decision making, along with the relationship between altruism and morality. Social distance and gender both played important roles: males, compared to females, chose to be more altruistic with close ones than with distant ones. Moreover, the effect of social distance on moral judgments of wrongness was stronger for egoistic behaviors. Finally,

participants who initially chose to be more altruistic displayed more polarized moral judgments afterwards. Different factors are thus influencing how people judge and behave in everyday moral situations, all contributing to shaping individuals' daily life reactions.

**Additional Material**

The project OSF project page link: <https://osf.io/j49k2>

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