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Altruism and empathy in situations involving unpredictable personal cost

Altruismo y empatía en situaciones que implican costos personales imprevisibles

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Abstract: This current study aimed to investigate the influence of empathic feelings on a risky altruistic behavior of young adults. 60 undergraduate students, aged between 18 and 35 years old took part in an experiment in which they had to decide in rather to give or not raffle tickets to an unfamiliar person, after participating of a gambling game. The tickets were gained after a memory quiz. 30 participants were allocated to an experimental condition named "neutral" in which they freely took their distributive decisions, and the other 30 were allocated to an "emotional" condition, in which empathic feelings were induced, by using a video. Results indicated that the participants' sex and the experimental manipulation influenced gambling behavior, allowing the participants to be in the "emotional condition", more prone to altruistic behavior than the participants in the "neutral" condition. Also, the men helped more in a high-cost condition than the women did. These results point that the influence of empathic concern on altruistic behavior in a situation involving risks might be mediated by the sex and the relation between these variables should be better observed in studies on distributive behavior.

Keywords: altruism, empathy, personal cost, gambling, risk behavior

Resumen: El presente estudio tuvo como objetivo investigar la influencia de los sentimientos empáticos sobre el comportamiento altruista de jóvenes adultos. 60 estudiantes de 18 a 35 años de edad participaron de un experimento en el que tuvieron que decidir dar o no rifas a una persona desconocida, después de participar en un juego de azar. Los biletes se obtuvieron después de ganar un concurso de memoria. 30 participantes fueron asignados a una condición experimental denominada "neutral", en la cual tomaron libremente sus decisiones distributivas, y los otros 30 fueron asignados a una condición "emocional", durante la cual se indujeron sentimientos empáticos, utilizando un video. Los resultados indicaron que el sexo de los participantes y la manipulación experimental influyó en el comportamiento del juego, dejando a los participantes en la "condición emocional" más propensos al comportamiento altruista que los participantes en la condición "neutral". Además, los hombres ayudaron más en una condición de alto costo que las mujeres. Estos resultados apuntan a que la influencia de la preocupación empática sobre el comportamiento altruista en una situación que implica riesgo, podría estar mediada por el sexo y que las relaciones entre estas variables necesitan ser mejor observadas en estudios sobre el comportamiento distributivo.

Palabras clave: altruismo, empatía, costos personales, juegos de azar, comportamiento de riesgo

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Introduction

Empathy can be conceived as a capacity of being aware and sharing feelings of others, which is essential for the constitution of interpersonal affective bounds and for the social organization (Hoffman, 2000). Beyond permitting to resonate with the affective experiences of others, empathy enables a person to imagine what he/she would feel, think or do if he/she would be in another person's situation, activating the memory mental representations related to their personal history and emotional consequences.

Those representations might prompt bystanders to feel distressed when they observe or imagine another person in a risky situation suffering, injustice or distress (a potential victim), increasing the motivation to act in a pro-social way, even when there is no close relationship between each other and the one observed (Eisenberg, Eggun, & Giunta, 2010). So, when someone imagines how he/she would like to be treated, a pattern of how others should treat could emerge, which requires the individual to know the desires, needs, and inner states of others (Batson et al., 2003). Therefore, motivation arises from empathy reinforcing the consideration for other's interests instead of their own, what might conduct the individual to engage in cost behaviors, in order to help the person to whom empathy is felt.

Both in common sense and in science, a relationship between empathy and morality is expected (Hoffman, 2000; Eisenberg, 2000; Page & Nowak, 2002), once the affective arousal experienced during empathic episodes might predispose the empathizer to internalize and prefer moral principles that reinforce the concern for other's well-being. From an evolutionary perspective, these empathic mechanisms are directly associated to altruism motivation (De Waal, 2008) and distinct aspects of empathy would be stemmed from different evolutionary processes (Preston & De Waal, 2002). Group-based feelings might trigger motivation to act in favor of the group. In this sense, empathy can be thought of not only as an interpersonal process, but also as a group-based emotion, that is, an emotional response that arises or is formed from social identities (Smith & Mackie, 2016).

The effect of witnessing other people's suffering in arousing empathic concern has been used in advertisement pieces by Humanitarian Institutions (e.g. Doctors Without Borders, The Red Cross, Save The children etc) to put viewers closer to real situations faced by professionals and volunteers, who struggle to improve people's quality of life and those who live in risky situations (e.g. war refugees, survivors of natural disasters, population in deep poverty). Through the exposition of images, stories, and other situational cues, marketing experts aim to create a context that motivates other-regarding behavior and consequently increases the viewers' motivation to donate and to help people whose situation they have just taken notice of.

According to Bernhardt & Singer (2012), emotional contagion affects sharing behavior, and can trigger feelings such as compassion, sympathy and empathic concern, promoting further pro-social behavior. Previous studies show, in hypothetical scenarios, more empathic adolescents allocated resources for employees who accomplished a task together, based on the principle of need – to give more to those who need more – (Sampaio, Camino, & Roazzi, 2010). Also, scores on empathic concern and perspective taking were positively correlated to evaluations of charity as a fairer system of allocation, among individuals who concluded a task at Amazon Mechanical Turk (Niemi & Young, 2017). In a real-world experimental setting, when a supposedly injured man – after a simulated bicycle fall – could be helped by passersby, found a positive correlation between empathy scores and helping behavior (Bethlehem, Allison, van Andel, Coles, Neil, & Baron-Cohen, 2017).

Specifically to economic scenarios, minimal cues suggesting a recipient is in a needy situation (hungrier than a person who is getting the distributive decision) (DeScioli & Krishna, 2013) or in a powerlessness position (*"... your recipient relies on you"*) (Brañas-Garza, 2007) were enough to increase donations during a Dictator Game (DG), even in anonymous Internet interactions, during which it is always expected high levels of selfishness. More recently, Klimecki, Mayer, Jusyte, Scheef and Schönenberg (2016) observed that donations in a DG preceded by an empathy induction (videos showing people in needy situations) were more generous than those in a classical DG (70% against 40%).

Although it seems well established that empathy increases the frequency of distributions based on altruism (to favor others in need at a

personal cost), the relation between empathy, justice, and moral behavior is controversial (Decety & Cowel, 2015). For example, Lange (2008) observed that empathic motivation was not related to both a concern with one's own outcomes (selfishness) and a concern with equality in a distributive situation (egalitarianism). Therefore, it is important to note that in the aforementioned studies the most generous distributive behavior elicited by empathy was always directed to the person whose participants were induced to feel empathy. Thus, it is unclear whether other people would receive the same treatment, regardless of their situation.

In this way, distributive decisions motivated by empathy are vulnerable to bias that might produce parochialism, in-group preferences, and a tendency to favor family members, people either more similar or close to the empathizer, or others present in the immediate situation (Hoffman, 2000). Regarding this question, experiments involving conditions during which participants believed their decisions could impact the real-world (a scenario in which the participants should allocate people to situations with positive or negative consequences, and the another one is that they should decide when terminally ill children would receive medical procedures in order to save their lives) point that empathic feelings can induce people to make unfair decisions, even contrary to the moral principles they themselves have defended before (Batson, Klein, Highberger, & Shaw, 1995).

Therefore, it is feasible to ask: Does empathy induce situational cues to promote altruistic behavior towards someone who is not necessarily an object of the empathic feelings? To address this question, this current study examined whether empathic concern aroused from situational cues depicting difficulties faced by a group (a poor population that survives in adverse conditions because of the drought in the Northeast of Brazil) would enhance pro-social behavior towards someone who was not in need, distress or unfair condition.

Until now, no previous study manipulated simultaneously the following characteristics: i) the distributive decisions had real consequences to the participants; ii) resources were not unexpected inheritances (such as in classical DGs), but consequences of personal effort; iii) participants were induced to believe they and the recipients were engaged in a common academic activity, which is more familiar to them than economic interactions, enhancing the ecological validity of this current study; iv) the situational cues were used to induce empathy and had no indications in suffering or distressing the recipient.

So, this current study aimed to investigate the influence of empathy on altruistic behavior of young adults. It was intended to evaluate if empathic concern induced by a general stimulus would influence the distribution of the outcomes toward a person not related to the situational cues that originally aroused the empathy. In order to do that an experimental scenario was elaborated in which the participants were placed in an initial situation of advantageous asymmetry produced by personal merit, while their motivation to help others was tested. Also, it was included a risky scenario in which participants could not control the outcomes and the personal cost to behave altruistically could be low or high. However, to get in the high-cost scenario, participants would have to go through the low-cost situation first, which represented a true altruistic behavior toward the recipient. It was hypothesized that induced-empathy enhance altruistic motivation, leaving individuals prone to lose their gains, if this could help an unfamiliar person.

Methods

Participants

The participants were 60 undergraduate students (50% men), ranging from 18 to 35 years of age (M_{age} = 22,32; *s.d.* = 3.58), from Petrolina City in Pernambuco State and Juazeiro City in Bahia State in Brazil. They were predominantly middle class and white, and consented to participate spontaneously of this study. The participants were randomly assigned to one of the two experimental conditions: a "neutral" (n = 30) or an "emotional" (n = 30).

This research was approved by the Ethics Committee in Research with Human Beings (protocol number: 0006/140613 CEDEP / UNIVASF).

Instruments and materials

Altruistic behavior was evaluated in a gambling game in which the prize was raffle tickets, each ticket had a chance of winning R$ 100.00 (approximately US$ 30.00).

In order to promote empathic feelings in the participants in the emotional condition, a video clip describing families suffering during the drought season in the Northeast region of Brazil was showed. This video was chosen because the cities where this study was conducted are located in that region, thus the participants were familiarized with the situation, and this could favor the participants to identify themselves with the characters in the video.

Procedures

The participants played the game in a room at the Lab for Learning, Development and Psychosocial Processes at the Universidade Federal do Vale do São Francisco, while the opponents (in fact, a confederate) and a second researcher waited in the room next door. The experiment was divided into three steps, as the following:

Step 1: Memory test

The participants were informed that the researcher was conducting a study about memory with the undergraduate students and invited to take part on it. Therefore, she needed to run some memory tests with the students who volunteered. After accepting to take part of the test, each participant was informed on how the test worked. In this test, the researcher read aloud nine words (picture, dragon-fly, jacket, violin, eyebrow, tomato, report, board, and brother). As soon as she finished reading, the participants were asked to repeat all the words they could remember. It was informed that other people were doing the same test in the next room at the same time. The one who could remember most of the words would be the winner and would receive two R$100.00 raffle tickets. The two rooms were adjoined with a one-way mirror between them and gave the participants the chance to see the second researcher and their opponents playing the same test.

As the memory test ended, the researcher said to the participants she would leave the room to ask how many words the opponent had remembered. After some minutes, the researcher returned with the opponent who also won and received the two tickets, established an asymmetric situation between the participant and the opponent at the moment. The amount of words remembered between the opponent and the participant was the difference of two words each.

Step 2: Ending memory test simulation

After knowing the test results, the participants were asked about their personal information to fill out the raffle tickets and were thanked for participating by the researcher. This would represent the end of the activity. However, as the participants were about to leave the room, the researcher called them back and told them they could try and help their opponent in getting raffle tickets as well, but they would have to take part of the gambling game.

Step 3: The gambling game

In the gambling game, the participants could try to get two more tickets for the opponent, at the cost of one of their own tickets. The participants were told that they did not have to participate in the gambling game, that they could just leave the lab and keep their tickets. But If they decided to participate, they would have to choose between an odd or even number in which it would be taken from an opaque box containing six tokens, numbered from one to six.

The experimental manipulation ensured that the participants could always lose the gambling game. To achieve this goal, two boxes were hidden away from the participant and one of the boxes contained only odd numbers and the other only even numbers.

As the participants lost, a second chance was given to them to help the opponent get a ticket in a new round of the gambling game. However, if this time they lost, they could end up without any tickets. As in the first round, the experimental manipulation ensured that the participants could always lose.

At the end of all the procedures, the researcher explained to the participants the goal of the study and gave back their raffle tickets lost in the gambling game. Finally, the importance of confidentiality over the method was emphasized and the participants were thanked for their collaboration in the study.

Experimental conditions

Half of the participants were assigned to a neutral experimental condition, following the aforementioned procedures, and the other half were allocated to an emotional experimental condition. In the neutral condition, the participants freely took their distributive decision after

the memory test (no additional instructions or information were given). On the other hand, in the emotional condition, they watched a video (6m23s) on a laptop monitor, after Step 1, to induce empathic concern. The participants were asked how pitiful, distressed and sad they were after watching the video by asking three questions evaluated by the five-point-Likert scales. After this activity, Step 2 began and followed the same procedures used in the neutral condition. The sample distribution details are shown in Table 1.

Table 1
Sample description according to sex and experimental conditions for the first and second rounds

		Experimental condition			
		Neutral		Emotional	
Rounds	Sex	n	%	n	%
First	Men	15	(50%)	15	(50%)
	Women	15	(50%)	15	(50%)
Second	Men	7	(38.9%)	11	(61.1%)
	Women	10	(45.5%)	12	(54.5%)

Results

The percentage of gamblers in the first and second round was calculated: 66.7% of the participants gambled in the first round, and 27.5% gambled in the second round. The percentage of first-round-gamblers was higher for those who watched the video than for the ones who did not. However, the Chi-square test indicated that the difference in the proportion of these two groups was not significant (p>.05). On the other hand, a significant difference in proportion of the second-round-gamblers was found in the emotional group (43.5%) and in the neutral group (6%) (χ^2=6.9; $d.f.$=1; p=.008) this can be seen in Figure 1.

A general index of gambling was computed as an exponential function of the sum of how many times the participant gambled, once the decision was made to gamble in the second round the risk was riskier than in the first round. Also, no one was allowed to gamble in the second round without gambling in the first. The t-test indicated a significant difference in the mean of gambling index between the participants in the emotional and neutral groups (t=3.265; $d.f.$=42.67; p=.002).

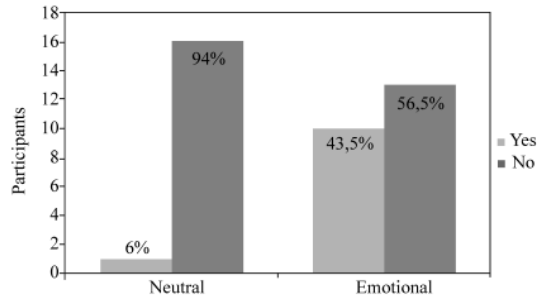

Figure 1
The amount and percentages of the participants who decided (or not) to gamble in the second round considering the experimental condition

Table 2.
Comparison of mean in General Gambling Index among the participants who watched or not the video

Video	*n*	*Mean*	*Standard deviation*
No	30	2.13	1.31
Yes	30	3.87	2.62

Women decided more often to participate in the first round of the gambling game than men did, regardless of the experimental condition. However, the Chi-square test did not indicate any difference in the proportion between women and men for the first round. On the other hand, when the frequency of gambling was analyzed, only for the second-round-gamblers, the Chi-square test indicated differences in proportions between men and women who risked their last ticket (χ^2=4.7; $d.f.$=1; p=.03). As shown in Figure 2, more men (44%) than women (14%) agreed to participate in the second round of gambling. In this latter analysis, only those who took part in the first round and decided to gamble again were considered.

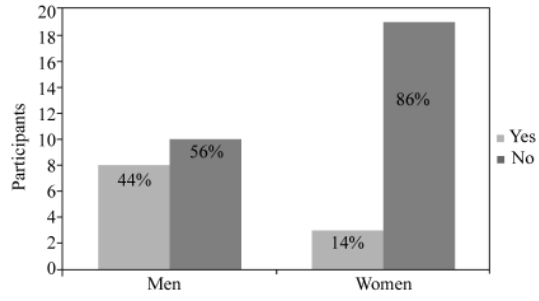

Figure 2
The amount and percentages of men and women who decided (or not) to gamble in the second round

In addition, a general emotional arousal was computed representing the mean of the three questions asked that evaluated personal feelings after watching the video (sadness, pitiful or distressed). The general mean of this index was 3.84 (*s.d.*=.94) indicating moderate to strong emotional arousal in the participants who watched the video. The t-test analysis resulted in no significant difference between men and women in their emotional arousal (p >.05).

The mean of the emotional arousal was compared between gamblers and non-gamblers, considering the first and the second round separately. For these tests, the participants of the emotional condition were the only ones included. There were no significant differences between these two groups in both rounds.

A correlation analysis for these two indexes was also run, but no significant correlation was found. As a second approach, a point-biserial correlation was made to verify whether emotional arousal is correlated to gambling in the second round. It turned out that neither for men nor for women a significant association between the riskiest gambling and the general emotional arousal was found.

To look further at the possible effects on gambling decisions, we opted to conduct regression models considering three factors: watching the video, sex and emotional arousal. We tested two regression models: the first one was a multiple linear regression, in which the general gambling index was the dependent variable and the independent variables were sex, whether or not watched the video, and the emotional arousal index. This model had no significant coefficients, therefore it was left out.

The second model was a logistic regression conducted to evaluate if the participants would gamble in the second round by using experimental conditions, sex and emotional arousal index as predictors. Here, only the first-round-gamblers were considered. A full model test against an only constant model was statistically significant, indicating the predictors as a set reliably distinguished between the acceptors and the decliners of gambling (chi-square=12.898, p=.002, with *d.f.*=2).

Nagelkerke's R^2 of .399 indicated a moderate relation between the prediction and grouping. The prediction success overall was 85% (89.7% for declining and 72.7% for accepting). The Wald criterion demonstrated that watching the video and sex contributed significantly for the prediction (p=.021 and p=.036, respectively). When the emotional arousal index was inserted into the model, only the sex had a significant coefficient and for this reason the model was considered only watching the video and sex as predictors. Exp(B) value indicates that when the participants watched the video, the odds ratio was 14.74 times, and therefore, the participants were 14.74 times more likely to gamble in the second round than the first-round. As for the sex, the Exp(B) value indicates a lower impact on the decision to gamble, so men are 6.24 times more likely to gamble in the second round than women.

Discussion

The results showed that the participants tended to help others when the cost was low, but in a high-cost and risky situation (second round of the gambling game) this tendency to help did not prevail. Although, it is important to consider that trying to help in the second time in this experiment involved not only a potential lost of their last resource but also a previous experience of losing. Therefore, the results suggested that second-round gamblers had a strong inclination to be altruistic, whereas first-round-gamblers had a weak inclination to try to change the asymmetrical condition. Hence, Batson and collaborators (2003) hypothesis of people who had a propensity to keep advantageous asymmetries were not quite corroborated in this study. Nonetheless, insofar as there were two opportunities to gamble with two distinct characteristics, such as those who helped in the first round had the chance to be fair by following the moral standard of egalitarian justice without paying a considerable cost (Batson et al., 2003).

The video exhibition succeeded in its objective to mobilize empathic concern on the participants, since those who watched it were more prone to gamble in the second round. As mentioned before, there was a general predisposition to help in a low-cost scenario. In this case, the video did not seem to be relevant to instill participants in helping. Conceivably, the first-round-gamblers could have been motivated by a socially desirable behavior (Lee & Woodliffe, 2010) and reputational concern (Panagopoulos, 2014; Manesi, Van Lange, & Pollet, 2016), but not due to the intention in helping another person. Thus,

watching the video did not have a significant impact on their decisions, since the situational cues provided by the video had no influence on people's social desirable bias.

Notwithstanding, the empathic concern induced by the video increased the disposition in helping when gambling became riskier, namely the participants could lose everything after they had already lost half of their raffle tickets, corroborating the association between empathy induction and altruism (Klimecki et al, 2016). However as the second round required the participants to jeopardize their last ticket to give the opportunity to the opponent to get one, self-interested behavior emerged (Batson, Kobrynowicz, Dinnerstein, Kampf, & Wilson, 1997) decreasing the proportion of gamblers. On that account, the video was effective only for the second round to gamble.

In relation to empathy, experiencing empathic concern would lead individuals to help others, considering the need to relieve their own distress through suffering relief of the other (Hoffman, 2000; Zaki, 2014). In this study, a general emotional index was created after the participants watched the video. However, it had no statistically relevant impact on the participants' choices. On the other hand, the individuals in the emotional condition had a relatively high mean of emotional arousal. Thus, the null effect of the emotional arousal index on the decision in helping may be due to the ceiling effect of this index.

It is worth noting that the proportion of the second-round-gambler men was higher than the proportion of the second-round-gambler women. This apparently contradicts the previous study that found women to be more prone to help than men did (Sampaio, Camino, & Roazzi, 2010), especially in a empathy induced scenario (Espinosa & Kovářík, 2015). However, as far as the first round of gambling is concerned, the women had a high proportion on helping decisions. Thus, another factor might have influenced the second-round-gamblers. In fact, it is important to consider that the altruistic behavior in this context should occur under the risk of losing all the gains.

Therefore, those who gambled twice should be less risk-averse people than those who gambled just once. This risk-seeking behavior seems to have a sex bias (Byrnes, Miller, & Schafer, 1999). For example, one study demonstrated that men were more risk-seeking in a financial investment scenario than women (Powell & Ansic, 1997) and another, investigated risk-seeking behavior in a hunter-gatherer society found that men were more prone to take risks than women (Apicella, Crittenden, & Tobolsky, 2017). Furthermore, the association between sex and risk behavior is mediated by anxiety state: the more anxious you get the riskier averse you are; besides women tend to get more anxious easily than men do (Panno, Donati, Milioni, Chiesi, & Primi, 2017). As the scenarios in our study put the participants in a conflict of interest, it is expected that their anxiety would be triggered by personal distress, which also affects high-cost altruistic behaviors (Paciello, Fida, Cerniglia, Tramontano, & Cole, 2013).

We consider that our logistic regression model corroborates with these previous studies because watching the video and the sex were the factors that predicted the decision to gamble in the second round. According to our model, 40% of the variance was explained by these two factors. However, we think that this could be stronger if we had measured the level of anxiety of each participant and added it in the regression model. Interesting enough, Klimecki et al. (2016) could also explain that 40% was the variance in their model of empathic feeling and altruism, although they measured a distinct type of altruism.

There was an limitation in this study that we did not evaluate the exact type of empathic feeling induced through the experimental manipulation and its relation to empathy trait. Literatures demonstrate that empathic traits predict altruistic behavior, and that situational cues on empathic episodes might produce, at least, two distinct responses: empathic distress, which represents an aversive arousal state experienced on oneself, when someone observes others in a risky situation, injustice or disadvantage; and in sympathetic distress, a motivation to relieve or attenuate the distress of the other (Paciello, Fida, Cerniglia, Tramontano, & Cole, 2013).

Empathic distress is self-centered and might increase the propensity to help others, but only when the personal cost is low and the individual has no opportunities to escape, so he/she alleviates the other's suffering to diminish the negative sensation experienced on oneself. On the other hand, sympathetic distress is other-oriented, and that is why it is closer to a real altruistic motivation, independent of personal interest (Cargile, 2016;

FeldmanHall, Dalgleish, Evans, & Mobbs, 2015). Hence, it is possible that the participants' traits of dispositional empathy might mediate the effects of the situational empathic induction that is expected to influence altruistic behavior. Thus, future studies can benefit with the use of standard scales (e.g. the Interpersonal Reactivity Index – Davis, 1983) to test if the induction of situational empathy has distinct effects on individuals with different levels of dispositional empathy and its influence on altruistic behavior.

From the results examined here it is worthy to question what could be done to expand the empathic arousal to overcome this interpersonal bias, predisposing the empathizer to act altruistically towards anyone, and not only to the person who he/she felt empathy for? The results obtained by Brañas-Garza (2007) might help answer this question, since this author observed that to frame the recipient's condition through the use of a sentence enhanced subjects' social responsibilities which promoted more generous-regarding behavior.

Also, induced-empathy for a member of a stigmatized group might improve attitudes towards the group as a whole (Batson et al, 1997; Sierksma, Thijs, & Verkuyten, 2015) or to another stigmatized group (Castelán Cargile, 2016). So, empathy for an individual might be generalized for something else rather than the original empathic motivation object. Thus, future studies might evaluate whether using cues framing the chronic life conditions of social groups associated to empathy inductions, might be more effective to motivate a non-personal altruism, namely a general concern for others well-being, even if he/she does not empathize with them, at that very moment.

It is noteworthy to highlight that our non-probabilistic sampling method and the small number of participants decrease the statistical power and represents a limit to the generalization of the results. Future work should address this limitation through the use of greater, probabilistic and diverse samples.

In addition, our findings underline the importance of investigating altruistic behavior in high-cost scenarios. Two factors (sex and empathic feelings) moderately predicted the participant's decisions to gamble to help others, although the emotional arousal from watching the video had no impact on the first-round decisions to gamble, but only when the risk of losing their gains was high (second-round decisions to gamble) which might point to a real altruistic motivation induced by empathy. Thus, empathic feeling impacted altruistic behavior even for those who did not show indications of suffering or distress, but only in a disadvantageous asymmetric situation. We do not anticipate the higher prevalence of helping behavior among men, and this should be addressed in future studies, that could evaluate both the valence (either rewarding or distressing) and the intensity of empathic feeling, as it is related to the state of anxiety in personal high-cost scenarios.

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