


# The Effect of Mindfulness Training on the Self-Regulation of Socio-Moral Thoughts

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**Lorena Arahuete**  and **Daniel Pinazo**

Department of Evolutionary, Educational, Social Psychology and Methodology, Jaume I University, Castelló de la Plana, Spain

## Abstract

The change in moral attitude due to discrimination of the degree of reality of thought is an unexplored potential effect of mindfulness training. In this article we examine whether the mindfulness training of novices reduces the defensive reaction to normative transgressions when the threatening thought is salient, that is, a thought that stands out regardless of the objective reality that threatens self-survival. To test the study hypotheses, we used a bifactorial design mindfulness training (pre vs. post) × threatened thought salience (low vs high) in a sample of 115 participants. The dependent variable (punishment of social norm transgression) was measured on two different occasions: (1) pre-training (T1), (2) after training (T2). One group receives training in mindfulness in the threatened thought salience low condition (N = 47), and a second group receives the same training in the threatened thought salience high condition (N = 38). A third group did not receive training in threatening thought salience high condition (N = 30). The results show that training mindfulness reduces moral punishment with high threatening thought salience and reduces moral judgment with low threatening thought salience. The shift in reactivity (punishment) is more representative of a MT effect than the shift in moral judgment (seriousness). Implications of the results and limitations of the study are also explored

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## Corresponding Author:

Lorena Arahuete, Department of Evolutionary, Educational, Social Psychology and Methodology, Jaume I University, Avinguda de Vicent Sos Baynat, s/n, Castelló de la Plana 12071, Spain.

Email: [arahuete@uji.es](mailto:arahuete@uji.es)

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Mindfulness training has the potential to allow us to manage threats to the self by fostering a more understanding relationship with the self and with others (Brown et al., 2007). Theoretically, it is possible that Mindfulness Training (MT) could modify the response conditions to threatening socio-moral thoughts (Kabat-Zinn, 2003; Park & Pyszczynski, 2019; Schindler et al., 2012). A thought can be a threat to emotional stability when the individual does not differentiate between the thought itself and what it represents. For example, the thought of death, induced by a memory or misperception of a present stimulus, can elicit defense reactions as real as the actual threat of death (Niemiec et al., 2010; Park & Pyszczynski, 2019). If you get shot, the death thought is objective and credible. The way to prevent this thought is dodging the bullet and saving life. If I bring back to memory the day, I was shot a death thought will be activated. Mindfulness also affects the predisposition to judge and react. I may not be able to defend myself from the threat of a thought that reminds me that I can die at any moment, but I can defend the sociomoral norms which are part of my identity (e.g., Park & Pyszczynski, 2019) and protect life as I know and value it (judgement) by punishing someone for their transgression (reactivity). It would be possible to train people to differentiate between the perception of a real threat from an artefactual one. Individual mindfulness is a process of intentional alertness and dynamical awareness (Dernbecher & Beck, 2017) that facilitates self-regulation of a threatening internal state by means of meditation (Kabat-Zinn, 2003). Based on this discernment, an individual can self-regulate their normative or moral behaviour in a more adjusted way to the present interaction. The change in moral attitude due to a better understanding of the degree of reality in a thought, when a self-threatening thought is salient, constitutes an unexplored potential effect of mindfulness training. The objective of this research is to study the effect of mindfulness training on the self-regulation of an artefactual socio-moral threat.

The practice of mindfulness that incorporates attention to social interaction may help deploy a less reactive “self-attention” to threatening social stimuli (Park & Pyszczynski, 2016). Mindfulness meditation enhances attentional and emotional self-regulation, prioritizing nonjudgmental attention to experiences in the present moment (Isbel & Mahar, 2015; Ortet et al., 2020; Tang et al., 2015). Mindfulness can increase a person’s ability to distinguish between reality and the thought of reality, and to be more objective in attending to what is happening by maintaining a clearer receptive attention to external and internal stimuli as they occur (Brown & Cordon, 2009; Niemiec et al., 2010; Olendzki, 2005; Silvestre et al., 2021). Nonjudgmental attention to experience in the present moment could change the perceived social environment, altering the social cues that the person perceives (Sun et al., 2015).

There is also evidence pointing to mindfulness altering self-expression in social contexts by stimulating fewer defensive responses to threats posed to the self than might be expected (Brown et al., 2008). Other studies suggest that practicing mindfulness may benefit social interaction by reducing cognitive biases (Hopthrow et al., 2017), by reducing aggression as a response to social threats (the perception of danger to self-survival associated to a sociomoral transgression) (Heppner et al., 2008), activating altruistic behavior (Berry et al., 2021; Iwamoto et al., 2020) or enhancing compassionate behavior (Paul et al., 2013). The response that can arise from the absence of artefactual threats may affect the way we try to re-establish social norms. e.g., by suppressing the need to exercise normative control in the form of sanctions for transgressions. However, research results suggest that there are certain limitations in how mindfulness reduces judgment and reaction when applied to social norms (Nichols et al., 2018; Park & Pyszczynski, 2019). Taken together, evidence from these studies highlights a social function of mindfulness oriented to focusing attention on the present and inhibiting responses that may be automatic or based on defensive emotional reactions.

The mindful reaction to social clues involves a skill to discriminate between attention and the objects of attention in a phenomenological way (Karremans & Papiés, 2017). Being aware of these reactions affords a degree of mental distance or disengagement from evaluations that may be threatening. If the death thought is salient, and the person perceives or “knows” it is an illusion, they will feel less threatened. With the capacity to witness events, thoughts, and emotions as they play out comes an ability to attend to occurrences as concrete phenomena rather than interpreting them in ways biased by personal memories. The need to exercise social control and its response to sanction the transgressed social norm will now be different from the habitual reaction when it occurs in defense against a threat. Fear of death arouses a response of fear and defense to avoid the threat and dispel the fear (e.g., Solomon et al., 2015). Recent research has provided evidence that the defensive reaction to thoughts of death is not inevitable. Different aspects of mindfulness, such as trait mindfulness (Kashdan et al., 2011; Niemiec et al., 2010), or practicing meditation (Park & Pyszczynski, 2016), can reduce the defensive reaction to fear of death in different spheres of the personal worldview. Although meditation can induce a state of mindfulness, it is not the only factor that develops the ability to perceive the present experience intentionally, non-reactively, non-judgmentally, and with a consciousness of the present moment (Kabat-Zinn, 2003). Attending to emotions, the thought process, or bodily sensations requires the narrative elaboration of the experience (meditation) and awareness of its elaboration to be silenced. Mindfulness could be a valid strategy to inhibit self-threatening socio-moral thoughts.

Socio-moral transgressions refer to a behaviour that violates moral norms rooted in each individual or group world view (e.g., Rosenblatt et al., 1989; Tajfel & Turner, 1986). Punishing socio moral transgressions can be an adequate behaviour to feel protected from the threat to oneself (Iverach et al., 2014; Shaver & Mikulincer, 2012). When self-threat becomes a salient thought, it enhances judgment and reactivity for

self-defense. In social situations that violate relevant moral values for social coexistence (seriousness), mindfulness could reduce social punishment because it does not act on the moral value of the transgression, but on the reactivity associated with the sense of threat of the thought social order. The main aim of this study is to extend our knowledge of whether mindfulness-based training has the effect of reducing social sanctions when a threatening thought that is not part of the present moment is salient. MT tends to lessen motivation to judge and/or sanction other people's behaviour. Faced with a threatening thought, not in accordance with external reality, the person trained in mindfulness will tend to be less severe with moral judgments. We posit that MT reduces thought activity and its socioemotional effect. Through an experimental design it is hypothesized that the MT condition reduces the otherwise normally observed effect of a salient threatening thought related to increased defensiveness. More specifically, it is hypothesized that MT will reduce judgment and punishment of moral transgressions both in high salient threatening thought condition and low salient threatening thought condition.

Four hypotheses have been posed:

**Hypothesis 1.** When a socio-moral transgression is salient MT reduces the perceived seriousness of moral transgressions

**Hypothesis 2.** When a socio-moral transgression is salient MT reduces punishment on moral transgressions

**Hypothesis 3.** When a threatening thought is salient MT reduces the perceived seriousness of moral transgressions

**Hypothesis 4.** When a threatening thought is salient MT reduces punishment on moral transgressions

## Method

In this study we assess whether Mindfulness Training (MT) reduces the severity of sanctions against someone who violates a social norm. To this end we evaluated the sanction rating before and after a mindfulness intervention.

### *Design*

All participants are questioned about their response to the transgressed social norms. This represents the main activation of a threatening thought for the participants. To intensify and make this thought more salient, a group of them underwent a death thought activation exercise or Salient Threatening Thought (STT). To test the study hypotheses, we used a design with repeated measures analysis to assess inter (yes vs non-MT and yes vs low-STT) and intra (T1 and T2) subject variability. Intra assessment aims at studying variability before and after training. This variability is subsequently compared with the control group. On the other hand, yes-TTS is compared with low-STT to check to differences in the intensity of threatening thought. The participants

were allocated into three groups: Group 1 yes-MT and high-STT condition (i.e., yes-MT– high-STT on T1 and T2), Group 2 yes-MT and low-STT condition on T1 and T2, and Group 3 non-MT and high-STT on T1 and T2. The dependent variables were measured on T1 and T2.

## Participants

Prior to selecting the sample, we defined the statistical values to establish the power of analysis. Based on  $\alpha = .05$ , a theoretical statistical power of 0.90 and effect size of 0.25, the estimated sample size needed for the study was 105 participants for a MANOVA with repeated measures. In our case, we exceeded this number of participants. A total of 115 bachelor's degree students (74.79%) took part in this research.

In the recruitment process participants were asked whether they had had any previous experience of meditation by using the following question: 'Approximately how long have you been practicing meditation? (Underline the response that best matches your experience: days, months, or years)'. This question offered two response options: 'I do not practice meditation' or 'I've been practicing meditation for \_\_\_\_\_ days/months/years'. Those ones who stated that they did not practice meditation or had been doing so for 5 days or less were selected to take part in one of the study groups (i.e., Group 1 and 2).

The STT factor was composed of 77 high-STT and 38 low-STT individuals. 47 high-STT participants received MT whereas 30 did not. For their part, all 38 low-STT participants received MT. The MT factor was composed of 85 yes-MT and 30 non-MT individuals. A convenience sample was used. A call to take part in a study on moral decisions was made through the university media channels. Those who responded were asked if they were interested in attending a MT programme. Those who accepted were included in the MT group and those who did not were assigned to the non-MT group. Participants were subsequently randomly assigned to the high-STT condition or low-STT condition. Group 1 (yes-MT and yes-STT) was composed of 47 individuals (18 males and 29 females) aged between 20 and 64 ( $M = 35.26$ ,  $SD = 10.23$ ). Group 2 (yes-MT vs low-STT) was composed of 38 individuals (16 males and 22 females) aged between 19 and 61 ( $M = 34.18$ ,  $SD = 9.91$ ). Group 3 or control group (non-MT vs high-STT) was comprised of 30 individuals (8 males and 22 females) aged between 21 and 62 ( $M = 33.10$ ,  $SD = 12.74$ ). Comparisons among the three groups by sex ( $\chi^2 = 1.83$ ;  $df = 2$ ;  $p = .400$ ), education ( $\chi^2 = 5.20$ ;  $df = 2$ ;  $p = .074$ ), and age ( $F = .37$ ;  $df = 2$ ;  $p = .693$ ) revealed no significant differences among the groups. We obtained the participants' explicit consent to take part in the research, and confidentiality and anonymity of their responses was guaranteed by assigning each participant a code to identify their responses at each stage of the study.

## Variables

### *Independent Variables*

*Mindfulness training.* The MT was adapted for a non-therapeutic population drawing on the structure of MBSR (Ortet, Pinazo, Walker et al., 2020). Training consists of developing the ability to pay attention in a sustained and regular manner, moment by moment, to thoughts, emotions, and bodily sensations associated with the meaning with which we perceive the relationship with the environment, by suspending the judgment or reaction aroused by that meaning. It is a metacognition-based MT program, that combines MBSR typical meditation exercises with exercises focused on attending thought reactivity, thus learning to discern between reactive attention (being right, emotion management, expectations, judgments, focusing on worries, etc.) and conscious attention (observing the experience without previous knowledge). A daily 20-minute formal practice at home is included in addition to an ongoing attention to the way thoughts and emotions arise in the day-to-day experience. Both formal and informal practice will be instrumental to learn to discern reactive attention from conscious attention (Ortet et al., 2020). The participants learned how to relate to their present moment experience by tuning into thoughts, emotions, and body sensations. They practiced metacognition exercises paying attention in a sustained steady manner, moment to moment, and making no judgment. The intervention consisted of weekly two-hour sessions for 6 weeks, 12 hours in all; and was designed to develop the participants' ability to observe their internal language and its effect on the social interaction. The program details are accessible online ([doi:10.13140/RG.2.2.18407.19367](https://doi.org/10.13140/RG.2.2.18407.19367)). Group 1 (yes-MT vs high-STT) and Group 2 (yes-MT vs low-STT) received this training.

*Salient Threatening Thought (STT).* We used the terror management theory paradigm (TMT) to activate and emphasize the feeling of threat. In the TMT, threat thinking is activated by Mortality Salience. According to Greenberg et al. (1994), this paradigm suggests that to avoid the thought of a near death, the individual thinks about the possibility of being immortal. The immortality thought cannot be real, it must be symbolic. The maintenance of socio-moral norms that make up their cultural worldview their self identifies with would represent a maintenance of self beyond physical survival. Therefore, maintaining social order represented by norms symbolizes immortality. Norm transgression would imply a symbolic threat to self, to their physical survival.

We used the transgression of socio-moral norms as a threatening stimulus. Social transgressions have been chosen to assess the response to self-threat since social control is part of the defense of personal identity (Brown et al., 2008; Tajfel & Turner, 1986). We used four vignettes, where a character violated the social norm of not hurting others when he could have avoided doing so. Vignette 1 was adapted from the study by Greene (2003), whereas the other three were obtained from local news sources, considering that

the response to norm violation may vary according to its social meaning. In order to reduce this bias, the vignettes had to meet the following criteria: the perpetrator performs an action that causes objective harm to a third party (i.e., the victim); the facts are undeniable; there are no value judgments; no information was given about the personality or socio-demographic characteristics of either the aggressor or the victim. In addition, as the name of the protagonist might affect the participants' socio-cultural representation, the same name was used in each situation (see Appendix A). The stimulus of socio-moral transgressions involves low-STT, since the self is not directly threatened (See Appendix B).

As an innovative aspect in this study, to induce high-STT and facilitate death-thought accessibility, the Group 1 (yes-MT vs high-STT) and Group 3 (non-MT vs high-STT) were presented a drawing of a tombstone. They were asked to imagine they had died and had to write their name and the date of their death on the tombstone. After this, the participants answered two open questions adapted from Greenberg et al. (1994). Firstly, they were asked to 'briefly describe the emotions that the thought of your own death arouses in you'. Secondly, they were asked to 'write down, as specifically as you can, what would happen if you were physically dead'. Group 2 was shown a house drawing, they were asked to imagine they lived in that house and to write down their name and date. They were asked later to answer an open question: 1. Imagine this is your dream house, what would it be like to live in it?

### *Dependent variables*

*Seriousness of the social transgression.* This was measured through their perception on how serious it would be to violate the norm. The participants were asked to rate the severity of the social transgression on a scale from 1 (*not at all*) to 9 (*absolutely*). A composite measure of the four vignettes was created for assessing seriousness. The internal consistency of the four items at T1 for the total sample was acceptable ( $\alpha = .63$ ).

*Sanction for social transgression.* This was measured through the punishment response to social norm transgression. Participants were asked to sentence the aggressor to a proposed number of years' imprisonment according to the seriousness of the social transgression. To test the reliability of the vignettes, intra-subjective agreement was measured with a sample of 188 (125 women and 63 men; 112 with university education and 76 without; aged between 18 and 61 years,  $M = 25.13$ ,  $SD = 8.21$ ). Participants were asked to respond to the four vignettes (T1). They were then shown a video of a television program (lasting 30 minutes) on a subject unrelated to the study objective, after which they responded to the vignettes again (T2). The comparison of means for the related samples showed no significant differences in scores between T1 and T2 for any of the vignettes. The internal consistency of the four items at T1 for the study sample was high ( $\alpha = .81$ ). A composite measure of all four vignettes was created for punishment.

**State anxiety.** The theoretical arguments and empirical research on the effects of death thought suggest the latter is associated to death anxiety (e.g., Hayes et al., 2010; Lambert et al., 2014). This was assessed by using the State-Trait Anxiety Inventory (STAI) (Spielberger et al., 1970) rated on a 4-point scale ranging from 0 (*almost never*) to 3 (*almost always*). We selected the subscale referred to state anxiety (20 items); understood as a transitory emotional condition, which includes two dimensions (i.e., positive state anxiety and negative state anxiety). We used three measures. The first one evaluates anxiety as a positive state, obtained from the mean score of the sum of the affirmative items (i.e., high scores indicate low anxiety). The second one assesses anxiety as a negative state, following the same procedure (i.e., high scores represent high anxiety). Finally, an overall anxiety score was obtained by subtracting positive from negative state anxiety, so that mean scores close to 0 were indicative of high anxiety while score close to 3 indicated low anxiety.

**Decentering.** A decentering and meditation frequency measure was included to assess the extent to which the MT had the expected effect (i.e., MT-high decentering and high meditation frequency). This was assessed by the 11-item Experiences Questionnaire (EQ)-Decentering subscale (Fresco et al., 2007) on a 7-point Likert-type scale ranging from 1 (*never*) to 7 (*all the time*). It assesses one's thoughts and feelings as temporary, objective events in the mind, as opposed to reflections of the self that are necessarily true. Higher scores indicate greater decentering.

**Meditation frequency.** At the end of the training the participants were asked how often they had meditated each week on a scale of 1 (*never*) to 7 (*very often*).

## Procedure

MT was offered to students, graduates, and post-graduates at the university premises; they were also able to bring friends from outside the university community. A total of 90 individuals agreed to participate voluntarily in the MT sessions. They were also informed that this training was part of a study. One group received the STT induction (Group 1), whereas the other did not receive it (Group 2). Due to the high demand for training, a total of 30 individuals were on waiting list and made up the control group that only received STT induction. They were also suggested to meditate at home if they wished with no specific instruction (Group 3). The three groups fulfilled the same study questionnaires (i.e., mortality salience, seriousness of the social transgression and its sanction, state anxiety, decentering, and meditation frequency) in T1 and T2. During the MT, five people abandoned the course due to personal reasons. Thus, the final sample that received MT was composed of 85 individuals.

The first training day, and prior to any presentation participants in Group 1 and 3 were asked to briefly describe the emotions aroused by the thought of their own death with the following instruction: "Write down, as specifically as you can, what you think will happen to *you* as you physically die and once you are physically dead". They were



also asked to write their name and the date of death on a drawing of a tombstone (i.e., yes STT). Immediately after that they participated in a twenty-minute distraction task in which they introduced themselves; this interval served as a delay prior to the first assessment of the punishment for the social norm transgression (sanction for social transgression T1). They were also asked to complete the Experiences Questionnaire (EQ) and the State Anxiety scale (STAI).

The first MT session then began, and its aim was to increase the awareness of how people relate to others from a non-conceptual approach. They were asked to focus the attention on the body and internal events. Reflection exercises were used to explore the way in which these events define the meaning of social relationships. Three main techniques were used: a) body scanning, in which attention gradually moves non-critically over the whole body; b) seated meditation, focusing attention on breathing or the movements of the abdomen; and c) cultivating non-judgmental observation of the thoughts and distractions that continually flow through the mind. During the six training sessions these exercises were accompanied by instructions to sustain internal attention during communication exchanges. Particular attention was paid to the “what for” of the language used in the patterns of communication, maintaining an attitude of curiosity, without judgment or conceptual analysis, but actively observing the relational meaning of emotions and thoughts. Between the weekly training sessions, participants from Group 1 and 2 were set two tasks to do at home: (a) 20 minutes of practice a day, six days a week, and (b) maintaining relational attention and assessing its effect on themselves. At the final training session, the participants in Group 1 repeated the STT task. Group 2 did not do the STT task at all. Group 3 was convened again and repeated the STT task. Finally, the three groups made the second assessment of the punishment for the social norm transgression (sanction for social transgression T2). They were also asked to complete the Experiences Questionnaire (EQ) and the State Anxiety scale (STAI).

## Results

Firstly, T1 and T2 correlations between dependent variables are presented. Secondly, we analyzed the results associated with the MT with repeated measures ANOVA. Thirdly, the STT effect was analyzed by means of a comparative analysis between high and low STT condition, and finally we examined the interaction effect between MT and STT on seriousness of social transgression interaction with repeated measures ANOVA.

### *Correlation Analysis*

We run the Pearson correlations between the dependent variables, measured at T1 (Table 1) and T2 (Table 2). A negative correlation between punishment and decentering stands out both in T1 and T2 as well as in meditation practice in T2. Punishment seems to be associated to a lack of attention to self and a pre-training threatening feeling.

**Table 1.** T1 Correlation matrix.

Measure	1	2	3	4	5
1.- Punishment	1				
2.- Seriousness	.150	1			
3.- Positive stai	-.225*	.168	1		
4.- Negative stai	.150	-.071	-.572***	1	
5.- stai total	-.209*	.132	.874***	-.899***	1
6.- Decentering	-.129	.023	.127	-.163	.165

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

**Table 2.** T2 Correlation Matrix.

Measure	1	2	3	4	5	6
1.- Punishment	1					
2.- Seriousness	.237*	1				
3.- Positive stai	-.048	.016	1			
4.- Negative stai	.046	-.028	-.565***	1		
5.- stai total	-.053	.024	.905***	-.862***	1	
6.- Decentering	-.282**	.052	.288**	-.338***	.351***	1
7.- Meditation frequency	-.194*	-.087	.027	-.193*	.116	.063

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

*MT Effect.* Firstly, we examined whether there were differences in the variables considered at T1 among the three groups. The results of the ANOVA showed that there were no significant differences between the three groups at T1 regarding decentering nor state anxiety (see Table 3).

Repeated measures ANOVA on the intra-subject factor time and on the inter-subject factors MT and STT have been conducted. Results show a reduction effect on punishment over time in interaction with MT which is not observable in seriousness (Table 4).

To assess whether MT had any significant effect on the participants, we first evaluated changes in their ability to decenter and meditation frequency. We conducted an ANOVA to examine the possible effect of the training in Decentering. Results show that Group had an effect on decentering ( $F = 11.88$ ;  $df = 2$ ;  $p < .001$ ;  $\eta^2 = .175$ ). The Bonferroni test for post-hoc comparisons among the factor group conditions shows significant differences ( $p < .001$ ) between Group 1 ( $M_{\text{yes-MTxhigh}} = 3.70$ ;  $SD_{\text{yes-MTxhigh-STT}} = 0.68$ ) and Group 3 ( $M_{\text{non-MTxhigh}} = 2.98$ ;  $SD_{\text{non-MTxhigh-STT}} = 0.63$ ). It was also observed significant differences ( $p < .001$ ) between Group 2 ( $M_{\text{yes-MTxlow}} = 3.67$ ;  $SD_{\text{yes-MTxlow-STT}} = 0.74$ ) and Group 3. Decentering has changed after MT showing that training has had an impact on thought metacognition.

**Table 3.** ANOVA G1 ( $N = 47$ ) x G2 ( $N = 38$ ) x G3 ( $N = 30$ ) groups in T1.

	M	SD	F	$p$	$\eta^2$
Decentering T1			1.67	.193	.029
G1 (High-STT – Yes training)	3.05	0.77			
G2 (Low-STT – Yes training)	3.07	0.77			
G3 (High-STT – Non training)	2.78	0.58			
STAI POS T1			0.97	.383	.017
G1 (High-STT – Yes training)	2.04	0.60			
G2 (Low-STT – Yes training)	1.93	0.33			
G3 (High-STT – Non training)	1.91	0.35			
STAI NEG T1			0.46	.630	.008
G1 (High-STT – Yes training)	0.79	0.66			
G2 (Low-STT – Yes training)	0.85	0.43			
G3 (High-STT – Non training)	0.91	0.33			
STAI T1			0.84	.434	.015
G1 (High-STT – Yes training)	1.25	1.18			
G2 (Low-STT – Yes training)	1.09	0.59			
G3 (High-STT – Non training)	1.00	0.52			

**Table 4.** Repeated measures ANOVA on the intra-subject factor time and on the inter-subject factors MT and STT to punishment and seriousness.

	T1 M(SD)	T2 M(SD)	F	$p$	$\eta^2$
Punishment time			9.08	.003	.075
Punishment interaction time x STT			2.69	.104	.023
High-STT	6.49 (4.25)	4.94 (4.53)			
Low-STT	4.68 (3.23)	3.23 (2.34)			
Punishment interaction time x MT			13.02	.000	.104
Yes-MT	5.60 (3.72)	3.48 (3.02)			
Non-MT	6.73 (4.75)	6.92 (5.28)			
Seriousness time			23.03	.000	.171
Seriousness interaction time x STT			2.39	.125	.026
High-STT	6.41 (0.62)	6.06 (0.93)			
Low-STT	6.40 (.64)	5.53 (1.28)			
Seriousness interaction time x MT			3.02	.085	.026
Yes-MT	6.39 (0.70)	5.74 (1.15)			
Non-MT	6.42 (0.44)	6.31 (0.73)			

In frequency meditation the ANOVA showed differences ( $F = 11.27$ ;  $df = 2$ ;  $p < .000$ ;  $\eta^2 = .167$ ) between three conditions. Bonferroni test for post-hoc comparisons among the factor group conditions shows significant differences ( $p < .001$ ) between Group 1 ( $M_{\text{yes-MT} \times \text{high STT}} = 3.68$ ;  $SD_{\text{yes-MT} \times \text{high STT}} = 1.30$ ) and Group 3 ( $M_{\text{non-MT} \times \text{high STT}} = 2.43$ ;

$SD_{\text{non-MTxhigh-STT}} = 1.36$ ). Significant differences ( $p < .001$ ) can also be observed between Group 2 ( $M_{\text{yes-MTxlow-STT}} = 3.84$ ;  $SD_{\text{yes-MTxlow-STT}} = 1.31$ ) and Group 3.

Overall, differences in decentering, and meditation indicate that meditation training affected the mindfulness skill of distancing from one's thoughts and increased meditation practice. The training improved the participants' ability to distance themselves from their thoughts.

**STT effects.** To assess whether STT had any significant effect on the participants, we first evaluated differences in anxiety. In the anxiety evaluation, we found no significant differences in T1 nor in T2 between High-STT and Low STT.

A comparative analysis was conducted between high and low STT condition in T1. The comparative analysis for the STT conditions at T1 shows an effect of STT on punishment. The participants who performed the STT induction task ( $N = 77$ ) proposed more severe punishments to social norm transgressions than participants with low-STT condition ( $M_{\text{high-STT}} = 6.49$ ;  $SD_{\text{high-STT}} = 4.25$ ;  $M_{\text{low-STT}} = 4.68$ ;  $SD_{\text{low-STT}} = 3.23$ ;  $F = 5.38$ ;  $df = 1$ ;  $p = .022$ ;  $\eta^2 = .045$ ). No differences were found between them for the variable seriousness. These results suggest that at T1 the participants with STT gave more severe punishments for moral transgressions but judged them with equal importance.

**MT and STT Interaction Effect.** To test hypotheses 1 to 4 a Group x Time interaction repeated measures ANOVA was conducted. Analysis reveals a significant time effect on punishment and seriousness (see Table 5) and an interaction effect Group x Time (see Table 5).

The Bonferroni test for post-hoc comparisons among the factor group conditions shows significant differences between the interactions of Group 2 x Group 3 ( $p = .003$ ) in punishment. No effects are observed on seriousness or punishment in other groups'

**Table 5.** Repeated measures ANOVA with Group x Time interaction to punishment and seriousness.

	T1 M(SD)	T2 M(SD)	F	p	$\eta^2$
Punishment time			16.68	.000	.130
Punishment interaction time x group			6.52	.002	.104
G1 (High-STT – Yes training)	6.34 (3.95)	3.69 (3.49)			
G2 (Low-STT – Yes Training)	4.68 (3.23)	3.23 (2.34)			
G3 (High-STT – Non training)	6.73 (4.75)	6.92 (5.28)			
Seriousness time			27.12	.000	.195
Seriousness interaction time x group			4.63	.012	.076
G1 (High-STT – Yes training)	6.41 (.44)	5.90 (1.02)			
G2 (Low-STT – Yes Training)	6.37 (.70)	5.53 (1.28)			
G3 (High-STT – Non training)	6.42 (.44)	6.31 (.73)			

suggesting that MT has a greater effect in punishment reduction under low threat condition over time when compared to high threat condition with no MT. To sum up, these results support hypotheses 2 and 4 proposing that MT influences punishment reduction both in a high-STT condition and in a low-STT condition, but hypotheses 1 and 3 on seriousness are not confirmed.

## Discussion

The aim of this study was to explore whether MT for novices reduces self-threatened social reactivity. More specifically we analyzed whether MT reduces the severity of sanctions against someone who violates a social norm. It was hypothesized that MT reduces perceived seriousness (H1 y H3) and social punishment reaction (H2 y H4).

Mindfulness has the potential to help construct a more inclusive and less defensive worldview (Brown et al., 2008). A first step in this direction is to reduce the perception of threat. The practice of mindfulness that incorporates attention to social interaction may help deploy a less reactive “self-attention” to threatening social stimuli (Park & Pyszczynski, 2016). The results of this study suggest that MT decreases defensive reaction to the threat of socio-moral norm transgressions either when death thought is salient or not. These findings suggest that MT affects the social worldview defense response as a reaction to the threat to an artifactual thought. Punishment is reduced when the person perceives that the threatening thought immediately lessens. MT changed the response to perceived socio-moral threats, believably due to a lesser self-threat feeling and not to a loss of moral values.

In this study, we have obtained evidence that moral behavior can be an instrument of social self-regulation. The transgression of socio-moral values challenges both the individual attributed value (judgment/seriousness) and the necessary response to defend the moral order (punishment). The shift in reactivity (punishment) is more representative of a MT effect than the shift in moral judgment (seriousness). Current theory suggests that defense against a threat to the self activates the severity of a sanction for social norm transgression (Greenberg et al., 1994; Schindler et al., 2012; Niemiec et al., 2010). At the study, a shift in punishment in MT groups is observed over time but not in the perceived seriousness. Social judgement or the importance of a moral value can encourage its defence when in danger. But, if despite the persistence of the value of the norm the individual does not perceive any self-threat when the norm is transgressed the defensive reaction abates. Worldview defense is a type of unconscious response to the threat of death (e.g., Greenberg et al., 1994). It is an attempt to solve a social problem ultimately aimed at defending oneself from self-threatening thoughts. Socio-moral transgression occurs both with and without self-threat. In both cases TM reduces emotional reactivity to the rupture with the social order but does not change social judgment.

The need to manage self-threatening thoughts fuels what Vail et al. (2012) refer to as “the dark underbelly of human social functioning” and can lead to prejudice and

aggression. This implies that others' aggressive behavior is less acceptable and less tolerated since it is perceived as a threat against which one must defend oneself. However, self-threatening thoughts can also kindle positive virtues by cultivating more loving relationships in which greater tolerance is shown to others' unacceptable behavior (Vail et al., 2012). Our results suggest that MT for novices can induce or encourage less aggressive responses to threat to one's social worldview, or at least to others' transgression of social norms. It occurs when the threatening thought is not completely part of the present, it is an artifact, not an actual or even immediate threat to the person. On the other hand, the penalty for the allegedly committed moral transgression does not correspond to the individual in real life, it is a legal issue that pertains to an authorized judge to evaluate. Furthermore, if the reaction responds to the thought of death, it is not a defensive reaction demanded by the dilemmas. MT appears to be potentially capable of changing attitudes to moral values in the absence of immediate threat calls for self-regulation. The weakness of transference from the behavioral response to the previous judgment could be since these participants had no experience of mindfulness prior to the training, and the lack of long-term sustained mindfulness practice implies that they were unable to internalize a new attitude to the transgressions. On the other hand, the difficulty to internalize the effects of meditation and transfer them to a lower reactivity and judgement in real life is an emerging research field. This line of research could contribute to better understanding of the way meditation and/or mindfulness influence metacognition.

Another possible explanation for the reduction of punishment could be emergence of a new heuristic rule. Participants could have changed their self-concept to incorporate a new label proclaiming "I am a person who does not punish". Underlying this explanation is the idea that a person acts in a way that is expected of someone who has learned to behave in a non-reactive way. To distance oneself from judgments and thoughts about oneself favors a less defensive attitude toward normative transgressions. From this perspective, mindfulness may be stimulating the change in moral reasoning by altering the moral value of social norm transgression, by creating social heuristics related to being mindful, by reducing heuristics that interfere in the two latter processes, or by generating all three conditions.

Brown et al. (2008) suggests that non-responsive defense against social threats implies a quieting of the self, which is moderated by a lower perceived threat to the self. Our results suggest that MT for novices affects tolerance and leads to a more objective and less reactive perception of conflictive social interaction. The highlights of this work can be summarized as follows: MT gives rise to: (1). A lower symbolic existential threat; (2). A lower impact of threatening thoughts associated with the emotional reaction to social threat; (3). Differentiation between the reaction to perceived threat and the moral consideration of the judged social worldview; (4). A possible change in the cognitive perception of the moral rationale.

Enhancing the understanding of how the cognitive perception of moral reasoning can change when mindfulness intervenes is a field of research worth exploring. Future research should identify the source of variability in social judgments, since

people began the training with different worldviews that may affect the results when evaluated jointly. The strength and identification with certain socio-moral judgments may engender higher resistance to a more lenient punishment. Research exploring the mechanisms by which MT can forge less defensive social bonds is a promising field in which to explore how people manage self-threat and would help to improve mindfulness for on-going training programs. As stated previously the genuine effects of mindfulness on prosocial behavior are unknown yet (Kreplin et al., 2018). The practice of mindfulness can potentially develop introspective attention skills on thoughts facilitating defusion. On the other hand, the difficulty to internalize the effects of meditation and transfer them to a lower reactivity and judgement in real life is an emerging research field. This line of research could contribute to better understanding of the way meditation and/or mindfulness influence metacognition.

Mindful people can suspend their reactivity to judgment and observe the other from a perspective more focused in the present moment. For example, when an individual gets angry because another person has insulted him/her, anger arises from the meaning the individual attach to the offence in and the desire not to feel offended. These meanings and emotions arise in communication exchanges. MT allows us to extend the mindfulness perspective of attending to the present moment without judgment or reactivity to interpersonal relationships, while being aware of that the way we define a relationship conditions the communication dynamics.

Influence of cognitive bias on decision making processes affecting sociomoral dimensions could diminish in favour of judgements focused on fact assessment instead of individual assessment. However, this does not imply that mindfulness is the only skill able to transform the effect of STT over the 'weltanschauung' defence (Pyszczynski et al., 1999). Although there is no evidence of any daily activity that can modify the psychosocial effects of fear of death and, indirectly fear itself, when the thought of it is salient it is plausible to think that some other activity besides mindfulness might as well possess that quality. Future research could further enhance knowledge about response to self-threatening thoughts as well as identify additional activities that can abate the defensive effect of mortality salience.

### *Limitations of the Study*

This study presents several limitations. One of them is the lack of direct evaluation of the 20-minute weekly meditation. A more generic measure has been taken by asking them once at the end of the programme how often they meditated. A weekly evaluation by means of a diary written immediately after each meditation session would have been more precise. Likewise, participants were asked at the beginning of each session if they had kept a relational attention, then they assessed its effects on themselves in a qualitative way. It would be useful to include this self-evaluation in a diary. The presence of a high number of young college graduates, and the difference in individual assessments of transgressions constitutes another limitation. The relevance and

meaning of transgression are different for each individual. Results can be affected if the infringed norms are not very relevant for the participants. However, intra-subject measures mitigate the variability emerged from this contingency. It would be necessary to study how MT can affect subjective differences on the relevance of socio-moral transgressions. The underlying hypothesis is that individual differences will prevail. However, a lesser defensiveness could increase perspective taking and thereby diminishing moral sanctions and punishment. With respect to the dilemmas, despite an in-depth reflection to ensure reliability, the moral validity would require a more robust analysis. Finally, only the effect of the training is evaluated, and not the elements that interweave this effect.

## Appendix

**Table A1.** Annex. Social norm transgression vignettes.

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Evaluate the following behaviors and consider what punishment they deserve

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Vignette 1. Peter is driving along the road when he sees an accident. A person is lying at the side of the road bleeding heavily. He has to decide whether to pick up the person and drive them to hospital, bearing in mind that he has just changed all his car seat covers, and the blood would ruin them. But if he does not take the person to hospital, they will die. Peter decides not to pick up the person and drives on

How serious is Peter's behavior?: NOT AT ALL SERIOUS | 2 3 4 5 6 7 VERY SERIOUS

What punishment do you think Peter deserves? Evaluate the time he should spend in prison

He deserves to serve a sentence of \_\_\_\_\_ years in prison (minimum 0 maximum 20)

Vignette 2. At a demonstration, Peter challenges a policeman who wants to stop him entering a shop. Peter approaches the policeman, who is on his own, and catching him unawares, attacks him and breaks two of his ribs

How serious is Peter's behavior?: NOT AT ALL SERIOUS | 2 3 4 5 6 7 VERY SERIOUS

What punishment do you think Peter deserves? Evaluate the time he should spend in prison

He deserves to serve a sentence of \_\_\_\_\_ years in prison (minimum 0 maximum 20)

Vignette 3. Peter is angry with his wife, Sarah, because she reported him for domestic violence. Taking advantage of their arrival at the court entrance, he lunges at her and hits her when the police are not paying attention

How serious is Peter's behavior?: NOT AT ALL SERIOUS | 2 3 4 5 6 7 VERY SERIOUS

What punishment do you think Peter deserves? Evaluate the time he should spend in prison

He deserves to serve a sentence of \_\_\_\_\_ years in prison (minimum 0 maximum 20)

Vignette 4. Peter sees somebody he does not like out walking with their mother, who uses a wheelchair. Looking at them scornfully, he pushes the mother in the face. In the fall the woman's neck is hit and she dies

How serious is Peter's behavior?: NOT AT ALL SERIOUS | 2 3 4 5 6 7 VERY SERIOUS

What punishment do you think Peter deserves? Evaluate the time he should spend in prison

He deserves to serve a sentence of \_\_\_\_\_ years in prison (minimum 0 maximum 20)

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## Ethical Approval

This research was approved by the University institutional review board (IRB) and performed with approved protocol and informed consent process (2436). Confidentiality of personally identifiable information has been maintained for privacy safeguards.

## Informed Consent

Informed consent was obtained from all individual participants included in the study.

## Data Availability

[https://drive.google.com/file/d/1\\_YcODOBiUN\\_eO3V\\_uH07Im9dbhfgaUWk/view?usp=sharing](https://drive.google.com/file/d/1_YcODOBiUN_eO3V_uH07Im9dbhfgaUWk/view?usp=sharing)

## ORCID iD

Lorena Arahuete  <https://orcid.org/0000-0002-6536-5321>

## References

- Berry, D. R., Wall, C. S., Tubbs, J. D., Zeidan, F., & Brown, K. W. (2021). Short-term training in mindfulness predicts helping behavior toward racial ingroup and outgroup members. *Social Psychological and Personality Science*, *19485506211053095*(1), 60–71. <https://doi.org/10.1177/19485506211053095>
- Brown, K. W., & Cordon, S. L. (2009). Toward a phenomenology of mindfulness: Subjective experience and emotional correlates. In F. Didonna (Ed.), *Clinical handbook of mindfulness* (pp. 59–81). Springer.
- Brown, K.W., Ryan, R.M., Creswell, J., & Niemiec, C. (2008). Beyond me: Mindful responses to social threat. In H. A. Wayment & J. J. Bauer (Eds.), *The quiet ego: Research and theory on the benefits of transcending egoistic self-interest* (pp. 75–84). American Psychological Association.
- Brown, K. W., Ryan, R. M., & Creswell, J. D. (2007). Mindfulness: Theoretical foundations and evidence for its salutary effects. *Psychological Inquiry*, *18*(4), 211–237. <https://doi.org/10.1080/10478400701598298>
- Dernbecher, S., & Beck, R. (2017). The concept of mindfulness in information systems research: A multi-dimensional analysis. *European Journal of Information Systems*, *26*(2), 121–142. <https://doi.org/10.1057/s41303-016-0032-z>

- Fresco, D.M. et al. (2007). Initial psychometric properties of the experiences questionnaire: validation of a self-report measure of decentering. *Behavior therapy*, 38(3), 234–246. <https://doi.org/10.1016/j.beth.2006.08.003>.
- Greenberg, T., Pyszczynski, T., Solomon, S., Simon, L., & Breus, M. (1994). Role of consciousness and accessibility of death-related thoughts in mortality salience effects. *Journal of Personality and Social Psychology*, 67(4), 627–637. <https://doi.org/10.1037/0022-3514.67.4.627>
- Greene, J. D. (2003). From neural ‘is’ to moral ‘ought’: What are the moral implications of neuroscientific moral psychology? *Nature Reviews Neuroscience*, 4(10), 846–849. <http://dx.doi.org/10.1038/nrn1224>
- Hayes, J., Schimel, J., Arndt, J., & Faucher, E. H. (2010). A theoretical and empirical review of the death-thought accessibility concept in terror management research. *Psychological Bulletin*, 136(5), 699–739. <https://doi.org/10.1037/a0020524>
- Heppner, W. L., Kernis, M. H., Lakey, C. E., Campbell, W. K., Goldman, B. M., Davis, P. J., & Cascio, E. V. (2008). Mindfulness as a means of reducing aggressive behaviour: Dispositional and situational evidence. *Aggressive Behaviour*, 34(5), 486–496. <https://doi.org/10.1002/ab.20258>
- Hopthrow, T., Hooper, N., Mahmood, L., Meier, B. P., & Weger, U. (2017). Mindfulness reduces the correspondence bias. *The Quarterly Journal of Experimental Psychology*, 70(3), 351–360. <https://doi.org/10.1080/17470218.2016.1149498>
- Isbel, B., & Mahar, D. (2015). Cognitive mechanisms of mindfulness: A test of current models. *Consciousness and Cognition*, 38, 50–59. <https://doi.org/10.1016/j.concog.2015.10.005>
- Iverach, L., Menzies, R. G., & Menzies, R. E. (2014). Death anxiety and its role in psychopathology: Reviewing the status of a transdiagnostic construct. *Clinical Psychology Review*, 34(7), 580–593. <https://doi.org/10.1016/j.cpr.2014.09.002>
- Iwamoto, S. K., Alexander, M., Torres, M., Irwin, M. R., Christakis, N. A., & Nishi, A. (2020). Mindfulness meditation activates altruism. *Scientific Reports*, 10(1), 1–7. <https://doi.org/10.1038/s41598-020-62652-1>
- Kabat-Zinn, J. (2003). Mindfulness-based interventions in context: Past, present, and future. *Clinical Psychology: Science and Practice*, 10(2), 144–156. <https://doi.org/10.1093/clipsy.bpg016>
- Karremans, J. C., & Papiés, E. K. (2017). Why social psychologists should care about mindfulness. In J. C. Karremans & E. K. Papiés (Eds.), *Mindfulness in social psychology* (pp. 1–14). Routledge.
- Kashdan, T. B., Afram, A., Brown, K. W., Birnbeck, M., & Drvoshanov, M. (2011). Curiosity enhances the role of mindfulness in reducing defensive responses to existential threat. *Personality and Individual Differences*, 50(8), 1227–1232. <https://doi.org/10.1016/j.paid.2011.02.015>
- Kreplin, U., Farias, M., & Brazil, I. A. (2018). The limited prosocial effects of meditation: A systematic review and meta-analysis. *Scientific Reports*, 8(1), 2403. <https://doi.org/10.1038/s41598-018-20299-z>
- Lambert, A. J., Eadeh, F. R., Peak, S. A., Scherer, L. D., Schott, J. P., & Slochower, J. M. (2014). Toward a greater understanding of the emotional dynamics of the mortality salience

- manipulation: Revisiting the “affect-free” claim of terror management research. *Journal of Personality and Social Psychology*, *106*(5), 655–678. <https://doi.org/10.1037/a0036353>
- Nichols, S., Strohminger, N., Rai, A., & Garfield, J. (2018). Death and the self. *Cognitive Science*, *42*(S1), 1–19. <https://doi.org/10.1111/cogs.12590>
- Niemiec, C. P., Brown, K. W., Kashdan, T. B., Cozzolino, P. J., Breen, W. E., Levesque-Bristol, C., & Ryan, R. M. (2010). Being present in the face of existential threat: The role of trait mindfulness in reducing defensive responses to mortality salience. *Journal of Personality and Social Psychology*, *99*(2), 344–365. <https://doi.org/10.1037/a0019388>
- Olendzki, A. (2005). The transformative impact of non-self. In D. K. Nauriyal, M. Drummond, & Y. B. Lal (Eds.), *Buddhist thought and applied psychological research: Transcending the boundaries* (pp. 250–261). Taylor and Francis Routledge.
- Ortet, G., Pinazo, D., Walker, D., Gallego, S., Mezquita, L., & Ibáñez, M. I. (2020). Personality and nonjudging make you happier: Contribution of the Five-Factor Model, mindfulness facets and a mindfulness intervention to subjective well-being. *PloS One*, *15*(2), Article e0228655. <https://doi.org/10.1371/journal.pone.0228655>
- Park, Y. C., & Pyszczynski, T. (2016). Cultural universals and differences in dealing with death. In L. A. Harvell & G. S. Nisbett (Eds.), *Denying death: An interdisciplinary approach to terror management theory* (pp. 193–213). Routledge/Taylor & Francis Group.
- Park, Y. C., & Pyszczynski, T. (2019). Reducing defensive responses to thoughts of death: Meditation, mindfulness, and Buddhism. *Journal of Personality and Social Psychology*, *11*(6), 101–118. <http://dx.doi.org/10.1037/pspp0000163>
- Paul, C., Gaëlle, D., Willa, B. M., & David, D. (2013). Meditation increases compassionate responses to suffering. *Psychological Science*, *24*(10), 2125–2127. <https://doi.org/10.1177/0956797613485603>
- Pyszczynski, T., Greenberg, J., & Solomon, S. (1999). A dual-process model of defense against conscious and unconscious death-related thoughts: An extension of terror management theory. *Psychological Review*, *106*(4), 835–845. [doi.org/10.1037/0033-295X.106.4.835](https://doi.org/10.1037/0033-295X.106.4.835)
- Rosenblatt, A., Greenberg, J., Solomon, S., Pyszczynski, T., & Lyon, D. (1989). Evidence for terror management theory I: The effects of mortality salience on reactions to those who violate or uphold cultural values. *Journal of Personality and Social Psychology*, *57*(68), 1–690. <https://doi.org/10.1037/0022-3514.57.4.681>
- Schindler, S., Reinhard, M. A., & Stahlberg, D. (2012). Mortality salience increases personal relevance of the norm of reciprocity. *Psychology Reports*, *111*(2), 565–574. <https://doi.org/10.2466/20.02.21.PR0.111.5.565-574>
- Shaver, P. R., & Mikulincer, M. E. (2012). *Meaning, mortality, and choice: The social psychology of existential concerns*. American Psychological Association. [doi.org/10.1037/13748-000](https://doi.org/10.1037/13748-000)
- Silvestre-López, A. J., Pinazo, D., & Barrós-Lorcerales, A. (2021). Metaphor can influence meta-thinking and affective levels in guided meditation. *Current Psychology*, *2021*, 1–13. <https://doi.org/10.1007/s12144-021-01655-1>
- Solomon, S., Greenberg, J., & Pyszczynski, T. (2015). *The worm at the core: On the role of death in life*. Random House.
- Spielberger, C. D., Gorsuch, R., & Lushene, R. (1970). *Manual for the state trait anxiety inventory*. Consulting Psychologist Press.

- Sun, S., Yao, Z., Wei, J., & Yu, R. (2015). Calm and smart? A selective review of meditation effects on decision making. *Frontiers in Psychology, 6*, 1059. <https://doi.org/10.3389/fpsyg.2015.01059>
- Tajfel, H., & Turner, J. C. (1986). The social identity theory of intergroup behaviour. In S. Worchel & W. G. Austin (Eds.), *Psychology of intergroup relations* (pp. 7–24). Nelson-Hall.
- Tang, Y. Y., Holzel, B. K., & Posner, M. I. (2015). The neuroscience of mindfulness meditation. *Nature Reviews Neuroscience, 16*(4), 213–280. <https://doi.org/10.1038/nrn3916>
- Vail, K. E. III, Juhl, J., Arndt, J., Vess, M., Routledge, C., & Rutjens, B. T. (2012). When death is good for life: Considering the positive trajectories of Terror. Management. *Personality and Social Psychology Review, 16*(4), 303–329. <https://doi.org/10.1177/1088868312440046>

### Author Biographies

**Lorena Arahuete** is a PhD student. Research staff in training. Department of Evolutionary, Educational, Social Psychology and Methodology at Jaume I University, Av. Sos Baynat, s/n, 12071- Castelló de la Plana (Spain).

**Daniel Pinazo** is a PhD in Social Psychology. University lecturer. Department of Evolutionary, Educational, Social Psychology and Methodology at Jaume I University, Av. Sos Baynat, s/n, 12071- Castelló de la Plana (Spain).