

## Empirical Article

# Breaking self-focused orientation in people who perceive economic scarcity: The influence of transcendent motivation to promote an abstract mindset and prosocial behavioral intentions

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Previous research shows that being in a situation of economic scarcity promotes a more concrete mindset that motivates behavioral decisions based on action difficulty and their short-term outcomes, which frequently entails negative consequences. However, a concrete mindset can be counteracted by inducing an abstract mindset to help people focus on final broad goals. We explored how focusing on transcendent motives (vs. self-oriented) promotes a more abstract mindset facilitating prosocial behavioral intentions. Study 1 (pre-post design) explored whether focusing on transcendent motives for engaging in activities promoted a more abstract mindset compared to focusing on self-oriented motives. Using a  $2 \times 2$  design with two consecutive opposing primes, Study 2 tested how inducing a transcendent orientation could reverse the effect caused by perceiving economic scarcity, promoting greater orientation toward others and prosocial behavioral intentions. In Study 1 participants who generated transcendent motives for behaviors presented a greater increase in the abstraction of construal level, compared to those who only generated self-oriented motives for the same behaviors. Study 2 demonstrated that, when participants who perceived economic scarcity were focused on transcendent motives (vs. self-oriented) to promote a more abstract mindset, their orientation toward others increased. Interestingly, for people perceiving economic scarcity, whose own difficulties could reduce prosocial behaviors, the greater orientation toward others promoted a greater intention to engage in demanding prosocial behaviors. We provide evidence of new strategies to promote abstraction in individuals and increase their involvement in prosocial behavioral intentions, especially for those perceiving economic scarcity.

**Key words:** Perceived economic scarcity, mindset, thinking style, transcendent motivation, prosocial behavioral intentions.

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## INTRODUCTION

The World Health Organization (2016) has designated poverty as the greatest health determinant in someone's life. Previous studies have also documented that people who live in situations of economic poverty tend to engage in more counterproductive behaviors, which often have the potential to worsen their economic situation, health, and wellbeing (Mullainathan & Shafir, 2013; Poluektova, Efremova & Breugelmans, 2022).

In addition to other psychosocial approaches toward the relationship between poverty and wellbeing, such as materialist or structural perspectives (see Labonté, Baum & Sanders, 2015), more recently, social psychology and behavioral economics have developed another complementary explanation that explores how being in a situation of economic scarcity affects a person's mindset and subsequent behavioral decisions. Mullainathan and Shafir (2013) posit that when experiencing scarcity in a given resource, like money, one's attentional focus becomes narrower in response to the immediacy of the situation, creating tunnel vision. While they propose this extreme tunnelling is an adaptive behavior, enabling people through long-term goal inhibition to meet immediate and pressing needs, tunneling can also lead to negative long-term consequences, as it causes a neglect of attention to other aspects, such as the future behavioral outcomes. Thus, temporal perspective is a crucial factor in decision making and needs to

be considered, especially when studying the behaviors of people perceiving economic scarcity.

### *Theoretical background*

Construal level theory (CLT) explains how the perception of psychological distance (temporal, social, spatial, and hypothetical) changes people's style of thinking (or mindset) and vice versa (Trope & Liberman, 2003, 2010). CLT proposes that people mentally represent actions and events along a continuous dimension that varies between two poles, one focused on the short-term and how actions are carried out (concrete mindset or concrete construal level), and another focused on the long-term and on why actions are carried out (abstract mindset or abstract construal level). Action identification theory (AIT; Vallacher & Wegner, 1989), on which CLT is based, established that mindset is a personal-dispositional variable affected by context. Thus, mindset changes between people and in each person between situations. In AIT, the perceived difficulty of an action is the main determinant of mindset: the more difficult, the more concrete mindset (Vallacher & Wegner, 1989, 2012). The mindset of a person in a given situation or moment is located at some point in the concrete-abstract dimension, and for this reason it is correct to say *relatively concrete* or *relatively abstract* in mindset (Vallacher & Wegner, 2012).

A concrete mindset and its focus on the short-term have been associated with self-control problems and risk behaviors (Caballero, Fernández, Aguilar, Muñoz & Carrera, 2023; Fujita, Orvell & Kross, 2020). Conversely, an abstract mindset favors behaviors which are healthy in the long-term, even when they entail short-term costs for the individual (Carrera, Fernández, Muñoz & Caballero, 2020; Sweeney & Freitas, 2014). Recent investigation has demonstrated, in both experimental (Caballero *et al.*, 2023) and natural situations (Aguilar, Caballero, Sevillano, Fernández, Muñoz & Carrera, 2020), a clear link between economic scarcity, concrete mindset, and risk behaviors. Interestingly, results have shown that inducing an abstract mindset can reverse a more concrete mindset, favoring participation in desirable but demanding behaviors such as prosocial behaviors (Carrera *et al.*, 2020).

Previous research on prosocial behaviors and altruism has shown that focusing on the situation of a person who is suffering (i.e., the victim) is a fundamental step to promote helping (Batson, 1997). In this vein, Batson (1997, 2022) proposes that perceiving someone in a situation of need can generate a self-oriented emotional experience (e.g., personal stress) which can lead to escaping or helping, depending on which is less costly in reducing the unpleasant feeling. More importantly, observing others in need can also induce other-oriented emotions such as compassion toward the victim, promoting altruistic actions (Batson & Powell, 2003). Compassion and other transcendent emotions appear to foster prosocial behaviors (Li, Dou, Wang & Nie, 2019; Piff, Dietze, Feinberg, Stancato & Keltner, 2015). Thus, social distance (focusing on others vs. oneself), a well-known strategy to vary mindset (Stephan, Liberman & Trope, 2010), is a crucial factor in helping.

The costs and difficulties for those who engage in helping behaviors are an even greater barrier for people who are in a situation of economic vulnerability: as the need to concentrate on their own urgent problems could reduce the available attention to dedicate to the problems of others. Results on prosocial behaviors in populations in situations of economic threat are contradictory (Piff & Robinson, 2017). While some authors have found that people who perceive themselves to be in a situation of relative economic deprivation are less inclined to help others (Callan, Kim, Gheorghiu & Matthews, 2017), other authors have found that identifying with other people who are also experiencing economic difficulties promotes solidarity (Bukowski, de Lemus, Rodríguez-Bailón, Willis & Albuquerque, 2019). Thus, Roux, Goldsmith, and Bonezzi (2015) showed that although reminders of resource scarcity activate a competitive orientation, when the generous behavior is linked to self-benefit (e.g., the charitable donation decision was described as public), scarcity can promote preference for prosocial behavior.

Motives and thoughts oriented toward people who are suffering, can be understood within the framework of transcendent motivation and abstract thought, since both distance individuals from their own situation of difficulty and focus them on the needs of other people. Thus, research has shown that adolescents are more willing to engage in costly behaviors if they focus on goals that transcend self-interest (e.g., social justice; Yeager, Bundick & Johnson, 2012; Yeager, Henderson, Paunesku,

*et al.*, 2014) and that an abstract mindset promotes demanding prosocial behaviors (Carrera *et al.*, 2020).

### Overview of current studies

Based on this previous research, we want to extend the effect of transcendent motives and an abstract mindset to the promotion of prosocial behavioral intentions in people perceiving economic difficulties. In a pre-post design, we address the role that transcendent motives play in promoting a more abstract mindset. In Study 1, we expect that inducing transcendent motives will favor a more abstract mindset.

Previous research has showed that economic scarcity promotes a more concrete mindset which focuses people on their own difficulties, reducing their intention to engage in demanding but desirable actions (Caballero *et al.*, 2023). As we expect that a transcendent orientation will promote a more abstract mindset, in Study 2 we propose that inducing a transcendent orientation could reverse the effect caused by perceiving economic scarcity, promoting a greater orientation toward others, and facilitating their intention to engage in demanding but desirable behaviors such as prosocial actions.

### STUDY 1

In Study 1, we explored whether focusing on transcendent motives for engaging in activities promoted a more abstract mindset compared to focusing on self-oriented motives. Transcendent motives focus people on individuals or entities other than themselves, transcending their own interest (Yeager *et al.*, 2012, 2014), and we expected that this increase in psychological distance (from self) would promote a more abstract mindset. Specifically, we hypothesized that individuals who generate transcendent motives to engage in actions (versus self-oriented ones) would present greater abstraction in their mindset. We tested this effect in a pre-post design.

### Participants

We recruited 144 participants, undergraduate psychology students. Participants all gave informed consent before beginning the study, for which they received academic credit. Participants were on average 19.81 years old ( $SD = 2.58$ ), and 90.3% identified as female.

### Materials

**Mindset or style of thinking.** Mindset was measured using the behavioral identification form (BIF; Vallacher & Wegner, 1989). The measure presents 25 different behaviors (e.g., "Making a list") and forces respondents to choose between two possible definitions that represent either a concrete ("Writing things down") or abstract description ("Getting organized"). To measure the change promoted by the experimental manipulation and to prevent participants from remembering their previous answer in this pre-post design, the BIF questionnaire was administered in two parts, so that 12 randomly chosen items were presented before the experimental manipulation and the other 13 after it. A shortened version of the BIF (eight items) has been shown to be effective in previous research (see Fujita, Trope, Liberman & Levi-Sagi, 2006). Construal level was calculated for both pre-manipulation and post-manipulation, where

each concrete response was coded as 0 and each abstract response as 1; the sum of the scores indicated the participant's construal level or mindset, higher scores indicated a more abstract mindset.

**Motivational task.** We adapted a structured reading and writing exercise, based on the motivational task of Yeager *et al.* (2014, study 2 and 3). The exercise was designed to manipulate motivational orientation to engage in behaviors through active reflection and the generation of either self-oriented (for personal benefit) or transcendent motives (to benefit others, society, or the world) to participate in activities. The task achieves this through a series of open-ended essay style questions, written testimonials and statistics created for each study condition. The structure of the task remained the same as originally presented by Yeager *et al.* (2014), however the language and examples were adapted to our sample.<sup>i</sup>

**Demographic information.** Basic demographic information (age, gender, and economic status) was collected. Subjective economic status was reported using the MacArthur scale of subjective socioeconomic status (Adler, Epel, Castellazzo & Ickovics, 2000) to assess participant's perceived socioeconomic status, the scale we used is a nine-point "ladder", whose rungs represent the different socioeconomic levels of society (lower rungs represent a lower socioeconomic level).

### Procedure

Participants completed the study materials, individually, in private booths. After giving their voluntary consent, participants were randomly assigned to one of the two experimental conditions: "self-oriented" condition or "transcendent" condition. Participants completed the first part of the BIF, the motivational task, the second part of the BIF and finally the demographic information.

## RESULTS

All open-ended responses from participants were analyzed to ensure that the task had been completed correctly. The responses were categorized and coded by their content by two independent judges to ensure the motives generated were valid for their condition. The interrater reliability between coders was high and significant  $r = 0.94$ ,  $p < 0.001$ , and any discrepancies were discussed until agreement was reached. A total of 19 participants did not adequately follow the given instructions (e.g., answering transcendent motives in self-oriented condition, or vice versa; or participants reported opinions [e.g., *attending University is expensive*] instead of motives) and their data was subsequently excluded before the data analysis.

In the final sample  $N = 125$ , 90.4% of participants identified as female and had an average age of 19.55 years old ( $SD = 1.36$ ). The distribution was 64 in the self-oriented condition and 61 in the transcendent condition. Between conditions there were no significant differences in age,  $p > 0.38$ , nor gender,  $p > 0.34$ . The motivational task did not influence on the actual socioeconomic status reported,  $p > 0.22$ .

A sensitivity analysis was performed in G\*Power (Faul, Erdfelder, Buchner & Lang, 2009), specifying a repeated measures mixed analysis of variance (ANOVA;  $r = 0.65$ ) with a significance criterion of  $\alpha = 0.05$ . The analysis revealed that this sample size allows detecting a small effect size ( $f = 0.13$ ) with a statistical power of 95%. Cronbach's alpha for the BIF scale was acceptable for both parts ( $\alpha_{\text{pre}} = 0.641$ ;  $\alpha_{\text{post}} = 0.650$ ).

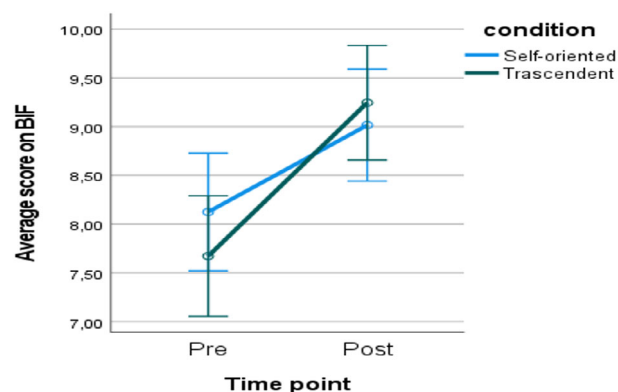


Fig. 1. Average BIF score per motivational condition before and after motivational task.

A mixed ANOVA with repeated measures was performed, using the pre- and post-manipulation BIF scores as the within-subject factor and the type of motive (self-oriented vs. transcendent) as the between-subject factor. The main effect of pre-post BIF scores was significant,  $F(1, 123) = 55.14$ ,  $p < 0.001$ ,  $\eta_p^2 = 0.31$ , indicating that post BIF scores were higher than pre BIF scores. The main effect of type of motive was not significant,  $F(1, 123) = 0.08$ ,  $p = 0.78$ ,  $\eta_p^2 = 0.001$ . As expected, there was a significant interaction effect between pre-post BIF scores and motivational task type  $F(1, 123) = 4.24$ ,  $p = 0.042$ ,  $\eta_p^2 = 0.033$ .

Taken together, these results support that while participants presented an increase in BIF score after completing both motivational tasks, the change in BIF score before and after was greater in the transcendent condition than in the self-oriented condition (see Fig. 1).

### Discussion of Study 1

Results showed that after both manipulations participants reported a more abstract mindset. Importantly, as the interaction effect revealed, the increase in abstraction was greater when transcendent orientation had been induced. This result is important because it offers a new procedure to manipulate thinking style.

In this study we were focused on comparing whether the induction of transcendent motives (versus self-oriented) promoted a more abstract thinking style, since both share a greater distance from the self and a broader perspective. While our results supported this expectation, it is important to note that future research should include control conditions to better differentiate the influence of inducing transcendent versus self-oriented motivation from the effect caused by answering the BIF.

## STUDY 2

Study 1 showed that focusing participants on transcendent motives for their actions promotes a significantly greater increase in the abstraction of thinking style (compared to self-oriented ones). In Study 2 we wanted to test this effect as a strategy to reverse the self-focused orientation that characterizes a more

concrete mindset promoted by perceiving oneself in economic scarcity. We also wanted to explore the efficacy of transcendent motives in promoting prosocial behavioral intentions, aimed at benefiting others, precisely in participants who perceived themselves in economic vulnerability, and therefore, tend to have greater self-orientation. In a  $2 \times 2$  design, two consecutive opposing primes were applied (induced perceived economic scarcity versus sufficiency, followed by self-oriented versus transcendent motives). The use of two sequential primes has already been used successfully in other studies (Caballero *et al.*, 2023; Gardner, Wansink, Kim & Park, 2014).

We expected that: (1) participants who perceived themselves in economic scarcity (versus economic sufficiency) would tend to report lesser orientation toward others and the world and a lower intention to carry out prosocial behaviors; and (2) the effect of perceived economic scarcity, which is associated with a more concrete mindset and self-focused orientation, would be reversed by a transcendent motivational orientation (versus self-oriented) and that this reversal would favor a greater orientation toward others, facilitating prosocial behavioral intentions that reached levels similar to those shown by people perceiving economic sufficiency, regardless of their thinking style.

It is important to note that we did not necessarily expect a significant interaction between economic condition and motivational orientation, we expected that participants perceiving economic scarcity in the self-oriented condition would report the least orientation toward others and the world, which would promote lesser prosocial behavioral intentions. More importantly, we expected that people perceiving economic scarcity, but induced with a more transcendent motivation, would report similar orientation toward others and the world as those in economic sufficiency conditions (regardless of the motives generated by these groups in the sufficiency condition) which would facilitate their prosocial behavioral intentions. We expected this result because the more concrete mindset (self-focus) induced by perceiving economic scarcity (Aguilar *et al.*, 2020; Caballero *et al.*, 2023) would have been reversed by the generated transcendent motives (others-focus).

### Participants

A total of 220 undergraduate psychology students ( $M_{age} = 19.65$ ,  $SD = 2.32$ ; 88.6% identified as female) voluntarily consented to participate in the study in exchange for academic credit.

### Materials

**Economic manipulation.** Perceived economic status was manipulated through the Bimboola activity (Caballero *et al.*, 2023, adapted from Jetten, Mols & Postmes, 2015). This computer-based activity manipulates perceived economic status by having participants imagine themselves living in a new society, Bimboola, where they are designated into a social class either below the poverty line (economic scarcity condition) or equivalent to middle class (economic sufficiency condition). The activity raises awareness of economic status by having participants organize “new” lives in this virtual world. They compare these lifestyle choices with the options available to the other economic classes in Bimboola.

After the task, participants responded to eight control items. Participants were required to identify how much money they earned each month living in Bimboola and also answer a series of seven Likert scale questions, from

1 = “totally disagree” to 7 = “totally agree,” rating their agreement about their experience living in Bimboola (e.g., “*In Bimboola, for my social group it is difficult to make ends meet*”). Additionally, participants in the scarcity condition were asked to make a list of items in their real (non-Bimboola) life that they would have to give up in order to live within the budget assigned in Bimboola. The aim of this last task was to focus participants in their “new life in Bimboola,” because we expected that this comparison would help them to differentiate between the contexts of their real lives and the virtual Bimboola world.

**Motivational task.** The same motivational task developed in Study 1 was used. Additionally, a control check question was added after the task, which measured participant’s *reported motivational orientation* (RMO): *Thinking about your situation in Bimboola, indicate to what degree you are currently concerned about your own well-being or the well-being of others, society and the world in general.* This question was a six-point bipolar Likert scale. Lower scores meant more concern for one’s own wellbeing, whereas higher scores meant greater concern for society, or the world in general.

**Behavioural intention measures.** After both manipulations, participants reported their behavioral intentions, over the next 3 months: to what extent do you intend to donate bone marrow to help people with serious illness?/ to what extent do you intend to dedicate part of your vacation time helping in a social meal center? The questions were presented in random order with a seven-point Likert scale ranging from 1 = “not at all” to 7 = “very much” to engage in the proposed behavior. We point out that these prosocial actions (demanding but desirable) could be performed by people regardless of their economic situation.

**Demographic information.** The same demographic information was asked as in Study 1.

### Procedure

The participants responded to an online survey that included all the procedures of the study. After giving their consent, participants were randomly assigned to one of four experimental conditions: (1) economic scarcity and self-oriented motivation; (2) economic scarcity and transcendent motivation; (3) economic sufficiency and self-oriented motivation; or (4) economic sufficiency and transcendent motivation.

Materials were presented in the following order: the economic manipulation, the motivational task, the control check questions, behavioral intention measures and demographic information.

## RESULTS

Similarly, to Study 1, participant responses to open-ended questions were analyzed to verify that the motivational task had been completed correctly. Given the high interrater reliability found in Study 1, in Study 2 the coding of the responses was performed by a single judge who had coded the responses in Study 1. A total of 29 participants did not generate valid motives for their experimental condition and were eliminated from the analysis (e.g., answering transcendent motives in self-oriented condition, or vice versa; or participants reported opinions instead of motives). In addition, five participants were eliminated for not properly completing Bimboola’s first control check (participants did not remember their income in Bimboola). In total, 34 participants were excluded from the final analysis.

Of the 186 participants whose data were analyzed, the majority, 89.8%, identified as female with an average age of 19.51



( $SD = 1.32$ ) and had, on average, a medium actual economic status ( $M = 5.37$ ,  $SD = 1.18$ ). Actual economic status reported was not influenced by the economic manipulation  $p = 0.54$ , these results demonstrate that participants clearly differentiated between their real lives and their virtual lives in Bimboola.

A sensitivity analysis was performed in G\*Power (Faul *et al.*, 2009), specifying one-way and two-way ANOVAs with a significance criterion of  $\alpha = 0.05$ . The analysis revealed that this sample allows detecting a medium effect size ( $f = 0.30$  for one factor: and  $f = 0.26$  for two factors) with a statistical power of 95%.

#### Control checks of experimental manipulations

One-way ANOVAs were performed to confirm that there were no significant differences in either age  $F(3, 182) = 0.295$ ,  $p = 0.829$ , or actual economic status  $F(3, 182) = 1.156$ ,  $p = 0.328$ , among the four experimental conditions. There were no significant differences between conditions in gender,  $X^2(3) = 2.915$ ,  $p = 0.405$ .

Control checks showed that economic manipulation generated the predicted perceptions of economic scarcity and sufficiency in the corresponding economic conditions ( $ps < 0.001$ ).

An analysis of the RMO using the bipolar control check item showed that participants in the self-oriented condition ( $M_{self-oriented} = 3.16$ ,  $SD = 1.50$ ) reported more concern for themselves than participants in the transcendent condition ( $M_{transcendent} = 3.74$ ,  $SD = 1.34$ ) who valued that they were significantly more concerned about others, society or the world in general,  $t(184) = -2.75$ ,  $p = 0.007$ . These results supported, as expected, that the motivational manipulation significantly changed the RMO.

#### Influence of economic and motivational manipulations on RMO

We carried out  $2 \times 2$  ANOVA on RMO, results showed that the main effects and interaction effect were significant in: the economic manipulation  $F(1, 182) = 10.04$ ,  $p = 0.002$ ,  $\eta_p^2 = 0.052$ , the motivational manipulation  $F(1, 182) = 7.26$ ,  $p = 0.008$ ,  $\eta_p^2 = 0.038$ , and their interaction  $F(1, 182) = 4.20$ ,  $p = 0.04$ ,  $\eta_p^2 = 0.023$  (see descriptives in Table 1).

Because we had an a priori hypothesis expecting that participants perceiving economic scarcity in the transcendent motivation condition would report similar motivational orientation and coherent prosocial intentions, as the two groups in condition of economic sufficiency, we included additional analysis to explore this prediction. We created a dummy variable by combining the two sequentially administered experimental

manipulations (economic and motivational) resulting in four experimental conditions: scarcity and self-oriented motives ( $N = 48$ ); scarcity and transcendent motives ( $N = 43$ ); sufficiency and self-oriented motives ( $N = 48$ ); sufficiency and transcendent motives ( $N = 47$ ). This new combination variable was used as the independent variable in the following exploratory analyses.

A one-way ANOVA, with the four experimental conditions, revealed that there was a statistically significant difference between the four groups in their RMO  $F(3, 182) = 7.331$ ,  $p < 0.001$ . Tukey's test for multiple comparisons found that the scarcity and self-oriented group ( $M_{scarcity \text{ and self-orientation}} = 2.67$ ,  $SD = 1.43$ ) was significantly more self-oriented than each of the other groups. As we expected there was no statistically significant differences between the remaining conditions (see Table 1).

These results showed that the effect of perceiving economic scarcity on RMO (lower orientation toward others) has been reversed by the transcendent motivational orientation favoring a greater orientation toward others. The transcendent orientation task reversed the effect of perceiving economic scarcity, such as the induction of an abstract mindset has done in previous research (see Caballero *et al.*, 2023).

#### Influence of perceived economic status and motivational orientation on prosocial behavioral intentions

Since investigation on transcendent orientation has showed that participants induced to generate transcendent motives are more capable of focusing on goals that transcend self-interest (e.g., social justice; Yeager *et al.*, 2012, 2014), we expected that RMO would be a mediator of prosocial behavioral intentions in our study. O'Keefe (2003) pointed out that the measures used as control checks of experimental manipulations should be included in the analyses because they could act as relevant mediating processes. We followed this recommendation and tested in the following analysis whether RMO mediated in the influence of economic and motivational manipulations on prosocial behavioral intentions.

First, to find out to what extent orientation toward oneself versus toward others influences prosocial behavioral intentions, we calculated the correlations between the items (see Table 2). The RMO was clearly associated with both prosocial intentions.

**Intention to donate bone marrow.** Across all conditions, intention to donate bone marrow was relatively high above the midpoint of the scale ( $M = 4.63$ , see Table 3). A two-way ANOVA was performed to test the experimental conditions on intention to donate. Neither the main effect of economic condition  $F(1, 182) = 0.218$ ,  $p = 0.641$ ,  $\eta_p^2 = 0.001$ , the main effect of motivational

Table 1. Means and standard deviations of reported motivational orientation (RMO)

	Scarcity and self-orientation		Scarcity and transcendent		Sufficiency and self-orientation		Sufficiency and transcendent	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Control check								
RMO	2.67 <sub>a</sub>	1.43	3.72 <sub>b</sub>	1.39	3.63 <sub>b</sub>	1.57	3.85 <sub>b</sub>	1.06

Note: Means in the same row with different subscripts are statistically different ( $p < 0.05$ ). The higher the score, the higher the transcendent orientation.

Table 2. Correlations between reported motivational orientation and prosocial intentions

	RMO	Donate bone marrow
Donate bone marrow	0.216**	
Volunteer in social meal center	0.315***	0.415***

\*\*\* $p \leq 0.001$ .\*\* $p \leq 0.01$ .

task  $F(1,182) = 0.774$ ,  $p = 0.380$ ,  $\eta_p^2 = 0.004$ , nor the interaction effect  $F(1, 182) = 0.310$ ,  $p = 0.578$ ,  $\eta_p^2 = 0.002$  were significant.

We expected that prosocial behavior (donate bone marrow) would have been significantly lower in the scarcity and self-orientation condition because this group had presented the lowest RMO (see Table 1); to clarify this unexpected result, we decided to carry out some exploratory post hoc analyses to test a possible indirect effect, given that, although not significantly, the prosocial behavior in this condition (scarcity and self-orientation) was lower.

To clarify these results, a moderated mediation analysis was conducted using the PROCESS macro model for SPSS (Model 7; bootstrapping procedure with 10,000 resamples to generate confidence intervals of 95%; Hayes, 2018). As seen in Fig. 2, the results revealed that the direct combination of experimental economic and motivational conditions on intention to donate bone marrow was not significant ( $b = 0.10$ ,  $SE = 0.28$ ,  $p = 0.732$ ), while the indirect effect, mediated by RMO was significant ( $b = 0.27$ ,  $SE = 0.14$ ,  $CI [0.07, 0.62]$ ) only for the group that perceived themselves in a situation of economic scarcity. The index of moderated mediation was likewise significant (index =  $-0.24$ ; 95%  $CI = [-0.62, -0.03]$ ).

*Volunteering at a social meal center.* Across all conditions, intention to volunteer at a social meal center was relatively high above the midpoint of the scale ( $M = 4.74$ , see Table 3). We repeated the same analyses conducted with intention to donate bone marrow; thus, a two-way ANOVA was performed to test the experimental conditions on intention to volunteer. Neither the main effect of economic status  $F(1, 182) = 0.020$ ,  $p = 0.888$ ,  $\eta_p^2 = 0.000$ , the main effect of motivational task  $F(1,182) =$

Table 3. Means of behavioral intention to engage in demanding prosocial behaviors by experimental conditions

Behavioral intention	Scarcity and self-orientation		Scarcity and sufficiency		Self-orientation and sufficiency		Transcendence and sufficiency	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Donate bone marrow	4.35 <sup>a</sup>	2.21	4.65 <sup>a</sup>	2.07	4.77 <sup>a</sup>	1.96	4.74 <sup>a</sup>	1.62
Volunteer in social meal center	4.83 <sup>a</sup>	1.74	4.47 <sup>a</sup>	1.74	4.60 <sup>a</sup>	1.82	5.04 <sup>a</sup>	1.47

Note: <sup>a</sup>Means in the same row with different subscripts are statistically different ( $p < 0.05$ ).

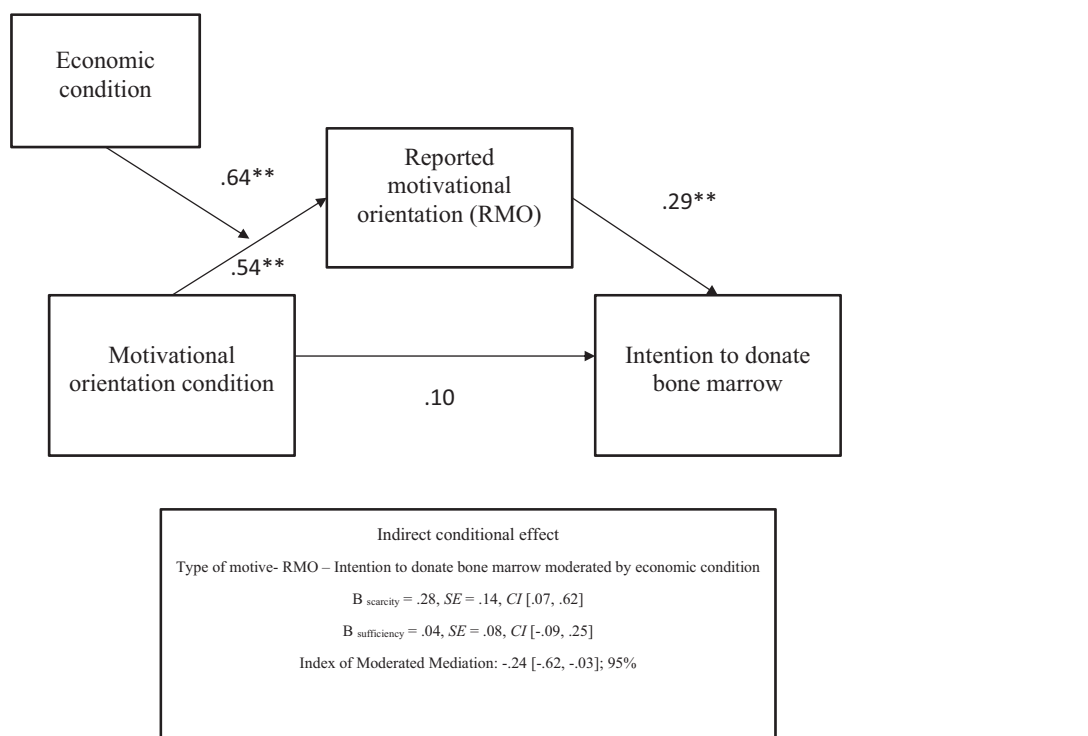


Fig. 2. Moderated mediation model for intention to donate bone marrow. Note: \* $p < 0.05$ , \*\* $p < 0.01$ .

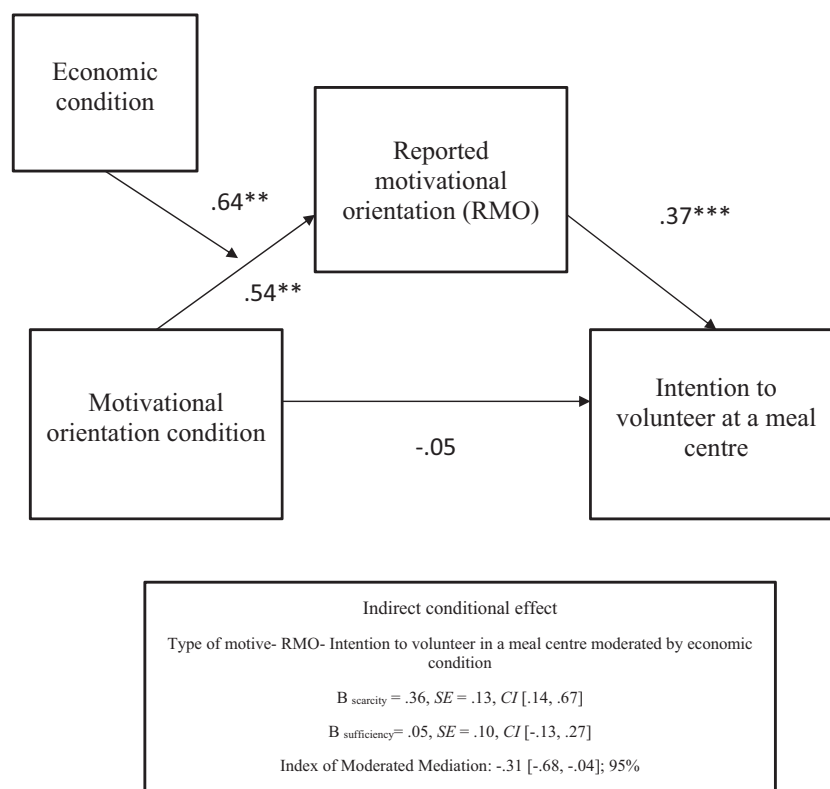


Fig. 3. Moderated mediation model for intention to volunteer at a meal center.

Note: \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$ .

0.488,  $p = 0.486$ ,  $\eta_p^2 = 0.003$ , nor the interaction effect  $F(1, 182) = 2.618$ ,  $p = 0.107$ ,  $\eta_p^2 = 0.014$  were significant.

Results for this behavior (volunteering at social meal center) were also unexpected. Even though the differences were not statistically significant, the lowest levels of prosocial behavior intentions were reported by the scarcity-transcendent and sufficiency-self-oriented conditions. Given that the previous exploratory post hoc analyses helped to clarify the relationships among variables, we repeated the same additional moderated mediation analysis.

The moderated mediation analysis was conducted using the PROCESS macro model for SPSS (Model 7; bootstrapping procedure with 10,000 resamples to generate confidence intervals of 95%; Hayes, 2018). As seen in Fig. 3, the results revealed that the direct combination of experimental economic and motivational conditions on intention to volunteer at the meal center was not significant ( $b = -0.05$ ,  $SE = 0.24$ ,  $p = 0.830$ ), while the indirect effect, mediated by reported orientation (RMO) toward oneself versus others was significant ( $b = 0.36$ ,  $SE = 0.13$ ,  $CI [0.14, 0.67]$ ) only for the group that perceived themselves in a situation of economic scarcity. The index of moderated mediation was likewise significant (index =  $-0.31$ ; 95%  $CI = [-0.68, -0.04]$ ).

**Discussion of Study 2.** Although the differences in behavioral intention were not significant, the correlations between RMO and behavioral intentions in conjunction with the difference found in RMO between the group that perceived economic scarcity and had generated self-oriented motives and the other three groups, suggested the need to explore the possible indirect effect of the manipulations in exploratory analyses using RMO as mediator

and controlling the effect of perceived economic scarcity (i.e., moderated mediation analysis).

Results supported the moderated mediation expected in both behavioral intentions. When participants perceived economic scarcity and had been induced to generate transcendent motives, their orientation toward others and the world improved, presenting similar RMO as participants in economic sufficiency condition (regardless of the motives generated by these groups in the sufficiency condition). This orientation toward others favored their behavioral intentions to help. Because Study 1 had found that a transcendent motivation promoted a greater increase in the abstraction of thinking style, results of Study 2 are in line with previous research showing that an abstract mindset reverses the effect of perceiving economic scarcity (see Caballero *et al.*, 2023).

## DISCUSSION

This research aimed to investigate the effect of generating transcendent motives to induce a more abstract thinking style (i.e., a broader perspective less focused on oneself and more on distant others), and how this greater focalization on other people could reverse the self-focused orientation associated with perceiving oneself in economic scarcity. We also expected that the links between transcendent motivation and others-orientation would facilitate prosocial behavioral intentions.

Study 1 demonstrated that participants who had thought and written transcendent motives (compared to the self-oriented motives) showed a greater increase in the abstraction of thinking

style. These results indicate that when an individual focuses more on the consequences that their actions have for others, society, and the world, it can generate a larger increase in abstraction compared to those who only focus or consider the consequences their actions have for themselves. These findings are in line with previous research, and can be explained from the perspective of CLT, where a greater social distance, through focusing on distant others, promotes a more abstract mindset.

In Study 2, we extended these findings to test how focusing on transcendent motives (as opposed to self-oriented ones) could increase the orientation toward others and how this orientation influenced prosocial intentions. We were especially interested to see if completing the transcendent motivation activity of Study 1 would reverse the more concrete mindset caused by perceiving oneself in a situation of economic scarcity. This effect was expected based on previous research where an abstract mindset was induced in people perceiving poverty (see Caballero *et al.*, 2023). Results revealed that participants perceiving economic scarcity, when induced to generate transcendent motives, reported similar others-oriented motivation (which could facilitate engagement in more prosocial intentions) as participants in the economic sufficiency conditions (regardless of the motives generated by these groups). However, results of Study 2 do not allow us to support the existence of a direct effect of the combination of economic and motivational conditions on the two prosocial behavioral intentions tested, because there were no differences among conditions. These findings may be due to the characteristics of our participants, who were exclusively psychology students. Their election of degree of study, may predispose them toward helping others, which would have made it more difficult to find differences in helping intentions.

Importantly, Study 2 found a conditional indirect effect for both helping behaviors. Where the results indicated that when perceiving oneself in a situation of economic scarcity, it is the individual's perceived orientation toward either themselves versus others (RMO) which significantly mediated the relation between type of motive induced (transcendent or self-oriented) and the intention to engage in prosocial behaviors. Specifically, we found that when participants perceived themselves in economic scarcity and generated transcendent motives, the greater reported orientation (RMO) toward others increased their intention to participate in demanding prosocial behaviors, reversing the effect of a self-focused orientation associated with a concrete mindset and economic scarcity found in previous research (Aguilar *et al.*, 2020; Caballero *et al.*, 2023). These results are coherent with previous research showing that under some conditions such as highlighting the link between the prosocial behaviors and the self-benefit (see Roux *et al.*, 2015) the relationship between scarcity and prosocial behaviors is positive.

For participants in situations of perceived economic sufficiency, inducing motives whether transcendent or self-oriented had no effect on their concern for themselves versus others, society, or the world, which resulted in no differential impact on their intention to participate in demanding helping behaviors. As we have mentioned before, the characteristics of the sample (psychology university students) could have favored a ceiling effect that explains the lack of effects on intentions.

## CONCLUSION

Study 1 revealed that the generation of transcendent motives results in a new and optimal strategy to induce a greater increase in the abstraction of thinking style. The results of Study 2 suggest that generating transcendent motives could reverse the influence of a self-focused orientation that usually is caused when perceiving economic scarcity. Our findings suggest a new approach to understand why some previous research had found lesser prosocial behaviors in people in economic scarcity (e.g., Callan *et al.*, 2017): when people perceive scarcity of resources and their orientation is focused on themselves, it is more difficult for them to feel motivated to help others; however when they are able to focus on others, this will facilitate their intention to participate in prosocial actions. Generating transcendent motives appears to be an effective method to focus people more on others even when they perceive themselves to be in a situation of economic vulnerability.

### *Theoretical contributions*

These findings are consistent with the previous research on prosocial behavior, indicating that focusing attention on the needs of others promotes compassion toward them, enhancing motivation to perform prosocial action (altruistic motivation; Batson, 2022; Batson & Powell, 2003). Likewise, this study showed that through the induction of transcendent motives, the effect of economic scarcity on the self-orientation of the participants can be reversed, making them orient themselves toward others, society, and the world, facilitating their intentions to perform demanding prosocial behaviors. This can be considered indirect evidence, on the one hand, of the relationship between transcendent motives and the greater increase in abstraction and, on the other hand, evidence in support of the link between economic scarcity and a more concrete mindset.

### *Implications*

Although transcendent motives have been previously used in interventions with adolescents in schools, this study is the first to experimentally demonstrate that inducing transcendent motives for one's actions promotes a greater increase in the abstraction of mindset. This strategy can therefore be added to the already existing procedures that can be used to promote more abstract thinking in experimental and natural contexts.

Beyond the theoretical support provided by this study, we also believe that it can be useful for future research, as well as for social interventions which aim to involve people in costly but desirable behaviors, especially if they are in a situation of economic scarcity. In this vein, helping or prosocial behaviors are especially important to improve social cohesion and coexistence and can be considered a type of social health behavior to achieve a better society. However, participating in prosocial behaviors can be especially challenging for those living in situations of economic scarcity, as they must solve their own urgent problems with limited material resources, and engagement in helping behaviors can often imply an unattainable cost. Transcendent motivation could be a way to promote these desirable behaviors.



### Limitations and future research directions

One limitation to the present study is the use of undergraduate psychology students who are generally more oriented toward others in need, tend to report high empathy and prosocial behaviors (e.g., Carrera, Ocejá, Caballero, Muñoz, López-Pérez & Ambrona, 2013; López-Pérez, Carrera, Ocejá, Ambrona & Stocks, 2019); this could have biased our results making it more difficult to find differences between experimental conditions. Therefore, future research should look to replicate our findings with a more representative sample. The interesting results found in the exploratory analyses require more empirical support. For example, we recommend the inclusion of a control condition to better test the influence of each motivational orientation on thinking style. Future studies should also explore how greater abstraction, associated with transcendent motives, is related to other demanding but desirable behaviors (e.g., pro-environmental practices).

Although it has been shown in different studies that there is a correspondence between simulated experimental behavior and behavior of individuals in the real world (e.g., Franzen & Pointner, 2013), future studies need to replicate our results measuring the actual behaviors of people experiencing real economic scarcity. Results about scarcity and prosocial behaviors are complex (see Roux *et al.*, 2015) and, on some occasions, differ from ours (e.g., Goldsmith, Roux & Wilson, 2020). Therefore, future research needs consider the role played by different moderators and mediators to really know the links among thinking style, motivational orientations, and prosocial behaviors.

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### COMPLIANCE WITH ETHICAL STANDARDS

All procedures performed in studies involving human participants were in accordance with the ethical standards of the Autonomous University of Madrid and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

### CONFLICTS OF INTEREST

The authors declare they have no conflict of interest.

### INFORMED CONSENT

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

### ETHICAL APPROVAL

The experimental protocol employed in the present study was approved for ethical treatment of human participants by Universidad Autónoma de Madrid (Spain), following the

American Psychological Association's Ethical Principles in the conduct of research with human participants (APA, 2016). All measures, manipulations, and exclusions in the studies are disclosed, and a sensitivity analysis of the sample size (see pp. 8, 14).

### DATA AVAILABILITY STATEMENT

The data are currently deposited at OSF. To see the data, go to: [https://osf.io/xru92/?view\\_only=b59e8cba2a664c0189db7ff5fcb6bf09](https://osf.io/xru92/?view_only=b59e8cba2a664c0189db7ff5fcb6bf09).

### ENDNOTE

<sup>i</sup> See motivational tasks at: [https://osf.io/xru92/?view\\_only=b59e8cba2a664c0189db7ff5fcb6bf09](https://osf.io/xru92/?view_only=b59e8cba2a664c0189db7ff5fcb6bf09).

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