



*Citation for published version:*

Wolf, L, Thorne, S, Iosifian, M, Foad, C, Taylor, S, Costin, V, Karremans, J, Haddock, G & Maio, G 2021, 'The Salience of Children Increases Adult Prosocial Values', *Social Psychological and Personality Science*.

*Publication date:*  
2021

*Document Version*  
Peer reviewed version

[Link to publication](#)

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1 Accepted at *Social Psychological and Personality Science* as a research article, February  
2 2020.

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## The Salience of Children Increases Adult Prosocial Values

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1 **Abstract**

2 Organisations often put children front and centre in campaigns to elicit interest and support  
3 for prosocial causes. Such initiatives raise a key theoretical and applied question that has yet  
4 to be addressed directly: Does the salience of children increase prosocial motivation and  
5 behaviour in adults? We present findings aggregated across eight experiments involving  
6 2,054 adult participants: Prosocial values became more important after completing tasks that  
7 made children salient compared to tasks that made adults (or a mundane event) salient or  
8 compared to a no-task baseline. An additional field study showed that adults were more  
9 likely to donate money to a child-unrelated cause when children were more salient on a  
10 shopping street. The findings suggest broad, reliable interconnections between human mental  
11 representations of children and prosocial motives, as the child salience effect was not  
12 moderated by participants' gender, age, attitudes, or contact with children.  
13 **Keywords:** children, infants, prosocial, human values, donation behaviour

1 Children are often featured in campaigns to support issues such as disaster relief  
2 (Donate to Africa, 2019), healthy living (NHS, 2020), and environmental protection  
3 (Department of Energy and Climate Change, 2009), expressly calling for sympathy and  
4 assistance. These campaigns reveal a widespread assumption that children elicit sympathetic  
5 reactions. Consistent with this assumption, images of Aylan Kurdi, a child who died during  
6 the 2015 Syrian refugee crisis, elicited strong reactions of empathy and solidarity with  
7 refugees (Smith et al., 2018). More generally, children and adults with neonatal facial  
8 features elicit greater empathy and helping behaviour (Keating et al., 2003; Lishner et al.,  
9 2008), and they trigger protective and care-taking motivations towards them (Bleske-Rechek  
10 et al., 2010; Glocker et al., 2009). Further evidence suggests that making suffering children  
11 or parenthood salient is linked with higher risk aversion (Gilead & Liberman, 2014; Lu &  
12 Schuldt, 2016; Palomo-Veléz et al., 2020) and stronger rejections of norm violations (Eibach  
13 et al., 2009), both of which likely stand in the service of protecting one's own children from  
14 harm. Collectively, these findings suggest that adults are motivated to help and protect their  
15 own children and children needing help.

16 Importantly, however, there may be a much broader and more substantial role for  
17 children, one in which the salience of children *per se* (i.e., not only one's own children or  
18 children in need) elicits higher prosocial motivation towards *others in general*. Indirect  
19 support for this broader impact of children comes from an evolutionary perspective, which  
20 suggests that the caretaker role in human societies was shared by group members to facilitate  
21 the survival and thriving of the group's offspring (Hrdy, 2005). This caretaker role can be  
22 triggered by the salience of any child, and child-like adults, animals, or even cars (e.g., Little,  
23 2012; Miesler et al., 2011; Sherman et al., 2009).

24 Moreover, this caretaker role is assumed to involve a range of motivations and  
25 behaviours that go beyond immediate benefits to children. For instance, children may be  
26 more likely to survive and thrive if they grow up in a cooperative, supportive group than in a

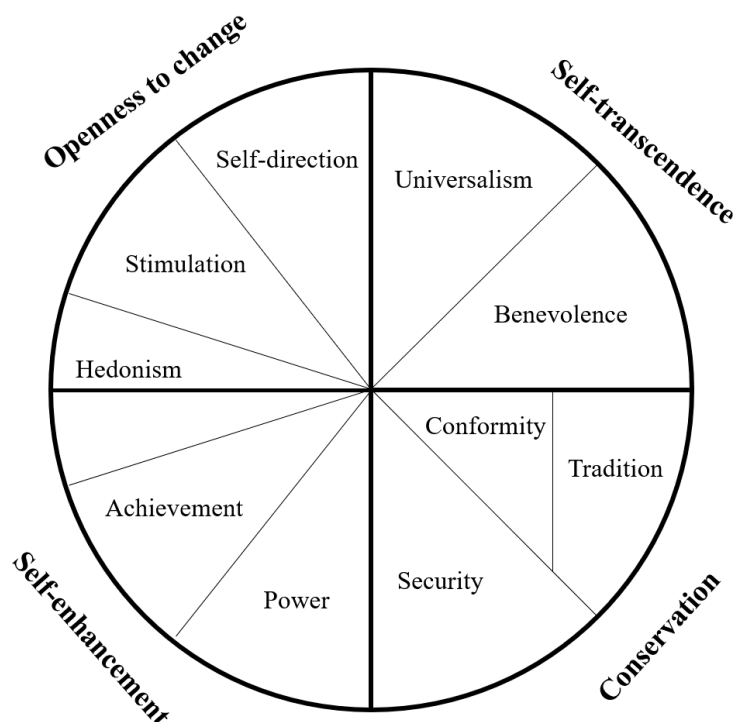
1 competitive, hostile group (Best, 1993). Similarly, primates that share the caretaking role  
2 more often demonstrate spontaneous prosocial behaviours that are not directly linked to  
3 infants (e.g., food sharing, social tolerance) than independently breeding primates (Burkart &  
4 van Schaik, 2010; Snowdon & Cronin, 2007). Together, these perspectives suggest that a  
5 range of child-related stimuli can motivate adults to engage in prosocial behaviours towards  
6 others in general, pointing to an ingrained link between humans' mental representations of  
7 children and prosocial motivation.

8         However, psychological research has not directly tested a *child salience effect* that  
9 goes beyond immediate caretaking of children. The present research significantly extends the  
10 literature by examining whether children and prosocial motives are intrinsically linked, thus  
11 providing a better understanding of the role of mental representations of children in adult  
12 social motives.

### 13 **Human Values**

14         We focus on human values as indicators of prosocial motives, because of cross-  
15 cultural commonalities in them and their important role as life-guiding principles, suggesting  
16 that values provide an ideal opportunity to test the potentially broad role of child salience.  
17 People around the world indicate that values like equality and achievement are important to  
18 them, and such values are integral to human social judgement and behaviour (e.g., Hurst et  
19 al., 2013; Wolf et al., 2019). According to the most prominent theory of values in  
20 psychology, the quasi-circumplex model (Schwartz, 1992), values differ in the goals or  
21 motives they express, which are structured along two orthogonal dimensions of self-  
22 transcendence/self-enhancement and openness/conservation (see Figure 1). Our research  
23 focuses on the former dimension as an indicator of prosocial motives, with *self-transcendence*  
24 values promoting the welfare of others (e.g., helpfulness, responsibility), and *self-*  
25 *enhancement* values promoting self-interested principles (e.g., power, success). Consistent  
26 with these definitions, there is extensive evidence that higher self-transcendence values and

- 1 lower self-enhancement values predict and elicit more prosocial attitudes and behaviours
- 2 (e.g., Boer & Fischer, 2013; Sagiv et al., 2017).



3  
4 *Figure 1.* Schwartz's theory of human values. Values are  
5 universally structured along two orthogonal dimensions of self-  
6 transcendence/self-enhancement and openness/conservation.  
7

8 Schwartz's model has been replicated in over 80 nations (Bilsky et al., 2011; Schwartz  
9 et al., 2012). Although values are thought to be relatively stable over time (Schwartz, 1994),  
10 research has shown that there is considerable potential for change in values, either through  
11 life-changing events (Bardi et al., 2009), age (Vecchione et al., 2016), or experimental  
12 manipulations (e.g., Karremans, 2007; Maio et al., 2009). These changes follow the model's  
13 two-dimensional structure, with values on the same end of a dimension changing in the same  
14 direction and values on opposing ends of a dimension changing in the opposite direction.  
15 Thus, an index of self-transcendence and self-enhancement values can be expected to be  
16 sensitive to a shift in people's prosocial motives. The present research examines the extent to  
17 which there is a latent psychological link between human mental representations of children

1 and compassionate, prosocial values, such that the salience of children *per se* increases the  
2 importance people attach to these values.

### 3 **The Present Research**

4 We tested our hypothesis in eight experiments that manipulated the salience of  
5 children using description tasks and examined the effects on prosocial motives (i.e., self-  
6 transcendence vs self-enhancement values). Adult participants were randomly assigned to  
7 either a child salience condition, a non-child control condition, or a baseline control condition.  
8 These experiments also examined a range of potential moderators (e.g., parenthood, gender,  
9 age, attitudes towards children). Following previous recommendations for multi-study  
10 articles (Lakens & Etz, 2017), we describe a meta-analysis of the effects of child salience to  
11 summarise the findings. We expected that the salience of children would increase the  
12 importance adults attach to prosocial values.

13 Building upon the results of the meta-analysis, we conducted an observational field  
14 study to examine the practical, behavioural implications of the presence of children in  
15 everyday life. This study recorded the number of children and adults on a shopping street and  
16 collected donations from adult passers-by for a cause not specifically related to children. We  
17 expected that a higher proportion of children (relative to adults) would predict more donations  
18 from passers-by. The study materials and data (including explanations and syntax) described  
19 in this article will be publicly available under 10.17605/OSF.IO/VFQA7 upon publication.  
20 All studies reported here follow APA and BPS ethical standards and received ethical  
21 clearance from the ethical review committees of the respective universities.

## 22 **Meta-Analysis**

### 23 **Method**

24 **Overview of experiments.** Table 1 provides an overview of the individual  
25 experiments, all of which examined additional, unique research questions (see Supplement for  
26 full details).

Table 1. Experimental designs

Experiment	Sample	Independent variables	Moderating variables
Experiment 1	Laboratory, students at Dutch university	2 description conditions ( <b>child, baseline</b> )	-
Experiment 2	Online, UK participants on Prolific	6 description conditions (baby, toddler, <b>child</b> , teenager, <b>adult, baseline</b> )	Task enjoyment, mental image
Experiment 3	Online, UK participants on Prolific	3 (descriptions: baby, <b>child, baseline</b> ) x 2 (survey order: values measure first or last)	Contact with children, task enjoyment, mental image
Experiment 4	Online, UK participants on Prolific	5 presentation conditions (images, stories, videos, <b>child description, adult description</b> )	Attitudes towards children, contact with children, task enjoyment, mental image
Experiment 5	Laboratory, UK community participants	2 (room: child, clutter) x 2 (description: <b>child, restaurant</b> ) + <b>baseline control</b> .	Attitudes towards children, contact with children, task enjoyment, mental image
Experiment 6	Laboratory, UK community participants	2 (description: <b>child, adult</b> ) x 2 (cognitive load: low, high)	Contact with children, task enjoyment
Experiment 7	Online, UK participants on Prolific	2 (description: <b>child, adult</b> ) x 2 (time: time 1, time 2)	Attitudes towards children
Experiment 8	Online, UK participants on Prolific	2 (description: <b>child, adult</b> ) x 2 (time: time 1, time 2)	Attitudes towards children, contact with children, task enjoyment, mental image

*Note:* The main text only discusses analyses involving the child, adult, restaurant, and baseline conditions (shown in bold). All other conditions were considered in supplemental analyses.



1           **Experiment samples.** Given the lack of past evidence on child salience effects, we based  
 2 our power analyses on a medium effect size. The required sample size to detect a medium effect  
 3 with a power of .90, two-tailed tests, and a critical significance level of .05 was 86 participants per  
 4 condition. All experiments exceeded this requirement.

5           We used the same exclusion criteria in each study. Participants were excluded from  
 6 analyses if they completed the description task too quickly (more than 1SD below mean completion  
 7 time) or if they failed a reading check (e.g., asking participants to ignore the question and click  
 8 response option 1). Across all experiments, 77 participants did not meet these criteria and were  
 9 excluded. Table 2 shows the number of participants and demographic statistics in each experiment  
 10 after exclusions.

11

12 Table 2. Demographic characteristics.

Experiment	<i>N</i> used in analyses (Total <i>N</i> )	Mean Age ( <i>SD</i> )	Gender		Being a parent	
			Male	Female	Yes	No
Experiment 1	182 (182)	21.22 (2.84)	37	145	0	182
Experiment 2	319 (633)	29.36 (9.37)	87	230	174	145
Experiment 3	424 (634)	29.49 (6.65)	96	328	207	217
Experiment 4	258 (682)	37.99 (11.85)	71	185	146	110
Experiment 5	297 (297)	26.73 (13.52)	56	241	44	253
Experiment 6	194 (194)	28.11 (10.94)	80	114	29	165
Experiment 7	187 (187)	23.56 (9.51)	62	124	-	-
Experiment 8	193 (193)	29.58 (11.01)	103	90	45	148
Total	2054		592	1457	645	1220

13 *Note:* Participant numbers are reported after exclusions (see Supplement for information on full  
 14 samples and exclusions per study).  
 15

16           **Child salience manipulation.** All eight experiments manipulated child salience using  
 17 written descriptions, consistent with evidence that such tasks increase category accessibility (e.g.,  
 18 Marhenke & Imhoff, 2020). Participants were randomly assigned to either a child salience

1 condition, a non-child description condition, or a no-task baseline condition in between-participants  
2 designs. In the *child salience condition*, participants described what a typical primary school age  
3 child is like. Participants wrote about a child's appearance and personality, what a child typically  
4 does, and the types of situations this would involve. Six of the experiments included a *non-child*  
5 *description condition* that involved a similar description of either an adult or a mundane event (i.e.,  
6 being at a typical restaurant). Four of the experiments included a *no-task baseline condition*, which  
7 did not involve a description task.

8       **Prosocial motivation.** Across all eight experiments, prosocial values were the primary  
9 dependent variable. We used items from the Schwartz value survey (SVS; Schwartz, 1992) and the  
10 aspiration index (AI; Grouzet et al., 2005) to assess Schwartz's higher-order value types, including  
11 self-transcendence (9 items, e.g., "*helpfulness*") and self-enhancement (8 items, e.g., "*power*").  
12 Initially, 12 values were selected from the SVS to assess the two value types (i.e., helpfulness,  
13 responsibility, forgiveness, equality, honesty, broadmindedness, protecting the environment versus  
14 power, wealth, success, ambitious, influence). Next, three items were added from the SVS that  
15 showed strong conceptual overlap with items from the AI (social justice, love vs. competence).  
16 Finally, two further items were added from the AI (image, popularity), which were conceptually  
17 related to the higher-order value types but not covered by our original item selection. All items  
18 were presented in an adapted SVS format: To assess the importance attributed to each goal/value,  
19 participants indicated to what extent they will try to attain it, using a scale from 1 (*I will never try to*  
20 *attain this goal*) to 11 (*I will always try to attain this goal*). This future-oriented scale was used to  
21 avoid anchoring participant responses in inferences from their past behaviour, which is a route to  
22 responding in standard values measures; our adaptation made the scales more reflective of current  
23 motivational states. The items were presented on separate pages, one for each higher-order value  
24 type.

25       We examined Tucker's congruence coefficient, derived from multidimensional scaling  
26 analyses, to confirm that the pattern of responses conformed to Schwartz's quasi-circumplex model

1 (Bilsky et al., 2011). In cross-study analyses including all values, the Tucker's coefficient was  
 2 .969, indicating good fit (Lorenzo-Seva & ten Berge, 2006).<sup>1</sup> In line with Schwartz's model, we  
 3 aggregated scores across self-transcendence and across self-enhancement values ( $\alpha$ s=.74-.87 across  
 4 all studies; see Supplement for details) and subtracted the self-enhancement from the self-  
 5 transcendence aggregate (Schwartz, 1994). Thus, higher positive scores indicate higher prosocial  
 6 values.

7 **Meta-analysis information.** The meta-analysis included ten effect sizes generated across  
 8 the eight experiments (total  $N=2,054$ ). Two types of effects were included: six comparing child  
 9 salience to the non-child description controls (total  $N=1,295$ ) and four comparing child salience to  
 10 the baseline control (total  $N=1,001$ ).<sup>2</sup> Effect sizes (Hedge's  $g$ ) were estimated using a fixed effects  
 11 model in  $R$  based on standard mean differences between the child salience condition and the non-  
 12 child description condition or the baseline condition. Effect sizes of 0.2, 0.5, and 0.8 represented  
 13 small, medium, and large effects, respectively. Heterogeneity was assessed using  $I^2$  statistics;  
 14 values of 25% indicated low levels, values of 50% indicated moderate levels, and values of 75%  
 15 indicated high levels.

## 16 **Results and Discussion**

17 Our meta-analysis first compared (a) the child description and non-child description  
 18 conditions and (b) the child description and baseline conditions. Next, we addressed potential  
 19 moderators to determine of the generality of the observed effects.

20 **Child versus non-child description.** The experiments comparing the child salience and  
 21 non-child description conditions showed very low heterogeneity ( $I^2=0\%$ ,  $p=.483$ ), suggesting that  
 22 the effects within this comparison are consistent across experiments (Figure 2, upper panel). The  
 23 aggregated effect size was small and significant, .12 (95% CI [.01, .23],  $z=2.09$ ,  $p=.037$ ).<sup>3</sup>

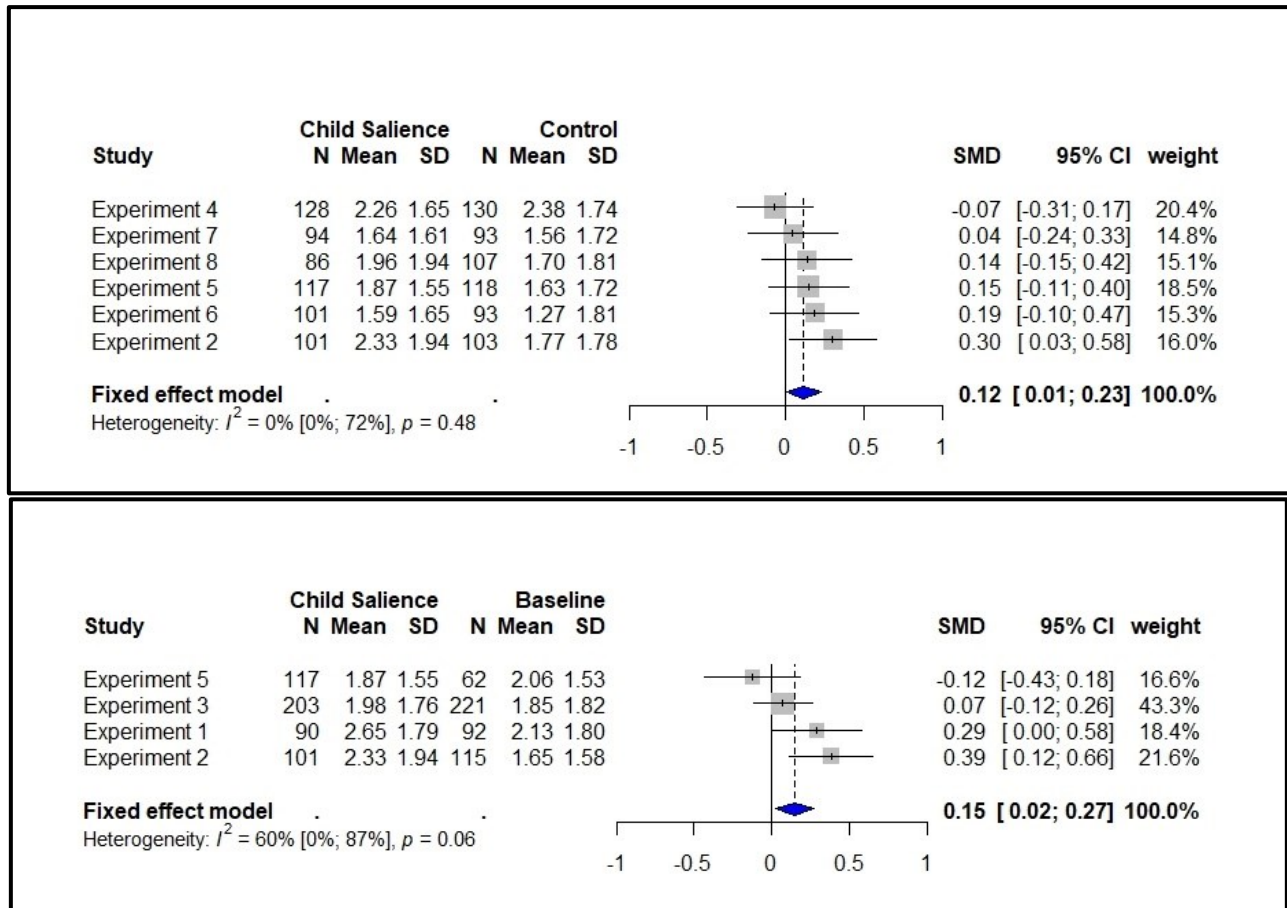
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<sup>1</sup> The Tucker's coefficient was at least .959 or higher in the individual studies; see Supplement for details.

<sup>2</sup> Because participants in the child conditions were included in both comparisons, the total  $N$  is lower than the combined  $N$  of both effects.

<sup>3</sup> When the restaurant condition (i.e., Experiment 5) was excluded from this analysis, the aggregated effect size decreased to .11 (95% CI [-.01, .23],  $z=1.77$ ,  $p=.08$ ).

1 **Child description versus baseline.** The comparison between the child salience and  
 2 baseline conditions showed moderate, but non-significant, heterogeneity ( $I^2=60%$ ,  $p=.06$ ; Figure 2  
 3 lower panel). The aggregated effect size across experiments, .15 (95% CI [.02, .27],  $z=2.30$ ,  
 4  $p=.021$ ), replicated the significant difference between the child and non-child description  
 5 conditions.



7  
 8 *Figure 2.* Meta-analytic findings. Upper panel: Main effects of child description condition versus  
 9 the non-child description condition. Lower panel: Main effects of child description condition versus  
 10 the baseline condition. SMD=standardised mean difference.  
 11

12 **Moderation analyses.** Using PROCESS (Model 1, 5000 iterations; Hayes, 2018), our  
 13 moderation analyses entered condition (i.e., child salience vs non-child control or child salience vs  
 14 baseline) as the predictor, prosocial values as the outcome, and each potential moderator in separate  
 15 analyses (see Table S3 in the supplement for analysis outcomes).

16 **Description task moderators.** In comparisons between the child salience and non-child  
 17 description conditions, we examined the extent to which participants were able to form a clear

1 mental image of the described child/adult (1=*not at all* to 7=*very much*; five experiments) and how  
 2 enjoyable participants found the description task (1=*not at all* to 7=*very much*; six experiments) to  
 3 test whether the child salience effect emerges more strongly among those who show the ability and  
 4 willingness to engage with the task. The interaction between child salience and mental image  
 5 clarity was significant,  $b=.19$ , CI 95% [.05, .34],  $p=.010$ . The simple effect of child salience  
 6 pointed in the expected direction at higher and intermediate levels of mental imagery, though the  
 7 effect was only reliable at intermediate levels ( $M=5.35$ ),  $M_{\text{child salience}}=2.09$ ,  $SD=1.71$  versus  $M_{\text{non-}}$   
 8  $\text{child}=1.70$ ,  $SD=1.72$ ,  $t(781)=-2.56$ ,  $p=.011$ , but not at higher levels ( $>+1SD$ ; 6.90),  $M_{\text{child salience}}=2.32$ ,  
 9  $SD=1.75$  versus  $M_{\text{non-child}}=1.99$ ,  $SD=1.83$ ,  $t(781)=-1.26$ ,  $p=.211$ . The simple effect of child salience  
 10 at lower levels of mental imagery was non-significant and pointed in the opposite direction ( $<-1SD$ ;  
 11 3.54),  $M_{\text{child salience}}=2.03$ ,  $SD=1.83$  versus  $M_{\text{non-child}}=2.47$ ,  $SD=1.83$ ,  $t(781)=1.22$ ,  $p=.226$ . Hence,  
 12 child salience elicited higher prosocial values more strongly when participants reported forming a  
 13 clearer mental image during the description task. Task enjoyment did not moderate the impact of  
 14 child salience on prosocial values ( $p=.63$ ).<sup>4</sup>

15 ***Child-specific moderators.*** Four experiments comparing the child salience and non-child  
 16 descriptions included the attitudes towards children scale (Wolf et al., 2020) to measure perceived  
 17 *affection* towards children ( $\alpha=.74-.95$ ; e.g., “*Children make me feel happy*”), and perceived *stress*  
 18 elicited by children ( $\alpha=.77-.84$ ; e.g., “*Children make me feel anxious*”) on a scale from -3 (*strongly*  
 19 *disagree*) to +3 (*strongly agree*). Wolf et al. found consistent support for the scale’s two-factor  
 20 structure and the unique predictive validity of each factor (see Supplement for more details).  
 21 Contact with children over the past weeks was measured in five experiments (1=*no time at all* to  
 22 7=*a lot of time*): Four compared the child salience and non-child description conditions, and two  
 23 compared the child salience and baseline conditions. None of these variables moderated the impact  
 24 of child salience in the comparisons between the child salience and no-child description conditions

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<sup>4</sup> An additional study recruited independent judges to rate the child and adult descriptions from Experiment 2. The method and results are further described in the supplement.

1 (affection:  $p=.28$ , stress:  $p=.93$ , contact:  $p=.75$ ), and between the child salience and baseline  
2 conditions (contact:  $p=.053$ ; see Supplement for a breakdown of the marginally significant  
3 interaction with contact).

4 **Demographic moderators.** We considered three demographic moderators: participant age,  
5 gender, and parenting status. None of these variables significantly interacted with the impact of  
6 child salience across the comparisons between the child salience and non-child description  
7 conditions (age:  $p=.78$ , gender:  $p=.58$ , parenthood:  $p=.59$ ) and between the child salience and  
8 baseline conditions (age:  $p=.22$ , gender:  $p=.076$ , parenthood:  $p=.55$ ; see Supplement for a  
9 breakdown of the marginally significant interaction with gender).

10 **Summary.** The aggregate findings across eight experiments revealed small but consistent  
11 effects of the salience of children on prosocial values. The effects were more reliable among  
12 participants who reported forming a relatively clear mental image of the described child/adult. Of  
13 interest, child salience increased prosocial values regardless of participants' attitudes towards or  
14 contact with children, age, gender, or parenthood status. The persistence of the child salience effect  
15 across these variables is revisited in our General Discussion.

## 16 **Field Study**

17 An observational field study examined the behavioural implications of the salience of  
18 children in everyday life. We expected that a higher proportion of children relative to adults on a  
19 public shopping street would elicit more donations from adult passers-by.

## 20 **Method**

21 **Procedure.** Donations to a cause not specifically related to children were observed in a  
22 naturalistic environment. Two researchers carried donation buckets with a bone marrow charity  
23 logo and wore sweaters from the charity during data collection. Data collection occurred on a  
24 residential shopping street in a UK city, on 12 days in March 2019. The area was chosen because  
25 of its relatively high footfall and proximity to several schools. Because schools in the area finished  
26 at approximately 3:30pm, we collected data between 3 and 5pm, given that children could be

1 expected to be most salient during that time of the day. During data collection, one researcher  
2 collected donations using the prompt “Any spare change for *Bath Marrow*?”, whilst the other  
3 researcher recorded the weather and the number of children and adults present every two minutes.  
4 When a donation was made, the researcher noted the donor’s gender and whether the donor was  
5 accompanied by a child. Children were identified as being in school uniform or clearly under 16  
6 years of age.

7 **Data preparation.** The final dataset contains 721 two-minute intervals. Each interval  
8 shows the proportion of children to adults (i.e., child salience), the number of donations (i.e.,  
9 prosocial behaviour), the weather, and how many of the donations were made by women, men,  
10 adults with a child, or adults without a child. We combined the two-minute timeslots into 142 ten-  
11 minute timeslots to reduce noise.<sup>5</sup> These ten-minute timeslots served as the units of analysis.

12 Because the proportion of children to adults showed a right-skewed distribution, we used the  
13 square-root of this proportion in analyses. For moderation analyses, we computed an index  
14 indicating the relative number of men and women per timeslot by subtracting the number of female  
15 donors from the number of male donors. A similar index was computed for accompanying children  
16 by subtracting the number of donors without a child from the number of donors with a child.  
17 Weather was coded as sunny (+1), cloudy (0), and rainy (-1). Finally, we tested whether the effect  
18 depended on the time of day.

19

20

## 21 **Results and Discussion**

22 Across the 142 ten-minute intervals of data collection, 231 adults donated, 122 of which  
23 were male, 109 female, 34 were accompanied by children, and 197 without children. The analysis

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<sup>5</sup> Five consecutive two-minute timeslots were combined into one ten-minute timeslot. Eleven two-minute timeslots were spread out (i.e., fewer than five two-minute timeslots at the end of a day) and could not be combined into ten-minute timeslots, resulting in 142 and not 144 ten-minute timeslots.

1 showed a significant positive correlation between the proportion of children present and the number  
2 of donations,  $r(142)=.22, p=.009$ .

3 We next tested whether this effect was dependent on donor gender, whether they were with a  
4 child, the weather, and the time of the day. Zero-order correlations showed that the proportion of  
5 children did not correlate with donor gender, accompanying child, weather, or time of day (all  
6  $p>.27$ ). We next ran two-step regression analyses with the proportion of children and the potential  
7 moderator simultaneously entered in the first step, their interaction entered in the second step, and  
8 donations entered as the outcome. Results indicated that the effect of proportion of children  
9 remained significant in each analysis, with no moderating impact of the added moderator variables  
10 (gender:  $p=.50$ , accompanying child:  $p=.25$ , weather:  $p=.59$ , time of day:  $p=.16$ ; see Supplement for  
11 the regression coefficients).

12 **Summary.** People were more likely to donate when children were relatively more salient  
13 on a shopping street. This association was not dependent on whether the donor was male or female,  
14 whether the donors were accompanied by a child, the weather, or the time of day.

### 15 General Discussion

16 We conducted eight experiments and one field study testing whether the salience of children  
17 elicits general prosocial motivation and behaviour in adults. The analysis of child salience effects  
18 across our eight experiments supports this prediction. Participants who completed a task making  
19 children salient subsequently reported higher prosocial values (e.g., helpfulness, social justice) than  
20 those who completed control tasks making adults or a mundane situation salient or those who  
21 completed the study at baseline. These effects were not moderated by participant gender, age,  
22 parenthood, attitudes towards children, and self-reported contact with children.

23 We also found that child salience predicts behaviour in a naturalistic setting. When children  
24 were more salient on a busy pedestrian street, adults were more inclined to make a donation for a  
25 cause not specifically related to children. This effect was present irrespective of whether the donor



1 was male or female, whether they were themselves accompanied by a child, the weather, and the  
2 time of day.

3 Overall, these findings indicate that the salience of children elicits higher prosocial  
4 motivation and behaviour in adults, and this effect emerges across different settings and a range of  
5 demographic variables. From a broader perspective, these findings go beyond previous evidence  
6 supporting links between (one's own) children and compassion (e.g., Bleske-Rechek et al., 2010;  
7 Palomo-Veléz et al., 2020) and point to a broad link between mental representations of children *per*  
8 *se* and prosocial values *and* behaviour in adults (e.g., Best, 1993; Burkart & van Scheik, 2010;  
9 Snowdon & Cronin, 2007). Moreover, the finding that child salience effects emerge across  
10 demographic variables is consistent with observations that the caretaker role in human societies is  
11 shared among group members (Hrdy, 2005), such that parents and non-parents develop similar  
12 motivations linked with children.

13 It is noteworthy that the effect of child salience on prosocial values is reliable though  
14 relatively small in our chosen experimental paradigm. Inferences from this effect size must be  
15 situated by the fact that our description task depended on participants' ability and willingness to  
16 briefly describe children, as evidenced by our moderation analyses showing that child salience  
17 effects are more pronounced among those who reported forming a relatively clear mental image of a  
18 child/adult. Importantly, the meta-analysis provides consistent support for the expected child  
19 salience effect in both experimental comparisons, giving more confidence in the effect. Moreover,  
20 the effect of child salience on donations in a public street was reliable and of small-to-medium size,  
21 despite the high level of distractions in a naturalistic setting. Future research would benefit from  
22 devising additional realistic but involving ways to evoke mental representations of children (e.g.,  
23 interacting with children), and from studying the extent to which the effects are generalisable to  
24 other contexts and cultures.

25 There are further interesting questions to explore regarding the mechanisms that connect  
26 mental representations of children to prosocial values. Our approach was most closely related to

1 work on indirect semantic goal or behaviour priming, wherein the presentation of semantic content  
2 (here: children) increases the accessibility of an associated goal or behaviour, making it more likely  
3 that those behaviours are executed (Janiszewski & Wyer, 2014; Weingarten et al., 2016). Although  
4 behavioural priming research has been met with intense scrutiny after the emergence of prominent  
5 replication failures (e.g., Shanks et al., 2013), closely related literatures on evaluative priming and  
6 behavioural mimicry are established beyond doubt (Ferguson & Mann, 2014; Bargh, 2014), and  
7 more recent meta-analyses find reliable evidence for behavioural priming effects that are robust to  
8 publication bias and questionable research practices (Shariff et al., 2016; Weingarten et al., 2016).  
9 Nevertheless, Weingarten et al.'s meta-analysis also found that both original studies and replication  
10 attempts were severely underpowered, producing non-significant results at a rate of 4:1, and many  
11 behavioural priming researchers acknowledge that additional research is needed to shed light on  
12 relevant moderators and mediators of the effects for better replicability (Cesario, 2014; Higgins &  
13 Eitam, 2014; Newell & Shanks, 2014). The present research provides a well-powered example that  
14 making a social category salient can influence related goals and behaviour and suggests that the  
15 level of task immersion (i.e., forming a clear mental image of a child/adult) may be a useful  
16 moderator. It is further conceivable that we found a reliable effect because the prime was self-  
17 generated (Cesario & Jonas; 2014; Loersch & Payne, 2014), children are generally viewed  
18 positively and are universally relevant, meaning that effects may be stronger and more comparable  
19 across participants (see below; Cesario & Jonas; Wheeler et al., 2014), and the outcomes were  
20 flexible enough to detect shifts (Fujita & Trope, 2014). Future research could further explore the  
21 underpinning mechanisms at work, including whether the accessibility (i.e., ease of retrieval) of  
22 prosocial motives functions as a mediator of child salience effects on behaviour.

23 Of importance, we do not expect that the obtained effects are unique to children. Other  
24 human and nonhuman social categories may elicit broad prosocial motivations and behaviours,  
25 including groups that are viewed as deserving of help (e.g., the elderly, victims) and groups that are  
26 themselves associated with prosocial behaviour (e.g., nurses, superheroes; Aarts et al., 2005; Van

1 Tongeren et al., 2018). We chose to examine effects of child salience not because they are the *only*  
2 category to elicit such effects, but because the social cognitive effects of this category have the  
3 potential for high global relevance, and these effects may be underestimated in their pervasiveness  
4 and potential impact. This impact may be particularly important for a range of reasons. Children  
5 are generally viewed as more innocent, naïve, and vulnerable than other groups (Goff et al., 2014;  
6 Wolf et al., 2020), and they trigger empathy and care-taking motivations (Bleske-Rechek et al.,  
7 2010; Glocker et al., 2009). Moreover, children may be unique in motivating adults to be good role  
8 models, while setting prosocial injunctive norms (e.g., to avoid swearing in front of children) which  
9 may drive effects on broad prosocial motivation. Another important attribute of children may be  
10 their relative powerlessness, which has been found to evoke feelings of social responsibility  
11 (Handgraaf et al., 2008). Future research could explore the extent to which these and other  
12 attributes of children (e.g., age, gender, mood) are relevant to the effects of child salience, while  
13 considering a range of outcomes beyond prosocial motives (e.g., aggression, creativity, temporally  
14 distant cognition).

15         The primary dependent measures in our research were values and donations, which have  
16 been shown to reflect prosocial attitudes and behaviour (e.g., Boer & Fischer, 2013; Sagiv et al.,  
17 2017). Some of our studies explored additional outcomes, including prosocial intentions (Pavey et  
18 al., 2011), social value orientations (SVO; Murphy et al., 2011), and empathic emotions (Batson et  
19 al., 1995). Noting that interpretations of these additional outcomes are constrained by the lower  
20 sample size, only empathic emotions showed consistent effects of child salience, such that child  
21 salience elicited more empathic emotions (e.g., sympathy) with other people's adversities in  
22 concrete scenarios (see Supplement for cross-study analyses on these outcomes). It may be the case  
23 that the measures of prosocial intentions and SVO were influenced by social desirability concerns  
24 or that the child salience effect triggers a spontaneous/emotional response which impacts responses  
25 on measures of values, empathy, and donation behaviour, but not these arguably more deliberate

1 outcomes. Future research could explore this possibility directly and test other prosocial or pro-  
2 environmental outcomes.

3         The present research provides a glimpse of a much bigger picture. Children are indirectly  
4 dependent on how adults behave towards each other and towards the planet as a whole. Yet,  
5 children are separated from many adult environments, such as workplaces, bars, and restaurants,  
6 and from political bodies where important decisions affect their future (Webb, 2004; Westman,  
7 1991). Relatedly, there have been calls for child parliaments or for the explicit consideration of  
8 children in legislative bodies (Graham et al., 2017; Read, 2012), and some organisations have been  
9 set up for this purpose (e.g., Children’s parliament, 2020). The finding that child salience motivates  
10 adults to be more prosocial may encourage more explicit or implicit integration of children in  
11 contexts where adults make important long-term decisions. Through further study of the role of  
12 children in prosocial motivation, we can better understand when and how children affect adults’  
13 social motivations, with broad ramifications for further developments in the inclusion of children in  
14 adult spheres of activity and decision making.

15

16 Acknowledgement: We thank all following students at the University of Bath for their help with  
17 data collection: Hannah Bratt, Si Lok Chan, Paige Davies, Alice Drake, Maddie Holden, Katya  
18 Kowalski, Kristin Lee, Angie Min, Rebecca Rogers, Summer Law, Chris Shine, George Skingley,  
19 Lorraine Sun, Cody Yen. This project was supported by funding from the Economic and Social  
20 Research Council (ESRC) under grant agreement ES/P002463/1. The data (including explanations  
21 and syntax) and study materials will be made openly available upon publication. The authors  
22 declare no competing interest.

23

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