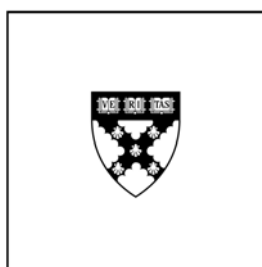


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Memory Lane and Morality: How Childhood Memories Promote Prosocial Behavior

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Running Head: MEMORY LANE AND MORALITY

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Abstract

Four experiments demonstrated that recalling memories from one's own childhood lead people to experience feelings of moral purity and to behave prosocially. In Experiment 1, participants instructed to recall memories from their childhood were more likely to help the experimenter with a supplementary task than were participants in a control condition, and this effect was mediated by self-reported feelings of moral purity. In Experiment 2, the same manipulation increased the amount of money participants donated to a good cause, and self-reported feelings of moral purity mediated this relationship. In Experiment 3, participants who recalled childhood memories judged the ethically-questionable behavior of others more harshly, suggesting that childhood memories lead to altruistic punishment. Finally, in Experiment 4, compared to a control condition, both positively-valenced and negatively-valenced childhood memories led to higher empathic concern for a person in need, which, in turn increased intentions to help.

Keywords: Childhood; Ethics; Memories; Morality; Prosocial Behavior; Purity

Too often the news reports stories of injustice, dishonesty, and human violence: long-lived conflicts in different parts of the world, terrorist attacks, and corporate corruption. These and other, more ordinary instances of unethical behavior are all examples of how human nature seems to be driven by self-interest and impure motives. Yet, throughout history, there are equally compelling stories of small and large acts of helping, honesty, and prosocial behavior more generally. One example is provided by the actions of several people across Europe who risked their life during World War II by welcoming and rescuing Jews and other victims of the Holocaust (Hallie, 1979; Oliner & Oliner, 1988). Similarly, the news often reports stories of exemplar altruistic acts, such as those of people saving others during fires, those of individuals generously helping abandoned children or needy families, those of people contributing large sums of money or time to good causes, or those of organizations founded to help others. In contrast to the first set of examples, these stories seem to suggest that humans may be prosocial in nature.

Scholars have long debated the question of what traits and behaviors are inherent in humanity, and have concluded that whether individuals are more self-oriented or other-oriented in their actions depends on cultural norms and on a complex interaction between biological potentialities (i.e., genes) and environmental experiences (i.e., learning) (Eisenberg & Mussen, 1989). Scholars have also recognized that, together with these factors, situational cues can promote prosocial and unethical behavior across time and across cultures (Ayal & Gino, 2011; Eisenberg & Mussen, 1989; Monin & Jordan, 2009; Shu, Gino, & Bazerman, 2011; Zhong, Liljenquist, & Cain, 2009). For instance, in a recent investigation, Zhong, Bohns and Gino (2010) found that ambient darkness leads people to be less generous towards others in a dictator game. Situational cues may signal or activate implicit or explicit norms in a given social context.

Cialdini, Reno and Kallgren (1990), for example, demonstrated that the amount of litter in the environment regulates littering behavior by subtly activating norms prescribing what is appropriate or inappropriate in a given setting and by providing implicit social proof. Similarly, Aarts and Dijksterhuis (2003) showed that people automatically lowered their voice when they were shown a picture of a library, indicating that merely seeing the photo activated situational norms that one should not speak loudly in a library. These studies suggest a direct correspondence between an aspect of the environment and the behavior that is regulated (e.g., amount of litter and littering, libraries and quietness). Yet, situational cues may influence people's behavior through a different channel: they may impact individuals' feelings and internal state. Darkness, for example, triggers feelings of psychological anonymity (Zhong et al., 2010), clean environments facilitate ethical behavior by activating concepts related to morality (Liljenquist, Zhong, & Galinsky, 2010), and wearing fake sunglasses makes people feel inauthentic (Gino, Norton, & Ariely, 2010).

In this research, we focus on a different internal state, namely feelings of *moral purity*, and how it can be triggered by childhood memories. Both in social and professional contexts, explicit or subtle cues often remind us of our childhood. For instance, people often keep childhood pictures of themselves around their house, or engage in activities (e.g., playing simple games) that remind them of childhood. Similarly, people often work in a more or less playful office. For instance, companies like Google, Disney and Ideo, among others, organize their space such that employees are surrounded by toys and colorful furniture. Although these cues and products are generally used to foster a cohesive and productive work climate, they may also produce some unintended but beneficial consequences. They may lead individuals to think about their childhood, and engage in other-oriented behaviors. Charles Dickens' masterpiece, "A

Christmas Carol” offers a brilliant insight into how reminiscing about one’s childhood can lead to prosocial behavior. In the novel, when Ebenezer Scrooge recalls his childhood, he wishes he had given a coin to a boy singing carols the night before (Dickens, 1843/2010). We propose that childhood memories promote feelings of moral purity and, in turn, these feelings lead to prosocial behavior. We suggest that this occurs because of the associations people automatically draw between childhood memories and moral purity. Research has consistently found that once one concept is activated, associated concepts – from traits to stereotypes to goals – are also triggered through spreading activation (Bargh, 1997; Neely, 1977). For instance, coldness and loneliness (Zhong & Leonardelli, 2008) or darkness and depravity (Frank & Gilovich, 1988) are examples of symbolic associations that are reciprocally related (Lakoff, 1987). Here, we focus on the association between childhood and moral purity, and how this association promotes prosocial behaviors (i.e., behaviors primarily intended to benefit others). We tested the relationship between childhood memories, moral purity and prosocial behavior in four studies, using different measures of prosocial behavior.

Priming Childhood and the Experience of Moral Purity

Across cultures, children are commonly viewed as innocent and pure human beings who are not tainted by vices or selfish motives (James, Jenks, & Prout, 1998; Woodrow, 1999), and are regarded as little angels adults have a duty to protect (Branscombe, Castle, Dorsey, Surbeck & Taylor, 2000; Scott & Watson-Brown, 1997). The words commonly used to refer to children, including “innocent creatures,” “little angels,” “flowers,” or “divine creatures” mirror this view. In a similar vein, Froebel’s metaphor of kindergarten, the “garden of children”, portrays children as seedlings, in a state of natural goodness, to be nurtured and cared for during their development (Aries, 1962). This image of the child as innocent is constantly represented in the sentimental

world of greeting cards, in the arts and literature, in religion, and it is also played out in the media portrayal of tragic events including children. When children are involved, the event is often characterized as something that has taken away children's innocence, as if innocence and purity are inherent characteristics of childhood (Woodrow, 1999).

These common associations between innocence or moral purity and childhood are not altogether surprising in light of the extensive work in developmental psychology suggesting that children indeed are often kind and fair (e.g., Bloom, in press; Hamlin, Wynn, & Bloom, 2007; Warneken & Tomasello, 2007). For example, research has found that children spontaneously try to comfort people in distress by caressing them or offering them a bottle or toy (Dunn & Kendrick, 1979; Zahn-Waxler, Radke-Yarrow, & King, 1979). If they perceive that someone is in need of help, they try to reach over and assist them (Warneken, Hare, Melis, Hanus, & Tomasello, 2007). And if they witness someone behaving kindly toward others, they try to reward them (Hamlin et al., 2007; Jacob & Dupoux, 2008).

Although these positive associations between childhood reminders and moral purity exist in arts, religion and the media across cultures, to date they have been not empirically studied. We suggest that inducing individuals to recall their own childhood will trigger feelings of moral purity. Thus, we hypothesize that:

Hypothesis 1: Recalling childhood increases individuals' feelings of moral purity.

We suggest that these associations not only occur explicitly (i.e., when the concept of childhood is activated people report feeling morally pure) but also implicitly (i.e., when the concept of childhood is activated, the concept of moral purity is also activated automatically in people's mind). An increasing number of studies have found evidence for the reciprocal and unconscious activation of symbolic associations, such as filth and sin (Liljenquist et al., 2010;

Rozin, Millman, & Nemeroff, 1986), or white and pure (Sherman & Clore, 2009). Congruent concepts are linked together in individuals' memory within a network of nodes. When one concept is activated (e.g., filth), this activation spreads along the network and results in the activation of related concepts (e.g., sin), and this spreading occurs automatically (Anderson, 1976, 1983; Collins & Loftus, 1975). The initial activation may occur because of a situational cue, such as an object, a word or a symbol in the surrounding environment (Bargh, 1994, 2007). Across contexts, individuals are commonly not aware of the effect of the cue on the activation of the primed construct. We suggest that childhood memories operate in the same way: When recalling memories from childhood, a related construct of innocence and moral purity will be automatically activated. That is, we hypothesize that:

Hypothesis 2: Recalling childhood automatically activates notions of moral purity.

Effects of Childhood Memories on Prosocial Behavior

Over the last two decades, social psychology research has demonstrated the effects priming can have on behavior. Priming refers to the situational activation of mental constructs (Bargh, Chen, & Burrows 1996; Bargh et al. 2001). For instance, participants primed with Apple logos have been found to behave more creatively than participants primed with IBM logos since Apple is associated with creativity both automatically and explicitly in self-report measures (Fitzsimons, Chartrand, & Fitzsimons, 2008). Behavioral priming research has used different approaches to directly activate a mental construct in individuals' mind, including exposure to related words (e.g., priming participants with words related to rudeness leads them to behave rudely; Bargh et al., 1996), and environmental cues (e.g., priming participants with the elderly leads them to work more slowly; Bargh et al., 1996).

Dijksterhuis and Bargh (2001) have proposed that the effects of priming on behavior are mainly driven by the cognitive constructs activated with the prime. As explained by Fitzsimons, Chartrand, and Fitzsimons (2008: p. 22), “Constructs associated with the primed representation guide behavior through a direct perception-behavior link, when people’s behavior mirrors a perceived construct.” For instance, because people’s mental representation of a library is linked to the construct “silence,” when people are primed with the construct library through a picture, “silence” is also activated in their minds. As a result, because of links to behavioral representations, the activated construct leads to an increased likelihood that the corresponding behavior will result (i.e., people will lower their voice when talking).

By the same token, to the extent that people’s mental representation of childhood is linked to the construct “moral purity,” when people are primed with the construct childhood as they think of childhood memories, “moral purity” will be activated in their minds. In turn, the activated construct of moral purity may lead to an increased likelihood that people will behave prosocially. Recent evidence in moral psychology is suggestive of a link between feelings of moral purity and prosocial behavior. For instance, concerns about impurity have been found to be associated with disgust, and physical purity has been found to be a metaphor for moral purity (Rozin et al., 1999; Horberg, Oveis, Keltner, & Cohen, 2009). Disgust links to concerns about the protection of physical and mental purity (Haidt & Graham, 2007), and experiencing disgust due to moral violations of purity leads to harsher moral criticism of those actions (e.g., Haidt & Hersh, 2001). Furthermore, people who experience disgust, even if temporarily, are more likely to reject unfair offers in a dictator game compared to people in a neutral state (Moretti & di Pellegrino, 2010). Moral purity has also been associated with cleanliness and reduced unethical behavior. Specifically, research has demonstrated a moral-purity metaphor that likens moral

goodness to physical cleanliness (Zhong & Liljenquist, 2006). Because of the association between physical and moral purity, people consider an evil person's clothing as physically repulsive (Rozin, Markwith, & McCauley, 1994), and reminders of their moral transgressions generate a desire for physical cleansing (Zhong & Liljenquist, 2006).

Thus, like other emotions and internal states which provide systematic input into complex moral judgments and behaviors (Greene & Haidt, 2002; Haidt, 2001, 2003; Horberg, Oveis, & Keltner, 2011), we expect moral purity to lead to prosocial behavior. Moral emotions have been found to influence decisions about whether to help others in need (Batson & Shaw, 1991), how severely to punish antisocial behavior (Graham, Weiner, & Zucker, 1997), and how to distribute tasks or resources (Batson, Klein, Highberger, & Shaw, 1995). Similarly, we expect moral purity triggered by childhood memories to lead to prosocial behavior. This reasoning led us to the following two hypotheses:

Hypothesis 3: Recalling childhood promotes prosocial behavior.

Hypothesis 4: Feelings of moral purity mediate the effect of childhood memories on prosocial behavior.

Overview of Experiments

Four experiments tested the hypothesis that memories of one's own childhood make individuals experience a sense of moral purity both consciously and unconsciously, leading them to behave prosocially towards others by being willing to help, by donating money to a good cause, by altruistically punishing others for their unethical actions, or by expressing empathic concern towards others in need. In Experiment 1, we tested whether having participants recall memories from their childhood would increase the likelihood that they would help someone in the present. We also examined whether recalling their own childhood would increase their sense

of moral purity. In Experiment 2, we tested whether having participants recall memories from their childhood would make them more likely to donate money to a good cause and whether this relationship between childhood memories and donation behavior would be mediated by moral purity. In Experiment 3, we used a different form of prosocial behavior, namely altruistic punishment. Through altruistic punishment, individuals punish others for their actions, even if the punishment is costly for them and yields no material gain (Fehr & Gächter, 2002). In this study, we demonstrated that participants primed with childhood memories judged the ethically-questionable behavior of others more harshly compared to participants in a control condition. Finally, in Experiment 4 we examined whether childhood memories lead to higher empathic concern for a person in need, and whether higher empathic concern increases intentions to help. In this last study, we distinguished between recalling good versus bad memories from childhood, and demonstrate that the link between childhood memories and prosocial behavior holds for both types of memories.

Experiment 1: Helping Others

We designed Experiment 1 to provide initial evidence that recalling memories from childhood causes people to feel morally pure and behave prosocially towards others. First, we wanted to determine whether a sense of moral purity can be experienced when thinking and writing about one's own childhood. Second, we wanted to determine whether such feelings may motivate people to help others in need. To achieve these goals, we asked participants to recall positively-valenced memories from their childhood versus their last visit to the grocery store (in the control condition), and then we asked them to respond to items measuring their feelings of moral purity. Toward the end of the study, participants were asked whether they wanted to help the experimenter with an additional, optional task, allowing us to assess prosocial behavior. We

predicted that participants' recollection of their childhood would make them feel morally pure, leading them to be more helpful toward the experimenter.

Method.

Participants. One hundred thirteen undergraduates (58 female; $M_{age}=20.53$; $SD=2.07$) from a university in the Southeastern United States participated in a laboratory study in exchange for partial course credit.

Procedure. Participants were directed to a computer in a laboratory room and began reading the instructions on the screen. In the first part of the study, participants were asked to describe events in their lives. They were told that they would write a brief essay on something that they do frequently, and then they would write a brief essay on something that happened at a particular time. They were told that they could spend 5–10 min writing each essay. The first essay asked them to describe their morning routine in detail; this was used to disguise the true purpose of the study. The second essay's topic varied by condition. In the childhood condition, participants wrote an essay in response to the following prompt: "Please think about your childhood and good memories you have from it. Please write a few paragraphs describing them and one event that you still remember to this date. Please provide as many details as possible so that another person reading what you wrote could understand how you felt at that time." In the control condition, the first part of the prompt read: "Please think about the last time you were at the supermarket shopping. Please write a few paragraphs describing this situation and one item or product that you purchased." The second part of the prompt was the same as in the childhood condition. Thus, participants in both conditions were instructed to describe something positive that happened in their lives, but we expected the control essays to have nothing to do with one's own childhood.

Participants then reported on a 7-point scale the extent to which, at the present moment, they felt the 10 positive emotions (i.e., attentive, interested, alert, enthusiastic, excited, inspired, proud, determined, strong and active, $\alpha=.93$) and 10 negative emotions (distressed, upset, hostile, irritable, scared, afraid, ashamed, guilty, nervous, and jittery, $\alpha=.92$) that comprise the Positive and Negative Affect Schedule (PANAS; see Watson, Clark, & Tellegen, 1988). After completing unrelated filler tasks for about 5 minutes, participants indicated their agreement on a 7-point scale (1=Strongly disagree, 7=Strongly agree) with two moral purity items and five personality-related filler items (e.g., “I have a good memory”) presented in random order. The moral purity items were “I feel innocent,” and “I feel morally pure.” The mean of the two moral purity items was used as the measure of moral purity ($\alpha=.84$). Finally, participants completed a 2-item manipulation check (“The writing task I completed made me think about the time I was a child,” “The writing task I completed made me go back to my childhood”) using a similar 7-point scale (1=Strongly disagree, 7=Strongly agree). We combined responses to the two items ($r=.93$, $p<.001$) to form a single index.

The helping request was the last measure administered. Instructions on the computer screen informed participants that they had completed the study but that they had the option of helping the experimenter with an extra task described as “pilot testing for another project.” The instructions clarified that this was totally voluntary and not part of the original experiment. On the next screen, participants indicated whether they wanted to help with this extra task. If participants agreed to help, they went on to answer a brief questionnaire about sports and health habits. If they decided not to help, this questionnaire was skipped. Then participants were asked to guess the hypothesis of the study and to report whether they were suspicious of anything. Finally, they were debriefed.

Results

Preliminary analyses. An examination of the free-response essays showed that participants in the childhood condition wrote about a wide variety of situations, such as listening to a particular type of music, playing with friends, or engaging for the first time in an activity such as riding a bicycle.

No participant guessed the full hypothesis, but three of the remaining participants expressed suspicion that the request for help with the extra task was what the researchers were actually interested in. We excluded these three participants from all subsequent analyses for clarity of interpretation, but the results reported below were the same regardless of whether we included ($N=113$) or excluded ($N=110$) these suspicious participants.

Manipulation check. Our manipulation was effective: participants who recalled memories from their childhood reported the writing task made them think about the time they were children ($M=5.43$, $SD=1.37$) compared to participants in the control condition ($M=2.03$, $SD=1.49$), $t(108)=12.12$, $p<.001$.

Moral purity. Consistent with Hypothesis 1, participants in the childhood condition reported a higher mean moral-purity score ($M=3.73$, $SD=1.79$) than did control participants ($M=2.38$, $SD=1.41$), $t(108)=4.42$, $p<.001$.

Prosocial behavior. As predicted by Hypothesis 3, a larger percentage of participants who recalled childhood memories (75% of them) were willing to help the experimenter by completing the extra task than that of participants in the control condition (54.5% of them), $\chi^2(1, N=110)=4.72$, $p=.03$.

Mediation by moral purity. When both condition and moral purity were entered into a logistic regression model predicting helping on the extra task, as hypothesized, moral purity was

significant ($b=.94$, $SE\ b=.22$), Wald $\chi^2=17.78$, $p<.001$, but condition was no longer significant ($b=-.10$, $SE\ b=.50$), Wald $\chi^2<1$, $p=.85$. Using the bootstrapping method (with 10,000 iterations) recommended by Preacher and Hayes (2004), we tested the significance of the indirect effect of condition on helping behavior through self-reported moral purity. The 95% confidence interval for the indirect effect did not include zero (.58, 2.54), indicating that moral purity was a mediator in this experiment as predicted by Hypothesis 4.

Positive and negative affect. We then examined whether our manipulation influenced participants' positive and negative affect. Participants in the childhood-memories condition reported about the same levels of positive affect ($M=3.01$, $SD=1.22$) as those in the control condition ($M=3.00$, $SD=1.35$), $t(108)<1$. Thus, affect was not positively correlated with recalling memories from one's own childhood. Similarly, negative affect was not correlated with exposure to child-related cue ($M=1.63$, $SD=0.90$ vs. $M=1.47$, $SD=0.74$, $t[108]=1.06$, $p=.29$), thus ruling out the possibility that the control condition was tedious compared to the childhood condition.

Discussion

After recalling and writing about memories from their childhood, participants were more likely to agree to help an experimenter. Furthermore, we demonstrated that being reminded of memories from one's own childhood led participants to report a heightened sense of moral purity. Our first test of the mediation model (that remembering memories from one's own childhood leads to prosocial behavior because of an increased sense of moral purity) yielded a significant result, providing initial support for the mediating role of moral purity.

Experiment 2: Donating Money to a Good Cause

Experiment 1 demonstrated our basic effect: Individuals who recalled memories from their childhood behaved prosocially by helping the experimenter. The results of Experiment 1

also provided support for the hypothesis that moral purity mediates the relationship between remembering childhood and behaving prosocially. In Experiment 2, we provide further evidence of our hypotheses by using a different dependent measure to assess prosocial behavior.

Specifically, we employed a continuous measure of prosocial behavior by asking participants to donate money to a good cause, rather than relying on a single dichotomous measure of prosocial behavior as we did in Experiment 1. We used the same manipulation of remembering childhood as in Experiment 1: asking participants to recall and write about memories from their childhood.

Finally, we included a measure of nostalgia in Experiment 2 to test this emotion as alternative potential mediator of our effect. Childhood memories are one of the many memories from one's own past that can promote nostalgic feelings (Sedikides, Wildschut, Arndt, & Routledge, 2008). In turn, nostalgic feelings may lead to prosocial behavior because of three main reasons. First, nostalgia serves as a repository of positive affect (Wildschut, Sedikides, Arndt, & Routledge, 2006) and leads people to experience "a feeling of elation" (Kaplan, 1987, p. 465). And previous research has found that positive affect often promotes prosocial behaviors (e.g., Berkowitz, 1987; Carlson, Charlin, & Miller, 1988; Eisenberg & Fabes, 1991). Second, nostalgia enhances positive self-regard (Wildschut et al., 2006), it increases the implicit accessibility of positive self-attributes and attenuates self-esteem defense (Vess, Arndt, Routledge, Sedikides, & Wildschut, 2008). In turn, this positive self-regard may lead to other-oriented behaviors that can reinforce one's own positive self-image as demonstrated by work on moral identity (Aquino & Reed, 2002). Finally, nostalgia strengthens social bonds (Wildschut et al., 2006). During nostalgic reverie, "the mind is 'peopled'" (Hertz, 1990, p. 195). When individuals experience nostalgic feelings, close others come to be momentarily part of one's present. This increased sense of social connection may in turn lead to prosocial behavior.

Method.

Participants. One hundred three undergraduates and graduate (54 female; $M_{age}=21.12$; $SD=2.26$) from local universities in the Southeastern United States participated in a laboratory study in exchange for \$12 (\$2 show-up fee and an additional \$10).

Procedure. Participants were seated at a computer in a laboratory room and were informed they would participate in a series of unrelated tasks. They first received a bogus task after which they received \$5. Then, they were given the essay-writing instructions used in Experiment 1. After writing their essays about memories from their childhood or a recent visit to the grocery store, participants completed a 2-item measure of nostalgia (from Zhou, Sedikides, Wildschut, & Gao, 2008): “Right now, I am feeling quite nostalgic” and “Right now, I am having nostalgic feelings” ($\alpha=.87$) using a 7-point scale (1=Strongly disagree, 7=Strongly agree). Participants then completed the 20-item version of the PANAS (Watson et al., 1988), and rated their agreement with the two moral purity items and the five personality-related filler items used in Experiment 1. Participants were asked to respond to these statements on the basis of how they were feeling at that moment in an attempt to measure state moral purity. The mean of the two moral purity items was used as the measure of moral purity ($\alpha=.78$).

Finally, participants were informed they had completed the study. In addition, the instructions informed them they could donate money for Haiti earthquake victims (the earthquake happened the week before the experiment took place):

Our research team is interested in collecting donations for Haiti earthquake victims. Please indicate if you are willing to make a donation. If so, we'll ask you to leave money in the envelope next to the computer. If you do not have money with you but intend to donate please write the amount you intend to donate below (next question) with your name. You can bring the money to the lab any day of the week this week.

All the participants who indicated they wanted to donate money made their donation at the time of the session (nobody returned to the lab during the week after the experiment to donate money). In addition, the amount participants specified in the question regarding their willingness to donate matched the amount participants actually donated by leaving money in the envelope. Finally, participants reported demographic information, were asked to guess our hypothesis, and were debriefed.

Results

Preliminary analyses. No participant guessed the full hypothesis, and no participants reported suspicion in this study. Therefore, we did not exclude any participants from our analyses.

Manipulation check. As expected, participants who wrote an essay about their childhood reported the task made them think about their childhood significantly more ($M=4.71$, $SD=0.93$) than did participants who wrote about one of their visits to the grocery store ($M=2.49$, $SD=0.83$), $t(101)=12.75$, $p<.001$.

Moral purity. As predicted by Hypothesis 1, participants in the remembering-childhood condition also reported higher feelings of moral purity ($M=3.39$, $SD=1.23$) than did participants in the control condition ($M=2.26$, $SD=1.12$), $t(101)=4.87$, $p<.001$.

Amount donated. Consistent with the increase in helping observed in Experiment 1, participants in Experiment 2 who wrote about childhood memories donated a significantly larger amount of money to Haiti victims ($M=2.10$, $SD=2.14$) than did participants in the control condition ($M=1.18$, $SD=1.77$), $t(101)=2.37$, $p=.02$. These results were mirrored by the percentage of participants who decided to donate money. A larger percentage of participants in the remembering-childhood condition (61.5%, 32 out of 52) decided to donate money compared to

that in the control condition (41.2%, 21 out of 51), $\chi^2(1, N=103)=4.27, p<.05$. These results provide further support for Hypothesis 3, which predicted that childhood memories would promote prosocial behavior.

Mediation by moral purity. When both condition and moral purity were entered into a linear regression model predicting donated amount of money (our measure of prosocial behavior), condition was no longer significant ($b=-.44, SE\ b=.30; t=-1.46, p=.15$), whereas moral purity was a significant predictor of prosocial behavior ($b=1.20, SE\ b=.12; t=10.36, p<.001$). The Preacher and Hayes (2004) bootstrapping technique (with 10,000 iterations) produced a 95% confidence interval for the indirect effect that ranged from .72 to 2.15, which does not include zero. Thus, consistent with Hypothesis 4, moral purity significantly mediated the relationship between childhood memories and prosocial behavior. Note that we obtained support for mediation also when considering the likelihood to donate rather than the amount donated as the dependent variable.

Nostalgia and affect. Nostalgia, and the mean of the positive affect words from the PANAS were not mediators for the effect. Although participants who recalled and wrote about memories from their childhood did report being more nostalgic after writing the essay ($M=4.06, SD=1.13$) than did participants in the control condition ($M=1.98, SD=0.97$), $t(101)=10.02, p<.001$, the effect of nostalgia was not significant in a mediation model predicting the amount of money donated from condition and nostalgia ($b=.19, SE\ b=.19; t=1.04, p=.30$). Similarly, participants who recalled and wrote about memories from their childhood experienced more positive affect ($M=3.89, SD=1.10$) than did participants in the control condition ($M=3.61, SD=0.90$) but this difference did not reach statistical significance, $t(101)=1.45, p=.15$. Finally, there was not a significant difference in the mean of the negative affect words on the PANAS

between participants in the remembering-childhood condition ($M=2.09$, $SD=1.15$) and those in the control condition ($M=2.00$, $SD=1.02$), $t(101)<1$.

Discussion

Consistent with Experiment 1, participants who recalled memories from their childhood donated more money to victims of the Haiti earthquake than did participants in a control condition. Mirroring this result, a larger proportion of participants in the remembering-childhood condition engaged in prosocial behavior by donating some money as compared to those in the control condition. Experiment 2 also provides further support for our hypothesis that moral purity mediates the effect. Recalling childhood memories caused individuals to feel morally pure, and as a result, they behaved prosocially.

These data also constitute evidence against a plausible alternative explanation for our effect. Not surprising, people who wrote about positively-valenced memories from their own childhood felt more nostalgic after describing the event than did people who wrote about a visit to the grocery store. This is consistent with other research showing that people feel nostalgic after recalling an event from their past (e.g., Sedikides, Wildschut, & Baden, 2004; Sedikides et al., 2008; Wildschut et al., 2006). Nostalgic feelings did not mediate the relationship between recalling memories from one's own childhood and increased prosocial behavior. Similarly, positive affect did not differ depending on whether participants recalled childhood versus not. We instead found support for our hypothesis that moral purity is the mediator.

Experiment 3: Judging and Punishing the Actions of Others

So far, we have demonstrated that remembering childhood promotes prosocial behavior through heightened feelings of moral purity. In our third study, we focus on a different type of

prosocial behavior: punishment of the actions of others. We expected that childhood memories would lead people to judge the behavior of others more critically and to punish it more harshly.

Method.

Participants. One hundred thirty-four students and employees (73 female; $M_{age}=21.75$; $SD=6.09$) from local universities in the Southeastern United States participated in a laboratory study in exchange for \$7.

Procedure. Participants were informed the study included several unrelated task. As their first task, they engaged in the writing task used in Experiments 1 and 2 for about 10 minutes. We used the writing task to introduce our manipulation of remembering childhood. Next, participants completed a short version of the PANAS and questions assessing nostalgia as in Experiment 2. After completing unrelated filler tasks for about 5 minutes, participants indicated their agreement on a 7-point scale (1=Strongly disagree, 7=Strongly agree) with the two moral purity items ($\alpha=.89$) and the five personality-related filler items used before presented in random order. Next, participants were presented with a scenario describing the behavior of another person, Steve. They were asked to read it carefully and then answer a few questions about it. The scenario read,

Imagine that Steve has an important interview tomorrow, which will determine whether or not he will be able to get a really good job as an analyst. He is suitable for the job but he is worried about the interview being demanding. Steve is the type of person who does not perform at his best under stress. The questions for the interview will be chosen at random from a list that is kept in an online document which is password protected. Steve is the last person to leave the room after an introductory luncheon for all the job candidates. As he is about to leave, he notices that a company representative has left on the table a folder with information about tomorrow's interview. He has the opportunity to write down the password and use it to prepare for the interview. Nobody would ever learn about this. Steve decides to open the folder and copy the password on his notebook before leaving.

Participants were asked to indicate the extent to which they thought Steve's behavior was unethical, wrong, and morally inappropriate ($\alpha=.90$) using a 7-point scale (1=Not at all, 7=Very

much). They were then asked to imagine the person conducting the interview found out about Steve's actions, and then indicate how harshly they would punish the behavior if they were in the interviewer's shoes, even if punishing Steve's behavior meant potentially creating extra costs for the company by rescheduling the interviews (1=Not at all, 7=Very harshly).

Finally, participants answered the same 2-item manipulation check used in Experiments 1 and 2, followed by a few demographic questions.

Results

Manipulation check. Participants who recalled memories from their childhood reported the writing task made them think about the time they were children ($M=5.75$, $SD=1.27$) compared to participants in the control condition ($M=1.88$, $SD=1.47$), $t(132)=16.29$, $p<.001$, suggesting that, once again, our manipulation was effective.

Ethical judgment and punishment. Remembering childhood affected participants' judgments of Steve's behavior. Participants reported Steve's behavior to be more unethical in the remembering-childhood condition ($M=5.89$, $SD=1.03$) than in the control condition ($M=5.40$, $SD=1.55$), $t(132)=2.16$, $p<.05$. They also indicated they would punish Steve's behavior more harshly ($M=5.81$, $SD=0.96$ vs. $M=5.25$, $SD=1.47$), $t(132)=2.65$, $p<.01$.

Moral purity. Participants in the remembering-childhood condition reported a higher mean moral-purity score ($M=3.91$, $SD=1.71$) than did control participants ($M=2.51$, $SD=1.60$), $t(132)=4.89$, $p<.001$.

Mediation by moral purity. When both condition and moral purity were entered into a linear regression model predicting ethical judgment, condition was no longer significant ($b=.30$, $SE b=.24$; $t=1.22$, $p=.23$), whereas moral purity was a significant predictor of ethical judgment ($b=.14$, $SE b=.07$; $t=2.02$, $p<.05$). The Preacher and Hayes (2004) bootstrapping technique (with

10,000 iterations) produced a 95% confidence interval for the indirect effect that ranged from .02 to .38, which does not include zero.

Nostalgia and affect. As in Experiment 2, the mean of both positive and negative affect words from the short-form PANAS did not differ between conditions ($t[132]=1.05, p=.29$ and $t[132]=-1.02, p=.31$, respectively). As for nostalgia, it was higher in the remembering-childhood condition ($M=4.27, SD=1.98$) than in the control condition ($M=2.13, SD=1.50$), $t(132)=7.01, p<.001$. Yet, the effect of nostalgia was not significant in a mediation model predicting ethical judgment from condition and nostalgia ($b=-.003, SE b=.07; t<1$).

Discussion

In Experiment 3, recalling and writing about memories from childhood led participants to be more critical of others' ethically-questionable behaviors and punish them more harshly, compared to a control condition. Furthermore, providing additional support for our predictions, we found that being reminded of memories from childhood led participants to experience a heightened sense of moral purity, and these feelings mediated the relationship between childhood memories from and ethical judgments.

Experiment 4: Childhood Memories and Empathic Concern

In Experiments 1-3, participants who recalled memories from their childhood reported higher moral purity and engaged in more prosocial behavior than control participants who recalled a neutral event. Although we found evidence that this effect was due specifically to participants' heightened feelings of moral purity in the experimental condition, the events participants recalled and wrote about may have differed in other meaningful ways. To isolate the role of moral purity, in Experiment 4 we used an implicit measure in addition to a self-reported measure. Specifically, we used a word-completion task to measure non-conscious activation of

the construct of moral purity. Word-completion tests have been shown to assess implicit cognitive processes (Bassili & Smith, 1986; Tulving, Schacter, & Stark, 1982), thus allowing us to test whether or not participants' choice of words and their implicit thought processes are influenced by childhood memories.

The design of Experiment 4 differed from our previous studies in three further critical ways, with the goal of providing additional support for our central hypothesis that remembering childhood leads to a sense of moral purity, which, in turn, leads to prosocial behavior. First, to increase the generalizability of our findings, we used a different sample—a population of adults, which includes people who have children of their own. Having children may impact the type of associations people make when remembering their own childhood. Second, we examined whether childhood memories influence one of the important antecedents of prosocial behavior: empathic concern towards others in need. Third, in Experiment 4 we included a condition in which participants are asked to recall and write about negatively-valenced memories from their childhood to test whether valence moderates the effect observed in Experiments 1-3.

Method.

Participants. One hundred ninety-four adults (113 female; $M_{age}=32.68$; $SD=10.93$) from an online pool of participants participated in the study in exchange for \$4.

Procedure. Participants were informed the study included several unrelated tasks. As their first task, they engaged in a writing task for about 10 minutes. Participants were randomly assigned to one of three conditions: good childhood memories, bad childhood memories, and control condition. We used this writing task to introduce our manipulation of remembering childhood. In the good-memories condition, participants were asked to “*think about your childhood and good memories you have from it. Please write a few paragraphs describing them*

and one event that you still remember to this date” (as in Experiments 1-3). In the bad-memories condition, participants were asked to *“think about your childhood and bad memories you have from it. Please write a few paragraphs describing them and one event that you still remember to this date.”* In the control condition, participants were asked to think about the last time they were at the grocery store and write about this experience (as in Experiments 1-3). Participants then answered questions measuring moral purity ($\alpha=.77$) together with bogus self-related questions as in our previous studies. Next, they reported on a 7-point scale the extent to which, at the present moment, they felt the five positive and five negative emotions that compose the short form of the PANAS (Mackinnon et al., 1999). They also completed the 2-item measure for nostalgic feelings we employed in Experiment 2 ($\alpha=.95$).

Next, they completed the word-completion task. In this task, participants were given a list of words with letters missing and were asked to fill in the blanks to make complete, meaningful words using the first word that came to mind. Of the six word fragments, three (P _ R _, M _ R _ _, and V _ R T _ _) could be completed as words related to moral purity (pure, moral, and virtue) or as unrelated words (e.g., part, mural, and vortex).

After the word completion task, participants engaged in what they believed to be another unrelated study. This supposedly unrelated study of interest involved reading about something that happened to another person and then answering a few questions about what they read. We adapted this task from Batson et al. (2007) and used it to measure both empathic concern towards another person in need, and intentions to help. The instructions informed participants that a professor of psychology in a US university was conducting a study in conjunction with the Office of Student Life (OSL). Participants were told that students experiencing a wide range of difficulties contact the OSL for help, and that this office was interested in knowing whether these

experiences are typical for students at other university and across time (see Appendix for details). Participants then read the account of a student named Bryan Hofmann. In his account, Bryan first described hurrying to a 9:30 class, and then gave details about an accident he was part of. After helping an old woman find her way home, Bryan got hit by a car and was severely injured. Because of his injuries, he cannot attend classes and he is falling behind in his classes (see Appendix for details).

After reading the personal account, participants indicated how much they felt each of six emotions (sympathetic, softhearted, warm, compassionate, tender, and moved) toward the person whose account they read using a 7-point scale (1=not at all, 7=extremely). This measure has been used effectively in prior research to assess feelings of empathic concern (see Batson, 1991). We averaged participants' ratings on the six emotions to form a score for empathic concern ($\alpha=.92$). Participants also indicated the extent to which they would be likely to help the student by taking notes on his behalf if they were at the same university (1=not likely at all, 7=very likely). As a bogus question, they also indicated how typical the experience of Bryan was compared to the experience that the participants had when they were students (1=not at all, 7=extremely).

Finally, participants answered the same 2-item manipulation check used in Experiments 1-3, they indicated the extent to which they wrote about a positive experience (1=not at all, 7=extremely), and then answered a few demographic questions.

Results

Table 1 reports the descriptive statistics of the main variables included in the study.

Preliminary analyses. Four participants were excluded from the analyses because they reported being suspicious of the scenario they were asked to read (i.e., they did not believe the account they read was from a real student). No participant guessed the full mediation hypothesis.

Manipulation check. Participants who recalled good memories from their childhood ($M=5.56$, $SD=1.06$) and participants who recalled bad memories from their childhood ($M=5.41$, $SD=1.27$) both reported the writing task made them think about the time they were children compared to participants in the control condition ($M=2.32$, $SD=1.67$; $p<.001$ for both comparisons), $F(2,187)=113.76$, $p<.001$, $\eta^2=.55$. Participants' answer on this manipulation check was no different between the two remembering-childhood conditions ($p=.54$). These results suggest that, once again, our manipulation was effective.

Participants also indicated the extent to which they wrote about a positive experience. Their rating on this question varied by condition, $F(2,187)=101.55$, $p<.001$, $\eta^2=.52$: it was higher in the good-childhood-memories condition ($M=6.20$, $SD=1.14$), followed by the control condition ($M=4.58$, $SD=1.80$), and it was the lowest in the bad-childhood-memories condition ($M=2.22$, $SD=1.80$; $p<.001$ across all comparisons).

Empathic concern. Participants' empathic concern varied by condition, $F(2,187)=16.74$, $p<.001$, $\eta^2=.15$. It was higher for participants who recalled good memories from their childhood ($M=5.96$, $SD=0.91$) and for participants who recalled bad memories from their childhood ($M=6.20$, $SD=0.80$) than it was for participants in the control condition ($M=5.24$, $SD=1.13$; $p<.001$ for both comparisons). Empathic concern did not significantly vary depending on the valence of the childhood memories participants recalled ($p=.16$).

Intentions to help. Participants' intentions to help also varied by condition in the same direction, $F(2,187)=7.44$, $p=.001$, $\eta^2=.07$. Participants indicated being more willing to help in the good-childhood-memories condition ($M=6.12$, $SD=0.92$) and in the bad-childhood-memories condition ($M=5.89$, $SD=1.29$) than in the control condition ($M=5.35$, $SD=1.21$; $p<.01$ for both

comparisons). Intentions to help did not significantly vary depending on the valence of the childhood memories that participants recalled ($p=.25$).

Feelings of moral purity. Participants' self-reported feelings of moral purity also varied by condition, $F(2,187)=12.93$, $p<.001$, $\eta^2=.12$. They were higher in both the good-childhood-memories condition ($M=4.82$, $SD=1.26$) and the bad-childhood-memories condition ($M=5.06$, $SD=1.13$) than in the control condition ($M=3.97$, $SD=1.37$; $p<.001$ for both comparisons).

Feelings of moral purity did not significantly vary depending on the valence of the childhood memories participants recalled ($p=.27$).

Accessibility to moral-purity related concepts. These results were mirrored by the implicit measure of moral purity we included in the study. As predicted by Hypothesis 2, participants in the good-childhood-memories condition and those in the bad-childhood-memories condition used significantly more words related to moral purity in the word-completion task ($M=1.38$, $SD=0.92$ and $M=1.45$, $SD=0.99$, respectively) than did participants in the control condition ($M=0.98$, $SD=0.95$; $p<.05$ for both comparisons), $F(2,187)=4.30$, $p<.05$, $\eta^2=.04$. Accessibility to moral purity concepts did not differ between the two childhood memories conditions ($p=.66$).

Mediation by feelings of moral-purity. When we entered both childhood memories (1 for both good and bad childhood memories, and 0 for the control condition) and our measure of moral purity into a linear regression model predicting empathic concern, the impact of childhood memories was significantly reduced ($b=.63$, $SE b=.15$; $t=4.13$, $p<.001$), whereas moral purity was a significant predictor of empathic concern ($b=0.21$, $SE b=.05$; $t=3.88$, $p<.001$). The Preacher and Hayes (2004) bootstrapping technique (with 10,000 iterations) produced a 95% confidence interval for the indirect effect that ranged from .09 to .34, which excludes zero. Thus,

moral purity significantly mediated the relationship between childhood memories and empathic concern. We found evidence for mediation also when considering the implicit measure of moral purity as mediator.

Nostalgia and affect. Nostalgia varied by condition, $F(2,187)=13.56, p<.001, \eta^2=.13$: it was higher in the good-childhood-memories condition ($M=4.92, SD=1.47$), followed by the bad-childhood-memories condition ($M=4.23, SD=1.54$), and it was the lowest in the control condition ($M=3.57, SD=1.37; p<.05$ across all comparisons). Yet, the effect of nostalgia was not significant in a mediation model predicting empathic concern from condition and nostalgic feelings ($b=-.01, SE b=.05; t=-0.23, p=.82$).

The mean of positive affect words from the short-form PANAS was higher in the good-childhood-memories condition ($M=4.91, SD=1.30$) compared to both the bad-childhood-memories condition ($M=4.18, SD=1.56$) and the control condition ($M=4.17, SD=1.41; p<.01$ for both comparisons), $F(2,187)=5.70, p<.01, \eta^2=.06$. As for the mean of negative affect words from the short-form PANAS, it was higher in the bad-childhood-memories condition ($M=2.52, SD=1.49$) compared to both the good-childhood-memories condition ($M=1.81, SD=1.34$) and the control condition ($M=1.50, SD=0.77; p<.01$ for both comparisons), $F(2,187)=10.91, p<.001, \eta^2=.10$. Yet, these emotions were not significant in a mediation model predicting empathic concern from condition and affect (positive affect: $b=.06, SE b=.05; t=1.28, p=.20$; and negative affect: $b=.02, SE b=.06; t=0.41, p=.69$).

Path analysis. We also conducted a three-path mediation model (Taylor, MacKinnon, & Tein, 2008) to test whether childhood memories lead to feelings of moral purity, which in turn lead to empathic concern, which in turn leads to intentions to help. The results are summarized in Table 2. First, we regressed moral purity on our childhood-memories manipulation (1 for both

good and bad childhood memories, and 0 for the control condition). Childhood memories significantly affected participants' self-reported feelings of moral purity. Next, we regressed empathic concern on both childhood memories and moral purity. Moral purity significantly predicted empathic concern, and the effect of our childhood-memories manipulation on empathic concern was significantly reduced when moral purity was added to the model (95% confidence interval for the indirect effect excluded zero). Next, we regressed intentions to help on our childhood-memories manipulation, moral purity (the "stage 1" mediator), and empathic concern (the "stage 2" mediator). Participants' empathic concern significantly predicted intentions to help, and the direct effect of our childhood-memories manipulation on intentions to help was no longer statistically significant when the mediators were included in the model (95% confidence interval for the indirect effect excluded zero). Taken together, these results indicate that remembering childhood leads to increased feelings of moral purity, which in turn heightens empathic concern, which in turn increases intentions to help the person in need.

Discussion

In Experiment 4, recalling childhood memories, compared to a control condition, led participants to feel a heightened sense of moral purity as captured by both an implicit and an explicit measure, and to experience higher levels of empathic concern for a person in need. In this study, we found support for the same mediation model demonstrated in Experiments 1-3 using an implicit rather than explicit measure of moral purity, and a new dependent variable. In addition, the results of this study show that the valence of the childhood memories participants recalled did not moderate the link between childhood memories and prosocial behavior: both positively-valenced and negatively-valenced childhood memories led to a heightened sense of

moral purity, higher levels of empathic concern, and promoted participants' willingness to help others in need.

The results of this experiment further demonstrate that childhood memories do not lead to prosocial behavior because of increased positive affect or nostalgic feelings. Paralleling the results of Experiments 2 and 3, participants who recalled childhood memories experienced the same amount of positive and negative affect as did participants in the control condition. Yet, moral purity varied across conditions, and again mediated the effect of childhood memories on empathic concern towards another person in need.

General Discussion

In four experiments, we found support for our main hypothesis that people experience heightened feelings of moral purity and are thus more likely to behave prosocially after recalling memories from their own childhood. In Experiment 1, participants instructed to recall memories from their childhood were more likely to help the experimenter with a supplementary task than were participants in a control condition. This effect was mediated by self-reported feelings of moral purity. In Experiment 2, the same manipulation increased the amount of money participants donated to a good cause, and this effect was again mediated by self-reported feelings of moral purity. Experiment 2 also showed that nostalgia or other positive affect after recalling and writing about one's own childhood did not mediate the effect. In Experiment 3, childhood memories led participants to judge the ethically-questionable behavior of others more critically and punish it more harshly. Finally, in Experiment 4, participants who recalled childhood memories expressed higher empathic concern for a person in need, which, in turn increased their intentions to help. This study also demonstrated that the valence of childhood memories does not moderate the link between recalling one's own childhood and prosocial behavior.

Taken together, these experiments support a model in which remembering childhood leads to a sense of moral purity, which, in turn, promotes prosocial behavior. We found that one's feelings of moral purity as well as the activation of moral-related constructs in one's mind can change from moment to moment—increasing when individuals remember their own childhood—and that they can encourage prosocial behavior, even in domains unrelated to the original event that made them feel morally pure. Therefore, moral purity can be thought of as a dynamic mindset, susceptible to situational cues, with effects on behavior that can cross domain boundaries. We also captured the effect using a range of outcomes, such as helping an experimenter (Experiment 1), donating money to a good cause (Experiment 2), punishing the actions of others more harshly (Experiment 3), and expressing stronger intent to help a person in need because of heightened empathic concern (Experiment 4).

These results contribute to existing research on the determinants of prosocial behavior. Several scholars have focused on the role of emotions such as sympathy (feeling concern for the other) and empathy (feeling as the other feels) in predicting increased prosocial behaviors such as helping and reduced antisocial behaviors such as aggression (Batson, 1991, 1998; Eisenberg & Miller, 1987; Hoffman, 1982, 2000; Miller & Eisenberg, 1988). Here, we identified another important internal state that promotes prosocial behavior, namely the conscious and unconscious experience of moral purity triggered by childhood memories. While sympathy and empathy are feelings individuals experience in relations to other people, moral purity seems to be a more self-centered emotional state, which, as we have shown across four studies, can motivate other-oriented behaviors. In addition, our last study shows that childhood memories promote empathic concern, which is a direct and important antecedent of prosocial behavior.

Our work also contributes to research on moral psychology and ethical decision making. Over the last few decades, scholars have examined when and why even good people cross ethical boundaries, and have suggested that the best explanations for immoral behavior may reside in underlying psychological processes (Messick & Bazerman, 1996; Tenbrunsel & Messick, 2004). Consistent with these arguments, an increasing number of studies has identified several psychological factors that consciously or unconsciously influence the decision to behave in a self-serving manner when facing ethical dilemmas (e.g., Mazar, Amir, & Ariely, 2008; Chugh, Bazerman, & Banaji, 2005; Gino, Ayal, & Ariely, 2009; Gino & Pierce, 2009; Haidt, 2001; Monin & Jordan, 2009). This research has focused primarily on the antecedents (cognitive, trait-based, or situational predictors) of immoral actions. We extend this research by exploring the psychological consequences of recalling childhood memories and by identifying a potentially effective solution to the pervasiveness of selfish motives and dishonesty in today's society.

Limitations and Future Research

These contributions must be qualified in light of several important limitations of our research. First, our investigation focused on how childhood memories lead to the activation of concepts related to morality and to heightened feelings of moral purity. Beyond moral purity, nostalgia, and affect, there may be additional mechanisms through which childhood memories promote prosocial behavior. Experiment 4 demonstrated that childhood memories increase empathic concern towards others in need. Future research exploring other-oriented emotions and behaviors resulting from recalling one's own childhood could deepen our understanding of the relationships we investigated in this paper. For example, it will be worthwhile to examine whether childhood memories motivate prosocial behavior by increasing individuals' sense of psychological connectedness to others or their desire to be socially included, strengthening the

motivation to behave prosocially towards others. In the future, researchers could examine the possibility that these factors influence moral purity and prosocial behavior.

Second, we used one particular manipulation for childhood memories: asking participants to recall and write about memories from their own childhood. Future research could test the generalizability of our findings by using other priming manipulations for childhood memories. For instance, research could test whether working in an environment with colorful furniture, games and toys would lead to the same types of prosocial behaviors observed in our research. Third, we did not investigate moderators of the effects of childhood-related cues on prosocial behavior, other than the valence of the childhood memories participants recalled. Several important factors, both situational and trait-based, may moderate the relationships investigated in this paper. For instance, self-importance of moral identity may reduce the beneficial effects of remembering childhood on prosocial behavior. Moral identity is an important source of moral motivation, leading to greater concordance between one's moral principles and actions (Aquino & Reed, 2002; Bergman, 2004; Blasi, 1995; Hardy, 2006). Because a stronger sense of moral identity is associated with performing more prosocial behaviors (e.g., Aquino & Reed, 2002; Hardy, 2006), and less unethical behaviors such as lying (Aquino, Freeman, Reed, Felps, & Lim, 2009), the influence of childhood memories on prosocial behavior is likely to vary as a function of moral identity. Individuals with a strong moral identity are more able to recognize their own moral objectives and social expectations by processing pre-existing moral conceptions and affective states before deciding upon a course of action (Bandura, 1991); thus, recalling childhood memories may produce stronger effects on behavior for people with a weak moral identity. Another interesting moderator could be whether or not the person recalling childhood memories has children of her own. Having children may weaken the effects observed in our

studies. First, the daily grind of living with a child may desensitize a person. Alternatively, constantly taking care of a child may exhaust prosocial tendencies toward non-family members. It is also possible that parents may see their children as somewhat selfish. Because of these reasons, the association between childhood and moral purity may be strong for only some categories of people such as individuals who do not have children of their own (very likely the students in Experiments 1-3) or grandparents (who cannot find fault with their grandchildren or perhaps, childhood in general).

Finally, our research focused on the benefits of childhood memories with little attention to its potential costs (e.g., increased selfish or self-serving motives). Here, we suggested and demonstrated that people commonly associate childhood with innocence and moral purity. This evidence is consistent with developmental psychology research suggesting that children's ability to act deceptively requires cognitive mechanisms that are immature in young humans (e.g., Hala, Chandler & Fritz, 1991), as well as numerous studies showing that children often behave prosocially (e.g., Hamilin et al., 2007; Jacob & Dupoux, 2008; Warneken et al., 2007). Childhood memories may thus also activate a sense of naiveté, since they might lead us to remember how very naïve we were when we were children, and how we could not think two steps ahead (e.g., "if I give my ice cream to this stranger, I will not have any left for myself"). However, other studies in developmental psychology suggest that young children are quite selfish, and that selfishness decreases as they become older (e.g., Lane & Coon, 1972; Leventhal & Anderson, 1970). This literature suggests that childhood memories may activate other constructs in individuals' mind, such as selfishness or egocentrism. Future research examining the conditions under which one type of construct (e.g., moral purity) is activated rather than

others (e.g., selfishness) would deepen our understanding of the relationship between childhood memories, morality and prosocial behavior.

In addition, childhood memories may also have costs rather than benefits when used strategically by others. In fact, cues triggering childhood memories could be effectively employed to manage impressions to obtain favorable responses from others. For instance, politicians campaigning for office often get photographed kissing babies in an effort to garner public support (Bailey, 1998), and companies often use baby images in their advertising and marketing campaigns, aware of the powerful links priming effects through brands can have on consumer behavior (Fitzsimons et al., 2008).

Conclusions

Our research has shown that people who recall childhood memories experienced a sense of moral purity (both consciously and unconsciously), and behaved more prosocially towards others as a result. By contributing to our general understanding of the determinants of prosocial behavior, this research points toward one possible solution to people's tendency to engage in self-serving and selfish acts. Future research in this vein thus has the potential to identify novel and simple methods to encourage prosocial behavior in people: By using tasks that can help individuals remember or relive memories from their childhood, one can encourage helping and other forms of other-oriented behaviors.

Appendix: Materials used in Experiment 4

General Instructions

Dr. Edmonds of the Department of Psychology at a University in the Northeastern United States is conducting the study, in conjunction with the Office of Student Life (OSL). Students experiencing a wide range of difficulties contact the OSL for help. OSL wishes to know how typical the experiences of those students contacting the Office are of students in general, and how such experiences may have changed over time. Accordingly, among those students who have contacted the Office of Student Life with difficulties, 20 were asked to write personal accounts of what they had been through.

You will be randomly assigned to read one of these accounts and assess the typicality of the experience. In order to standardize the assessments, participants in this research are all asked to adopt the same reading perspective. This will ensure that each person understands the personal account in the same way. In reading the account, try to imagine how the student facing this difficulty feels and how it is affecting his or her life. Do not worry about remembering everything that happened. Just concentrate on trying to imagine how the student feels.

Bryan's account

On the way up the hill, there was this old woman in the middle of the sidewalk. The weather was really bad that morning, and she was just standing there, holding a bag of groceries. She stopped me, and sort of wild-eyed and confused, she said she couldn't find her house. She seemed really upset. I asked if she remembered her address. Actually, she did, and I knew roughly where it was—about three blocks away. I told her not to worry, that I could take her there. It took a while to get her home because she couldn't walk very fast. However, as we got closer, she began to recognize the neighborhood and calm down a bit. When she saw her house, she seemed really relieved. Once I got her and her groceries inside, I said goodbye. Then I took off.

I was really late for class now, so I started running. That's when it happened, just as I was cutting between two parked cars to cross the street. I got hit. I never saw the car, and the driver didn't see me. It all happened really fast.

Anyway, it was pretty bad. It broke both my legs and my left arm, and I got a fairly severe concussion. As you can guess, I didn't make it to class that day. In fact, I haven't been to class since. It's impossible because I can't really walk—or even use a wheelchair. The doctors say I won't be able to get back up on campus for at least another three weeks, maybe more. I'm trying to keep up with my classes and assignments the best I can, but it's really hard not being able to go to class or get up on campus. I'm really getting behind. If things don't get better, I think I'm going to have to drop out for this semester, which will really cause me problems in trying to get my degree on time.

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Tables

Table 1

Descriptive statistics for variables measured in Experiment 4

	Moral purity	Access to moral purity construct	Nostalgia	Positive affect	Negative affect	Empathic concern	Intentions to help
Bad-childhood memories	5.06 (1.13)	1.45 (.99)	4.23 (1.54)	4.18 (1.56)	2.52 (1.49)	6.20 (.80)	5.89 (1.29)
Good-childhood memories	4.82 (1.26)	1.38 (.92)	4.92 (1.47)	4.91 (1.30)	1.81 (1.34)	5.96 (.91)	6.12 (.92)
Control	3.97 (1.37)	.98 (.95)	3.57 (1.37)	4.17 (1.41)	1.50 (.77)	5.24 (1.13)	5.35 (1.20)

Table 2

Results of path analysis (Experiment 4)

Measures	Moral purity	Empathic concern		Intentions to help
	(1)	(2)	(3)	(4)
Childhood memories	.97*** (.20)	.84*** (.15)	.63*** (.15)	.01 (.16)
Moral purity			.21*** (.05)	.09 (.06)
Empathic concern				.67*** (.07)
	R^2	.12	.14	.21
	ΔR^2			.39
			.06***	.33***

Note. Regression models are presented vertically; numbers across the top of the table in parentheses indicate different regression models, and the labels across the top of the table indicate the dependent measure for the regressions in the columns below. Entries in the columns are unstandardized regression coefficients (with standard errors in parentheses).

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