PARENTING & PRECAUTION: HOW THE PARENTAL CARE MOTIVATION IMPACTS MORAL JUDGMENTS OF SOCIAL NORM VIOLATIONS

by

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B.S., Florida State University, 2006

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF

THE REQUIREMENTS FOR THE DEGREE OF

MASTER OF ARTS

in

THE FACULTY OF GRADUATE AND POSTDOCTORAL STUDIES

(Psychology)

THE UNIVERSITY OF BRITISH COLUMBIA

(Vancouver)

August 2015

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Abstract

Raising a child requires considerable expenditures of time and energy. In order to motivate these behaviours, humans have developed a rich psychology that motivates parental caregiving. One function of the parental care motivation is to protect children from harm. Since social norms provide protection against various types of harm, a parental care mindset may lead to exaggerated negative reactions toward people who violate social norms. The current research examines both trait and state levels of parental care motivation in nonparents and measures their relationship to moral judgments of social norm violations. Study one determined that high trait levels of parental care are associated with harsher moral judgments of social norm violations. Study two replicated these trait level findings and extended them by revealing that situational state level activation of the parental mindset also caused harsher moral judgements of social norm violations. Together, this research suggests that activation of a parental mindset is possible in non-parents and has wide reaching psychological implications including the formation of moral judgments.
Preface

I am the primary author of the work presented in this thesis. I was responsible for designing the experiments and for collecting, analyzing, and interpreting the data. Dr. Schaller was the supervisory author on this project and contributed to study design and data collection, concept formation, provided guidance on data analysis, and assisted in manuscript revisions.

Parts of this research have been published: Buckels, E. E., Beall, A. T., Hofer, M. K., Lin, E. Y., Zhou, Z., & Schaller, M. (2015). Individual Differences in Activation of the Parental Care Motivational System: Assessment, Prediction, and Implications. This research was conducted with the permission of the University of British Columbia Office of Research Studies Behavioral Research Ethics Board, certification number H11-02441, “Motivation and Social Attitude.”
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Acknowledgements

I deeply indebted to my advisor, Dr. Mark Schaller, for his guidance, encouragement and patience which has made this thesis possible, as well as for his persistence and sense of humour in guiding my transformation from a certified public accountant to a student of psychology.

This transition would not have gone smoothly without the help of Dr. Jon Maner, who gave me a chance to enter the field of psychology. I also want to thank Dr. Jessica Tracy for taking the time to learn about my research and for encouraging me to participate in her lab meetings. I would especially like to thank Dr. Frances Chen for her feedback during our many discussions and for her love of science, which proves infectious at every meeting.

The past two years of my life have been much enhanced by the helpful advice and emotional support I’ve received from my fellow graduate students: Kate Block, Ashley Whillians, Antonya Gonzalez, Anthea Pun, Dan Sude, Aaron Weidman, Jennifer Lay, and Jennifer Na. I am fortunate to have the chance learn from such bright and unique individuals and I’m excited to continue to work together for years to come.

Finally, I would like to thank my parents, Dr. Kurt G. Hofer and Mrs. Maria G. Hofer for their continued support and reassurance, and especially for their patience in acting as sounding boards for the many research ideas that they listen to with apparently endless patience.
Introduction

“Literature is mostly about having sex and not much about having children. Life is the other way around” (David Lodge, 1965, p.170)

In psychological research, as in life, children – and the associated childcare – require attention. Raising a human infant demands considerable time and energy, so it seems likely that during our long evolutionary past we have developed a rich parental psychology that motivates parental care. One vital function of parental care is to protect children against potential threats to their safety. Various types of threat faced by human infants can be traced to the behaviours of adults, and these risk factors can be partially buffered by strict enforcement of social norms. My research examines whether a parental care mindset leads to harsher moral judgments of people who break social norms.

Parental Care Motivation System

Humans are unique in the sheer amount of energy and effort required to successfully rear offspring (Pillsworth & Haselton, 2006). As a comparison, newborn chimpanzees grab hold of their mothers' backs immediately after birth, enabling chimpanzee mothers to freely perform activities such as collecting food or fleeing from danger (Lancaster, Kaplan, Hill, & Hurtado, 2000; Yerkes & Tomilin, 1935). In contrast, human babies are born quite helpless, unable to open and shut their hands or hold up their heads. In order for human babies to survive, caretakers must provide large amounts of attention, resources and care. Therefore, the human motivation to care for offspring is likely to be deeply rooted and ubiquitous. In fact, the motivation to provide parental care has been theorized to be one of just a few fundamental human motivational systems, and
may even be the key to understanding all other altruistic motivations (Kenrick, Griskevicius, Neuberg, & Schaller, 2010; Preston, 2013).

The parental care motivation is activated by exposure to actual children. However, the parental care system can also be triggered by exposure to stimuli that mimic the presence of children. Humans are highly attuned to features characteristic for children, such as large rounded foreheads, large low-set eyes, and small chins (Alley, 1981, 1983; Brosch, Sander, & Scherer, 2007; Glocke et al., 2009). A parental care mindset can be activated by having people view photos of children or cute animals (Gilead & Liberman, 2014; Sherman, Haidt and Coan, 2009). The parental care mindset can also be activated by reminding people of the presence of children, such as by asking them to describe an event involving children or asking parents to report their parental status (Eibach & Monk, 2011; Eibach, Libby & Ehrlinger, 2009; Gilead & Liberman, 2014).

Research indicates that the parental care motivation can be activated in both parents and nonparents (Sherman, et al., 2009; Gilead & Liberman, 2014). In fact, young children display this motivation when they engage in games such as “caring for” baby dolls. This raises an interesting question: Why do nonparents display a parental motivation? One explanation is that parental care motives can increase inclusive fitness by facilitating care for genetically related kin (e.g. siblings, nieces, nephews). However, the parental motivation is so strong that it frequently promotes behaviour patterns not directly related to raising kin, such as when people expend considerable resources on pet animals or adopted children.
Once activated, a parental mindset prompts behaviours that benefit children among both parents and nonparents. For example, infantile facial features elicit the emotion of tenderness, prompt a motivation to provide care, and increase behavioural carefulness (Alley 1983; Glocker et al., 2009; Sherman, et al., 2009).

In addition to these straightforward caregiving implications, a parental care mindset also has broader psychological implications. One consequence is heightened protectiveness toward children and increased precaution toward potential threats. This can be seen across the animal kingdom. For example, for chimpanzees a crucial parental role for mothers is protection of their offspring from male aggression. To ward off this danger, females with dependent offspring tend to increase their distance from males and move closer to their offspring when in the presence of male chimpanzees (e.g., Otali & Gilchrist, 2006).

Similar parental precautionary behaviours have been observed in humans. Compared to nonparents, parents have been found to be more risk-averse and imagine strangers to be more formidable in both size and strength (Wang, Kruger & Wilke, 2009; Fessler, Holbrook, Pollack & Hahn-Holbrook, 2014). In addition, experimental evidence indicates that when parents are reminded of their parental status they make more risk-averse choices, perceive greater risk in hypothetical situations, and trust strangers less (Eibach et al., 2011).

Since a parental mindset leads people to increased perceptions of threat, it follows that they may also make harsher judgments of such potential threats. Indeed, one study found that lactating mothers behaved more aggressively toward hostile strangers than
non-lactating mothers (Hahn-Holbrook, Holt-Lunstad, Holbrook, Coyne, & Lawson, 2011). Another study showed that a parental mindset enhanced biased cognitions toward outgroups who were perceived as posing a threat (Gilead & Liberman, 2014). For instance, mothers described either the days following giving birth to their first child or a happy childhood memory. When participants described the days following giving birth to their child, they responded more negatively to threatening outgroups. Taken together, this evidence suggests that a parental mindset leads people to act in a more risk avoidant manner, perceive people and situations to be more threatening, and react more harshly to perceived threat.

**Implications for Moral Judgments**

Just as out-groups may pose a potential threat, so too might people who violate social norms. Social norms serve as buffers against various kinds of risks and hazards. For example, social norms regarding food preparation and hygiene help to protect people against exposure to contagious disease, and social norms that discourage social behaviours like lying and stealing help to reduce the likelihood of being cheated. People who violate social norms not only put themselves at risk, they also often increase risks to others in the local population.

Since social norms provide a buffer against potential risks, people may have exaggerated negative reactions to violations of social norms when they are vulnerable to risks. Indeed, when people were reminded of vulnerability to germs they made harsher judgments of social norm violations (Murray & Schaller, 2012). By analogy, a parental role may also increase vigilance to potential to risks. When in a parental role, people have
responsibility not just for themselves, but also for the safety of a vulnerable child. Therefore, people in a parental mindset may demonstrate a similar increase in the harshness of their judgments of social norm violations.

**Prior Research on the Parental Mindset and Moral Judgments**

To date, two empirical studies have tested the relationship between a parental mindset and moral judgments. The first study was performed on parents and activated a parental mindset by reminding the participants of their parenthood. Participants then rated two types of social norm violations: one set of three items that caused no harm to others, and a single item involving a social norm violation that could potentially cause harm to others. Compared to participants who had not been reminded of their parenthood, those reminded of their parenthood viewed harmless social norm violations as more morally wrong. No differences emerged in the moral judgments made of a potentially harmful social norm violation (Eibach et al., 2009).

If the parental mindset causes exaggerated negative reactions to potential threats, it follows that moral judgments would be especially harsh in situations having the potential to actually cause harm. Therefore, it is surprising that the study described above found harsher moral judgments of social norm violations only when those violations were unlikely to cause harm to others. One potential explanation for this is the fact that only one item was used to measure reactions to potentially harmful social norm violations. Longer scales are generally preferable to one item scales because they reduce measurement noise and can more comprehensively represent the subject matter. A longer scale able to measure several types of potentially harmful social norm violations might
have uncovered an effect that the one item measure did not.

The second empirical study did measure potentially harmful social norm violations using a longer scale. This study examined the relationship between a parental mindset and moral judgments in nonparents (Buckels et al., 2015). Since the parental mindset can be activated in both parents and nonparents, activating this mindset may lead to exaggerated negative reactions toward social norm violations in both parents and nonparents. This study attempted to activate the parental mindset in non-parents by asking participants to read and complete sentences that discussed children (compared to control sentences discussing houseplants). Participants then rated how morally wrong they believed several types of social norm violations to be. One measure involved ratings of twelve types of potentially harmful social norm violations, three of which could potentially harm children. Participants then completed a three item measure of moral judgments involving violations of cultural taboos. Finally, participants completed a measure assessing individual differences in trait levels of parental mindset.

The manipulation of parental mindset did not cause statistically significant effects on any measure of moral judgments. However, a marginally significant result emerged where participants in a parental mindset made harsher moral judgments of social norm violations that could potentially harm children ($p = .094$). A more consistent pattern emerged in correlations between individual differences in trait levels of parental mindset and moral judgments of social norm violations. PCAT correlated with potentially harmful social norm violations and taboo violations at levels approaching significance ($p$’s < .09) and significantly correlated with violations that could potentially harm children ($p = .008$). Thus, all three measures of moral judgments of social norm violations were
positively associated with trait levels of parental care.

Buckels et al. (2015) show some relationship between caretaking tendencies and moral judgments of norm violators, but these results are correlational. Eibach and colleagues (2009) reported significant experimental findings, but studies were only carried out on actual parents. This leaves open the question of whether activation of the parental system in non-parents also leads to increased harshness of moral judgments of social norm violators.

In nonparents, the one attempt to manipulate the parental mindset asked participants to read and complete sentences that discussed children (Buckels et al., 2015). This task may not have been able to activate a parental care mindset. Successful activation of the parental mindset in prior research has been achieved in two ways: by eliciting an emotional response via exposure to cute images (Sherman, Haidt and Coan, 2009) and by eliciting a cognitive awareness of children by reminding parents of their children (Eibach et al., 2009; Gilead & Liberman, 2014). The current research uses variations of both previously successful methods of activating the parental mindset in order to examine this question: Does the parental care motivation in nonparents lead to harsher moral judgments of social norm violations?

Overview

This paper reports results from two studies that used complementary methods to test whether a parental care mindset leads to harsher moral judgments of social norm violations in nonparents. Each study included a manipulation intended to temporarily activate a parental care mindset. In study one, the parental mindset manipulation involved
asking participants to view pictures of cute cats and dogs (versus pictures of furniture). In study two, the parental mindset manipulation involved asking participants to write about a time they took care of a child (versus a childhood memory).

Both studies measured moral judgments on several types of social norm violations. Across the two studies, four social norm violation measures were collected: 1) social norm violations that could potentially harm others; 2) social norm violations that could potentially harm children; 3) violations of cultural taboos; and 4) violations of social norms that were harmless to others. In addition, both studies measured individual differences in parental care motivation to evaluate the relationship between trait levels of parental care motivation.

Empathic concern is both conceptually and statistically related to parental care (Buckels et al., 2015), and concerns about infection are known to predict the harshness of moral judgments (Chapman & Anderson, 2013; Murray & Schaller, 2012). Therefore, in study one, empathic concern and perceived vulnerability to disease were also measured in order to establish whether trait levels of parental care are unique predictors of moral judgments.
Study 1

Method

Participants. Participants were 72 undergraduate students who took part in the study in exchange for extra credit in a psychology course (56 female, 16 male; mean age = 19.96 years). All participants were non-parents. Students were randomly assigned to one of two experimental conditions (cute animals or furniture).

Parental Mindset Photo Manipulation. Participants were presented with 10 photographs depicting either a cute baby animal (n = 36) or furniture (n = 36). Photographs were obtained from a Google images search (search terms: “cute kittens” and “cute puppies” or “sofa”). Photographs were accompanied by phrases indicating that the pictured object was discarded or abandoned (e.g. “found by the highway”, “free to a good home”). Photographs of animals paired with phrases indicating abandonment were designed to temporarily activate the parental care motivational system, while photographs of furniture paired with phrases were not expected to activate any motivational system. Participants were each given ten 8x10 photos (which appear in Appendix 1) and asked to go through the photos one at a time, taking ample time to view each photo. The experimenter timed 90 seconds before indicating that it was time to move on to the next task.

Moral Judgment Measures. Participants completed two measures assessing moral judgments. One measure consisted of 13 items describing potentially harmful violations of social norms (adapted from Murray & Schaller, 2012). Participants were asked to rate how morally wrong each item was (1 = not at all morally wrong, 9 = very
morally wrong). Three of these items described behaviours that potentially put children at risk (“A pregnant mother smokes cigarettes and drinks alcohol”; “A bus driver drives a busload of children through a busy city with an expired driver’s license”; “A parent allows their child to ride in a car without wearing a seatbelt”). The other 10 items involved potentially harmful social norm violations that were not specific to children (e.g., “A car mechanic installs a car part that he knows might be unsafe”; “A student cheats on a final exam”). The complete questionnaire can be seen in Appendix 2. A mean rating across all 13 items was computed (Cronbach’s $\alpha = .84$) to create an overall index of potentially harmful social norm violations. Separate analyses were conducted on the three social norm violations that put children at risk (computed as the mean of the 3 items; Cronbach’s $\alpha = .47$).

On a separate measure, participants were presented with three scenarios describing people who violated cultural taboos. One scenario described a starving woman who ate the body of a dead boy, another described a man who ate his pet dog after it was killed by a car, and the third described cousins who had sexual intercourse (complete scenarios are available in Appendix 3). Participants rated how morally wrong they believed each taboo violation to be (1 = not at all wrong, 7 = very wrong) and how severely it should be punished (1 = not at all severely, 7 = very severely). The mean of the six ratings across the three scenarios was computed and used to create an index measuring reactions to taboo violations (Cronbach’s $\alpha = .71$).

**Individual Difference Measures.** Participants completed the Parental Care and Tenderness (PCAT) scale, a recently developed measure assessing individual differences in the extent to which—among parents and non-parents alike—the perception of young
children arouses feelings of tenderness and a dispositional inclination to protect, nurture, and care for children (Buckels et al., 2015; scale appears in Appendix 4). Fifteen of the 25 items in the scale ask participants to rate their agreement with statements concerning nurturance and protection of infants (e.g. “When I see infants, I want to hold them”; “I would hurt anyone who was a threat to a child”). Participants used a five point scale to rate their agreement with each scenario (1 = strongly disagree; 5 = strongly agree). The remaining ten items present participants with brief scenarios involving babies, five of which describe pleasant experiences (e.g., “A newborn baby curls its hand around your finger”) and five of which describe babies in need of assistance (e.g., “You need to change a baby’s soiled diaper”). Participants used a five point scale to rate the tenderness they would feel experiencing each scenario (1 = no tenderness at all; 5 = a lot of tenderness). Following procedures described by Buckels et al. (2015), we computed a single score assessing individual differences in parental care and tenderness (Cronbach’s α=.87).

Next, participants completed the Germ Aversion subscale of the Perceived Vulnerability to Disease questionnaire (PVD; Duncan, Schaller, & Park, 2009; Cronbach’s α=.83). The germ aversion scale is an eight item subscale assessing trait level differences in perceived vulnerability to disease. Finally, participants completed a seven item measure of Empathic Concern (Davis, 1983; Cronbach’s α=.79).

Results

Effects of Experimental Manipulation. Did the parental mindset manipulation influence moral judgments of individuals who violate social norms? To address this
question, an independent samples T-test was conducted to see if the parental mindset condition influenced ratings on any of the three moral judgment indices. No significant effects of the parental mindset manipulation emerged on any of the measures of moral judgments (moral judgments of potentially harmful norm violations: $t(70) = -0.68$, $p = 0.50$; child related norm violations: $t(70) = 0.69$, $p = 0.49$; taboo violations: $t(70) = 0.85$, $p = 0.85$).

In order to determine whether PCAT, sex, or interactions between these variables influenced moral judgments of social norm violations, a multiple regression analyses was preformed. Before computing interaction terms, we assigned values of 1 and -1 to the animal photo and furniture photo conditions, respectively; values of 1 and -1 were assigned to male and female participants, respectively; and PCAT values were centered by subtracting the mean PCAT score from each participant’s raw PCAT score. For each moral judgment index, we conducted a multiple regression analysis in which seven predictor variables were entered simultaneously: The main effects of the parental mindset manipulation, sex, and PCAT; the 3 two-way interactions; and the three-way interaction.

Table 1 reports the regression analysis predicting moral judgments of potentially harmful norm violations. These results reveal no significant effects for parental mindset manipulation, PCAT, sex, or any of their interactions.
Table 1. Main and Interactive Effects of Parental Mindset Manipulation, PCAT and Sex on Moral Judgments of Potentially Harmful Actions

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>β</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parental Mindset</td>
<td>.00</td>
<td>.00</td>
<td>0.01</td>
<td>.989</td>
</tr>
<tr>
<td>PCAT</td>
<td>.36</td>
<td>.21</td>
<td>1.29</td>
<td>.203</td>
</tr>
<tr>
<td>Sex</td>
<td>.09</td>
<td>.09</td>
<td>0.66</td>
<td>.513</td>
</tr>
<tr>
<td>Parental Mindset × PCAT</td>
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<td>.07</td>
<td>0.44</td>
<td>.663</td>
</tr>
<tr>
<td>Parental Mindset × Sex</td>
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<td>-.33</td>
<td>.746</td>
</tr>
<tr>
<td>PCAT × Sex</td>
<td>-.09</td>
<td>-.05</td>
<td>-0.32</td>
<td>.751</td>
</tr>
<tr>
<td>Parental Mindset × PCAT × Sex</td>
<td>-.23</td>
<td>-.13</td>
<td>-0.81</td>
<td>.423</td>
</tr>
</tbody>
</table>

Since the parental mindset manipulation, sex, and interactions involving these two variables were not related to moral judgments, the correlation between PCAT and moral judgments of social norm violations was computed collapsing across sex and experimental condition. Results revealed that PCAT and moral judgments on the potential harm index were positively correlated ($r = .25, p = .035$).

In order to determine if participants reacted differently to social norm violations that potentially put children as risk, the child relevant social norm violations were examined separately. Table 2 reports results of a regression analysis using the same seven variables described above to predict child relevant social norm violations. Results reveal one significant main effect: participants with higher PCAT scores made harsher moral judgments of child relevant potentially harmful social norm violations. An interaction between Parental Mindset Condition and PCAT also emerged. Correlations underlying this interaction revealed that the predictive effect of PCAT on child relevant social norm violations was present only in the animal viewing condition ($r = .63, p < .000$), not in the furniture viewing condition ($r = -.08, p = .65$).
Table 2. Main and Interactive Effects of Parental Mindset Manipulation, PCAT and Sex on Moral Judgments of Child Relevant Potentially Harmful Actions

<table>
<thead>
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<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parental Mindset</td>
<td>-.15</td>
<td>-.14</td>
<td>-0.91</td>
<td>.989</td>
</tr>
<tr>
<td>PCAT</td>
<td>.71</td>
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<td>.047</td>
</tr>
<tr>
<td>Sex</td>
<td>-.07</td>
<td>-.06</td>
<td>-.44</td>
<td>.665</td>
</tr>
<tr>
<td>Parental Mindset × PCAT</td>
<td>.87</td>
<td>.37</td>
<td>2.51</td>
<td>.015</td>
</tr>
<tr>
<td>Parental Mindset × Sex</td>
<td>-.06</td>
<td>-.05</td>
<td>-.35</td>
<td>.726</td>
</tr>
<tr>
<td>PCAT × Sex</td>
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<td>.02</td>
<td>0.17</td>
<td>.868</td>
</tr>
<tr>
<td>Parental Mindset × PCAT × Sex</td>
<td>.04</td>
<td>.02</td>
<td>0.10</td>
<td>.921</td>
</tr>
</tbody>
</table>

Next, a similar regression analysis was conducted predicting ratings of taboo violations. Results (seen in table 3) revealed one significant main effect: participants with higher PCAT scores made harsher moral judgments of taboo violations. Thus across the three social norm measures, higher levels of PCAT were associated with harsher moral judgments.

Table 3. Main and Interactive Effects of Parental Mindset Manipulation, PCAT and Sex on Judgments of Taboo Violations

<table>
<thead>
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<th>p</th>
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<tbody>
<tr>
<td>Parental Mindset</td>
<td>.05</td>
<td>.05</td>
<td>0.30</td>
<td>.765</td>
</tr>
<tr>
<td>PCAT</td>
<td>.93</td>
<td>.40</td>
<td>2.47</td>
<td>.016</td>
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<tr>
<td>Sex</td>
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<td>.797</td>
</tr>
<tr>
<td>Parental Mindset × PCAT</td>
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<td>.04</td>
<td>0.23</td>
<td>.818</td>
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<tr>
<td>Parental Mindset × Sex</td>
<td>.06</td>
<td>.05</td>
<td>0.32</td>
<td>.751</td>
</tr>
<tr>
<td>PCAT × Sex</td>
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<td>.32</td>
<td>2.01</td>
<td>.089</td>
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<td>Parental Mindset × PCAT × Sex</td>
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<td>.09</td>
<td>0.57</td>
<td>.569</td>
</tr>
</tbody>
</table>

**PCAT as a Unique Predictor of Moral Judgments.** Since the relationship between moral judgments of social norms and PCAT is correlational, related variables should be examined and controlled. Therefore, variables related to either PCAT or moral judgments of social norm violations were reviewed.
The germ aversion subscale of the perceived vulnerability to disease scale was examined because concerns about infection are related to disgust and may influence moral judgments. This germ aversion scale did not correlate significantly with PCAT ($r = -.06, p = .65$) or moral judgments of potentially harmful social norm violations ($r = .15, p = .215$) or moral judgments potentially harmful actions related to children ($r = .13, p = .293$), but it did correlate with ratings of violations of cultural taboos ($r = .39, p = .001$).

In order to determine whether PCAT was predictive of moral harshness above and beyond perceived disease vulnerability, we performed a regression analysis in which both germ aversion and PCAT scores were entered as predictors. PCAT emerged as a unique predictor of all three moral judgments indices: potentially harmful social norm violations ($\beta = .26, p = .028$), child relevant social norm violations ($\beta = .36, p = .002$), and violations of cultural taboos ($\beta = .23, p = .034$).

The empathic concern scale was examined next, due to its conceptual relationship to parental care and tenderness. Empathic concern was positively correlated with PCAT ($r = .50, p < .001$) and ratings of violations of cultural taboos ($r = .24, p = .04$), but not with potentially harmful social norm violations ($r = .12, p = .34$), or moral judgments potentially harmful actions related to children ($r = .16, p = .17$).

In order to determine whether individual differences in PCAT were predictive of moral harshness above and beyond empathic concern, we performed a regression analysis in which both empathic concern and PCAT scores were entered as predictors. PCAT predicted moral judgments of potentially harmful norm violations at a level which approached conventional statistical significance ($\beta = .26, p = .061$) and PCAT uniquely
predicted moral judgments of norm violators who put children at risk ($\beta = .36, p = .007$), whereas empathic concern had no predictive ability for either variable. Neither PCAT nor empathic concern uniquely predicted moral judgments of taboo violators ($ps > .18$).

**Discussion**

This study demonstrated that higher trait levels of parental care motivation are associated with harsher moral judgments of people who violate social norms. Empathic concern is both conceptually and statistically related to parental care (Buckels et al., 2015), and concerns about infection are known to predict the harshness of moral judgments (Chapman & Anderson, 2013; Murray & Schaller, 2012). Even when controlling for empathic concern and germ aversion, PCAT emerged as a unique predictor of moral judgments.

The parental mindset manipulation did not have a main effect on any of the three dependent measures, indicating that viewing cute baby animals does not activate the parental mindset in a way that influences moral judgments. One significant interaction did emerge between the parental mindset manipulation and PCAT when predicting social norm violations that could potentially harm children. This interaction indicated that the predictive effect of PCAT appeared only when participants viewed pictures of animals (not furniture). This suggests that high trait levels of parental care motivation are related to harsher moral judgments of child relevant social norm violations, but that this effect only occurs when the parental mindset is temporarily activated. Similar interactions between chronic and temporary activation of a variable have been documented elsewhere. For instance, chronic beliefs about the prevalence of danger promote the activation of
stereotypes, but this effect occurs only when danger is temporarily made salient by seating participants in a dark room (Schaller, Park & Muller, 2003). Similarly, chronic beliefs about vulnerability to disease predict increased levels of ageism, but this effect only occurs when vulnerability to disease has been temporarily activated (Duncan & Schaller, 2009).

**Limitations and Future Directions.** Since the parental mindset manipulation produced only one significant effect, the manipulation was largely ineffective. It would be informative to repeat this experiment with another (more effective) manipulation. In light of this, study two repeated the design of study one but utilized a different type of parental mindset manipulation. This manipulation attempted to produce a cognitive awareness of children by asking participants to describe a childcare experience. This method of eliciting a parental care mindset is similar to methods that have been used successfully in previous research (Eibach et al., 2009).

It is also possible that the parental mindset manipulation failed because the safety function of social norms was not apparent to participants. In prior work by Gilead and Lieberman (2014), effects of the parental care system only emerged when the danger posed by the threat was made salient to participants. Therefore, we included a second manipulation in which participants in one condition read an informational article describing how social norms help reduce danger within a society while participants in two other conditions read articles that were not designed to make the protective benefit of social norms salient. This second manipulation was included to determine whether the effects of the parental care system are enhanced in situations where the danger posed by social norm violations is made salient.
Study 2

Method

Participants. Participants were 206 undergraduate students who took part in the study in exchange for extra credit in a psychology course. Two of the participants failed to complete all measures and were removed from analyses. Seven participants indicated that they had never spent time taking care of a child and so were unable to complete the task that comprised the primary experimental manipulation (described below), and one additional participant had illegible handwriting making it impossible to verify whether the manipulation was completed appropriately; these participants were also removed from the analysis. The final sample was therefore comprised of 196 participants (151 female, 45 male; mean age = 20.19 years). All participants were non-parents.

Experimental Manipulations. The experimental design included two different experimental manipulations. Participants were randomly assigned to one of six conditions in a 2 x 3 experimental design.

Parental Mindset Memory Manipulation. Participants were asked to write three brief paragraphs about different topics, and told the study was assessing their recall of ordinary life events. The first two topics were identical for all participants: “the last trip you went on” and “the last program you saw on television” (modified from Gilead & Lieberman, 2014; a complete version can be found in appendix 5). The third topic differed, and comprised an experimental manipulation to temporarily activate the parental care motivational system. Some participants were asked to “describe a time you took care of a baby or young child” ("Child Care Memory" condition; n = 94). Other
participants were asked to “describe a happy moment in your childhood” ("Childhood Memory" condition; \( n = 101 \)). All participants were given four minutes to "relive" each event and write about it in as much detail as possible.

**Social Norms Manipulation.** Next, participants took part in a procedure that was ostensibly assessing methods of presenting social science to the public. Participants were asked to read a short educational article (less than one page long), and then answer several questions about it (a complete version can be found in appendix 6). The content of the article differed across 3 conditions. For some participants the article highlighted the benefits of social norms, including the role that norms play in protecting people from dangers of various sorts ("Norm Benefits" condition; \( n = 65 \)). For a second set of participants, the article highlighted the costs of social norms, including the role that norms play in constraining personal freedoms and promoting discrimination ("Norm Costs" condition; \( n = 66 \)). For a third set of participants, the article described a particular kind of norm—language use—and the way that the normative use of language evolves over time ("Linguistic Norms" condition; \( n = 64 \)). After reading the brief article, participants responded (on 7-point rating scales) to three questions regarding the article: The extent to which the information presented in the article was correct; the extent to which the article was engaging; and the extent to which the article was clear and well presented.

**Measures of Moral Judgment.** After completing the two experimental manipulations described above, participants completed two questionnaires assessing moral judgments of individuals who violated social norms of various kinds.
One questionnaire consisted of twelve items. Each item briefly described a norm violation, and participants were asked to rate on a 9-point scale how morally wrong they perceived each violation to be (1 = not at all morally wrong; 9 = very morally wrong). The first three items (from Eibach, Libby & Ehrlinger; 2009) described behaviours that, although clearly deviating from social norms, pose no apparent potential for harm to other people (e.g., “A woman who undergoes plastic surgery to permanently affix animalistic horns to her skull”). The remaining nine items were selected from the thirteen items used in the moral judgment measure in study one, and these items all described norm violations that could potentially put other people at risk of harm. This set of nine items included three items that implied some potential harm to children (e.g., “A parent allows their child to ride in a car without wearing a seatbelt”) as well as six additional items in which the potential harm was not specific to children (e.g., “A car mechanic installs a car part that he knows might be unsafe”).

Results of factor analyses substantiated the conceptual distinction between the "harmless" items and the "potentially harmful" items. Accordingly, two composite indices were created. One index assessed moral judgments of harmless norm violations (computed as the mean of the three harmless items; Cronbach’s α=.56). The other index assessed moral judgments of potentially harmful norm violations (computed as the mean of nine remaining items; Cronbach’s α=.86). Results from study one indicated that the three social norm violations involving children produced informative results; therefore, separate analyses were conducted on child relevant social norm violations (computed as the mean of the three items; Cronbach’s α=.68).
A second measure, identical to the one used in study one, presented participants with three scenarios describing people who violated cultural taboos. One scenario described a starving woman who ate the body of a dead boy, another described a man who ate his pet dog after it was killed by a car, and the third described cousins who had sexual intercourse (complete scenarios available in Appendix 3). Participants rated how morally wrong they believed each taboo violation to be (1 = not at all wrong; 7 = very wrong) and how severely it should be punished (1 = not at all severely; 7 = very severely). The mean of the six ratings across the three scenarios was computed and used to create an index measuring reactions to taboo violations (Cronbach’s $\alpha=\,.75$).

**Parental Care and Tenderness Scale.** Participants completed the Parental Care and Tenderness scale (Buckels et al., 2015). The scale (which was also used in study one) is comprised of 25 items assessing individual differences in the extent to which the perception of young children arouses feelings tenderness and a dispositional inclination to protect, nurture, and care for children (sample item: “When I see infants, I want to hold them”; full scale in appendix 4). Following procedures described by Buckels et al. (2015), we computed a single score assessing individual differences in parental care and tenderness (Cronbach’s $\alpha=\,.80$).

**Results**

**Effects of Experimental Manipulations.** Did the parental mindset manipulation influence moral judgments of individuals who violate social norms? And, if so, was this effect moderated by the salience of information bearing on the benefits (or costs) of social norms? To address these questions, $2 \times 3$ (parental mindset manipulation X social
norms manipulation) ANOVA’s on the four different indices assessing moral judgments were conducted. Means and standard deviations on all moral judgment measures are displayed in table 4.

Table 4. Means and Standard Deviations on Moral Judgment Measures

<table>
<thead>
<tr>
<th></th>
<th>Childhood Memory</th>
<th></th>
<th>Child Care Memory</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Norm Benefits (n=32)</td>
<td>Norm Costs (n=35)</td>
<td>Linguistic Norms (n=28)</td>
<td>Average (n=33)</td>
</tr>
<tr>
<td>Potentially Harmful Social Norm Violations</td>
<td>7.63</td>
<td>7.74</td>
<td>7.79</td>
<td><strong>7.40</strong></td>
</tr>
<tr>
<td>Mean</td>
<td>0.78</td>
<td>1.02</td>
<td>1.08</td>
<td><strong>1.25</strong></td>
</tr>
<tr>
<td>SD</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child Relevant Potentially Harmful Social Norm Violations</td>
<td>7.71</td>
<td>7.58</td>
<td>7.73</td>
<td><strong>7.30</strong></td>
</tr>
<tr>
<td>Mean</td>
<td>0.91</td>
<td>1.28</td>
<td>1.41</td>
<td><strong>1.47</strong></td>
</tr>
<tr>
<td>SD</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Taboo Violations</td>
<td>4.23</td>
<td>4.02</td>
<td>4.46</td>
<td><strong>4.05</strong></td>
</tr>
<tr>
<td>Mean</td>
<td>1.10</td>
<td>1.25</td>
<td>1.01</td>
<td><strong>1.25</strong></td>
</tr>
<tr>
<td>SD</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Harmless Social Norm Violations</td>
<td>4.52</td>
<td>4.19</td>
<td>4.30</td>
<td><strong>4.45</strong></td>
</tr>
<tr>
<td>Mean</td>
<td>1.56</td>
<td>1.67</td>
<td>1.64</td>
<td><strong>1.69</strong></td>
</tr>
</tbody>
</table>

Results revealed a statistically significant main effect of the parental mindset manipulation on moral judgments of potentially harmful norm violations, \( F (1, 190) = 4.01, p = .047 \). Compared to participants in the Childhood Memory condition (\( M = 7.72 \)), participants in the Child Care Memory condition judged potentially harmful moral transgressions more harshly (\( M = 7.40 \); as seen in figure 1). The social norms manipulation had no effect, nor was there any interaction between the two manipulations (\( p’s > .59 \)). Thus, regardless of information highlighting either costs or benefits of social norms, the temporary adoption of a parental mindset led to harsher moral judgments.
The parental mindset manipulation influenced the child relevant potentially harmful social norm violations in a similar way as it influenced the entire potentially harmful social norm violation scale. One significant effect emerged: compared to participants in the childhood memory condition ($M = 7.30$), participants in the child care memory condition judged child relevant potentially harmful moral transgressions more harshly ($M = 7.67$; $F (1, 190) = 3.67, p = .057$).

Finally, ANOVA’s predicting taboo violations and harmless norm violations found no significant effects ($p$’s > .12).
**Main Effects and Moderating Effects of Sex and PCAT.** To test for possible interactions between the parental mindset manipulation, sex, and PCAT, multiple regression analysis was used. Since the social norm manipulation produced no effect, it was dropped from further analyses. Before computing interaction terms, we assigned values of 1 and -1 to the Child Care Memory and Childhood Memory conditions, respectively; values of 1 and -1 were assigned to male and female participants, respectively; and PCAT values were centered by subtracting the mean PCAT score from each participant’s raw PCAT score. For each of the four moral judgment indices, we conducted a multiple regression analysis in which seven predictor variables were entered simultaneously: The main effects of the parental mindset manipulation, sex, and PCAT; the 3 two-way interactions; and the three-way interaction.

Table 5 reports results on the index assessing moral judgments of potentially harmful norm violations. These results reveal two significant main effects: 1) participants in the child care memory condition made harsher moral judgments of potentially harmful social norm violators, and 2) participants with higher PCAT scores made harsher moral judgments of potentially harmful social norm violators (replicating findings in Study 1). There was also an interaction approaching significance between sex and PCAT. Correlations underlying this interaction revealed that the predictive effect of PCAT was stronger among men ($r = .24, p = .12$) than among women ($r = .11, p = .19$).
The parental mindset manipulation also predicted the child relevant potential harm at levels approaching statistical significance (results in table 6). Results indicate that participants in the childcare memory condition made nearly significant harsher moral judgments of child relevant harmful social norm violations. No other significant effects emerged.

Table 7 reports results of the identical regression analysis, this time predicting taboo violations. One effect approaching significance emerged: women made harsher judgments of taboo violations than men.
Table 7. Main and Interactive Effects of Parental Mindset Manipulation, PCAT and Sex on Judgments of Taboo Violations

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>β</th>
<th>T</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parental Mindset</td>
<td>.04</td>
<td>.04</td>
<td>0.34</td>
<td>.733</td>
</tr>
<tr>
<td>PCAT</td>
<td>.50</td>
<td>.16</td>
<td>-1.44</td>
<td>.151</td>
</tr>
<tr>
<td>Sex</td>
<td>-.24</td>
<td>-.17</td>
<td>-1.93</td>
<td>.055</td>
</tr>
<tr>
<td>Parental Mindset × PCAT</td>
<td>-.37</td>
<td>-.12</td>
<td>-1.07</td>
<td>.287</td>
</tr>
<tr>
<td>Parental Mindset × Sex</td>
<td>-.10</td>
<td>-.08</td>
<td>-0.79</td>
<td>.428</td>
</tr>
<tr>
<td>PCAT × Sex</td>
<td>.29</td>
<td>.09</td>
<td>0.85</td>
<td>.395</td>
</tr>
<tr>
<td>Parental Mindset × PCAT × Sex</td>
<td>.09</td>
<td>.03</td>
<td>0.27</td>
<td>.797</td>
</tr>
</tbody>
</table>

Finally, table 8 reports results predicting moral judgments of harmless social norm violations. No significant predictors emerged. In fact, the parental mindset manipulation actually negatively predicted harmless social norm violations, an effect opposite of potentially harmful social norm violations, though this effect was not significant.

Table 8. Main and Interactive Effects of Parental Mindset Manipulation, PCAT and Sex on Judgments of Harmless Social Norm Violations

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>β</th>
<th>T</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parental Mindset</td>
<td>-.11</td>
<td>-.07</td>
<td>-0.63</td>
<td>.532</td>
</tr>
<tr>
<td>PCAT</td>
<td>-.08</td>
<td>-.02</td>
<td>-0.17</td>
<td>.865</td>
</tr>
<tr>
<td>Sex</td>
<td>-.13</td>
<td>-.07</td>
<td>-0.78</td>
<td>.437</td>
</tr>
<tr>
<td>Parental Mindset × PCAT</td>
<td>-.81</td>
<td>-.20</td>
<td>-1.70</td>
<td>.092</td>
</tr>
<tr>
<td>Parental Mindset × Sex</td>
<td>-.08</td>
<td>-.05</td>
<td>-0.46</td>
<td>.648</td>
</tr>
<tr>
<td>PCAT × Sex</td>
<td>.65</td>
<td>.15</td>
<td>1.34</td>
<td>.181</td>
</tr>
<tr>
<td>Parental Mindset × PCAT × Sex</td>
<td>-.23</td>
<td>-.05</td>
<td>-0.47</td>
<td>.640</td>
</tr>
</tbody>
</table>

Ancillary Analyses on Subsample with Experience Interacting with Children.

During data collection it became clear that some participants were unable to describe a childcare experience, and therefore unable to complete the experimental manipulation. Therefore, an additional question was introduced assessing previous caregiving
experience. Specifically, at the end of the experimental session, participants were asked "How much experience have you had interacting with children in the past 5 years?" and participants responded on a 5-point rating scale (1 = none at all; 5 = very much). 133 participants (88 female, 22 male) answered this question. 110 of those participants responded at the midpoint or above (i.e., ratings of 3, 4 or 5) to this question. Since the parental mindset manipulation is likely to be most effective in temporarily activating the parental care motivational system among participants with prior experience interacting with children, we conducted four regression analyses—identical to the analyses described above—on just this subset of 110 participants.

Table 9 reports results on the index assessing moral judgments of potentially harmful norm violations. Results revealed a strong main effect of the parental mindset manipulation: Compared to participants in the childhood memory control condition (M = 7.24), those in childcare memory condition made harsher moral judgments (M = 7.77). A significant sex difference emerged as well (women expressed harsher moral judgments than men). These were qualified by a significant 3-way interaction between sex, PCAT and the parental mindset manipulation.

Table 9. Main and Interactive Effects of Parental Mindset Manipulation, PCAT and Sex on Judgments of Potentially Harmful Social Norm Violations made by Participants with Experience Interacting with Children

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>β</th>
<th>T</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parental Mindset</td>
<td>.70</td>
<td>.58</td>
<td>3.97</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>PCAT</td>
<td>-.52</td>
<td>-.17</td>
<td>0.88</td>
<td>.383</td>
</tr>
<tr>
<td>Sex</td>
<td>-.50</td>
<td>-.34</td>
<td>2.84</td>
<td>.019</td>
</tr>
<tr>
<td>Parental Mindset × PCAT</td>
<td>.91</td>
<td>.29</td>
<td>1.52</td>
<td>.131</td>
</tr>
<tr>
<td>Parental Mindset × Sex</td>
<td>.46</td>
<td>.38</td>
<td>2.61</td>
<td>.010</td>
</tr>
<tr>
<td>PCAT × Sex</td>
<td>-1.08</td>
<td>-32</td>
<td>-1.81</td>
<td>.074</td>
</tr>
<tr>
<td>Parental Mindset × PCAT × Sex</td>
<td>1.57</td>
<td>.50</td>
<td>2.63</td>
<td>.010</td>
</tr>
</tbody>
</table>
In order to interpret this interaction we analyzed the two-way interaction between PCAT and parental mindset manipulation for each sex separately. For men, one significant effect emerged: a main effect childcare condition ($\beta = .68; p = .032$) indicating that being placed in a parental mindset increases the harshness of men’s moral judgments. For women, main effects of PCAT and childcare condition both emerged ($\beta = .24; p = .023; \beta = .22; p = .032$), indicating that being high in trait levels of parental mindset and being situationally placed in a parental mindset both increased the harshness of women’s moral judgments. This was qualified by an interaction between PCAT and childcare condition ($\beta = -.27; p = .011$), which indicated that PCAT predicted harsher moral judgments only in the childhood memory condition ($r = .45, p = .002$), not in the childcare memory condition ($r = -.05, p = .77$). Temporary introduction of a parental mindset eliminated the effects of PCAT by raising the harshness of moral judgments expressed by low-PCAT individuals to the level expressed more commonly by high-PCAT individuals, an interaction which is depicted in figure 2.
Figure 2. Interaction between Parental Mindset Manipulation and PCAT in Women

Fig 2. Temporary introduction of a parental mindset (via the childcare memory condition) eliminated the effects of PCAT by raising the harshness of moral judgments expressed by low-PCAT individuals to the level expressed more commonly by high-PCAT individuals.

Next, results predicting the child relevant potentially harmful social norm violations were analyzed (shown in table 10). Results were similar to the findings on the entire scale of potentially harmful social norm violations. A 3-way interaction between sex, PCAT and the parental mindset manipulation emerged which almost reached conventional standards of statistical significance ($p = .060$).
Due to the near significance of the three-way interaction, two-way interactions between PCAT and parental mindset manipulation were analyzed for each sex separately. For men, one marginally significant effect emerged: a main effect childcare condition ($\beta = .58; p = .068$) in which males placed in a parental mindset made harsher moral judgments. For women, a main effect of PCAT emerged ($\beta = .22; p = .035$), indicating that high trait levels of parental mindset increased the harshness of moral judgments of child related social norm violations. The two way interaction between PCAT and parental mindset condition fell short of significance ($\beta = -.18; p = .097$).

When predicting ratings of taboo violations, one significant main effect emerged: women made harsher moral judgments than men. Results can be seen in table 11.

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>$\beta$</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parental Mindset</td>
<td>.67</td>
<td>.45</td>
<td>2.97</td>
<td>.004</td>
</tr>
<tr>
<td>PCAT</td>
<td>-.88</td>
<td>-.23</td>
<td>-1.16</td>
<td>.248</td>
</tr>
<tr>
<td>Sex</td>
<td>-.70</td>
<td>-.38</td>
<td>-3.13</td>
<td>.002</td>
</tr>
<tr>
<td>Parental Mindset $\times$ PCAT</td>
<td>.88</td>
<td>.23</td>
<td>1.15</td>
<td>.253</td>
</tr>
<tr>
<td>Parental Mindset $\times$ Sex</td>
<td>.47</td>
<td>.32</td>
<td>2.10</td>
<td>.039</td>
</tr>
<tr>
<td>PCAT $\times$ Sex</td>
<td>-1.61</td>
<td>-.40</td>
<td>-2.12</td>
<td>.036</td>
</tr>
<tr>
<td>Parental Mindset $\times$ PCAT $\times$ Sex</td>
<td>1.45</td>
<td>.38</td>
<td>1.90</td>
<td>.060</td>
</tr>
</tbody>
</table>
Table 11. Main and Interactive Effects of Parental Mindset Manipulation, PCAT and Sex on Judgments of Taboo Violations made by Participants with Experience Interacting with Children

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>β</th>
<th>T</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parental Mindset</td>
<td>.26</td>
<td>.21</td>
<td>1.33</td>
<td>.185</td>
</tr>
<tr>
<td>PCAT</td>
<td>.08</td>
<td>.03</td>
<td>0.12</td>
<td>.904</td>
</tr>
<tr>
<td>Sex</td>
<td>-.39</td>
<td>-.26</td>
<td>-2.02</td>
<td>.046</td>
</tr>
<tr>
<td>Parental Mindset × PCAT</td>
<td>.34</td>
<td>.11</td>
<td>0.52</td>
<td>.603</td>
</tr>
<tr>
<td>Parental Mindset × Sex</td>
<td>.05</td>
<td>.04</td>
<td>0.26</td>
<td>.797</td>
</tr>
<tr>
<td>PCAT × Sex</td>
<td>-.05</td>
<td>-.02</td>
<td>-0.08</td>
<td>.941</td>
</tr>
<tr>
<td>Parental Mindset × PCAT × Sex</td>
<td>.61</td>
<td>.19</td>
<td>0.92</td>
<td>.359</td>
</tr>
</tbody>
</table>

No significant effects emerged when predicting harmless social norm violations (as seen in table 12). Even though the parental mindset remained a non-significant predictor of harmless social norm violations, the direction of the relationship between the parental mindset manipulation and harmless social norm violations reversed from what was observed in the entire population. Now, participants who described a childhood memory made descriptively harsher judgments of harmless social norm violations ($M = 4.6$) compared to participants writing about a childhood memory ($M = 4.46$).

Table 12. Main and Interactive Effects of Parental Mindset Manipulation, PCAT and Sex on Judgments of Harmless Social Norm Violations made by Participants with Experience Interacting with Children

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>β</th>
<th>T</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parental Mindset</td>
<td>.02</td>
<td>.01</td>
<td>0.07</td>
<td>.948</td>
</tr>
<tr>
<td>PCAT</td>
<td>-1.20</td>
<td>-.29</td>
<td>-1.40</td>
<td>.164</td>
</tr>
<tr>
<td>Sex</td>
<td>-.31</td>
<td>-.16</td>
<td>-1.24</td>
<td>.218</td>
</tr>
<tr>
<td>Parental Mindset × PCAT</td>
<td>-.64</td>
<td>-.16</td>
<td>-0.75</td>
<td>.456</td>
</tr>
<tr>
<td>Parental Mindset × Sex</td>
<td>-.03</td>
<td>-.02</td>
<td>0.10</td>
<td>.919</td>
</tr>
<tr>
<td>PCAT × Sex</td>
<td>-.17</td>
<td>.04</td>
<td>0.20</td>
<td>.840</td>
</tr>
<tr>
<td>Parental Mindset × PCAT × Sex</td>
<td>-.40</td>
<td>-.10</td>
<td>-0.47</td>
<td>.639</td>
</tr>
</tbody>
</table>
Coding the Content of the Parental Mindset Essays. Results thus far indicate that the parental mindset manipulation had an effect on participants’ judgments of violations of potentially harmful social norms, but it remains unclear what about writing the parental mindset essays affected participants’ ratings. To address this question, essays were coded on several variables that might, in various ways, be related to both parental care and moral judgments. All ratings were made by two raters who were blind to the hypothesis of the experiment.

Raters coded two variables assessing the extent to which each essay focused on caregiving behaviours (“How much does the essay focus on caregiving behaviours between the essay writer and other living things?”; “How many times were caregiving behaviours mentioned?”). The former was measured on a 4-point scale (1 = not at all; 4 = very much); the latter was a count of behaviours described. Interrater reliability was high ($r = .92$) so the ratings were combined (computed as the mean of the two ratings). The two resulting variables were highly correlated ($r = .91$), so the Z-scores of these variables were computed and combined to form one measure of caregiving behaviour (computed as the mean of the two Z-scores).

Essays were also coded on a 4-point scale for the presence of six emotions: happiness, pleasure, caring, tenderness, anxiety and disgust (1 = The emotion is not present; 2 = The emotion is hinted at/vaguely present; 3 = The emotion is obviously present at least once; 4 = The emotion is obviously present more than once). Inter-rater correlations all exceeded $r = .5$ (exact values are reported in table 13). The mean of the two raters’ scores was computed to form one combined measure of each variable. Variables measuring tenderness and caring were highly correlated ($r = .81$) and were
combined (by computing the mean) to form one measure of caring emotions. Variables measuring happiness and pleasure were also highly correlated \((r = .94)\) and were also combined (by computing the mean) to form one measure of positive emotions.

In order to test for potential mediation, the five indices described above (caregiving behaviours, caring emotions, positive emotions, anxiety, and disgust) were correlated with both the parental mindset condition and ratings of potentially harmful social norm violations. Ratings of anxiety and disgust were not correlated with parental mindset condition. Ratings of positive emotions, caring emotions, and caregiving behaviours were all significantly correlated to parental mindset condition, but none of these variables were correlated to moral judgments of potentially harmful social norm violations. Table 13 reports means and standard deviations for each variable by condition as well as the \(p\)-value for the correlation between each variable and parental mindset manipulation.

**Table 13. Means and Standard Deviation’s of Rated Content of Essays Written for the Parental Mindset Manipulation**

<table>
<thead>
<tr>
<th></th>
<th>Interrater Reliability</th>
<th>Childhood Memory</th>
<th>Childcare Memory</th>
<th>(p)-value of correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caregiving Behaviour</td>
<td>0.92</td>
<td>-.65 (.0)</td>
<td>.70 (1.02)</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Caring Emotions</td>
<td>0.58</td>
<td>1.11 (.30)</td>
<td>1.38 (.52)</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Positive Emotions</td>
<td>0.62</td>
<td>2.38 (.69)</td>
<td>1.60 (.64)</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Anxiety</td>
<td>0.65</td>
<td>1.12 (.35)</td>
<td>1.18 (.42)</td>
<td>0.235</td>
</tr>
<tr>
<td>Disgust</td>
<td>0.95</td>
<td>1.01 (.05)</td>
<td>1.06 (.35)</td>
<td>0.839</td>
</tr>
</tbody>
</table>

Identical analyses were performed on the subset of participants who had some experience interacting with children. Results from this analysis were largely unchanged,
except in the case of the caregiving behaviour measure. The parental mindset manipulation was positively correlated with caregiving behaviour \( (r = .72, p < .001) \), and caregiving behaviour was positively correlated with moral judgments of potentially harmful norm violations \( (r = .19, p = .048) \). To test for mediation, a regression analysis was conducted with both caregiving condition and caregiving behaviours as predictor variables and moral judgment as the outcome variable. Results showed that the relationship between caregiving behaviours and moral judgments was not significant when controlling for caregiving condition \( (\beta = .06, p = .64) \). A Sobel test confirmed that the association between caregiving condition and moral judgments was not significantly mediated by caregiving behaviours \( (z = .48, p = .63) \).

**Discussion**

Results from study two revealed that experimentally activating a parental mindset caused harsher judgments of potentially harmful social norm violations. The effect of activating a parental mindset was more pronounced when examining a subset of participants with prior experience interacting with children. In this subset of participants, both chronic (indicated by high PCAT scores) and situational (from the parental mindset manipulation) activation of the parental care system lead females to make harsher moral judgments of potentially harmful social norm violations.

Inducing a parental mindset only produced effects on social norm violations that were potentially harmful to others, and did not emerge for judgments of social norm violations that were harmless to others, or violations of cultural taboos.
No Effect of Making Benefits of Social Norms Salient

Making the threat of social norm violations salient had no effect on moral judgments. This finding is especially interesting when considered together with recent work showing that a parental mindset increases bias against threatening out-groups, but only when the threat posed by the out-group is made salient (Gilead & Leiberman, 2014). Why was the parental care motive so robust in this study so as not to be enhanced by reminders of the risks posed by social norm violations? One possibility for this contrast is that the social norm salience manipulation used in our study was not effective and therefore not able to prime the threat buffering effects associated with social norm adherence. Another possibility is that the threat used in previous research, namely the threat posed by a racial out-group, is less obvious than the threat posed by people who break social norms that have the potential to harm others (e.g., a car mechanic installing a car part that he knows might be unsafe). If this is the case, people may need to be reminded that racial out-groups pose a possible threat, but may not need to be reminded that harmful social norm violations are potentially dangerous.
General Discussion

The current research provides the first empirical evidence that the parental care system influences moral judgments in non-parents. Study one indicated that high trait levels of the parental mindset lead to harsher moral judgments of social norm violations. Study two replicated those findings and extended on them by determining that temporary activation a parental mindset also leads harsher moral judgments of potentially harmful social norm violations.

Interaction Between Trait and State Parental Mindset

Effects of the PCAT within study condition were not entirely consistent across the two studies. An interaction emerged in study one between PCAT and the parental mindset manipulation, in which the link between PCAT and moral judgments was identified only in the presence of an intensely activated parental motivational state. This interaction showed a different pattern from the interaction reported in study two, in which the link between PCAT and moral judgments was observed only in the absence of an intensely activated parental motivational state. What caused these different interaction patterns? One difference certainly lies in the degree to which the parental mindset was activated. Compared to study one, study two appeared to create a fairly strong temporary parental mindset. Strong situations sometimes overwhelm trait level variables (Snyder & Ickes, 1985). Thus, the weak parental mindset manipulation in study one may have encouraged the relationship between PCAT and moral judgments, while the strong parental mindset manipulation in study two may have overwhelmed the relationship between PCAT and moral judgments.
In study two, the interaction between PCAT and parental mindset manipulation did not appear in men. Why were men different from women? Possibly men and women in a parental care mindset act differently. However, far fewer men participated in the experiment than women. In fact, only 13 men were in the control condition for this interaction (which was only on participants with child experience), and these men do not appear to be representative of the entire population of men. For these 13 men, higher PCAT was unexpectedly associated with more lenient judgments of social norm violations. This relationship did not appear in study one, nor in the entire population of men in study two (when adding men without childcare experience). Additionally, there was extreme range restriction in these 13 men’s PCAT scores (range was less than 1/3 of comparable women’s scores). Future studies would benefit from examining larger numbers of men in order to determine if the interaction effects found in women would also emerge in men.

**Mechanism of the Parental Mindset Manipulation**

Results from study two showed that when participants wrote essays about childcare versus childhood, they expressed harsher moral judgments. But the mechanism behind this relationship is unclear. One possibility is that the effects reported here are due to the happy childhood memory control condition influencing judgments. Recalling a happy memory may influence how someone feels, acts, and the judgments they make. Indeed, people who recall a happy memory are more likely to help a stranger, and people experiencing a happy mood rate strangers to be more likable (Rosenhan, Underwood & Moore, 1974; Gouaux, 1971; Veitch & Griffitt, 1976).
Given that essays written by participants in the happy childhood memory control condition were rated as expressing more happiness than those in the childcare memory condition, control participants’ happy mood could have been the true cause of their more lenient moral judgments of social norm violations. In order to examine this possibility, essays were rated (by two raters who were blind to the hypothesis) on the amount of positive emotion expressed in each essay. Results showed no evidence that the relationship between the parental mindset manipulation and moral judgments of potentially harmful norm violations was due to positive emotions. If anything, results were in the opposite direction: more positive emotions were non-significantly correlated to harsher moral judgments of social norm violations.

Essays were also rated on several other emotions that are conceptually related to either parental care or moral judgments. Childcare can induce emotions (such as tenderness, anxiety, and disgust), and emotions have the potential to influence how moral judgments are formed. For example, feelings of disgust has been known to influence moral judgments (Schnall, Haidt, Clore, & Jordan, 2008; Wheatley & Haidt, 2005). However, results revealed no evidence that the emotions expressed by participants drove the relationship between the parental mindset manipulation and moral judgments.

Essays were also rated on the amount and intensity of the caregiving behaviours described. In the subset of participants with experience interacting with children, descriptions of the act of childcare were significantly related to both moral judgments and the parental mindset manipulation, but these caregiving behaviours failed to significantly mediate the relationship between the parental mindset manipulation and moral...
judgments. Therefore, we were unable to uncover the mechanism for the parental mindset manipulation’s influence on moral judgments.

**Child Relevant vs. Not Child Relevant Violations**

The parental care motivation exists in order facilitate the safety of children. Therefore, a natural question when one activates the parental mindset is: Does the parental mindset react specifically to situations that might harm children, or does this mindset generalize to all potentially threatening situations? The studies reported here reported on both a three item measure of child relevant potentially harmful social norm violations and a longer (9 or 13 item) mixed measure of potentially harmful social norm violations. Results in study one indicated that (for both trait level and state level variables) parental care activation did have a more pronounced influence on items that were specifically relevant to child welfare. In contrast, results from study two indicated that parental care activation had similar effects on child relevant and non-child relevant potentially threatening situations. Therefore, the results reported here are not able to clearly identify whether the parental care mindset reacts more strongly in situations that endanger children.

**Harmless vs. Harmful Violations**

Prior studies have shown that a parental mindset leads to increased vigilance toward potential threats (Eibach et al., 2011). Therefore, one would expect a parental mindset to lead people to react more negatively to actions that pose a potential threat than to actions that are harmless. However, it is also possible that the parental mindset would
lead to harsher judgments of all abnormal behaviours, even those that are not potentially harmful.

Social norms often serve as a buffer against potential threats and breaking social norms can be a cue to possible danger. For example, until recently the bacteria avoidance function of many social norms involving proper washing and cooking of food were not understood by most people who followed them, but breaking those norms would still have led to potential sickness for those who consumed improperly sanitized food. Therefore, breaking the social norms surrounding food hygiene may have historically served as a cue to potential danger, even if the reason for that danger was not understood.

Since violations of social norms can be used as an imperfect cue to potential danger, people attempting to protect themselves from this danger may fall prey to a signal detection error known as the “smoke detector principle” (Nesse, 2005). Smoke detectors are designed to uncover any evidence of smoke, in order to protect against potentially fatal errors. As a consequence, they are overly sensitive and known to sound the alarm well before there is any need for concern. Likewise, when a parental mindset is active, people may be overly vigilant in their defense response to situations where social norms are broken, even if these social norm violations do not have the potential to cause harm. However, our results do not support this possibility. Being in a parental mindset did not lead participants in our sample to make harsher moral judgments of harmless social norm violations.

This finding appears to be in contrast with previous research indicating that the parental mindset does induce harsher moral judgments of harmless social norm violations.
(Eibach, Libby & Ehrlinger, 2009). This inconsistency could be due to the fact that our measure of harmless social norm violations had weak internal consistency (Cronbach’s $\alpha = .56$), which interfered with the measure’s ability to detect an effect. However, this does not account for the fact that ratings of harmless social norms were descriptively in the opposite direction (participants who wrote about childcare had less harsh moral judgments of harmless social norm violators). Another explanation for this difference is that the parental care mindset can be more strongly manipulated in parents than in non-parents. In our data, participants with prior experience with children had more pronounced negative reactions to social norm violations, and parents clearly have quite a lot of experience with children. This possibility is supported by the fact that within the subset of participants with some experience with children, those in the childcare mindset made descriptively harsher ratings of harmless social norms violators, a pattern which more closely matches ratings made by parents in previous research.

**Comparison of the Effectiveness of Parental Mindset Manipulations**

To date, three different methods have been used to activate the parental mindset and measure moral judgments in nonparents. These methods have not all had the same results. One method (reviewed in the introduction) had participants complete sentences about children. The other two methods (reported in this thesis) involved viewing pictures of cute animals and describing a memory involving childcare. The first manipulation had no significant effect on moral judgments, but descriptively participants completing sentences about childcare were slightly harsher in their moral judgments of child relevant potentially harmful social norm violations (Buckels. et al. 2015). The second manipulation (involving cute pictures of animals) was highly non-significant. The last
manipulation (involving describing a childcare experience) led to a significant increase in the harshness of moral judgments of potentially harmful social norm violations, both child related and not child related.

Previous research has successfully activated a parental mindset both by eliciting an emotional response (via exposure to cute images) and by eliciting a cognitive awareness of children by reminding parents of the existence of their children. Eliciting an emotional response via viewing cute pictures appears to have no effect on moral judgments of potentially threatening situations. On the other hand, the other two manipulations focused on activities involving children and childcare, and these manipulations were somewhat more successful influencing moral judgments of potentially threatening situations. Future studies examining the relationship between moral judgments and parental care may want to use manipulations that are designed to remind participants of the act of childcare rather than focusing on eliciting the tender emotions that often accompany interacting with children.

**Parenting and Family Dynamics**

The parental mindset may also have consequences that impact family life. A new baby, or even a decision to attempt pregnancy, is likely to activate the parental mindset. If the parental mindset is chronically activated in a person, they may become harsher in their judgments of people around them. These harsh judgments may be especially pronounced for people who are perceived as potentially dangerous, such as those who break social norms or members of potentially risky out-groups. In fact, in the first few weeks of pregnancy (when women are likely to be preoccupied with their new parental
role) women have higher rates of ethnocentrism as compared to later in their pregnancy or non-pregnant women (Navarrete, Fessler, & Eng, 2007).

If a couple has a child, and one member of a couple stays home to care for a new baby while the other one continues to work, changes due to a chronically activated parental mindset may impact one member of the couple more than the other. The person providing the bulk of the childcare may begin to respond harshly to transgressions of social norms, even small ones such as being late to social engagements or failure to wash dirty dishes. If not properly understood by other people in the family, these changes may be perceived as judgmental or inauthentic and have the potential to disrupt a formerly happy family life. If future research were to uncover clear effects of prolonged parental mindset activation and simple ways of activating the parental mindset, new parents may be able to combat potential issues with actions such as writing about their children or keeping pictures of their child on their desk.

**Future Directions**

The current research suggests several interesting avenues for exploring potential consequences of activating the parental care system. For example, how would a parental mindset affect judgments of moral “heroes”? The parental mindset may cause more pronounced moral judgments of both positive and negative actions. Indeed, prior research shows that when people view others as vulnerable, they report both stronger positive and stronger negative moral emotions (Dijker, 2010). In considering this possibility, it may be useful to consider how people react after reminders of their mortality. Reminders of mortality and reminders of children both induce safety concerns. Research on terror
management theory has found that when people think of their mortality, they react more negatively to moral transgressors and also react more positively to moral heroes (Rosenblatt, Greenberg, Solomon, Pyszczynski, & Lyon, 1989). A similar polarizing effect may be observed with the parental mindset, in which a parental mindset leads to not only enhanced negativity toward people who violate social norms, but also enhanced positivity toward those who uphold cultural values.

Being in a parental mindset may also have implications for one's own behaviour. A parental mindset leads people to be especially vigilant of potential risks and hazards. Given that many social norms provide valuable buffers against threats and hazards, it follows that a parental mindset may lead individuals to increase their own conformity to social norms. Indeed, experimentally manipulating threat due to either a dangerous intruder or an infectious disease leads people to increase their conformity to the majority opinion (Griskevicius, Goldstein, Mortensen, Cialdini, & Kenrick, 2006; Murray & Schaller, 2012). Following this logic, activation of a parental mindset may increase safety concerns, which may in turn lead to enhanced adherence to conformist attitudes and behaviours.

**Relationship Between Parenting and Other Prosocial Motivations**

Throughout this paper results have been characterized as specific to a parental mindset and implications have been considered in the context of parenting. One question that may arise is: How is the parental mindset distinct from other altruistic motivations such as empathy and compassion? Research has found that trait levels of parental care predict emotional responses to pictures of both distressed and happy babies, and that this
effect is unique and persists even when controlling for empathic response tendencies (Buckels et. al., 2015). Similarly, research presented here found that parental care tendencies (but not empathic response tendencies) uniquely predicted moral judgments of norm violators. Therefore it appears that individual differences in parental mindset are related to, but distinct from, empathy.

Empathy is characterized by the tendency to feel compassion toward people in distress, but it is not specific to children, who are chronically vulnerable but not necessarily in immediate distress. Experimental manipulations of empathy for a target adult in need cause people to report increased valuation of the welfare of the target (Batson, Turk, Shaw, & Klein, 1995). Therefore, empathy directed toward a child may indeed lead to the same outcome as activation of the parental mindset. However, empathy directed toward a person breaking a social norm may just as well lead to the opposite outcome. Therefore, empathy and parental care sometimes predict fundamentally different outcomes.

Parental care could be viewed as one type of empathy, one in which the focus of empathy is on a child. But it is also possible that empathy (and in fact all prosocial behaviour) is actually based on the human motivation for parental care. Some theorists believe that the instinct to protect and care for vulnerable targets was originally evolved to protect offspring ( McDougall, 1908; de Waal, 1996, 2008, 2009). After the original parental care motivation was in place, cooperative species extended these protective responses to relatives and sometimes even unrelated ingroup members. Later in primate and human evolution, such prosocial responses were extended further to include strategic forms of helping, sharing, and cooperation (Preston, 2013). In this way the primitive
human motivation for parental care may form the foundation upon which all altruistic, empathic and prosocial behaviours are built. Therefore, gaining a deeper understanding this initial parental instinct to provide care could help inform our understanding of all forms of prosocial behaviour.
Footnotes

1. To test whether judgments were comprised of the predicted two dimensions, we examined the underlying latent structure by conducting an exploratory factor analysis (EFA; with Principal Axis Factoring), using oblimin rotation on participants’ ratings of moral judgments for each of the 12 norm-violations. Eigenvalues for the first five unrotated factors were 4.60, 1.65, 1.26, .83, and 0.75. Based on these eigenvalues, we examined a one, two and three factor solution. To interpret the two-factor solution, we examined the items that loaded highly onto each factor. The first factor was recognizable as the harm index; all nine harm items loaded highly onto this factor (> .4) and did not load substantially onto the second factor (< .4). The second factor was recognizable as the no harm index; all three no harm items loaded highly onto this factor (> .4) and did not load substantially onto the second factor (< .4).

Next, to test if the data is characterized more accurately by a one- or three-factor solution, we conducted the same analyses, in which we extracted first one, then three, factor(s). For the one-factor solution, the content of the factor was identical to the first factor (harm index) in the two-factor solution, but the items in the no harm items were not represented (factor loadings of < .3). For the three-factor solution, the content of the first two factors remained almost identical to that from the two-factor solution. The third factor, however, consisted of high loadings from 8 of the 9 items in the first factor and was highly correlated with the first factor (r=.53). Given that the additional third factor of the three factor solution do not capture a distinct component not already incorporated into the first and second factors, and the one factor solution did not represent all 12 items, we determined that a two-factor solution provides the best characterization of the data.
2. Recall that the sample excluded 9 people who were unable to recall a time in which they had taken care of a child. If these additional nine participants were included, this main effect no longer reached conventional levels of statistically significance, $F(1,198) = 2.59, p = .11$.

3. Given the nature of the interactions depicted in Figure 1, readers might wonder whether these effects represent a kind of ceiling effect. Perhaps participants were unwilling to employ the rating scale endpoint (a rating of 9), thus artificially depressing the possibility that women and high-PCAT individuals could express even harsher moral judgments than those observed in the Child Care Memory condition? This does not appear to be the case. Even in the Childhood Memory condition, a large majority of participants (84%) responded with a rating of 9 on at least one of the moral judgments they recorded on the questionnaire. Thus, participants were not averse to employing the full rating scale, and so these interaction effects cannot be attributed to an artificial ceiling effect.
References


doi:10.1146/annurev.psych.59.103006.093625


Appendix 1

FOUND BY THE HIGHWAY
FREE TO A GOOD HOME
FREE TO A GOOD HOME
YOURS TO PICK UP TODAY
YOURS TO PICK UP TODAY
TABBY NEEDS A HOME
BROWN DOG NEEDS A HOME
FOUND ABANDONED
FOUND ABANDONED
FOUND BY THE HIGHWAY
FOUND ABANDONED

RED COUCH NEEDS A HOME

FREE TO A GOOD HOME

YOURS TO PICK UP TODAY

FREE TO A GOOD HOME

FOUND BY THE HIGHWAY

FOUND BY THE HIGHWAY

FOUND ABANDONED

SOFA NEEDS A HOME

YOURS TO PICK UP TODAY
Appendix 2: Moral Judgment Questionnaire

**MORAL JUDGMENTS SCALE**

Below are brief descriptions of various transgressions (acts of wrong-doing) that people may make from time to time. For each transgression described, please rate how morally wrong it is. Make your rating on the 9-point scale provided (1 = not at all morally wrong; 9 = Very morally wrong)

<table>
<thead>
<tr>
<th></th>
<th>Not at all morally wrong</th>
<th>Very morally wrong</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1.</strong> A woman who undergoes plastic surgery to permanently affix animalistic horns to her skull</td>
<td>1 2 3 4 5 6 7 8</td>
<td></td>
</tr>
<tr>
<td><strong>2.</strong> A congenital dwarf who voluntarily participates in dwarf-tossing competitions</td>
<td>1 2 3 4 5 6 7 8</td>
<td></td>
</tr>
<tr>
<td><strong>3.</strong> A man who watches videos of animal copulation to become sexually aroused</td>
<td>1 2 3 4 5 6 7 8</td>
<td></td>
</tr>
<tr>
<td><em>4.</em>* An employee at a convenience store steals five cartons of cigarettes.</td>
<td>1 2 3 4 5 6 7 8</td>
<td></td>
</tr>
<tr>
<td>5. A parent allows their child to ride in a car without wearing a seatbelt.</td>
<td>1 2 3 4 5 6 7 8</td>
<td></td>
</tr>
<tr>
<td>6. A chef at a restaurant fails to wash his hands after using the bathroom.</td>
<td>1 2 3 4 5 6 7 8</td>
<td></td>
</tr>
<tr>
<td>7. A woman borrows $500 from a friend, but never repays the money.</td>
<td>1 2 3 4 5 6 7 8</td>
<td></td>
</tr>
<tr>
<td><em>8.</em>* A butcher changes the expiry date of old meat and sells it as new meat.</td>
<td>1 2 3 4 5 6 7 8</td>
<td></td>
</tr>
<tr>
<td>9. A car mechanic installs a car part that he knows might be unsafe.</td>
<td>1 2 3 4 5 6 7 8</td>
<td></td>
</tr>
<tr>
<td>10. A pregnant mother smokes cigarettes and drinks alcohol.</td>
<td>1 2 3 4 5 6 7 8</td>
<td></td>
</tr>
</tbody>
</table>
11. A would-be immigrant cheats on an immigration exam.

*12. A surgeon uses tools that she knows have not been properly sanitized.

13. A bus-driver drives a busload of children through a busy city with an expired drivers license.

*14. A factory worker over-reports his hours worked in order to get a larger paycheque.

15. A man has sex with a woman without telling her that he has a sexually transmitted infection.

16. A student cheats on a final exam.

*These items were only used in Study 1

** These items were only used in Study 2
Appendix 3: Taboo Violation Scenarios

MORAL JUDGMENT SCENARIOS

Please read each of the following scenarios carefully, and respond to the questions that follow each scenario.

Scenario 1:

A small plane has crashed in the Himalayas. There is only one survivor: A woman in her early 30s. She finds the body of one of the dead passengers -- a little boy -- near the site of the crash, and she drags his small body to a place near the twisted wreckage of the plane, within which she takes shelter from the snow and wind. The woman has no food. After eight days without eating anything at all, and with no rescue in sight, she realizes that she will almost certainly die unless she strengthens herself with some sort of food and then attempts to trek out of the mountains to safety. The only possible source of nutrition is the body of the boy who died in the crash. Realizing this, the woman cuts pieces of muscle from the dead boy's body, which she proceeds to eat.

A. Is it morally acceptable for the woman to eat pieces of the dead boy's body?  
YES   NO

B. On the following 7-point scale, please rate how morally wrong it was for the woman to eat pieces of the dead boy's body.

<table>
<thead>
<tr>
<th>Not at all wrong</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>Very wrong</th>
</tr>
</thead>
</table>

C. On the following 7-point scale, please rate how severely the woman should be punished for eating pieces of the dead boy's body.

<table>
<thead>
<tr>
<th>Not at all wrong</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>Very wrong</th>
</tr>
</thead>
</table>
Scenario 2:

Frank’s pet dog was killed by a car in front of his house. Frank had heard that in people in other cultures occasionally eat dog meat, and he was curious what it tasted like. So he cut up the body and cooked it and ate it for dinner.

A. Is it morally acceptable for Frank to eat his dog?  YES  NO

B. On the following 7-point scale, please rate how morally wrong it was for Frank to eat his dead dog.

Not at all wrong  1  2  3  4  5  6  7  very wrong

C. On the following 7-point scale, please rate how severely Frank should be punished for eating his dead dog.

Not at all wrong  1  2  3  4  5  6  7  very wrong

Scenario 3:

Linda and James are first cousins. They have known each other since they were children. They get along very well together, and often go traveling together on holidays. One night, during one of these holidays, they decide that it would be interesting and fun if they made love. And so they have sexual intercourse.

A. Is it morally acceptable for these cousins to have sexual intercourse?  YES  NO

B. On the following 7-point scale, please rate how morally wrong it was for these cousins to have sexual intercourse.

Not at all wrong  1  2  3  4  5  6  7  very wrong

C. On the following 7-point scale, please rate how severely these cousins should be punished for having sexual intercourse.

Not at all wrong  1  2  3  4  5  6  7  very wrong
# Appendix 4: PCAT Questionnaire

## PCAT Questionnaire – Part A

Instructions: The first part of this questionnaire relates to your personality and personal preferences. Please rate how much you agree with the following statements.

<table>
<thead>
<tr>
<th></th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>3.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>4.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>7.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

1. When I see infants, I want to hold them.
2. When I hear a child crying, my first thought is "shut up!"
3. When I see a baby in someone’s arms, I feel warm inside.
4. I would feel compelled to punish anyone who tried to harm a child.
5. I think that kids are annoying.
6. Babies melt my heart.
7. I would hurt anyone who was a threat to a child.
8. I can't stand how children whine all the time.

9. I would sooner go to bed hungry than let a child go without food.

10. A baby's tiny fingers and toes are so adorable.

11. I enjoy being around babies.

12. I would show no mercy to someone who was a danger to a child.


14. I would use any means necessary to protect a child, even if I had to hurt others.

15. If I could, I would hire a nanny to take care of my children.
PCAT Questionnaire - Part B

Instructions: TENDERNESS describes a "warm, gentle feeling of sympathetic affection."

Below are various hypothetical scenarios that may or may not evoke this feeling.

Please rate how much TENDERNESS you would feel in each situation.

If you are unsure, go with your gut reaction.

<table>
<thead>
<tr>
<th>Scenario</th>
<th>No tenderness at all</th>
<th>A lot of tenderness</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. A newborn baby curls its hand around your finger.</td>
<td>1  2  3  4  5</td>
<td></td>
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<tr>
<td>2. You hear a young child trip and fall, and begin to cry.</td>
<td>1  2  3  4  5</td>
<td></td>
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<tr>
<td>3. You hear a child crying loudly on an airplane.</td>
<td>1  2  3  4  5</td>
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<tr>
<td>4. You watch as a toddler takes their first step and tumbles gently back down.</td>
<td>1  2  3  4  5</td>
<td></td>
</tr>
<tr>
<td>5. You make a baby laugh over and over again by making silly faces.</td>
<td>1  2  3  4  5</td>
<td></td>
</tr>
<tr>
<td>6. You need to change a baby's soiled diaper.</td>
<td>1  2  3  4  5</td>
<td></td>
</tr>
<tr>
<td>7. A child blows you kisses to say goodbye.</td>
<td>1  2  3  4  5</td>
<td></td>
</tr>
<tr>
<td>8. You see that a baby is sick.</td>
<td>1  2  3  4  5</td>
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<tr>
<td>9. You see a child slip and fall onto the pavement.</td>
<td>1  2  3  4  5</td>
<td></td>
</tr>
<tr>
<td>10. You see a father tossing his giggling baby up into the air as a game.</td>
<td>1  2  3  4  5</td>
<td></td>
</tr>
</tbody>
</table>
Appendix 5: Parental Mindset Manipulation

Distraction Essay #1

Your descriptions will NOT be read by the experimenter you met today. They will be coded by a researcher who does not have access to identifying information about you, so responses are completely anonymous. Please be as detailed and honest as possible!

Please take the next 4 minutes to re-live the following event. Describe it in as much detail as possible in 4 minutes.

The last trip you went on

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Distraction Essay #2

Your descriptions will NOT be read by the experimenter you met today. They will be coded by a researcher who does not have access to identifying information about you, so responses are completely anonymous. Please be as detailed and honest as possible!

Please take the next 4 minutes to re-live the following event. Describe it in as much detail as possible in 4 minutes.

The last program you saw on television
Child Care Memory Essay

Your descriptions will NOT be read by the experimenter you met today. They will be coded by a researcher who does not have access to identifying information about you, so responses are completely anonymous. Please be as detailed and honest as possible!

Please take the next 4 minutes to re-live the following event. Describe it in as much detail as possible in 4 minutes.

Describe a time you took care of a baby or young child.

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Childhood Memory Essay

Your descriptions will NOT be read by the experimenter you met today. They will be coded by a researcher who does not have access to identifying information about you, so responses are completely anonymous. Please be as detailed and honest as possible!

Please take the next 4 minutes to re-live the following event. Describe it in as much detail as possible in 4 minutes.

Describe a happy moment in your childhood.

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Appendix 6: Social Norms Manipulation

Norm Benefits Article

Three Things That Everyone Needs to Know About Social Norms

What is a social norm?
Social norms include beliefs, values, and rules of behavior that are popular and practiced widely within a cultural group.

Why do we have social norms?
Norms are essential to the smooth functioning of social groups, and to the survival of people within those groups. It is often necessary for everyone to do things in the same way in order to avoid chaos and disorder. For example, there are norms about which side of the road people must drive on—the right side or the left side—in order to ensure the safe and efficient flow of traffic. Many other behavioral norms provide “rules of thumb” for avoiding various dangers, such as predators, crime, and the transmission of infectious diseases. For example, norms pertaining to food preparation provide protection against harmful bacteria and other food-borne illnesses. Norms pertaining to reciprocity and promise-keeping protect people from economic exploitation.

What happens when norms break down?
If people violate traffic laws, they not only put themselves in danger, they put other people in danger too. If people violate norms concerning food preparation, it increases the incidence of disease transmission. If people violate norms of reciprocity, economic systems break down. Generally speaking, when social norms break down, it puts people—and whole societies—at risk.

***
Now we would like to know your opinion about the brief passage that you just read. Please answer the following questions by completing the rating scale that follows each question.

1. I agree that social norms help to protect societies from disorder and danger.

   Strongly disagree
   1  2  3  4  5
   Strongly agree
   6  7

2. I found this information engaging.

   Strongly disagree
   1  2  3  4  5
   Strongly agree
   6  7

3. In general, I believe this information was clear and well presented.

   Strongly disagree
   1  2  3  4  5
   Strongly agree
   6  7
Three Things That Everyone Needs to Know About Social Norms

What is a social norm?
Social norms include beliefs, values, and rules of behavior that are popular and practiced widely within a cultural group.

Why do we have social norms?
Norms provide an essential means through which social groups train new members to behave in approved ways. It is often necessary for individuals to conform to the agreed-upon "right" way of doing things in order to make friends and to attain the respect of other people within a group. For example, some groups have norms about what type of people to interact with; individuals must follow those norms in order to be accepted and liked by other people. Many other behavioral norms provide “rules of thumb” for social actions, which encourage people to conform to group ideals, ranging from what clothes are attractive, to who to befriend, to what religion to practice. In general, without norms, groups would have a hard time enforcing social control.

What happens when norms break down?
If people violate rules of dress, they run the risk of being mocked. If people violate norms concerning acceptable social partners, they run the risk of being ostracized. If people violate religious norms, they may be persecuted for their beliefs. Generally speaking, when social norms break down, it allows people—and whole societies—to be more inclusive and welcoming.

***
Now we would like to know your opinion about the brief passage that you just read. Please answer the following questions by completing the rating scale that follows each question.

1. I agree that social norms increase the danger of discrimination and decrease personal freedom.
   - Strongly disagree
   - Strongly agree
   1 2 3 4 5 6 7

2. I found this information engaging.
   - Strongly disagree
   - Strongly agree
   1 2 3 4 5 6 7

3. In general, I believe this information was clear and well presented.
   - Strongly disagree
   - Strongly agree
   1 2 3 4 5 6 7
Linguistic Norms Article

Three Things That Everyone Needs to Know About Language Change

What is Language Change?
Language change is when a language shifts in response to social, economic and political pressures.

Why does language change occur?
Norms provide an essential means through which social groups train new members to behave in approved ways. It is often necessary for individuals to conform to the agreed-upon "right" way of doing things in order to make friends and to attain the respect of other people within a group. For example, some groups have norms about what type of people to interact with; individuals must follow those norms in order to be accepted and liked by other people. Many other behavioral norms provide “rules of thumb” for social actions, which encourage people to conform to group ideals, ranging from what clothes are attractive, to who to befriend, to what religion to practice. In general, without norms, groups would have a hard time enforcing social control.

What happens when language change breaks down?
If language change did not occur about 1500 years ago, the English language would not have evolved. If language did not occur about 500 years ago, we wouldn’t have a name for Canada. If language did not change in the past 50 years, we would not be able to refer to Plastic, cell phones or the Internet. Generally speaking, when language changes it allows people—and whole societies—to express themselves more effectively.

***
Now we would like to know your opinion about the brief passage that you just read. Please answer the following questions by completing the rating scale that follows each question.

1. I agree that a language must change over time in order for people to effectively communicate.

   Strongly disagree 1 2 3 4 5 6 7

2. I found this information engaging.

   Strongly disagree 1 2 3 4 5 6 7

3. In general, I believe this information was clear and well presented.

   Strongly disagree 1 2 3 4 5 6 7