A Social Values Analysis of Parental Decision Making

Rebecca A. Dore\textsuperscript{a}, Eric R. Stone\textsuperscript{b} & Christy M. Buchanan\textsuperscript{b}

\textsuperscript{a} University of Virginia
\textsuperscript{b} Wake Forest University

Published online: 09 Jan 2014.


To link to this article: http://dx.doi.org/10.1080/00223980.2013.808603

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REBECCA A. DORE  
University of Virginia  

ERIC R. STONE  
CHRISTY M. BUCHANAN  
Wake Forest University

ABSTRACT. Social values theory was used to examine how parents make decisions for their adolescent children. Social values theory states that decision making for others is based on the social value of an action, leading to a norm for how to decide for others, whereas self decisions are influenced by a number of additional factors. Consistent with a risk-aversion norm, in hypothetical health and safety scenarios parents made more risk-averse decisions for their adolescent children than for themselves. Further, the level of risk and inconvenience affected self decisions more than decisions for one’s child. A second study showed that the norm was stronger for decisions for one’s child than for oneself and more related to parents’ decisions for their child than for themselves. In sum, parents’ decisions for their children seem to be largely determined by a norm stating how they are supposed to decide, at least in the domain of health and safety. Implications for both the judgment and decision making and parenting literatures are discussed.

Keywords: decision making for others, parenting, Social Values Theory, vaccination

PARENTS MAKE DECISIONS FOR THEIR CHILDREN EVERY DAY. Despite the ubiquitous nature of this decision-making situation, surprisingly little work has addressed the process by which parents make decisions for their children, and virtually none of this work has been conducted within a decision-theoretic framework. This lack is unfortunate, as a better understanding of the processes by which parents make such decisions could help illuminate what factors promote better or worse decisions, ultimately providing insight into ways to avoid decision-making pitfalls and into methods for enhancing the likelihood of healthy, positive decisions for one’s children.

Address correspondence to Rebecca A. Dore, 102 Gilmer Hall, P.O. Box 400400, Department of Psychology, University of Virginia, Charlottesville, VA 22904, USA; rebeccadore@virginia.edu (e-mail).
The goal of the present work is to test the application of a recent theory of how people decide for others, social values theory (Stone & Allgaier, 2008), to parental decision making. In brief, the idea behind social values theory is that people’s decisions for others are determined to a large extent by what is valued in society. These societal values produce an injunctive norm that states how people should decide for others, which in turn determines the actual decisions made for other people. Thus, decisions for others are shaped to a large extent by what is deemed acceptable by other people, rather than by unique characteristics of the situation (Stone & Allgaier; see also Burson, Faro, & Rottenstreich, 2010). The idea that social influence plays a large role in decision making is neither new nor controversial, and has been a longstanding component of various models of decision making like the Health Belief Model (Rosenstock, 1974). The unique prediction of social values theory, however, is that this social influence plays a greater role in decisions for others than for oneself.

To our knowledge, no work has systematically examined how parents’ decisions for their children differ from how they decide for themselves in identical situations. We thus use the social values framework to address this question in situations involving physical safety. We used physical safety scenarios as previous work has documented that risk aversion is valued when there are concerns about physical safety (Stone, Choi, Bruine de Bruin, & Mandel, 2013; Schwartz, 1992).

In particular, we examined three questions. First, according to social values theory, parents’ decisions for their children should be more risk-averse than their decisions for themselves (given the value placed on risk aversion). Second, we tested whether non-valued factors would influence self decisions more than decisions for others. A key assumption of social values theory is that the reason norms influence decisions for others more than self-decisions is that because other non-valued factors, such as the amount of inconvenience in the decision situation, will influence self-decisions more than decisions for others. By manipulating these supplementary non-valued factors, we were able to test this assumption of social values theory. Last, in our second study, we attempted to measure the injunctive norm directly, something that has not previously been done in examinations of social values theory. This allowed us to test two potential mechanisms for how norms could influence decisions for one’s child more than decisions for self: (1) there could be a stronger norm for decisions for one’s child than for self-decisions, and (2) decisions for one’s child could be influenced by the norm to a greater extent than are self-decisions.

Social Values Theory

Stone and Allgaier (2008) recently introduced social values theory as an explanation for how people decide for others. Building on work by Kray and Gonzalez (1999) that found that individuals tend to focus on the dominant aspect of a situation when the decision is being made for another person, social values theory suggests that this dominant aspect is the “social value” of the situation, that
FIGURE 1. The mechanisms of social values theory.

is, the shared perception of what others in one’s social group value (see Rohan, 2000). Given this shared understanding of what is socially valued in these types of situations, a norm for how to decide for others develops. In turn, this norm affects how individuals actually do make decisions for others (see Figure 1).

Most of the work taken as support for social values theory has examined how people make decisions for others versus for themselves. Although what is socially valued should influence decisions for oneself, other factors should influence personal decision making as well, serving to dilute the influence of social values in the personal decision-making situation (Stone & Allgaier, 2008; see also Kray & Gonzalez, 1999). Thus, while there is some drive to decide in accord with the socially valued behavior when deciding for oneself, this push is stronger when deciding for others. For example, consider the value placed on physical safety. Taking diet pills to lose weight produces the potential for physical harm, and thus most people would not recommend to their friends that they take diet pills. However, the person him- or herself could be aware that diet pills produce an easier avenue to lose weight than other options, such as exercise, leading the person to consider this factor as well as other factors in the situation, thus diluting the influence of the social norm to value physical safety. As a result, the individual would be more apt to take diet pills him- or herself (Stone et al., 2013).

Social values theory was meant to apply to a range of situations in which various factors are valued. However, the theory was originally developed, in part, to explain robust domain differences in the extent to which self-other differences arise in decisions relating to risk. Specifically, many studies have documented few or no self-other differences in decisions about risk taking in monetary scenarios (e.g., Stone, Yates, & Caruthers, 2002), whereas a number of studies have found that people make more risk-taking decisions for others than for themselves in relationship situations, as long as these situations are of relatively low impact (Beisswanger et al., 2003; Wray & Stone, 2005). Stone and Allgaier (2008) explained these domain differences by demonstrating that risk is valued in low-impact relationship scenarios but not in monetary scenarios. Further, they showed that the self-other differences held both for decisions for friends and for abstract others, and occurred even when participants accurately predicted the behavior of others. These results suggest that the observed self-other differences cannot be
explained just by distance between self and other, as suggested by construal-level (Trope & Liberman, 2010) and related theories.

More recently, Stone and colleagues (2013) found that in physical safety scenarios—in which risk aversion is valued—people make more risk-averse decisions for friends than for themselves. Further, they found that these differences in decision making hold despite the fact that people accurately predict what their friends would decide for themselves. Other research in the medical domain has shown that physicians are more likely to recommend treatment with a lower death rate for a patient than to choose that treatment for themselves (Ubel, Angott, & Zikmund-Fisher, 2011). Although Ubel et al. did not measure the social value, their findings are in line with social values theory, in that risk-aversion is valued when physical safety is involved and physicians were more risk-averse for a patient than for themselves. Thus, a considerable body of evidence suggests that self-other differences arise predominantly in situations where there is a social value placed on either risk taking or risk aversion, whereby decisions for others are more in keeping with what is socially valued than are decisions for the self.

Social values theory states that different factors should influence the decisions one makes for the self and for others to different extents. Because the social norm primarily guides decision making for others, factors that would not influence the social norm should have less of an effect on decisions for others than on decisions for the self. Thus, non-socially-valued factors like the convenience or inconvenience of the behavior should have minimal influence on the decision one makes for another person. In contrast, these same factors would be more likely to influence the decision one makes for oneself. To actually influence the decision made for another person, according to social values theory, one would need to change the situation in such a way that what is socially valued and the resulting decision-making norm actually changes. In the previous example, for instance, if the diet pills needed to be taken as part of a plan for healthy weight loss, this use of diet pills to promote physical health could eliminate the social norm against recommending diet pills in that situation.

Social Influences on Parental Decision Making

Most of the existing work examining how parents make decisions for their children has the goal of understanding parental decision making in specific content areas. For example, there is research examining what factors affect the decisions parents make about their children’s medical care (e.g., Brody, Scherer, Annett & Pearson-Bish, 2003; Hsieh et al., 2010) and what factors affect the decisions parents make about their children’s education (e.g., Anderson & Minke, 2007; Hanushek, Kain, Rivkin & Branch, 2007). However, the literature has been piece-meal, focusing on these kinds of specialized questions without an overarching theoretical perspective. In the present research, we argue that social values theory might provide this broader theoretical viewpoint.
Although parental decision making has not been examined within a social values theory framework, there is evidence that how parents decide for their children is in fact influenced by what they think others value, primarily coming from work regarding parental decision making about vaccinations. The Health Belief Model, formulated by Public Health Service investigators in the 1950s, outlines the factors that influence healthy individuals to act to avoid a disease through vaccination or other preventative measures (Rosenstock, 1974). The model was originally formulated to focus on decision making for oneself, but because many vaccinations are relevant for infants and young children, the model has been applied extensively to parental decision making for children.

The original Health Belief Model included “social pressure” as a type of social/situational factor that can influence vaccination decisions (Rosenstock, Derryberry, & Carriger, 1959). However, as the model developed, researchers began to focus on other major factors, while “reference group pressure” was categorized under sociopsychological variables as one of many possible “modifying factors” (Rosenstock, 1974). Despite this relegation to a secondary role, research continued to accumulate providing empirical evidence that social influence is an important factor affecting individuals’ immunization decisions. Studies found that parents’ attitudes about vaccines tended to be aligned with their perception of their friends’ attitudes and actions (Merrill, Hollister, Gibbens & Haynes, 1958), and that people were more likely to get vaccinated and have their children vaccinated if they had discussed vaccination with their friends (Cummings, Jette, Brocke, & Haefner, 1979) and believed that their friends expected them to have their children vaccinated (Gray, Kesler, & Moody, 1966). Recent research in this area has continued to support the idea that social influences affect parents’ decision making about vaccination (Allen et al., 2010; Daley et al., 2006).

The Health Belief Model is thus similar to social values theory in that they both posit that decisions will be determined in part by what one’s social group values. However, social values theory further asserts that the social influence aspect of the Health Belief Model will be stronger for decision making for others than for decision making for the self. Social values theory suggests that this reduced influence of the norm on self decision results from the impact of other (non-social-influence) factors on self-decisions, thus diluting the influence of the social norm.

**The Present Research**

Although previous research has documented the role of social influence on parental decision making, no work to our knowledge has demonstrated that this social influence plays a unique role in parents’ decision making for their children, rather than just affecting the decisions that parents make generally, both for themselves and for their children. In the present research, participants’ decisions for themselves will provide a baseline against which to measure their decisions for their children. We examined the physical safety domain, as previous work (Stone et al., 2013) documented a clear value placed on risk aversion in these situations.
Thus, we predicted that parents would make more risk-averse decisions for their children than for themselves. As much of the previous work on social influence in parenting was within the context of vaccination (e.g. Allen et al., 2010, Daley et al., 2006, Merrill et al., 1958), one of our scenarios asked about parents’ vaccination decisions for themselves and for their children. As much of the previous work on social influence in parenting was within the context of vaccination (e.g. Allen et al., 2010, Daley et al., 2006, Merrill et al., 1958), one of our scenarios asked about parents’ vaccination decisions for themselves and for their children, specifically a vaccination against West Nile virus. We also included a seatbelt use scenario to extend the work to an additional real-life safety decision.

An important aspect of the current research is that we used real parents as participants. Some past studies have asked participants to imagine themselves in different roles in a scenario, for example, a patient making a decision for him or herself or a parent making a decision for his or her child (Zikmund-Fisher, Sarr, Fagerlin, & Ubel, 2006), but it is not clear that these kinds of samples generalize to individuals who are actually parents making decisions for their children. In the current work, we used parents as our participants, thus eliminating the concern that “hypothetical parents” might make decisions differently than participants who actually have children. However, consistent with this past work, the current research used hypothetical scenarios to measure the behavior of interest.

In addition, in order to understand not just what decisions parents make for their children but also how parents make these decisions, we manipulated various factors in our scenarios to determine what factors affect decisions parents make for their children and how these correspond to factors affecting the decisions they make for themselves. As previously discussed, a key element of social values theory is that personal decisions are influenced by a number of different factors that serve to dilute the influence of social values in the personal decision-making situation. In this research, we manipulated the level of inconvenience in each scenario, expecting inconvenience to act as a supplementary non-valued factor, thus affecting decisions for the self more than decisions for others. If, however, manipulating a factor actually changes the social norm for how to decide for one’s child, then manipulating that factor could have a greater influence on decisions for the child than on decisions for oneself. Thus, we further manipulated the level of risk in each scenario, expecting the risk manipulation to influence the norm for decision making for the child. Specifically, we reasoned that if the “low risk” level was sufficiently low, the norm to make a risk-averse decision for one’s child would disappear, resulting in a greater influence of risk on decisions for the child than on decisions for oneself.

Note that we studied parents’ decisions for adolescent children. We felt it was particularly important to study this issue in adolescent children for two reasons. First, parents’ role in decision making for adolescents is more ambiguous than it is for younger children. In general, adolescents desire and possess increasing say in decisions that affect themselves over the adolescent years, and in fact
theories of adolescent development emphasize the importance of adolescents’ increasing autonomy and decision making over their own behavior (e.g., Eccles et al., 1993). Thus, the impulse or responsibility for parents to protect children from risk, although still expected to be high, should be smaller and more variable when concerning adolescent children than pre-adolescent children.

Second, by studying parents’ decisions for adolescent children (rather than for younger children), we hope to minimize differences in vulnerability to the physical threats involved that might account for differences in risk aversion for decisions for one’s child versus oneself. Medical reports from different areas and populations have shown that adolescents have lower or equal rates of hospitalization for West Nile virus than adults (Nash et al., 2001), have lower or equal incidence of West Nile fever and death from West Nile fever than adults (Weinberger et al., 2001), and have a lower incidence of West Nile neuroinvasive disease than adults (Lindsey, Hayes, Staples, & Fischer, 2009). In the seatbelt scenario, given that the adult is driving in both conditions, there is no reason to expect that the adolescent would be more likely to be hurt than the adult if an accident occurred. Thus, to the extent differences in vulnerability do exist, vulnerability should be greater for the parent, thus ensuring that actual vulnerability levels could not be responsible for greater risk-averse decisions for one’s child.

**Experiment 1**

**Method**

**Participants**

One hundred parents of adolescents participated in the study. They were recruited through local medical offices and were eligible for the study if they had an adolescent child. Parents were instructed to consider their oldest child under the age of 18 for the purposes of responding to the questionnaire items. They then reported the target child’s age, gender, and year in school. The target adolescents ranged in age from 11 to 18, with a mean of 14.7. The mean age of the parents was 44.7 years. Ninety percent of the parents were female. Seventy-four percent of the parents were White, non-Hispanic; 10% were African-American, 3% were Latino/Hispanic, 1% were Asian-American, and 12% did not specify their race or ethnicity. Nineteen percent of the sample identified themselves as single parents. Nine percent had no further than a high school education, 23% had some college or vocational school, 41% had college degrees, and 27% had graduate or professional degrees.

**Materials**

Participants responded to a questionnaire asking about two hypothetical scenarios. Each scenario varied in regards to three factors: target (self vs. other), inconvenience (low vs. high), and risk (low vs. high). The following example is the vaccine scenario for the child condition. The example contains the low risk and
Imagine scientists have developed a vaccine for West Nile virus. The virus has not yet been found in your area but your adolescent has the chance to get the vaccine. Experts say the virus might get to your area but they are not sure and the vaccine is available as a precaution just in case. [The virus has recently been found in your area and your adolescent has a chance to get the vaccine.] You would have to wait in line at the clinic for 15 minutes [four hours]. Because the exact form of the vaccine differs by age group, children and adolescents can be vaccinated during the first week and adults can be vaccinated during the second week. Your adolescent has the opportunity to receive a vaccination. What would you decide?

The self condition was similar, except it stated that adults can be vaccinated during the first week and children and adolescents can be vaccinated during the second week, and the participant was asked to make the decision for him or herself. Participants responded on a 0 to 10 scale, from “Definitely decide [for child] not to get the vaccine” to “Definitely decide [for child] to get the vaccine.” The seatbelt scenario can be found in Appendix A.

Procedure

The study used a repeated measures design, where each participant responded to all eight variations (four deciding for the self and four deciding for the child) of both the vaccine scenario and the seatbelt scenario. Note that when participants are asked to evaluate a dependent measure and assign precise numerical values in response (e.g., determining what an 8 vs. a 7 means on our decision-making scale), in a within-subjects design participants will often use their initial responses to inform their later responses (see Hsee, 1996). One potential concern with a within-subjects design is demand characteristics; in particular, there could be some demand to produce different responses to the self and other questions. However, there is no reason that demand characteristics should produce a systematic shift to make more or less risk-taking decisions for one’s adolescent child. Similarly, although demand characteristics could lead to different responses, for example, for low and high levels of inconvenience, they should not produce differential shifts in the self and other conditions. Given the advantages of a within-subject design for allowing meaningful evaluation of the dependent measure and resultant reduction in error variance, together with the lack of demand characteristics on the main research questions of interest, we felt that the use of a within-subjects design was advantageous in this situation.

The questionnaire was counterbalanced such that half of the participants made decisions for themselves first and then for their child and the other half of the participants made decisions for their child first and then for themselves. Self and child decisions were each blocked together so participants made decisions
TABLE 1. Variations of the Scenarios for Study 1 and Study 2

<table>
<thead>
<tr>
<th>Inconvenience Level</th>
<th>Low</th>
<th>High</th>
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</thead>
<tbody>
<tr>
<td>Low</td>
<td></td>
<td></td>
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<tr>
<td>High</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. In study 1, participants responded to both seatbelt and vaccine versions of all variations. In study 2, participants responded for both decisions and norm questions for all versions of the scenarios.

for one of the decision targets (either self or child) for both scenarios first and then decisions for the other target. Within each decision target section (self or child), participants responded to all four versions of the seatbelt scenario followed by all four versions of the vaccine scenario (see Table 1). The question order for each scenario was: Low risk/low inconvenience, low risk/high inconvenience, high risk/low inconvenience, high risk/high inconvenience.

Participants picked up the questionnaire voluntarily and responded to the scenarios while in the waiting room at a medical office. After completing the questionnaire, they placed it in a sealed envelope and handed it in at the reception desk.

Results and Discussion

We analyzed the data by conducting two separate 2 (Target: self vs. child) × 2 (Inconvenience level: low vs. high) × 2 (Risk level: low vs. high) × 2 (Order: self first vs. child first) repeated-measures ANOVAs on the level of risk aversion in the vaccine and seat belt scenarios. We present the results of these ANOVAs organized around the specific issues of interest and conduct supplementary analyses as needed.

Manipulation Checks

There was a general trend to be risk-averse across all conditions, especially in the seatbelt scenarios, but increasing the level of inconvenience and reducing the risk level had the predicted effects on risk aversion. In particular, when presented
with low inconvenience scenarios, participants made more risk-averse decisions in both the vaccine ($M = 7.76$) and the seatbelt ($M = 9.38$) scenarios than when they were presented with high inconvenience scenarios ($M = 6.14$ and $8.74$, respectively), both $Fs > 23.3$, $ps < .001$, partial $\eta^2$s $.192$. Similarly, when presented with high risk scenarios, participants made more risk-averse decisions in both the vaccine ($M = 8.11$) and the seatbelt ($M = 9.41$) scenarios than when they were presented with low-risk scenarios ($M = 5.79$ and $8.72$, respectively), both $Fs > 26.6$, $ps < .001$, partial $\eta^2$s $.214$.

There were also significant interactions between inconvenience and risk in both the vaccine and seatbelt scenarios, both $Fs > 14.7$, $ps < .007$, partial $\eta^2$s $.072$. These interactions show that a reduction in inconvenience produced a greater increase in risk aversion in the low risk condition ($M$ increase (vaccine) = 2.06; $M$ increase (seatbelt) = .80) than in the high risk condition ($M$ increase (vaccine) = 1.18, $M$ increase (seatbelt) = .46). Given the high level of risk aversion demonstrated in the high risk scenarios, it seems likely that this interaction is due to a ceiling effect in that condition.

**Were Parents More Risk-Averse for Their Adolescent Children than for Themselves?**

For the vaccine scenario, participants generally made more risk-averse decisions for their child ($M = 9.50$) than for themselves ($M = 8.62$), $F (1, 98) = 18.48$, $p < .001$, partial $\eta^2 = .343$. Similarly, in the seatbelt scenario, participants made more risk-averse decisions for their child ($M = 7.42$) than for themselves ($M = 6.48$), $F (1, 98) = 51.22$, $p < .001$, partial $\eta^2 = .159$. We also examined whether parents made more risk-averse decisions for their children than for themselves by conducting paired $t$-tests for each individual variation of each scenario (i.e., we compared self vs. child decisions for low risk / low inconvenience, high risk / low inconvenience, etc.). As evident in Table 2, for all eight comparisons, parents made more risk-averse decisions for their child than they made for themselves, all $ts > 2.70$, $ps < .001$. Further, there were no significant correlations between child’s age and parent’s level of risk-aversion when deciding for their child (both $ps > .35$).

**What Factors Affect Parents’ Decision Making for Themselves and for Their Children?**

As predicted, the manipulation of inconvenience affected self decisions more than decisions for one’s child (see Table 2). Specifically, for the vaccine scenario, there was an interaction between target and inconvenience level, such that a decrease in inconvenience produced a greater increase in risk aversion in decisions for the self ($M$ increase = 1.97) than in decisions for one’s child ($M$ increase = 1.28), $F (1, 98) = 20.43$, $p < .001$, partial $\eta^2 = .173$. There was a similar interaction in the seatbelt scenario, such that a decrease in inconvenience
produced a greater increase in risk aversion for decisions for the self ($M$ increase = .83) than for decisions for one’s child ($M$ increase = .45), $F(1, 98) = 4.02, p = .043$, partial $\eta^2 = .039$.

However, contrary to our predictions, the manipulation of risk also affected self decisions more than decisions for one’s child. Specifically, in the vaccine scenario, there was an interaction between target and risk level, such that an increase in risk produced a greater increase in risk aversion for decisions for the self ($M$ increase = 2.57) than for decisions for one’s child ($M$ increase = 2.08), $F(1,98) = 8.48, p = .005$, partial $\eta^2 = .08$. Similarly, in the seatbelt scenario, an increase in risk produced a greater increase in risk aversion for the self ($M$ increase = .92) than for one’s child ($M$ increase = .46), $F(1,98) = 8.03, p = .005$, partial $\eta^2 = .076$.

Our hypothesis that risk should affect decisions for the child more than decisions for the self was based on the idea that the low risk condition would not activate the norm to decide in a risk-averse manner, since the social value placed on physical safety would be small to nonexistent given how low the risk was. Operationally, if the norm was not activated in the low risk condition, then the amount of risk aversion in the low-risk conditions should have been low for both

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### TABLE 2. Experiment 1 Mean Levels of Risk Aversion Per Target, Risk Level, and Inconvenience Level

<table>
<thead>
<tr>
<th>Inconvenience Level</th>
<th>Risk Level</th>
<th>Self</th>
<th>Child</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vaccine</td>
<td>Low</td>
<td>6.47</td>
<td>7.22</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>3.95</td>
<td>5.62</td>
</tr>
<tr>
<td>Seatbelt</td>
<td>Low</td>
<td>8.69</td>
<td>9.58</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>7.67</td>
<td>9.00</td>
</tr>
</tbody>
</table>

*Note. From paired t-tests, self-child comparisons for all conditions are significant at $p < .001$. The scale is from 0 to 10, where 0 is the least risk-averse decision and 10 is the most risk-averse decision.*
decisions for the self and child, and the amount of risk aversion greater when the risk was high, especially when the decision was made for the child (due to the stronger norm in that condition). Thus, the manipulation of risk level would have a greater influence on decisions for the child than on decisions for oneself if the norm was activated only in the high risk condition. However, as evident in Table 2, there was typically a high level of risk aversion even when the risk was low, especially when deciding for one’s child. It seems, then, that our low risk condition was still sufficiently risky to activate the norm to make risk-averse decisions for one’s child. If that were the case, then “risk level” might have just served as one of the many factors that would be expected to influence decisions for self but only minimally influence decisions for others (Stone & Allgaier, 2008). We constructed a less risky low risk scenario in Experiment 2 to help clarify this issue.

Order Effects

The order in which participants made decisions had an effect on their overall level of risk-aversion for both scenarios. Specifically, in the vaccine scenario, participants who made decisions first for themselves and then for their child ($M = 7.62$) showed greater overall risk-aversion (averaged across all decisions) than did participants who made decisions for their child first and then for themselves ($M = 6.28$), $F (1, 98) = 6.82, p = .01$, partial $\eta^2 = .065$. This effect seems to have occurred because participants in both the self first ($M = 7.09$) and child first ($M = 6.69$) conditions made similar decisions initially. However, participants who first made self decisions then made more risk-averse decisions for their child in the second set of decisions ($M = 8.15$), whereas participants who first made decisions for their child then made less risk-averse decisions for themselves ($M = 5.86$). Analogous results were found with the seatbelt scenario. It therefore appears that participants knew that they wanted to make more risk-averse decisions for their child than for themselves, but were unclear initially on how to interpret the scale to indicate the appropriate level of risk aversion (see, e.g., Hsee, 1996). Despite the strong main effect of whether participants responded for themselves or for their child first, there were generally no interactions with this variable, indicating that the effects discussed above held regardless of whether participants responded for themselves or for their child first.2

Experiment 2

Because we were concerned that in Experiment 1 the low risk condition still activated a risk-aversion norm, we created a new low risk version that was intended to be even less risky than in the previous study. As with Experiment 1, we reasoned that if the low risk condition is sufficiently low not to activate the norm for decision making for the adolescent child, there should be a larger effect of risk for decisions for one’s child than for oneself. Conversely, if the risk level is still high enough to activate the norm when deciding for one’s child in the low risk condition, then,
FIGURE 2. Two potential mechanisms by which norms could work differently for decisions for the self and decisions for others.

similar to Experiment 1, we would expect that “risk level” would have little to no effect on the norm, thereby influencing decisions for oneself more than decisions for one’s child.

However, the main goal of our second experiment was to examine in more detail the process by which parents’ decisions are influenced by a decision-making norm, and how the role of the norm differs for self decisions versus decisions for one’s child. If norms do play an important role in decision making, as suggested by a number of theories (e.g., Social Values Theory, The Health Belief Model), there are two distinct mechanisms by which they could be responsible for the self-other difference. As depicted in Figure 2 there could be a stronger norm when the decision is made for the child than for the self (link A). Alternatively, regardless of whether the norm strength is the same or different for the two decision targets, there could be a stronger relationship between the norm and the resulting decision in the child condition than in the self condition (link B). Furthermore, the evidence could support the existence of both link A and link B; perhaps the norm is stronger for the child than for the self and the relationship between the norm and the decision is stronger for the child than for the self. Note that the same idea holds for the interaction between decision target and the factors of inconvenience and risk. The manipulation of inconvenience (risk) could have had a stronger effect on the decision norm in the self condition than in the child condition, producing the observed interaction on the decision made. Alternatively, the manipulation of inconvenience (risk) could have had identical effects on the norm for both decision targets, but produced different effects on the decision made due to a weaker relationship between the norm and decision made in the self condition.
Unfortunately, there is no consensus on the best way to measure the existence of an injunctive norm, but our approach is based on the idea that norms constitute a shared belief system (Cialdini & Trost, 1998). Thus, the presence of a norm in a given situation can be seen by perceived acceptability (Hummer, LaBrie, & Lac, 2009; Larimer, Turner, Mallett, & Geisner, 2004), perceived approval (Allen et al., 2010), or perceived appropriateness (Stone & Allgaier, 2008) as seen by one’s social group. For this study, we followed the approach of Stone and Allgaier of asking how appropriate one’s social group would find the risk-taking and risk-averse behaviors.

Unlike the work of Stone and Allgaier (2008) on decision making for one’s peers, however, there was no clear reference group that we felt would be responsible for the social norm for both personal decisions and for decisions for one’s child. Instead, we reasoned that any norm driving participants’ decisions for their children would be produced primarily by other parents of adolescents, whereas a norm driving participants’ decisions for themselves would be produced by other adults more generally. Thus, we asked participants about these different reference groups for self decisions and child decisions. We then took the difference between the appropriateness rating of the risk-averse and risk-taking behaviors as an indication of the strength of the injunctive norm. Note that taking the difference score ensures that any overall difference between reference classes (e.g., a general belief that other parents of adolescents would see behaviors as more or less acceptable than other adults you know) does not influence the strength of the norm.

Method

Participants

Participants (N = 216) were recruited mostly through youth soccer organizations, as well as through local medical offices as in Study 1. They were eligible for the study if they had an adolescent child. As in Study 1, parents were instructed to consider their oldest child under the age of 18 for the purposes of responding to the questionnaire items. The adolescents ranged in age from 11 to 18, with a mean of 14.2. Parents were 58% female and the average age of the parents was 44.5 years. The ethnic breakdown of the sample was 84.3% White, non-Hispanic, 3.9% African-American, 1.7% Latino/Hispanic, 1.3% Asian-American, with 9% not specifying their race or ethnicity. Ten percent of the sample identified as single parents. One half of a percent of the participants had less than a high school education, 5.1% had a high school degree, 16.7 had some college or vocational school, 47.9% had college degrees, and 29.8% had graduate or professional degrees.

Materials

This study used a modified version of the Experiment 1 vaccination scenario. As previously mentioned, the major modification was to create a less risky low risk condition. Specifically, instead of the risk factor relating to whether the West
Nile virus had been found in the immediate area, in the low risk condition the vaccine was for the common cold, whereas in the high risk condition the vaccine was for West Nile virus. The following is an example of the modified scenario for the child condition, with the low risk and low inconvenience conditions in the text and the high risk and high inconvenience conditions in brackets.

Imagine that scientists have developed a vaccine for the common cold [West Nile Virus]. Your adolescent child has the opportunity to get the vaccine and would have to wait in line at a nearby clinic for 15 minutes [four hours]. What decision would you make for your child?

As in study 1, the self condition was similar, but asked the participant to make the decision for him or herself. Participants responded on the same 0 to 10 scale used in the first study.

As discussed previously, we measured norm strength by asking participants to state how they thought others would rate the appropriateness of both the risk-averse and risk-taking decisions. Specifically, for decisions made for oneself, participants were asked “How do you think other adults you know would rate the appropriateness of Pat’s decision?” and for decisions made for one’s child, participants were asked “How do you think other parents of adolescents would rate the appropriateness of Pat’s decision?” Participants responded using a 0 to 10 scale from “not at all appropriate” to “completely appropriate.” Norm strength was calculated for each participant by taking the difference between the appropriateness rating of the risk-averse decision and the appropriateness rating of the risk-taking decision for each scenario.

Procedure

As in Experiment 1, the study used a repeated measures design, where each participant responded to all eight variations of the scenario (four deciding for the self and four deciding for the child). The questionnaire was counterbalanced such that half of the participants made decisions for themselves first and the other half of the participants made decisions for their child first. Within each section, participants responded to the questions in the same order as in Experiment 1. Norm strength questions for the eight variations were always asked after all the decision questions had been answered and were in the same blocked order. This way, none of participants’ choices could be influenced by knowledge of the norm questions. Nonetheless, it is plausible that responding to both the choice and norm data increased any potential correlation between these variables. However, since the key issue is the difference in correlations between the self and other conditions, this is not a serious problem here, and as in Experiment 1, is outweighed by advantages in evaluability.

Researchers approached parents at youth soccer organization games and practices and asked if they would be interested in taking a few minutes to complete
the questionnaire. Those who agreed to participate took the questionnaire in the presence of the researchers. Data was also collected at medical offices, where the procedure was the same as in Study 1.

**Results and Discussion**

We conducted two separate 2 (Target: self vs. child) × 2 (Inconvenience level: low vs. high) × 2 (Risk level: low vs. high) × 2 (Order: self first vs. child first) repeated-measures ANOVAs on (1) the level of risk aversion and (2) norm strength. As in Experiment 1, we present the results of these ANOVAs organized around the specific issues of interest and conduct supplementary analyses as needed. There were no significant correlations between child’s age and parents’ level of risk-aversion when deciding for their child or with parents’ perception of social norms for child decisions (both $p > .23$).

**Manipulation Checks**

As in Experiment 1, participants were generally risk averse in all conditions, but inconvenience and risk levels had the predicted effects on risk aversion. When presented with low inconvenience scenarios, participants made more risk-averse decisions ($M = 7.90$) than when they were presented with high inconvenience scenarios ($M = 5.92$), $F(1, 212) = 214.85, p < .001$, partial $\eta^2 = .503$. Similarly, when presented with high risk scenarios, participants made more risk-averse decisions ($M = 7.66$) than when they were presented with low risk scenarios ($M = 6.16$), $F(1, 212) = 68.31, p < .001$, partial $\eta^2 = .244$. There was also a significant interaction between inconvenience and risk, $F(1, 212) = 28.62, p < .001$, partial $\eta^2 = .119$. This interaction showed that a decrease in inconvenience produced a greater increase in risk aversion in the low risk condition ($M$ increase = 2.36) than in the high risk condition ($M$ increase = 1.61). As in Experiment 1, this interaction appears to be due to a ceiling effect produced by the high level of risk aversion demonstrated throughout all high risk conditions.

The inconvenience and risk manipulations also influenced norm strength. As previously mentioned, norm strength was calculated by subtracting the appropriateness rating of the risk-taking decision from the appropriateness rating of the risk-averse decision, so positive values indicate a risk aversion norm, negative values indicate a risk taking norm, and values closer to zero indicate lack of a norm. Figure 3 displays the results averaged over the self and child conditions. When presented with low inconvenience scenarios, participants reported stronger risk aversion norms ($M = 4.21$) than when presented with high inconvenience scenarios ($M = 2.21$), $F(1, 205) = 100.02, p < .001$, partial $\eta^2 = .328$. Similarly, when presented with high risk scenarios, participants reported stronger norms ($M = 3.91$) than when presented with low risk scenarios ($M = 2.51$), $F(1, 205) = 52.61, p < .001$, partial $\eta^2 = .204$. However, as evident in Figure 3, we did not succeed in eliminating the risk-averse norm in the low-risk condition. Even in the self low risk, high inconvenience condition, participants rated the appropriateness of
FIGURE 3. Interaction of risk and inconvenience on norm strength, collapsed across target. The scale for norm strength ranges from −10 to 10, where 10 indicates the strongest possible risk aversion norm, −10 indicates the strongest possible risk taking norm, and 0 indicates no norm. (Color figure available online).

the risk-averse decision ($M = 6.65$) significantly higher than the appropriateness of the risk-taking decision ($M = 5.86$), $t(209) = 3.04, p = .003$.

 Were Parents More Risk-Averse for Their Adolescent Children than for Themselves?

As in Experiment 1, participants generally made more risk-averse decisions for their child ($M = 7.32$) than for themselves ($M = 6.48$), $F(1, 212) = 62.33, p < .001$, partial $\eta^2 = .227$. As seen by paired t-tests, parents made more risk-averse decisions for their child than they made for themselves for all four versions of the scenario, all $ts > 3.90, ps < .001$.

What Factors Affect Parents’ Decision Making for Themselves and for Their Adolescent Children?

The results generally mirrored those of Experiment 1, although the interaction with risk was somewhat weaker (see Table 3). Specifically, there was a strong interaction between target and inconvenience level, such that a decrease in inconvenience produced a greater increase in risk aversion for decisions for the self ($M$ increase $= 2.28$) than for decisions for one’s child ($M$ increase $= 1.68$), $F(1, 212) = 29.21, p < .001$, partial $\eta^2 = .121$. There was also an interaction between target and risk level, such that an increase in risk produced a greater increase in risk
aversion for decisions for the self ($M$ increase = 1.61) than for decisions for one’s child ($M$ increase = 1.37), $F$ (1, 212) = 4.25, $p = .04$, partial $\eta^2 = .020$. The fact that this interaction with risk level was weaker than in Experiment 1 (the partial $\eta^2$ dropped from .08 to .02) might reflect the fact that we partially eliminated the norm, at least for some participants.

**Was There a Greater Risk Aversion Norm for Decisions for One’s Adolescent Child than for Oneself?**

Aggregated over the inconvenience and risk conditions, there was a stronger norm to make a risk-averse decision for one’s child ($M = 3.81$) than for oneself ($M = 2.58$), $F$ (1, 205) = 49.79, $p < .001$, partial $\eta^2$. These results support the existence of link A in Figure 2, the direct effect of decision target on norm strength. Thus, the finding that parents make more risk-averse decisions for their children than for themselves can be at least partially explained by a greater norm in the child condition than in the self condition.

**What Factors Affect Norm Strength Regarding Parents’ Decisions for Themselves and for Their Children?**

Despite the strong main effect of decision target, there was no 2-way interaction between target and either inconvenience or risk, or a 3-way interaction among those variables (all $p$’s > .24). Thus, the interactions between target and inconvenience/risk on parents’ decisions cannot be explained by differential effects of these factors on the decision norm in the self and child conditions (see Table 4).

### TABLE 3. Experiment 2 Mean Levels of Risk Aversion Per Target, Risk Level, and Inconvenience Level

<table>
<thead>
<tr>
<th>Inconvenience Level</th>
<th>Risk Level</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Low</td>
<td>High</td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>7.07</td>
<td>8.26</td>
<td></td>
</tr>
<tr>
<td>High</td>
<td>4.34</td>
<td>6.39</td>
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</tr>
<tr>
<td></td>
<td>Low</td>
<td></td>
<td>7.66</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td></td>
<td>5.59</td>
</tr>
</tbody>
</table>

Note. From paired t-tests, self-child comparisons for all scenario conditions are significant at $p < .001$. The scale is from 0 to 10, where 0 is the least risk-averse decision and 10 is the most risk-averse decision.
TABLE 4. Experiment 2 Mean Norm Strengths Per Target, Risk Level, and Inconvenience Level

<table>
<thead>
<tr>
<th>Inconvenience Level</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Low</td>
<td>High</td>
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<tr>
<td>Self</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>2.89</td>
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<tr>
<td>Child</td>
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<td></td>
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<tr>
<td>Low</td>
<td>4.28</td>
<td>5.34</td>
<td></td>
</tr>
<tr>
<td>High</td>
<td>2.07</td>
<td>3.61</td>
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</tr>
</tbody>
</table>

Note. The scale for norm strength ranges from −10 to 10, where 10 indicates the strongest possible risk aversion norm, −10 indicates the strongest possible risk taking norm, and 0 indicates no norm.

Predicting Risk Aversion from Norm Strength

Our final goal in Experiment 2 was to determine if the greater risk aversion in decisions for one’s child than for oneself can be explained in part by a stronger link between the norm and resulting decision in the child condition (i.e., whether link B from Figure 2 exists). To examine this issue, we calculated overall norm strength for each participant separately for decisions for one’s child and for oneself. To do this, we took each of the four norm strengths (decisions) per condition (i.e., low risk, low inconvenience; low risk, high inconvenience; etc.) and averaged them. Then, we examined whether there was greater consistency between norm strength and decisions for the child than for the self by comparing the correlations between norm strength and decisions for the child to the correlations between norm strength and decisions for the self. To do this, we used a procedure designed to compare correlated but non-overlapping correlations, a more accurate version of the Pearson-Filon statistic using the Fisher $r$-to-$Z$ transformed $r$s, or ZPF (Raghunathan, Rosenthal, & Rubin, 1996). Although only marginally significant, this test showed that there was a stronger relationship between norm strength and the decision in the child condition ($r = .52$) than in the self condition ($r = .43$), $ZPF = 1.65$, $p = .10$. We also examined this issue in each of the scenario conditions, and for all four scenarios, the correlation between norm strength and the decision was greater in the child condition than in the self condition, although this difference was significant only for the low risk, high inconvenience scenario, $ZPF = 2.07$, $p = .04$.

For the aforementioned analyses, we conceptualized norm strength as the difference in approval of the risk-averse and risk-taking actions. However, as
discussed by Stone and Allgaier (2008), what should have the largest impact on decision making is the level of approval of the non-valued behavior (in this case, the risk-taking behavior), since there will generally be approval of the valued (risk-averse) behavior. If this is the case, examining the difference score rather than the rating of the risk-taking behavior might only add noise to the correlation. Thus, we repeated the above analyses by examining only the rating of the risk-taking behavior. The results were similar to those with the difference score, except stronger. Overall, there was a stronger relationship between approval of the risk-taking action and the decision in the child condition \((r = -0.54)\) than in the self condition \((r = -0.38)\), \(ZPF = 2.64, p = .008\). We also examined this issue in each of the scenario conditions, and for all four scenarios, the correlation between approval of the risk-taking action and the decision was greater in the child condition than in the self condition, although this difference was significant only for the low risk, low inconvenience condition and the low risk, high inconvenience condition, \(ZPF = 2.31, p = .02\), and \(ZPF = 3.10, p = .002\), respectively.

Thus, it appears that the stronger risk aversion in decisions for one’s child than for oneself can be explained in part by a stronger relationship between the norm and decision when deciding for one’s child than for oneself. Note that because the norm plays a stronger role in decisions for one’s child, this can be partially responsible as well for the greater effect of inconvenience and risk in decisions for oneself. Because the norm has a smaller effect in self decisions, other factors can also play a role, independent of any impact on the decision norm.

**General Discussion**

In both studies, we showed that parents made more risk-averse decisions for their adolescent children than they did for themselves, and that their self decisions were influenced to a greater extent by the level of inconvenience and risk in the decision situations than were the commensurate decisions made for their children. Experiment 2 further showed that these effects occurred in part due to 1) a stronger norm to make risk-averse decisions for one’s child than for oneself, and 2) a stronger relationship between the decision norm and the resultant decision when deciding for one’s child versus for oneself.

These results mostly confirm our predictions derived from social values theory (Stone & Allgaier, 2008), which states that decisions for others will be based predominantly on the socially-valued factor, in this case, risk aversion regarding physical safety (Stone et al., 2013), and that self decisions will be based on a number of supplementary non-valued factors (such as the level of inconvenience) that would not be expected to influence the decision norm. One unexpected finding was that manipulating the risk level, similar to inconvenience, had a greater impact on self decisions than on decisions for others. We had expected that substantially reducing the risk would eliminate the norm to decide in a risk-averse fashion, but
as seen in Experiment 2 this was not the case. Evidently, when physical safety issues are involved, there is a risk-averse norm that holds regardless of the absolute level of the risk, at least within the range considered here.

Importantly, in addition to parents having more risk-averse norms for their adolescent children than for themselves and making more risk-averse decisions for their adolescent children than for themselves, the current research found that supplementary non-valued factors (like the level of inconvenience) had a greater impact on self decisions than on decisions for one’s child, and that there was a stronger link between the norm and resulting decision for one’s child than for oneself. Both of these findings suggest that parents’ decisions for adolescent children are more influenced by the norm than are their decisions for themselves, whereas self decisions are more influenced by other supplementary non-valued factors, providing support for a basic tenet of social values theory.

These results add to a growing body of evidence that decisions for others are based more on perceptions of social norms than are self decisions (Stone et al., 2013; Kray & Gonzalez, 1999; Stone & Allgaier, 2008; Teigen, Olsen, & Solås, 2005; Wray & Stone, 2005). Moreover, they speak to the applicability of social values theory in a wide range of situations. The development of this theory was based predominantly on work conducted with undergraduate students making decisions for their peers (Beisswanger et al., 2003; Stone et al, 2002; Stone & Allgaier; Wray & Stone). The current work extends these findings to decisions made by parents for their adolescent children, which presumably would entail greater responsibility on the part of the decision maker. Similar to decisions made for one’s peers, decisions for one’s child appear to be strongly influenced by perceptions of social norms. Moreover, this work provides the first demonstration, to our knowledge, that decision target influences decisions both through affecting the decision norm and through affecting the relationship between the decision norm and the final decision (both links depicted in Figure 2).

From an applied perspective, these results suggest that parents’ decisions for their children are frequently based on what they perceive that their peer group values and thinks should be done. The implications of this finding could be either positive or negative. In the present situation, the norm drove decisions that were designed to protect one’s child from harm, obviously a reasonable goal. Nonetheless, the norm to “Keep your child safe from physical safety risks at all costs” could keep one’s child from taking part in activities that entail only a small level of risk, such as going on a well-supervised outdoor adventure or to a sleepover at a trustworthy family’s home. Indeed, it is well established that people generally are overly concerned with trying to obtain “zero risk” (see Keeney, 1994). A strong norm to keep one’s child safe from risk might only exacerbate this tendency. These examples bring to mind the growing phenomenon of “helicopter parents,” who, to a greater extent than parents in past generations, are intimately involved in and try to have influence over their children’s lives even during older
childhood and adolescence (White, 2005). It is possible that due to societal factors like increased media exposure and the extension of “adolescence” into young adulthood, there is currently a stronger or more influential social norm than in the past for parents to protect their children from harm as well as to push them to be successful more generally. To the extent that this speculation is true, these social norms might be in part responsible for the recent increase in helicopter parenting.

Conversely, there is also a strong norm in Western cultures to promote autonomy and independence in adolescence, and it is possible that this norm could at least sometimes lead to risk-taking decisions by parents. For adolescents in Western—and especially affluent Western—cultural contexts, adolescence is a time of increased negative risk taking (Arnett, 1999). Parents and other adults in such contexts not only expect increased risk taking during adolescence (Buchanan & Holmbeck, 1998) but also conceivably tolerate or implicitly allow such risk taking because of norms stressing the importance of personal autonomy, independence, separation from adults, and leisure time with peers (e.g., Larson & Verma, 1999; Luthar & D’Avanzo, 1999). To the extent that these norms are generally perceived by parents, they might actually push parents to make risk-taking decisions for their adolescent children in some instances, particularly if the particular risk-taking behavior is societally valued. For example, parents who focus on the social value of personal autonomy and exploration might allow or support adolescent drinking (given that drinking alcohol is also societally valued) by hosting parties with alcohol, providing alcohol to their adolescent children, or simply turning a blind eye to drinking. Our results suggest that these kinds of behaviors could be strongly influenced by social values and norms. Thus, if society’s goal is to prevent parents from engaging in behavior that encourages certain forms of adolescent risk-taking (e.g., drinking), one aim might be to change the relevant social norm in particular subgroups.

In short, both sets of norms (to promote physical safety and to promote autonomy) have important positive elements of encouraging behaviors that are generally valued by society. However, we expect that awareness of these norms also sometimes comes at a cost. In particular, it seems likely that in many cases decisions for adolescents are determined more by the relative strength of these competing norms than by a considered evaluation of the relative risks and benefits of the specific decision situation. Whereas ideally decisions for one’s children would be influenced by a consideration of questions such as “How large are the risks?,” “Will these activities really promote independence?,” and so forth, we expect that in practice they are often determined more by whether one’s social group is particularly concerned with physical safety or autonomy, and which is salient in the decision maker’s consciousness at the time of decision. Future research investigating the relative strength of these norms in different contexts could advance our understanding of parents’ decisions for adolescent children as well as the applicability of social values theory.
Limitations

There are several limitations to the current research. First, although the health and safety scenarios used in these studies were fairly straightforward, in reality individuals are often asked to make health-related decisions that are much more complex, in which they must balance several competing values. Zikmund-Fisher, Lacey and Fagerlin (2008) found that in decisions where prolonging one’s life and quality of one’s life were pitted against each other, self-other differences were age-related – there were larger self-other differences when deciding for a younger rather than an older patient. In light of social values theory, these findings suggest that different social values might be dominant at varying ages. The implications of such a difference for our parent-child findings are an important direction for future research.

Second, although we targeted adolescents rather than younger children in order to make the perceived vulnerability as equal as possible between parent and child, it is conceivable that parents perceive their adolescent children to be more vulnerable to these health and safety threats than adults. Tarini, Singer, Clark, and Davis (2008) examined a related construct – concern – by giving parents hypothetical information about genetic testing results for disease risk for both themselves and their children. The results showed that when parents’ level of concern was different, they were more concerned for their child than for themselves. However, the majority of parents in the study reported the same level of concern for themselves and for their children. Furthermore, concern and perceived vulnerability are related, but not synonymous constructs; concern is based on many factors of which perceived vulnerability is only one. Last, even if there were some differences between perceived vulnerability for oneself versus for one’s child, this difference cannot explain why there was a greater impact of the manipulated factors on decisions for the self, or a greater correspondence between the norm and resulting decision when deciding for one’s child than deciding for the self.

Conclusions

In these studies, we showed that parents are more risk-averse for their adolescent children than for themselves in the domain of health and safety-related decisions. Furthermore, parents’ decisions for themselves were more influenced by the factors of risk and inconvenience than were the decisions they made for their children. We showed that this difference is due to both a stronger norm to be risk-averse in decision making for one’s child than in decision making for oneself, as well as a stronger relationship between the norm and the decision when deciding for one’s child than when deciding for oneself.

NOTES

1. Interestingly, the tendency to make more risk-averse decisions for one’s child than for oneself was stronger when these decisions were made for a boy than for a girl, as seen in exploratory ANOVAs where we included child gender as an independent variable. In
the seatbelt scenario, parents of boys made more risk-averse decisions for their child ($M = 9.48$) than for themselves ($M = 8.13$). Parents of girls likewise made more risk-averse decisions for their child ($M = 9.53$) than for themselves ($M = 9.02$), but this difference was smaller, interaction $F(1, 97) = 4.33$, $p = .04$, partial $\eta^2 = .043$. Similarly, in the vaccination scenario, parents of boys made more risk-averse decisions for their child ($M = 7.66$) than for themselves ($M = 6.42$), whereas parents of girls had a smaller difference ($M = 7.29$ vs. $M = 6.57$), interaction $F(1, 97) = 3.94$, $p = .05$, partial $\eta^2 = .039$. We want to emphasize that these analyses were exploratory (we tested other demographic features as well) and were not replicated in Study 2; thus, it is plausible that they just reflect a type 1 error. At the least, however, these findings indicate that our results were not just due to our participants making particularly cautious decisions for girls, as, if anything, the tendency to make more risk-averse decisions for one’s child is stronger for parents of boys than for girls.

2. One exception, however, was a significant three-way interaction between target, risk, and order in the vaccine scenario, $F(1, 98) = 11.60$, $p = .001$, partial $\eta^2 = .106$. When participants responded for themselves first, there was a highly significant simple 2-way interaction between target and risk level whereby the risk manipulation had a stronger effect on self decisions than on child decisions, $F(1, 51) = 22.46$, $p < .001$, partial $\eta^2 = .306$. However, when participants made decisions for their child first, there was no simple 2-way interaction between target and risk level indicating that risk level affected decisions for both targets to an equal extent, $F(1, 47) = 0.11$, $p = .74$, partial $\eta^2 = .002$. One potential explanation for this effect is that when participants made decisions for themselves first and for their child second, the decisions for the child in the low-risk situation were already quite risk-averse, producing a ceiling on how much increasing risk could increase risk aversion when decisions were made for one’s child.

3. To confirm our assumption that different reference groups influence self and child decision making norms, we asked questions at the end of the questionnaire about how much these different groups influence the decisions participants make in their everyday lives, both for themselves and for their children. Participants responded on a 1 to 7 scale from “not at all” to “very much.” A 2 (Target: self vs. child) $\times$ 2 (Reference group: “other parents of adolescents” vs. “other adults you know”) ANOVA showed that, as expected, there was an interaction between Target and Reference Group, $F(1, 212) = 31.29$, $p < .001$. In particular, participants reported that other parents of adolescents ($M = 3.29$) influence their decisions for their child more than do other adults generally ($M = 2.87$), $t(212) = 5.43$, $p < .001$, but other parents of adolescents ($M = 2.85$) do not influence their decisions for themselves any more than other adults generally ($M = 2.84$), $t(212)$.

4. There were a number of order effects on both dependent measures. Specifically, those participants in the self first condition made more risk-averse decisions overall and perceived a stronger norm (averaged across all conditions) than did participants who were in the child first condition (both $p$’s < .04). As in Experiment 1, these main effects appear to be due to participants knowing that they wanted to make more risk-averse decisions for their child than for themselves, but being unclear on how to interpret the scale initially to indicate the desired level of risk aversion. There were a number of interactions with order as well, which appear to have resulted from this fact, in that participants adjusted less from values closer to the floor or ceiling. Although these effects were relatively strong, they are theoretically uninteresting for the present purposes, and we thus do not discuss them further.

**AUTHOR NOTES**

Rebecca A. Dore completed her undergraduate degree at Wake Forest University and is now a graduate student in developmental psychology at the University
of Virginia. Her current research focuses on children’s perspective taking in pre-
tense and fiction and the effects of perspective taking on behavior. **Eric R. Stone**
is a professor of psychology at Wake Forest University. His research interests
include decision making for others, risk communication, the development of ex-
pertise, and the effects of overconfidence. **Christy M. Buchanan** is a professor
of psychology at Wake Forest University. Her research focuses on factors that
promote positive socio-emotional development during adolescence, specifically
how family and individual characteristics can influence adjustment.

**ACKNOWLEDGMENTS**

Special thanks to Anna Zuevskaya, Alexandra Lambert, and Alexandra Taft for
assistance with data collection, and to the various medical offices and soccer
organizations who graciously allowed us to recruit participants at their sites.

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*Original manuscript received December 19, 2012*  
*Final version accepted May 22, 2013*
Appendix A

The following example is the seatbelt scenario for the child condition. The example contains the low risk and low inconvenience conditions in the text, with the high risk and high inconvenience manipulation following in brackets.

You get in the car with your adolescent child to drive to a friend’s house. The drive will take about ten minutes and is all on safe neighborhood roads where the speed limit is less than 30 mph [includes a five-minute stretch on the highway]. Your adolescent child has a slight sunburn and the seatbelt is a little uncomfortable [very painful]. He/she is considering not wearing it and asks you what to do. What would you decide?

The self condition was similar, except the participant was asked to make the decision for him/herself. Participants responded on a 0 to 10 scale, from “Definitely decide [for child] not to wear the seatbelt” to “Definitely decide [for child] to wear the seatbelt.”