

Article

Asking God for Help: Children's Views on What to Pray for When

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Abstract: By the end of early childhood, children indicate that prayer is more effective than wishes or magic to prevent an unwanted, negative outcome from occurring. However, research has not yet delineated whether children would ask God to resolve a problem by changing the internal state of the person facing the problem (e.g., changing someone's desires or emotions) or changing the external state of the world (e.g., physical or biological change). The current study examined if children request God to act through psychological or physical mechanisms. The participants were 122 4-to-8-year-old children ($M = 6.160$, $SD = 0.918$; 63.0% female) who returned to be interviewed for the third wave of a six-wave longitudinal study. The sample was racially-ethnically and religiously diverse. Children heard stories about characters facing two different problems. The results revealed that the children demonstrated a preference for petitioning for physical solutions, rather than biological, psychological, or emotion regulation solutions. The preferences did not vary by religious affiliation, religious exposure, or age. However, children with a more sophisticated social cognition ranked petitioning for physical changes higher. These findings suggest that children's understanding of prayer (in this case, the most efficient ways for God to answer prayers) involves their coordination of developing folk theories about the world.



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1. Asking God for Help: Children's Views on What to Pray for When

Exposure to prayers requesting intervention from divine beings (e.g., God) is pervasive in religious households. According to data from the [Pew Research Foundation \(2014\)](#), 77–97% of adults in the United States who identify as religious report praying at least weekly. As such, young children growing up in religious households in the United States are exposed to prayer from early ages. Research indicates that before the age of 4, young children in the United States seem to identify prayer by the actions involved in praying, with a switch to focusing on the mental activity of praying around the age of 5 ([Woolley and Phelps 2001](#)). Children also demonstrate an increased belief that prayer will work between the ages of 4 and 8 ([Woolley and Phelps 2001](#)). Children between the ages of 6 and 11 from varied religious backgrounds in the United States indicate prayer would be more effective than wishing or magic to prevent an unwanted, negative outcome from occurring ([Payir et al. 2022](#)). However, between the ages of 3 and 11, children from varied religious backgrounds in the United States are also more likely to claim that events that are probable are more likely to occur through prayer than events that are physically impossible ([Lane 2020](#)).

Prior research has demonstrated that children do not believe that prayers “just happen” but rather that God is the agent who makes prayers come true ([Woolley and Phelps 2001](#)).

Furthermore, studies documented the conditions under which God would likely answer a prayer, based on the content of the prayer (Woolley and Phelps 2001), whether the request is for something that is improbable or impossible (Lane 2020; Payir et al. 2022), or even whether prayers are silent or spoken out loud (Lane et al. 2016). However, little is known about what kinds of things children believe God actually does to fulfill or answer a prayer.

At a theological and theoretical level, prayer involves causal properties that are not reflected in how the everyday world works (Boyer and Walker 2000). For example, prayer involves mind-to-mind communication between a material and an immaterial agent, such as communication between the child and God. Concepts of prayer may also involve a mental–physical causality connection, such as a belief that thinking alone can bring about a physical change in the world (Woolley and Phelps 2001). Examining whether children incorporate this kind of understanding of prayer into their beliefs about what kinds of prayers are most likely to work can reveal how children reason about a behavior that does not fit into their intuitive understanding of what is physically and psychologically possible (i.e., their intuitive explanatory frameworks). Research suggests that intuitive theories, such as folk physics, folk psychology, and folk biology, develop as a result of both biological maturation and experience in the world (e.g., Gelman and Legare 2011), but that same research often overlooks the impact that social and cultural input has on the development of these frameworks (Ojalehto and Medin 2015). Given that religion is learned through social and cultural means, the examination of prayer can provide insight into the development of children’s intuitive explanatory frameworks.

From this perspective, it is critical to understand children’s beliefs about the actual mechanisms by which God causes changes to occur, especially during a developmental period of transition in children’s understanding of psychological and physical causation (Gelman and Legare 2011). For example, in a study with adults, Barrett (2001) found that Protestant American college students demonstrated a preference for petitioning God to operate through psychological, rather than physical, means. Barrett (2001) suggested that adults use ordinary cognitive processes, such as folk/intuitive reasoning, to make these inferences. The current study examined which specific mechanisms (e.g., psychological, physical) children would request that God act through in order to grant a petition through prayer.

2. Children’s Developing Understanding of Prayer

Early investigations into children’s understanding of prayer suggested that children believe prayers mostly come true, with children under age 9 indicating prayer worked through something like magic and children over 9 providing more logically based explanations for how prayer works (Goldman 1964). Initial studies on developing conceptions of prayer also highlighted how among children from mostly Judeo-Christian households in the United States, views of prayer tend to focus on the traditional actions involved in prayer, with a subsequent shift to defining prayer as a kind of private conversation with God around the age of 9 or 10 (Long et al. 1967). Some newer studies focusing on children’s perceptions of the physical manifestations of prayer complemented these characterizations. One study with 3-to-7-year-old children in the United States from varying religious backgrounds found that children tend to view prayer as a social, rather than a solitary, activity (Shaman et al. 2016). In addition, children indicated that it was not okay to perform prayer using unconventional actions (e.g., while standing on one’s head), a finding that is consistent with the emphasis young children in the United States place on correctly performing ritual actions (Richert 2006).

As praying involves the violation of natural principles (Boyer and Walker 2000), some studies have delineated predictors of whether or not children believe prayers actually work. Lane (2020) found that 3-to-11-year-old children from primarily Christian backgrounds who had more frequent religious experiences were more likely to say that prayer could result in making something impossible (e.g., stopping a building from falling down during an earthquake) become possible. Although not explicitly a study about prayer, Woolley

and Dunham (2017) conducted interviews about miracles with a small sample of Protestant 7-to-12-year-olds in the United States. All children indicated a belief that miracles could happen in real life and that miracles could occur with or without prayer. Children were more likely to claim an unexpected event from a story was a miracle if that event violated a natural, physical law (e.g., a house staying dry in a flood) or was highly improbable (e.g., a “poor” person receiving a new car).

Other studies examined children’s beliefs about the specific conditions under which prayers do (or do not) bring about change. For example, Lane et al. (2016) presented 3-to-10-year-old primarily Christian children in the United States with vignettes in which a person was seeking help either from a parent or from God. The conditions presented in the vignettes varied based on whether a request was spoken out loud, whether God or the parent were close or far away, and whether the request involved hoping or praying. Children believed that God would be more aware of desires if those desires were expressed aloud (rather than silently). In addition, religious participants tended to say God would be equally as aware of someone’s desires if the person asked, hoped, or prayed to God. Woolley and Phelps (2001) interviewed 3-to-8-year-old children from primarily Christian backgrounds about different dimensions of prayer. Children over the age of 6 indicated greater certainty than younger children that past prayers had worked, and children in general indicated it was okay to pray for positive things to happen (e.g., for someone else to get well) and not okay to pray for negative things to happen (e.g., for someone else to get hurt). In addition, the children viewed knowing about God as a critical factor in whether or not a prayer will work.

Beyond just knowing about God, at least one study documented how children’s concepts of God related to their beliefs about what God can and cannot do. Lesage and Richert (2021) asked 3-to-6-year-old Protestant, Catholic, Muslim, and Non-Affiliated children in the United States if something impossible could actually occur if a person asked God for it to happen. Children were more likely to say that God could do impossible things (e.g., make a person be able to walk through a wall) if they had a less humanlike concept of God, a view that was particularly prominent in children from Muslim families. Even though children indicated God could make impossible things happen, certainty increased with age, and children tended to explain God’s ability to make impossible events occur through natural explanations.

Bamford and Lagattuta (2010) examined how children from varied religious backgrounds in the United States view the connection between emotions and prayer by asking 4-to-8-year-old children to predict if a person would pray when feeling different emotions (happy, proud, thankful, sad, mad, scared, and okay). Younger children (4- and 6-year-olds) were more likely to claim people would pray when feeling positive than negative emotions, whereas 8-year-olds predicted prayer equally for positive and negative emotions. In addition, after being prompted with open-ended questions about why a person prayed, the 8-year-old children (but not the 4- or 6-year-olds) indicated that giving thanks was a motivation for prayer when experiencing positive emotions and that petitioning for intervention was a motivation for prayer when feeling negative emotions. Although religious affiliation was not reported, the frequency of religious activity was related to familiarity with religious concepts but not specifically to conceptions of prayer.

Although Bamford and Lagattuta (2010) highlighted the role of emotions in children’s understanding of motivations for prayer, what *mechanisms of change* children would actually advocate praying for when facing particular dilemmas has not yet been examined. Adults have a preference for asking God to influence something through psychological causal mechanisms (e.g., praying that a psychological state is altered, such as improving one’s understanding of a distress call), rather than biological (e.g., praying that a biological state is altered, such as when someone could survive a dangerous circumstance) or physical (e.g., praying that a physical change occurs, such as a boat being fixed) causal mechanisms (Barrett 2001). Similarly, Ly et al. (2020) found that adult participants in the United States from varied religious backgrounds indicated medical interventions were more effective

for treating biological illness than prayer; however, the participants who more frequently engaged in religious activity indicated prayer was more effective, though the participants were not specifically asked about praying for a change in mental states. Building on this body of research on concepts of prayer, the current study examined if young children demonstrate a preference for how to ask God to solve a problem. In particular, as early childhood is a critical time in the development of intuitive theories about how the world works, the current study examined whether children demonstrate a preference for a desired outcome to occur via a psychological (e.g., cognitive, emotional) or physical change (e.g., mechanical, biological).

3. Causal Reasoning and Mechanisms of Change in Prayer

Prior research indicates that understanding the development of children's *causal reasoning* may be increasingly understood through how children respond when asked what they would petition God to change. Over the first decade of life, children develop intuitive theories for explaining how the world works, why things happen, and what things are possible (Gelman and Legare 2011; Shtulman 2009). These explanatory causal frameworks are typically described in terms of children's developing understanding of physical, psychological, and biological processes (Wellman and Gelman 1992). The concept of intuitive physics refers to children's everyday understanding of the relationship between physical/tangible objects and events, intuitive biology refers to their everyday understanding of life and life cycle processes, and intuitive psychology refers to their everyday understanding of the mental states (e.g., thoughts, beliefs, and desires) of agents and how these mental states correspond to behavior (Ojalehto and Medin 2015).

Importantly for the current study, the act of prayer may not fit into children's intuitive understanding of these domains. When a child prays, they are reasoning that (a) God, an invisible agent (which does not match their physical and biological intuitions), can (b) know their thoughts (which does not fit into their psychological intuitions) and that (c) their thoughts can cause physical changes in the world through mind-to-mind communication with God (which involves reasoning about cross-causal mechanisms) (Gopnik and Wellman 2012; Woolley and Phelps 2001).

Barrett (2001) examined adults' use of intuitive theories to reason about petitionary prayer. In a series of four studies, Barrett (2001) assessed whether Protestant Christian adults were biased to petition God to use certain causal mechanisms. In the first study (the one we modeled the current study after), the participants were presented with eight scenarios that posed a problem that had three possible solutions (physical, biological, and psychological). The participants then rated the likelihood of praying for each of the solutions and favored the psychological solutions. Barrett (2001) suggested that individuals avoid praying for God to use a physical solution because this kind of request involves a physical causal mechanism that does not match how they think the world works. Protestants often represent God as having a physical location (e.g., Heaven), and it is not usually possible for a being to be able to cause physical changes from a large distance. If this explanation is true among adults, it is necessary to understand the developmental trajectory of this line of reasoning. Reasoning about prayer requires adults to use their intuitive causal frameworks and to also coordinate between them: God must change something from a distance (physical causal mechanism) after knowing the thoughts of the petitioner (psychological causal mechanism). However, it is not immediately apparent that young children's concept of prayer involves this kind of coordination across multiple causal frameworks.

Indeed, there are reasons to expect young children would prefer asking God to operate through physical/mechanistic means rather than psychological means. First, young children are hesitant to consider the possibility of cross-domain causality, such as a mental state causing a physical change to a person (Gopnik and Wellman 2012; Notaro et al. 2001). Second, studies increasingly suggest that when children endorse the possibility of impossible causal events, children typically explain those events as occurring through natural mechanisms (Nancekivell and Friedman 2017; Woolley and Cornelius 2017). Finally,

children may view a psychological petition as less attractive, given the belief of young children that changing a person's mental state is quite difficult (Kopp 2009).

By examining children's preferences for petitioning God to change a physical state of affairs or petitioning God to change someone's desires about a physical state of affairs, a primary goal of the current study was to understand if, and when, children demonstrate an adultlike preference for requesting that God act through psychological, rather than physical, mechanisms. In order to understand the influences on this development, the current study additionally examined relations with children's developing understanding of social cognition and with cultural (i.e., religious) exposure.

3.1. Social Cognition

As adults tend to advocate for petitioning God to operate on a person's psychological state (Barrett 2001), a key part of understanding why children prefer making particular kinds of requests of God is delineating how that preference relates to children's understanding of human minds. The foundation of children's social cognitive capacities includes their intuitive psychology or intuitive psychological causal framework. Important shifts in one's intuitive psychology occur during early and middle childhood. In the course of developing mental-state reasoning, early childhood (3 to 7 years of age) is marked by shifts from a belief that others know and perceive the world the same way that the child does, to understanding that the beliefs, desires, and emotions (i.e., mental states) of other people both differ from the child's own and are also often inaccurate (e.g., Wellman et al. 2001; Wellman and Liu 2004).

Reasoning about God changing the mental states of others requires children to understand the representational nature of the human mind and how the human mind comes to hold particular representations of states such as knowledge and desire (Lane and Harris 2014). As such, developmental shifts in whether children indicate God should be asked to work through internal means (by changing a person's desires or emotions) or external means (by changing the biological or physical nature of the world) would be expected to relate to where children are at in their developing social cognition.

Studies have found children utilize their social cognition when reasoning about prayer (Lane et al. 2016). For example, Lane et al. (2016) found that young children's social cognitive understanding (as measured in theory-of-mind tasks) was related to their belief that God would know what was being prayed for. More specifically, 3-to-4.5-year-olds who had a more advanced understanding of human mental states (but were still in the process of developing that understanding) were more likely to say that God *would not* know what a person was praying for. But older children (up to age 10) who had more advanced social cognition were more likely to say that God *would* know what a person is praying for. Interestingly, young children's less developed social cognition may constrain their concept of God and prayer, such that young children view the efficacy of God and prayer as similar to the ways that regular human-to-human communication operates. These findings leave open the question, however, about how children's understanding of human minds relates to whether children would ask God to change another person's mind.

Beyond concepts of prayer, the development of other religious concepts has been strongly linked to children's developing social cognitive abilities (e.g., Rottman and Kelemen 2012; Saide and Richert 2020). Social cognitive skills, which are fundamental to helping us understand other people and our relations to them, have been linked to children's understanding of God's mental capabilities (Knight et al. 2004; Lane et al. 2010, 2012), God's humanlike attributes (Richert et al. 2017), religious rituals (Barrett and Lawson 2001; McCauley and Lawson 2002), afterlife beliefs (Bering et al. 2005; Harris and Giménez 2005), soul beliefs (Richert and Harris 2006, 2008), and prayer (Shaman et al. 2016; Woolley 2000).

3.2. Cultural Input

Research on children's religious concepts often examine the cognitive bases for those concepts for the purpose of exploring how religious beliefs leverage developing cognitive

skills such as mental-state reasoning (i.e., social cognition) and causal reasoning (Heiphetz et al. 2016; Lane and Harris 2014; Shtulman 2019). Importantly, cognitive skill development and religious concept development are influenced by sociocultural input (Richert and Smith 2010). Sociocultural practices and beliefs shape the trajectory of cognitive development; in other words, culture and cognition are fundamentally intertwined (Gauvain and Perez 2015); and a growing body of research demonstrates the ways in which the development of causal-explanatory frameworks are shaped by the cultural context within which a child is embedded (Ojalehto and Medin 2015).

Prior research on children's understanding of prayer has revealed relations between religious exposure and various aspects of children's concepts of prayer. Outside of the specific domain of prayer, studies found that in the United States (Corriveau et al. 2015), children exposed to religious teaching are more likely to say that stories with impossible events could happen in real life, and children in Iran (Davoodi et al. 2016) are likely to say that fantastical figures are real. Specifically regarding prayer, most prior research on children's beliefs about prayer have been conducted with children raised in Christian homes in the United States. This research has documented that by age 8, Christian children believe that prayer works (Woolley and Phelps 2001) and that God knows what a person is praying for even if the prayer is not spoken out loud (Lane et al. 2016). Furthermore, children raised in religious homes are more likely than children raised in non-religious homes to believe that praying for something impossible to happen could make it happen (Lane 2020); and religious children from diverse religious backgrounds who believe God is less humanlike are more likely than children with a more humanlike concept of God to say that God can make impossible physical things happen (Lesage and Richert 2021).

However, the type of sociocultural input matters, and not all modes of socialization equate to the same level of influence on the development of religious concepts. For example, Bamford and Lagattuta (2010) found that the frequency of religious activity among 4-to-8-year-old children from the United States is not related to their reasoning about prayer. In contrast, Lane (2020) found that both general religious participation and participation in prayer are positively related to beliefs about the efficacy of prayer in 3-to-10-year-old children. However, the effect of religious exposure varied by age, such that between the ages of 6 and 10, children in "highly religious" homes were more likely to claim that prayers, rather than wishes, would come true. In contrast, younger children (3 to 6 years) did not differentiate the effectiveness of wishing and prayer, regardless of religious exposure. Furthermore, Richert and colleagues (2017) found that parental religious affiliation is related to how much children differentiated God's mind and their mother's mind but that the children's level of religious exposure (i.e., via prayer and church attendance) is not. These results highlight the importance of examining multiple forms of sociocultural input (i.e., family religious affiliation and general religious exposure) to see how they may or may not influence children's petition preferences.

4. Current Study

The current study examined children's preferences for which causal mechanism to ask God to act through in a petitionary prayer. Children between the ages of 4 and 8 were presented with two stories in which a character faced a problem. The children were presented with a variety of options for what the character should pray for, including physical, biological, psychological, and emotional changes. Analyses explored which causal mechanism children ranked higher and the relationship between their ranking and their age, social cognition, religious affiliation, and religious exposure.

5. Results

Preliminary analyses examined whether solution choices differed by demographic variables¹. Univariate Analysis of Variance (ANOVA) examined differences by religious affiliation for the four religious groups with large enough samples (Muslim, Protestant, Catholic, and Non-Affiliated) and found no significant differences: physical, $F(3,118) = 0.535$, $p = 0.659$,

$\eta_p^2 = 0.01$; psychological, $F(3,118) = 1.410$, $p = 0.243$, $\eta_p^2 = 0.035$; biological, $F(3,118) = 0.998$, $p = 0.396$, $\eta_p^2 = 0.025$; emotion regulation, $F(3,118) = 0.629$, $p = 0.598$, $\eta_p^2 = 0.016$ (see Figure 1). Independent samples t -tests examined differences by gender and showed no significant differences: physical, $t(120) = -0.301$, $p = 0.764$, $d = -0.057$; psychological, $t(120) = -0.531$, $p = 0.596$, $d = -0.101$; biological, $t(120) = 1.615$, $p = 0.109$, $d = 0.306$; emotion regulation, $t(120) = -0.716$, $p = 0.476$, $d = -0.136$.

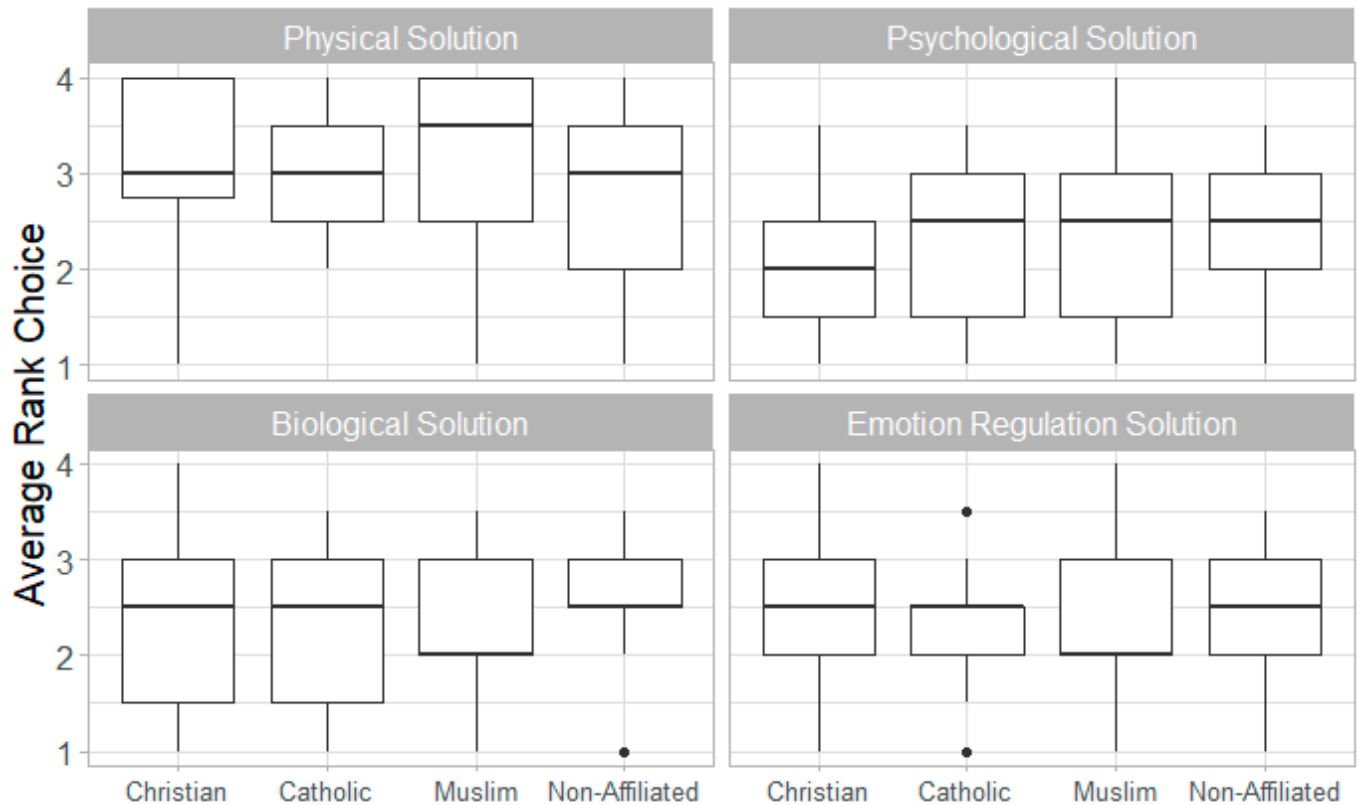


Figure 1. Average rank choice for each solution type by religious affiliation.

A Univariate Four-Level (solution type) Repeated-Measures ANOVA was conducted to determine if participants chose some solution types more than others². An omnibus effect of the solution type was found, $F(3,363) = 22.770$, $p < 0.001$, and $\eta_p^2 = 0.158$. Multiple paired-samples t -tests, with Bonferroni corrections for multiple comparisons, were conducted to determine which solutions were chosen more or less than others. As seen in Table 1, the physical solution was chosen significantly more often than the other three solutions.

Table 1. Paired-samples t -tests.

Comparison	<i>t</i>	df	<i>p</i>	Cohen's <i>d</i>
Physical—Psychological	6.734	121	<0.001	0.610
Physical—Biological	6.908	121	<0.001	0.625
Physical—Emotion Regulation	5.631	121	<0.001	0.510
Psychological—Biological	−0.799	121	0.213	−0.072
Psychological—Emotion Regulation	−1.497	121	0.068	−0.314
Biological—Emotion Regulation	−0.523	121	0.301	−0.225

Correlation analyses examined the relations among variables (see Table 2). Social cognition was positively correlated with choosing the physical solution, such that the more developed the child's social cognitive abilities were, the more likely they were to rank the physical solution higher.

Table 2. Correlations between solution choice variables.

	1	2	3	4	5	6	7
1. Age	--						
2. Religious Exposure	0.030	--					
3. Social Cognition	0.198 *	0.034	--				
4. Physical	0.013	0.007	0.250 **	--			
5. Psychological	−0.016	−0.056	−0.048	−0.536 ***	--		
6. Biological	−0.009	−0.082	−0.084	−0.156 †	−0.317 ***	--	
7. Emotion Regulation	0.009	0.125	−0.145	−0.422 ***	−0.065	−0.496 ***	--

† $p < 0.010$, * $p < 0.05$, ** $p < 0.01$, and *** $p < 0.001$.

6. Methods

6.1. Participants

Participants in this study were 135 children from an urban area along the Pacific coast of the United States. Children were between 4.42 and 8.67 years of age ($M = 6.160$, $SD = 0.918$; 63.0% female). Participants were returning for their third wave of data collection for a six-wave longitudinal study of religious concept development in early childhood. Data for the third wave were collected from May 2015 to November 2017. In the third wave of data collection, children completed tasks regarding their concepts of God, supernatural causality, and prayer, along with cognitive measures of executive functioning, counterfactual reasoning, and social cognition. Select measures described below were analyzed in the current study. Participants were originally recruited into the study by talking with study personnel at community events or through advertisements at religious organizations. Fourteen participants (9.6%) were excluded from the current analyses because they did not complete the relevant measures.

The remaining sample included 122 4-to-8-year-old children ($M_{age} = 5.713$, $SD = 0.966$; 79 female). The sample was racially diverse: 23.1% identified as White, 17.4% as Hispanic/Latinx, 11.6% as Asian, 10.7% as Middle Eastern or South Asian, and 4.9% as Black. Approximately 27% of participants indicated mixed race/ethnicity, primarily as White/Hispanic/Latino (11.6%). An additional six participants declined to answer. Participants were primarily from 4 religious traditions: Muslim ($n = 41$), Protestant ($n = 35$), Catholic ($n = 25$), and Non-Affiliated ($n = 21$).

6.2. Measures

Children were interviewed by a trained researcher in a university laboratory or the family's home, while parents filled out a questionnaire in an adjacent room that measured children's religious exposure and demographic characteristics.

6.2.1. Prayer Requests

Child participants were read two stories about children facing a problem and were asked what the protagonist should pray for. These stories were modeled after the ones used in Barrett's (2001) first study and adapted for use with young children (i.e., reduced task demands; e.g., simplified scenario contexts and wording and reduced number of scenarios). Children were presented with two different stories (the order of the presented stories was counterbalanced across children) about a dilemma. After hearing the story, children were told about four ways in which the problem could be solved: a physical solution, a psychological solution, a biological solution, and an emotion regulation solution (see Appendix A for the full materials).

Of note, each of the outcomes of the solutions were theoretically possible, but God's actions causing the outcomes would not be in line with intuitive causal frameworks. For example, a bike being fixed is something that can happen, but someone (e.g., God) fixing the bike from a distance without touching it is not. Recent findings suggest great variation in whether young children believe God can enact physical changes in the world that violate natural laws (Lesage and Richert 2021). Thus, we chose to present ways of solving the

problems that children could easily conceptualize, all of which also required God to directly act on the world or on a person's mind, emotions, or body in ways that would not align with intuitive causal theories.

Children then rank ordered which solution they believed the character should pray for by indicating which solution should be prayed for first, second, and so on. Solution choice was reverse-coded, such that if a particular solution was chosen first, it received a code of 4, and if the solution was chosen last, it received a code of 1.

In the first story, the character was faced with a physical problem. Specifically, the character wanted to ride a bike, but the bike was broken. The physical solution option was for the bike to be fixed. The psychological solution option was for the character to want to run around and play instead. The biological solution was to grow taller to use his older brother's bike. The emotion regulation solution was to feel happy playing something else.

In the second story, the character wanted to eat cookies after school but their mom gave them broccoli instead. The physical solution option was for there to be no more broccoli. The psychological solution was to want to eat broccoli instead. The biological solution was to not be hungry anymore. The emotion regulation solution was to not feel sad eating the broccoli.

Four variables were derived from children's responses by averaging solution choice rank for both stories (see Table 3). All variables ranged from 1 to 4, with a higher score indicating the solution was chosen earlier in the rank-ordering process.

Table 3. Descriptives of solution variables.

Variable	M	SD
Physical Solution	3.066	0.828
Psychological Solution	2.234	0.727
Biological Solution	2.320	0.739
Emotion Regulation Solution	2.381	0.763

6.2.2. Social Cognition

To measure children's social cognition, children participated in four tasks that were modified from other cognitive science of religion research with children: visual perspective taking (Richert and Barrett 2005), occluded picture (Barrett et al. 2003), appearance–reality, and false belief (Barrett et al. 2001). In the visual perspective-taking task, children were shown an image on a wall from approximately 10 feet away. From the child's view, the image looked like a small, red dot on the paper. In actuality, the image was a small ladybug. Children were first asked if a boy and girl doll would know what the image was (level 1). Then, the children viewed the image from up close. After returning to their original position, children were asked again if the dolls would know what the image was (level 2). A “yes” response was considered as having a less developed social cognition; thus, “yes” responses were scored 0, and “no” responses were scored 1.

The occluded figure and appearance–reality tasks followed a similar format. For the occluded figure task, the child was shown an occluded picture of a giraffe that was not apparently a giraffe. Children were asked if the dolls would know what the image was (level 1). Then, the image was uncovered for the children to see the full picture and covered again. Children were asked again if the dolls would know what the image was (level 2). Again, a “yes” response was considered as having a less developed social cognition; thus, “yes” responses were scored 0, and “no” responses were scored 1.

For the appearance–reality task, children were shown toy grapes from a distance. The grapes were not apparently a toy from that distance. Children were asked if the dolls would know what the item was (level 1). Then, the toy was brought to the children, so they could see it was made of plastic and not real grapes. Children were asked again if the dolls would know what the item was (level 2).

For the second-order false belief task, children were told the story of a protagonist who is playing with a dog. The protagonist put the dog under a brown box to keep it safe.

The child then helped the interviewer move the dog from the brown box to underneath a black box instead. Children were then asked where the protagonist will look for the dog (level 1). If a child responded that the protagonist will look under the black box, it meant the child has a less developed social cognition. Thus, responses indicating the black box were scored 0, and responses indicating the brown box were scored 1. For the next level of the task, children were shown two dolls that watched this sequence unfold. In the false belief level 2 task, the two dolls were hidden away, and children were told that the protagonist now knows the location of the dog. The two dolls were then brought back out, and children were asked where each doll thinks the protagonist will look for the dog. In this case, a correct answer would still be the brown box, because the dolls would not know that the protagonist now knows where the dog is. Thus, responses indicating the brown box were scored 1, and responses indicating the black box were scored 0.

A social cognition composite variable, ranging from 0 to 1, was computed by averaging children's responses to the four visual perspective-taking (2 for each doll), four occluded picture, four appearance–reality, and three false belief questions (15 total) ($M = 0.726$, $SD = 0.247$; Chronbach's $\alpha = 0.815$).

6.2.3. Religious Exposure

Religious exposure was measured through parental response to four questions. On a scale from never (0) to multiple times per day (8), parents indicated how often their child attended events sponsored by their religious organization, participated in public religious practices, participated in private religious practices, and received formal religious instruction. Responses were averaged for an overall religious exposure variable ($M = 3.635$, $SD = 2.118$; Chronbach's $\alpha = 0.795$).

7. Discussion

The objective of the current study was to examine what mechanisms (e.g., psychological and physical) children would request that God act through in order to grant a petition through prayer. The data presented here come from interviews with 122 4-to-8-year-old children during the third wave of a six-wave longitudinal study on concepts of God and prayer. This study tested if children demonstrate a preference for praying for a change to the physical world, a change to a person's psychological state, a change to a person's biological state, or a change to a person's emotions. Additionally, relations with children's age, religious affiliation, religious exposure, and social cognition were explored.

Three central patterns emerged from our data. First, on average, children demonstrated a preference for asking God to make a physical change over the other three options. Second, children's social cognition was only related to choosing the physical solution, such that children with a better understanding of the limitations of the human mind were more likely to choose the physical solution. Finally, religious exposure and religious affiliation were unrelated to children's choices about what kind of solution should be prayed for. In the subsequent paragraphs, we discuss what these findings might mean for children's early folk reasoning (i.e., causal explanatory frameworks) in a religious context.

7.1. Explanatory Causal Frameworks and Prayer

The results of the current study show that 4-to-8-year-old children prefer to petition God to make a physical change to the world over a change to a person's psychological, biological, or emotional state when a person is facing rather mundane, day-to-day problems (i.e., fixing a bike or deciding on a snack). These findings suggest that children either have greater certainty that God can work through physical mechanisms (when compared to other kinds of causal mechanisms) or that children view physical mechanisms as the most effective way for God to answer prayers.

Regarding children's certainty in what God can do, children's mental state reasoning (intuitive psychology) and understanding of physiology (intuitive biology) are still undergoing significant improvements across early and middle childhood (Gelman and Legare

2011; Shtulman 2017; Shtulman and Carey 2007). In contrast, by the age of 4, children in the United States (Shtulman and Carey 2007) and other countries such as Iran (Davoodi et al. 2023) and China (Nissel et al. 2023) have enough expectations about the basic laws of physics to say that impossible events cannot occur in the real world (Shtulman and Carey 2007). Though children uncommonly refer to magic as an explanation for how impossible things could occur (Cornelius et al. 2011; Davoodi et al. 2023; Payir et al. 2021), young children raised in religious homes do believe that prayer can work (Lane 2020) and that God can make impossible physical events at least probable (Lesage and Richert 2021; Payir et al. 2021). These findings suggest that children may have a more difficult time (and less confidence) envisioning how psychological, emotional, and biological petitions would solve the problem, relative to the physical solutions.

Although prior studies have suggested a large degree of uncertainty in early childhood about whether God can violate natural, physical laws to make impossible things happen (Lesage and Richert 2021), studies have also indicated children that are quite certain that God can work through natural, albeit improbable, physical mechanisms to bring about change in the world (Nancekivell and Friedman 2017; Woolley and Cornelius 2017). To our knowledge, studies have yet to demonstrate that children believe God can actually change what a person thinks about something, and Bamford and Lagattuta (2010) found that it is not until age 8 that children believe prayer can change a negative emotion. Thus, children's more solidified understanding of how the physical world works may lead to less difficulty in imagining or envisioning God making a physical change to the world rather than a biological, emotional, or psychological change (Harris 2021).

An additional and non-mutually exclusive explanation for the preference for the physical solution is that children may conceptualize physical, tangible causal mechanisms for changing a situation to be the most efficient way to resolve problems of the kind presented to the children in the vignettes. Children tend to view changing a person's psychological state (e.g., through emotion-focused coping) as quite effortful (e.g., Kopp 2009), and the findings of this study suggest children may view changing the physical state of the world as the easiest and most efficient way for God to grant a particular petition. Indeed, addressing the physical aspects of a problem has the added benefit of also fixing the negative cognitive and emotional aspects of the problem (e.g., fixing the bike may alleviate the disappointment of it being broken, and removing the broccoli brings about relief that it is no longer what the child has to eat) without needing to interfere with a person's biological processes (e.g., suddenly making them taller). As such, the choice of the physical solution represents an efficient and common-sense resolution to the problems presented, indicating the ways in which children fold their beliefs about petitions to God into their existing folk theories of how the world works.

It is also important to note that children did often choose the other solutions, and none of the solutions were uniformly chosen last; however, there was no clear pattern of differentiation between the other solution choices, and those solution choices were unrelated to the other variables that were measured. As such, a key limitation of the current study is that children were not asked to further justify or explain their preferences, leaving open important questions for future research. Without requesting open-ended justifications, the current data cannot directly indicate the extent to which children's preferences about what to pray for reflect coordination between natural and supernatural explanatory systems (e.g., Legare et al. 2012). For example, children's preferences may either implicitly or explicitly incorporate supernatural explanations, such as God's superhuman abilities or magic. As Legare and colleagues (2021) reviewed, natural and supernatural reasoning do not conflict with each other within the human mind; rather, humans frequently use natural and supernatural explanations to develop inferences about the same events. Research found that children from Vanuatu (an island nation in the South Pacific) equally endorse biological and supernatural explanations for death (Busch et al. 2017), and children in the United States increasingly coordinate natural and religious explanations when explaining how God can do impossible things as they get older (Lesage and Richert 2021). Thus, in

addition to the possibilities explained above, the current study's children may have tapped into a separate intuitive supernatural explanatory causal framework that leads children to prefer the physical solution over the others. As to why (and if) this intuitive supernatural causal framework would lead children to select the physical solution is unclear, so more research is needed.

A final point related to children's preference for the physical over the psychological solutions: the results we present here do not align with those found by Barrett (2001), in which Protestant adults focus their prayers on petitioning for a psychological change rather than a physical change. At a minimum, these findings suggest the age range in the current study was not big enough to capture the developmental time period when a shift to this preference occurs, and researchers interested in this topic should consider an expanded age range beyond the age of 8. We discuss this issue in more depth below, in our discussion of the findings related to social cognition. An additional possible explanation for the differences is in the diversity of the samples. Barrett's (2001) study only used Protestant college students, while the current study used a mix of Protestant Christian, Roman Catholic, Muslim, and Non-Affiliated children. It may be that Barrett's documentation of a preference for psychological solutions is specific to Protestant affiliates; however, note that the current study did not find differences in preferences by religious affiliation. It is indeed possible that religious background differences may exist, which the current study was not sensitive enough to pick up on, an issue we also discuss in more detail in the Limitations section.

7.2. Social Cognition and Prayer Requests

Children's preference for the physical solution is especially revealing in light of the pattern of correlations with their developing social cognition. In the current study, children's social cognitive abilities were related to how they ranked praying to God for a physical solution but were unrelated to choosing the biological, psychological, or emotion regulation solutions. In other words, the children who demonstrated a better understanding of human minds were not more likely to suggest a person pray for God to change their mind or even how they feel. However, when children demonstrated better mental state reasoning, they were more likely to rank the physical solution higher.

On the surface, this finding may seem unexpected, as a common-sense hypothesis may be that children's understanding of human minds should be related to whether or not they would petition God to change a person's mind. Indeed, previous research found adults' have a preference for petitioning God for psychological, rather than physical, solutions (Barrett 2001), possibly because God changing minds fits in their intuitive understanding of psychology (people can change other people's minds from a distance by talking to each other), in the way that God changing the physical state of the world does not fit their intuitive understanding of physics (people cannot cause physical change from a distance). However, the current findings suggest that children are not reasoning about prayer with their intuitive causal frameworks in the same way. These findings with children make more sense in light of Lane et al.'s (2016) research on children's social cognitive abilities and their relation to children's concept of communicating with God.

In Lane et al.'s (2016) study, in early childhood social cognitive skills constrained children's concepts of God and prayer, making them less likely to internalize and integrate their culture's religious concepts and more likely to think of God and prayer as intuitive psychological and physical phenomena (i.e., God cannot act over distances or know a person's thoughts). But in middle childhood, children's social cognitive skills made them more likely to integrate their culture's religious concepts and think of God and prayer as phenomena that operate differently than others (i.e., God being able to act over distances and know a person's thoughts). It is possible a similar effect is happening to the children in the current study. Their social cognitive abilities facilitate the integration of their culture's religious concepts into their reasoning about physical causal mechanisms, such that they think of God as being able to cause change from a large physical distance. However, their

social cognitive mechanisms are either constraining or just not facilitating the integration of their culture's religious concepts into their reasoning about psychological or biological causal mechanisms.

Another possible explanation is that as children are developing an understanding of human minds, they become increasingly aware of how difficult it can be to change how a person thinks or feels (e.g., [Kopp 2009](#)). As such, and consistent with what was suggested earlier, children may increasingly view God using a physical solution as the most efficient path to resolving the problem, rather than contending with the difficulty of changing a person's psychological or emotional state without actually resolving the problem that led to that state.

7.3. Religious Exposure and Prayer

In the current study, both religious affiliation and the overall religious exposure of 4-to-8-year-old children was unrelated to their choice to petition God to use a physical, psychological, emotion regulation, or biological causal mechanism to solve a problem. There are several reasons why children's religious background and engagement may have been unrelated to prayer requests in the current study, but the findings should not be taken to mean that religious exposure has no effect on children's developing understanding of prayer. Instead, the lack of relations likely resulted from the aspects of prayer that were measured not being influenced by the forms of religious exposure used in the current study.

The current study focused on a small set of relatively mundane circumstances in which characters were praying, and circumstances such as how to fix a bike or what kinds of options are available for a snack likely do not capture the kinds of requests that would encapsulate variation in religion-specific goals for prayer. None of the problems or solutions required children to ask God to do anything particularly special, meaningful, or impossible. As such, the findings suggest that the current study assessed children's inferences about the best way to ask God to solve a problem by having children think about their own intuitive understanding of the physical, psychological, and biological world. In this context, children indicated a preference for asking God to solve the problem in the most efficient way, regardless of religious affiliation.

In contrast to the approach used in the current study, prior research exploring children's own prayers found children's prayers to be related to greater feelings of social connectedness ([Rew et al. 2004](#)). Children also report praying for aid at significant moments in life ([Mountain 2006](#)) and as a coping strategy when dealing with illness ([Cotton et al. 2012](#)). In other words, children report praying to God for various deeply emotional and meaningful reasons related to navigating complex emotions and developing a personal relationship with God, the motivations for which may be expected to vary by religious tradition ([King and Boyatzis 2015](#)). As such, the examples of prayer highlighted in the current study may not tap into religious variation in goals for prayer.

An additional issue is that the measure of religious exposure may not have captured the aspects of religious transmission that may be expected to relate to variations in how children think about what a person should pray for. The current study operationalized religious exposure as the frequency of attending religious events, engaging in private and public practices, and receiving formal religious education—as reported by a primary caregiver. This measure of religious exposure does not capture the content of religious instruction children receive about prayer (e.g., from parents, other family members, and religious educators). To the extent one expects specific teachings about the nature of prayer to be related to the specific kinds of requests that children make of God, future research should aim to work closely with parents and religious leaders to capture both the teachings themselves as well as children's perceptions of these aspects of prayer.

7.4. Limitations and Future Research

One of the primary limitations of the current research was the limited age range of the participants in the sample. Although the age range was appropriate for research into

concepts of prayer in early childhood, the age range was not large enough to detect at what point in development children's concepts become more adultlike, much less understand the mechanisms that lead to that developmental shift. Thus, future research could expand the exploration of the understanding of prayer into later childhood and adolescence. Adolescence, in particular, is a time in which youth are gaining increasing agency over their religious and spiritual development, while subsequently coming to a more sophisticated understanding of the natural world through formal schooling; as such, concepts of and beliefs about prayer may be expected to go through substantial changes during these years (Richert and Abo Zena 2023).

A second possible limitation concerns the number of stories used in this study. In an effort to maintain the children's attention, the children were read two stories (with the order of presentation counterbalanced across children). Even though we only presented the children with two scenarios, there is good reason to believe that similar to adults, the children's reasoning about these prayer scenarios would apply outside the lab (i.e., have good ecological validity). For example, Barrett's (2001) third and fourth studies attempted to replicate the findings from his first and second studies in a naturalistic setting, explicitly for the purpose of assessing generalizability. In the third study, his participants recorded all their requests to God over a two-week period. Prayers were coded as requesting physical, psychological, or biological interventions from God. In the fourth study, participants completed a survey that asked whether they would be likely to pray to God to act in ways that disrupt physical, biological, and psychological principles. In both studies, participants favored petitions to God that were psychological in nature. Though children in our study favored physical mechanisms, what Barrett revealed is that reasoning about prayer mechanisms in hypothetical scenarios in the lab translates to situations outside of the lab. Future research should further examine this possibility with children.

A third limitation is related to the goal of exploring religious variation and diversity in children's concepts of prayer. Although the sample for the current study reflected religious diversity, the sample may have been too small to detect meaningful differences, and some religious belief systems were not fully represented in the sample. In addition, as noted above, the ways in which beliefs about prayer were operationalized in the current study may not have allowed for participants to enunciate religious variation in beliefs about prayer. Future studies should continue to aim to recruit from a diverse range of religious belief systems and should work with religious communities to identify their values and goals for engaging children in religious activities such as prayer (e.g., Richert et al. 2022).

A final limitation was that children were not asked to explain their reasoning for ranking the solutions in a particular order. Children preferred asking God to use a physical causal mechanism to solve a problem, but without explaining their choices, only inferences can be made as to why. Multiple explanations are presented above as to why this pattern emerged, including children thinking it is the most effective, children being more confident in reasoning about the physical solution, and children having a supernatural explanatory causal framework. But the collected data do not support one of these explanations over the others. Future research should explore children's reasoning with open-ended or qualitative research methods.

7.5. Conclusions

The current study found that between the ages of 4 and 8, children from a variety of religious backgrounds are more likely to say a person should request that God physically change the nature of the world rather than change a person's mental state, biological state, or emotions. Additionally, children's social cognition was positively related to preferring to pray for a physical solution, such that children with a more sophisticated understanding of the human mind were more likely than other children to prioritize requesting a physical change rather than any other change. These findings suggest that children's understanding of prayer involves the coordination of developing folk theories about the world and what kinds of things God should change about it.

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Institutional Review Board Statement: The study was conducted according to the guidelines of the Declaration of Helsinki, and approved by the Institutional Review Board (or Ethics Committee) of the University of California, Riverside (protocol code HS12-064 on 1 July 2015).

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: The data underlying the results presented in the study are available upon reasonable request.

Conflicts of Interest: The authors declare no conflict of interest.

Appendix A

1. John/Maria really, really wanted to ride his bike today. But he could not ride his bike today! John’s bike was broken. This wouldn’t be a problem if he was tall enough to ride his older brother’s bike. This wouldn’t be a problem if John’s bike was fixed. This wouldn’t be a problem if John wanted to run around instead. This wouldn’t be a problem if John felt happy playing something else. John decided to ask God for help. What should he ask God for?
 - a. Bio: John to grow taller and be able to use his older brother’s bike.
 - b. Ph: John’s bike to be fixed.
 - c. Psy: John to want to run around instead.
 - d. ER: John to feel happy playing something else.
2. John/Maria really, really wanted to eat cookies after school. But he could not eat cookies after school! His mom gave him broccoli to eat after school instead. This wouldn’t be a problem if John wasn’t hungry anymore. This wouldn’t be a problem if there was no more broccoli. This wouldn’t be a problem if John did not want cookies. This wouldn’t be a problem if John did not feel sad about eating broccoli. John decided to ask God for help. What should he ask God for?
 - a. Bio: John to not be hungry.
 - b. Ph: There to be no more broccoli.
 - c. Psy: John to not want cookies.
 - d. ER: John to not feel sad about eating broccoli.

Notes

- ¹ These analyses were replicated with nonparametric statistics (Kruskal–Wallis test and Mann–Whitney test) to account for violations of independence in the variables. The same pattern of findings was found. Parametric statistics were presented for ease of interpretation.
- ² Omnibus within-subjects analysis, along with follow-up paired-samples analyses, was also examined using Friedman’s ANOVA and Wilcoxon tests, and similar results were found. Parametric statistics were presented for ease of interpretation.

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