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ARTICLE

Correspondence in parents' and children's concepts of god: Investigating the role of parental values, religious practices and executive functioning

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Abstract

This study examined the extent to which children's concepts of God correspond with their parents' concepts of God. It also examined how parent-context factors and children's executive functioning relate to parent–child conceptual similarity. Parent–child dyads from varied religious and racial backgrounds participated. Dyads had the greatest conceptual similarity concerning God's mind-dependent functions. Though correspondence between parents and children was lowest concerning God's body-dependent functions, dyads were more similar about those functions when parents engaged in more frequent religious practices with their child and thought God was important. Children's concepts of God were unrelated to religious practices, and parent–child conceptual similarity was unrelated to children's age and executive functioning. Simply put, variation among parents' anthropomorphic concepts of God drove variation in parent–child conceptual similarity. Overall, these findings suggest that embodied concepts of God may be most sensitive to cultural input and that socialization practices provide greater insight into parents' anthropomorphic concepts.

KEYWORDS
anthropomorphism, conceptual correspondence, god, religion, socialization

BACKGROUND

Children develop concepts through interacting with the world around them (Gauvain & Perez, 2015). Supernatural concepts, however, pose a unique challenge for children because they represent phenomena that violate or operate outside of the laws that govern the natural world (Chinn & Brewer, 2000). Consequently, children cannot learn about supernatural concepts such as God through their perceptual observations alone, in the same way, they might learn about something they can see or touch (Guerrero et al., 2010; Harris & Koenig, 2006; Vygotsky, 1978). Scholarship has highlighted the important role of socializing agents (e.g., parents), as well as individual differences among children (e.g., age), in the development of supernatural concepts (Bader & Desmond, 2006; Shtulman, 2018). Though parents are primary agents of socialization during early childhood (Bronfenbrenner, 1994), the extant literature does not unpack (a) the specific ways in which parents and their children's concepts of God align and differ, and (b) factors related to the conceptual similarity between parents and their children. The current study contributes to the scholarship on conceptual correspondence by examining concepts of God among parent–child dyads. Concepts of God were chosen as the target of this study because God represents an unobservable agent that is widely endorsed as real by adults across the United States (Clegg et al., 2019). To provide a framework for the current study, we review what is currently known about children's and adults' concepts of God. We also discuss how examining parent-context factors (i.e., parental socialization practices and parents' beliefs) and children's executive functioning may shed light on the relationship between parents' concepts and children's concepts.

How children and adults conceptualize god

Scholars have argued that concepts of supernatural beings like God are rooted in intuitive heuristics (Lane & Harris, 2014); one such heuristic is anthropomorphism (Heiphetz et al., 2016). Anthropomorphism refers to the extent to which an individual considers entities as having humanlike abilities and/or limitations (Dacey, 2017; Guthrie, 1993). The anthropomorphism hypothesis derives from the work of Piaget, and suggests that children anchor their concept of God in their concept of person (Piaget & Inhelder, 1969). Scholars from the Piagetian tradition suggest that children reason about God anthropomorphically until middle childhood (Barrett & Burdett, 2011), and research supports the idea that an anthropomorphic bias underlies children's reasoning. Some adult theists report hearing the voice or feeling the presence of God (Luhrmann, 2020); however, a developing child who is first encountering the concept of God, has no direct perceptual access to God through sight, touch or sound (Guerrero et al., 2010; Harris & Koenig, 2006; Vygotsky, 1978). As such, children must make inductive inferences from their understanding of 'human' or 'the self', rather than base their conception on their *direct observable experience* with God (Geerdts et al., 2015; Rottman & Kelemen, 2012). In this way, studying the similarity between elements in children's and parents' concepts of God provides insight into the development of concepts related to invisible phenomena.

Research on anthropomorphism in children's God concepts has taken several approaches and reveals that children as young as 4-years-old can communicate thoughts about God regarding a wide range of aspects and domains (Heiphetz et al., 2016). One research approach is to explore children's understanding of whether God is knowledgeable by using traditional theory-of-mind tasks (e.g., Lane et al., 2012; Richert et al., 2017). A second approach, and the one taken in the current study, is to examine children's concepts by measuring if children associate God with abilities that depend on having a body (i.e., body-dependent properties) and with having a mind (i.e., mind-dependent properties). Such mind-dependent and body-dependent properties include thinking, feeling, growing old and eating food (e.g., Saide & Richert, 2021; Shtulman et al., 2019). With this latter approach, previous research reveals that representations of God vary by age, conceptual domain (i.e., mind versus body) and religious background. We briefly unpack this variation in the following paragraphs.

Statement of Contribution

What is already known on this subject?

- Research has established that young children anthropomorphize God's psychological and physiological attributes to a somewhat greater degree than adults. However, research has not adequately explored the specific ways in which concepts differ between parents and their children.
- Research has also highlighted the influence of religious socialization on individuals' concepts of God; however, it has not explored how religious socialization or attributes of individual children outside of age may relate to the conceptual similarity between parents and their children.

What the present study adds?

- The present study contributes to the field by examining the psychological and physiological concepts of God among a group of parent–child dyads from varied racial and religious backgrounds.
- The present study contributes to the field by delineating the similarities and differences between parents' and children's reasoning about an invisible agent.
- The present study also sheds light on how embodied concepts of God may be most sensitive to cultural input, and that parents' socialization practices provide insight into their anthropomorphic concepts of God.

Prior research into children's concepts of God reveals that both children and adults differentiate God's capabilities depending on whether those capabilities are predicated on having a mind (including beliefs, desires, emotions and perceptions) or predicated on having a body (including biological processes and possessing biological organs) (Shtulman & Lindeman, 2016). Both children and adults attribute mind-dependent properties (e.g., thinking) to God, but children do so to a greater extent (e.g., Saide & Richert, 2020; Shtulman, 2008; Shtulman & Lindeman, 2016; Shtulman et al., 2019). In addition, although adults are less likely to associate perceptual processes with God compared to other mind-dependent properties, perceptual processes are indeed considered mind-dependent. Further, adults tend to associate at least some perceptual properties with God while not associating body-dependent properties with God (Shtulman & Lindeman, 2016).

In other words, the attribution of body-dependent properties (e.g., eating) to God is not as consistently high across age groups as the attribution of mind-dependent properties (e.g., Shtulman, 2008; Shtulman et al., 2019). For example, whereas 5-year-old children in the United States attributed the same number of psychological (mind-dependent) and physiological (body-dependent) properties to God, their parents attribute more psychological than physiological properties to God (Shtulman, 2008). Furthermore, younger Muslim and Hindu children (4th and 5th graders) in India attribute more biological properties to God (i.e., Allah), whereas older children (8th and 9th graders) make more psychological attributions to God (Shtulman et al., 2019). By adulthood, Americans are more likely to associate mind-dependent properties with God than body-dependent properties (Shaman et al., 2018).

In addition to age, prior research has highlighted that conceptions of God vary by religious background. For example, Muslim children in the United States are less likely to say that God has physical attributes compared to Protestant Christian children, likely because Islam prohibits visual depictions of God (Richert et al., 2017). However, like other children, Muslim children still associate God with having psychological states. Outside of specific religious affiliation, adults that report higher levels of religiosity and spirituality have expressed more anthropomorphic conceptions of God (Shtulman & Lindeman, 2016).

Together, these findings suggest that important developmental shifts occur in attributions made about God, particularly concerning body-dependent properties (Barlev & Shtulman, 2021). In addition, reasoning about God is not immutable to sociocultural contexts or person-level characteristics, as religiosity and age are linked to individual variation in concepts of God. However, despite demonstrations of group-level differences for adults and children from different religious traditions, studies have not specifically examined the extent to which individual parents and children (at the level of the parent–child dyad) agree about the characteristics of God – this opens the door for testing hypothesized processes that may covary with higher correspondence. The current study examined parental religious socialization and children's executive functioning as hypothesized processes.

The importance of parents in religious socialization

Cognitive development is fundamentally intertwined with social contexts (i.e., settings) such that, social contexts shape *how* we learn, and communicate *what* is important to learn (Gauvain & Perez, 2015). As with any social institution, religion disseminates information through enculturation processes (i.e., social learning) that operate through social actors (e.g., religious leaders, parents) (Rogoff et al., 2015). The impact of social contexts on developing concepts of God is found in the religious differences in anthropomorphism summarized above, differences that emerge in early childhood and persist into adulthood (e.g., Nyhof & Johnson, 2017). The current study aimed to expand on prior studies of anthropomorphism by moving beyond the effects associated with group-level religious affiliation to examine associations with specific parent beliefs and practices.

Outside of specific religious affiliation, parents who report that their children are exposed to religion (e.g., via media, church) more often, have children who associate more knowledgeability with God (Lane et al., 2012). Other studies have found support for a link between parents' views of religious activities (i.e., prayer) and children's views of God (Richert et al., 2017), and between parents' beliefs and children's beliefs that religious phenomena are real (Cui et al., 2020; Lesage & Richert, 2021). Research has not yet examined; however, the relation between socialization and how similar children's concepts of God are to their parents' concepts.

Socialization refers broadly to a wide range of processes that integrate individuals into their surrounding communities (Gauvain & Perez, 2015; Schaffer, 2006). There are different social learning processes that facilitate the connection between cognitive development and culture, two of which are the focus of the current study. One social learning process is *participation*, which involves a novice (e.g., a child) being directly engaged in a cultural activity by experienced cultural members (Gauvain & Nicolaides, 2014). Prior research has found that engaging children in religious practices is important for later religiosity when children are securely attached to their parents, family dynamics are stable, both parents are in agreement about religion, and parents' religious views are consistent with their behaviours (e.g., Bader & Desmond, 2006; Corriveau et al., 2009; Granqvist & Kirkpatrick, 2004; Hoge et al., 1982).

Another important social learning process is *testimony*. Children learn concepts, in part, through observing how other people use words in different contexts and then gradually use them in similar ways (Hampton, 2015). Testimony is an especially important source of information when children cannot experience a phenomenon directly via their own perceptual observations (Harris & Koenig, 2006). For example, children are more likely to state that invisible entities are real when those entities are endorsed by adults (Guerrero et al., 2010), a finding that has been replicated in China, a traditionally secular society (Cui et al., 2020). Building on prior studies documenting relations between parental socialization and children's religious beliefs, the current study sought to examine: how parents' views on the importance of God and the regularity of their engagement of children in activities and discourse about God, relate to the similarity between parents' concepts and children's concepts of God. Importantly, socialization is not unidirectional, and often not passive;

rather, children are actively engaged in socialization processes through asking their parents questions and thinking through why or how things happen. As a result, in addition to parent-context factors, the current study accounted for children's executive functioning, specifically working memory and cognitive inhibition, in parent–child conceptual correspondence.

Socialization, executive functioning and concepts of god

Executive functioning skills among children are conceivably important to the relationship between parents' concepts of God and children's concepts of God for at least three reasons. First, characteristics of individual children interact with sociocultural contexts to facilitate learning (Gauvain, 2001; Tomasello, 1999). In other words, executive functioning skills make it possible for children to suppress or inhibit their own beliefs in lieu of potentially contradictory data; thereby making it possible for children to learn from others (Doebel et al., 2016). Second, executive functioning skills positively predict the age at which children develop accurate reasoning about mental states (Sabbagh et al., 2010) and living biological entities (Zaitchik et al., 2014), which are the two domains of God concepts measured in the current study. Finally, adults' improved ability to inhibit their intuitive responses allows them to adjust their concepts in favour of culturally informed, but counterintuitive narratives about God – such as conceptualizing god with a mind but no body to house it in (Heiphetz et al., 2016; Shtulman & Harrington, 2015; Shtulman & Lindeman, 2016). Children are less likely to suppress intuitive reasoning either because they lack the cultural reinforcement and/or the executive functioning to do so. This study will examine how parental socialization relates to parents' and children's individual concepts, and parent–child conceptual correspondence while accounting for executive functioning.

CURRENT STUDY

Research objectives and hypotheses

The first research objective of this study (RO1) was to examine the extent to which children's concepts of a supernatural agent correspond with their parents' concepts of that supernatural agent. We hypothesized that children would conceptualize God as having both body- and mind-dependent properties; while parents would conceptualize God as having mind, but not body-dependent properties (Shtulman, 2008; Shtulman & Lindeman, 2016). Consequently, parents and children would have the greatest conceptual correspondence (i.e., similarity) concerning whether God has mental functions.

The second research objective (RO2) was to examine factors that relate to parent–child conceptual correspondence, and to parents' and children's concepts separately. We hypothesized that (a) parents' values (i.e., belief in the importance of God), (b) social learning opportunities (e.g., engagement of children in behaviours and discourse related to God) and (c) children's executive functioning would relate to the similarity between parents' and children's concepts (Bader & Desmond, 2006; Gelman, 2009; Harris & Koenig, 2006; Heiphetz et al., 2016; Richert et al., 2017). We also hypothesized that children's engagement in activities and/or discourse about God would partially mediate the relationship between parents' belief in the importance of God and parent–child conceptual correspondence (Gauvain & Nicolaides, 2014; Harris & Koenig, 2006). Finally, given the greater variation in the attribution of body-dependent properties to God (e.g., Shaman et al., 2018; Shtulman & Lindeman, 2016), we explored if our hypothesized relations above differed for two conceptual domains (mind-dependent and body-dependent).

Method

Participants

This study included 122 parent–child dyads. Power analyses constraining alpha to 0.05, using a moderate effect size of 0.318 (drawn from Saide & Richert, 2020), and a desired power of 0.80, estimated that 89 dyads were needed for our planned analyses. Data analysis with our 122 dyads was appropriate. Children were between 5.14 and 8.85 years of age (M = 6.89, SD = 1.12, 51% female). Parents were between 21 and 54 years of age (M = 34.63, SD = 5.72, 89.8% mothers). Children were racially diverse: 42.6% were Hispanic, 22.1% were White, 18.9% were Multi-Racial, 11.5% were Black, 4.1% were Asian, and 0.8% fell into an 'other' category. Parents reported a range of religious backgrounds (though mostly Abrahamic): 30.6% were Protestant Christian, 26.5% were Roman Catholic, 24.5% were non-affiliated, and 13.3% reported 'other' or did not provide that information. Variation in parents' religious beliefs and practices was measured directly in the methods described below.

Measures

The following variables were derived from a child interview and parent questionnaire.

Concepts of god

Children and parents were asked whether God has properties from two subdomains (Shtulman & Lindeman, 2016): five body-dependent properties (grow old, eat food, breathe, have bones and is alive) and five mind-dependent properties (see, smell, know things, want things and make plans). While the former domain is predicated on having a body, the latter domain is predicated on having a mind. Answer options were binary: 'no' [0] (i.e., does not have the property) or 'yes' [1] (i.e., does have the property). As Shtulman and Lindeman (2016) did, we created proportion scores from these questions. The scores for each entity were summed and then divided by the total number of items possible to create proportion scores. The scores for these dependent variables represent the proportion of properties granted by children and parents concerning God's Mind-dependent and God's Body-dependent properties. See Table 1 for the means, standard deviations and reliability indices.

Parent–child conceptual correspondence

To examine the correspondence of conceptual content between parents and their children, a correspondence score was created for each concept subdomain through the following process: For each property question (e.g., to eat food), if parents and children answered the same way (i.e., both said 'yes' or both said 'no'), they received a score of '1' to indicate correspondence. If they did not answer the same way, they received a '0' to indicate a lack of correspondence. Scores were summed and then divided by the total number of items possible to calculate the proportion of properties for which each parent-child dyad corresponded. This created two scores, one that measured correspondence for God's

TABLE 1 Concepts of God (proportions)

	Subdomain	*M*	*SD*	Range	Kuder-Richardson$_{20}$
Parents	Body-dependent	0.246	0.287	0–1	0.802
	Mind-dependent	0.695	0.381	0–1	0.914
Children	Body-dependent	0.695	0.287	0–1	0.658
	Mind-dependent	0.839	0.287	0–1	0.756
Item-by-Item correspondence	Body-dependent	0.439	0.307	0–1	0.630
	Mind-dependent	0.662	0.333	0–1	0.783

mind-dependent properties, referred to as, 'Mind Correspondence' and one that measured correspondence for God's body-dependent properties referred to as, 'Body Correspondence'. See Table 1 for the means, standard deviations and reliability indices.

Child engagement

Parents answered two questions about how often they engage their child in two different types of religious socialization. The first question asked how often they engage their child in behaviours (i.e., rituals and routines) related to God. The second question asked them how often they talk to their child about God. Responses ranged from 'never' [0] to 'multiple times a day' [5]. Answers to the questions were averaged for an overall score indicating the frequency with which parents engage their child in socialization practices that specifically invoke thoughts about God (M = 2.23, SD = 1.50; Cronbach's α = .88).

Entity importance

Parents answered two questions measuring how important they believe it is for their child to (1) know about and (2) believe in God. Responses ranged from 'not important' [0] to 'extremely important' [3]. Responses to the two questions were averaged for an overall entity importance score (M = 1.82, SD = 1.01, Cronbach's α = .94).

Executive function

To measure aspects of executive functioning known as 'working memory' and 'inhibition', children did a *backward digit recall task* (per Gathercole et al., 2004). This task requires children to store information in short-term memory and transform it. Children must hold a series of numbers in mind while inhibiting the inclination to repeat them in the order first provided to them verbally by the researcher (Carlson, 2005). A child's score for this executive functioning task was the highest number of digits the child could correctly repeat back to the researcher in reverse order without doing so incorrectly for three trials (M = 2.66, SD = .95).

Procedure

Parent–child dyads were recruited for a study on children's learning and reasoning about abstract phenomena. Dyads were recruited with the intention of having children between 5 and 9 years of age to capture variation in children's working memory, cognitive inhibition, mental-state reasoning and fantasy reasoning. These areas of cognition show marked increases in complexity and accuracy during early-to-middle childhood, and are important for social learning (e.g., Carlson, 2005; Sabbagh et al., 2010; Shtulman, 2017; Woolley & Brown, 2015; Zaitchik et al., 2014). Given our research objective to examine parental religious socialization, dyads were recruited with the intention of having variation in religiosity (e.g., rate of religious practices), rather than being recruited to fill specific religious group quotas. Participants were contacted from a database of families who had consented to be contacted for research studies. Each child was interviewed in an on-campus laboratory or in the family's home for approximately 45 min. The accompanying adult completed a questionnaire in an adjacent room. Upon completion of the study, parents received $15, and children received a small toy ($1 value). In addition to parental consent, all children separately assented to being interviewed and video recorded.

Results

How parents' and children's concepts of God differ (research objective 1)

To test the hypotheses associated with the first research objective, paired-samples t-tests were performed to determine if parents' concepts and children's concepts differed from each other (see Table 1

for means and standard deviations). Parents assigned God significantly fewer mind-dependent properties than their children did, $t(121) = -3.663$, $p < .001$, $d = .332$. The difference was small; on average, children granted 4.2 mental properties to God out of the 5 asked about, while their parents granted 3.5 mental properties to God. Parents also granted God significantly fewer body-dependent properties than their children did, $t(121) = -12.147$, $p < .001$, $d = 1.110$. In contrast to the mind-dependent properties, however, this difference was large; children granted 3.5 body properties to God, while their parents granted God 1.2 body properties on average. As hypothesized, parent–child conceptual correspondence was significantly higher for God's mind-dependent properties than body-dependent properties, $t(121) = 5.593$, $p < .001$, $d = .507$. The difference between correspondence for mind and body was moderate in size. Parent–child dyads corresponded for approximately 3.3 mind-dependent properties on average while corresponding for 2.2 body-dependent properties on average (see Figure 1).

Factors related to parent–child conceptual correspondence (research objective 2)

To examine the hypotheses associated with the second research objective on conceptual correspondence, correlation and mediation analyses were performed.

Correlation analyses

There was a large significant relation between Child Engagement and Entity Importance; more frequent engagement of children in behaviours related to God covaried with parents reporting greater importance for their children to believe in and know about God (See Table 2 for the effect sizes). There was not a significant correlation between parents' and children's concepts of God's mind-dependent properties ($p = .225$) or body-dependent properties ($p = .919$), and Mind Correspondence and Body Correspondence were not significantly related to each other ($p = .536$). The non-significant correlations support the distinctiveness of these two domains (mind-dependent and body-dependent) in the God concept.

In looking at parents' concepts and children's concepts of God separately, children's concepts of God's mind- and body-dependent properties were unrelated Child Engagement ($p = .204$ and $p = .358$, respectively). However, there were moderate-to-large significant correlations between parents' concepts of God in both domains and Child Engagement. Among parents (but not children), conceptualizing God as having a body and a mind covaried with more frequent engagement of children in behaviours

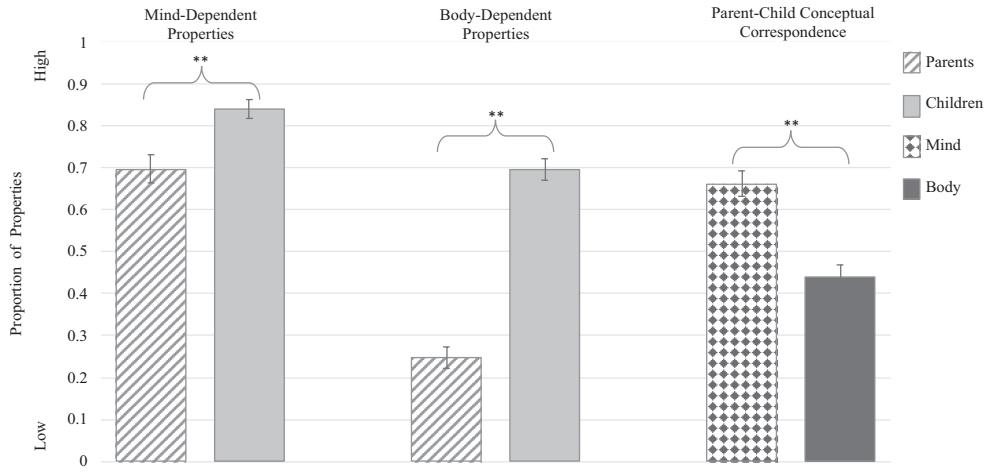

FIGURE 1 Paired-samples t-tests with mean scores. Error bars represent standard error. **Significantly different at $p < .001$

related to God. There were small significant relationships between children's concepts of God in both domains and Entity Importance. There were moderate-to-large significant relationships between parents' concepts of God in both domains and Entity Importance. Thinking that God is more important for children to believe in and know about, covaried with parents and children having more anthropomorphic concepts of God. Overall, parents' beliefs in the importance of God covaried with parents' and children's concepts of God; however, the frequency of socialization practices was only related to parents' concepts.

In looking at parent–child conceptual correspondence, there was a moderate-to-large significant relation between Mind Correspondence and Entity Importance, and between Mind Correspondence and Child Engagement. Greater correspondence regarding God's mind-dependent properties covaried with more frequent engagement of children in behaviours related to God; and with parents reporting greater importance for their children to believe in and know about God. Mind Correspondence was not significantly related to Child's Age (p = .142) or Executive Functioning (p = .560). Body Correspondence was not significantly related to Child Engagement (p = .136) or Entity Importance (p = .856). Body Correspondence also was not significantly related to Child's Age (p = .714) or Executive Functioning (p = .220).

Mediation analyses

To examine the hypothesized mediation relationship predicting Mind Correspondence and Body Correspondence, SPSS Amos (version 25) was used (Gunzler et al., 2013). Child's age and executive functioning were not significantly related to the dependent variables; as a result, they are not included in the following analyses. The model fit the data acceptably well (Schreiber et al., 2006): $\chi^2(1) = 0.312$, p = .576; TLI = 1.025; CFI = 1.000; RMSEA = .000, CI [.000, .198] (see Figure 2 for a visual depiction of the results described below).

Body correspondence. Results of a regression analysis indicated that Entity Importance was a significant predictor of Child Engagement, β = .818, SE = .027, p = .002 and that Child Engagement was a significant predictor of Body Correspondence, β = .358, SE = .148, p = .024. Entity Importance was not a significant direct predictor of Body Correspondence, β = −.275, SE = .152, p = .102. The indirect effect of Entity Importance on Body Correspondence was tested using a bootstrap estimation approach with 2000 samples. These results indicated that the indirect effect of Entity Importance on Body Correspondence, mediated by Child Engagement, was significant, β = .293, SE = .121, p = .024, 95% CI [.046, .522]. This is consistent with full mediation. Each increase in parents' reports that it is important for their child to know about and believe in God (i.e., entity importance) was associated with a 0.293 higher proportion of conceptual correspondence between parent and child. In other words, children whose parents believed that it is important for their child to know about and believe in God, were more likely to correspond with their parents' body-dependent concepts of God, if parents *also* engaged them in activities and discourse related to God. Four percent (4%) of the variance in Body Correspondence (R^2 = .04) was explained by the model.

Mind correspondence. As with the above analyses, results of a regression testing our mediation model indicated that Entity Importance was a significant predictor of Child Engagement, β = .818, SE = .027, p = .002. However, in this analysis and different from the above analysis, Child Engagement was not a significant predictor of Mind Correspondence, β = .041, SE = .131, p = .749; but Entity Importance was a significant direct predictor of Mind Correspondence, β = .449, SE = .133, p = .002. The indirect effect of Entity Importance on Mind Correspondence was tested using a bootstrap estimation approach with 2000 samples. These results indicated that the indirect effect of Entity Importance on Mind Correspondence, mediated by Child Engagement, was not significant, β = .033, SE = .108, p = .744, 95% CI [−.172, .252]. This is not consistent with full or partial mediation, instead, Entity Importance was directly related to Mind Correspondence. In other words, children whose parents believed that it is important for their child to know about and believe in God, were more likely to correspond with their parents' mind-dependent concepts of

TABLE 2 Correlations, means and standard deviations

	1	2	3	4	5	6	7	8	9	10	*n*	*M*	*SD*
1. Mind Correspondence	–										122	0.662	0.333
2. Mind Concept: Parents	.717**	–									122	0.695	0.382
3. Mind Concept: Children	.165†	.111	–								122	0.839	0.255
4. Body Correspondence	.057	−.004	−.387**	–							122	0.439	0.307
5. Body Concept: Parents	.312**	.500**	−.016	.478**	–						122	0.246	0.287
6. Body Concept: Children	.200*	.311**	.601**	−.653**	−.009	–					122	0.695	0.288
7. Child's Age	.134	.045	.215*	.034	.039	.082	–				122	6.891	1.124
8. Executive Functioning	.053	.052	.092	.112	.086	.017	.473**	–			121	2.660	0.954
9. Child Engagement	.405**	.476**	.116	.136	.398**	.084	.162†	.073	–		122	2.233	1.502
10. Entity Importance	.483**	.622**	.202*	.017	.424**	.220*	.137	.048	.816**	–	122	1.827	1.015

Note: All effect sizes depicted here are zero-order Pearson's r correlation coefficients. †$p < .10$; *$p < .05$; **$p < .01$.

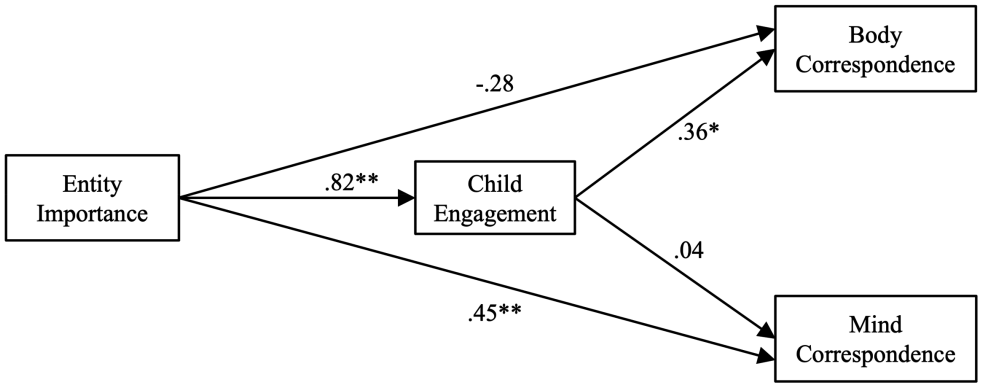

FIGURE 2 Visual depiction of the mediation effects (with standardized coefficients) examined for body correspondence and mind correspondence. *$p < .05$, **$p < .01$

God; this was irrespective of how often parents reportedly engaged in discourse or behaviours with their child. Twenty-three percent (23%) of the variance in Mind Correspondence ($R^2 = .23$) was explained by the model.

DISCUSSION

The current study examined abstract concept development by testing factors that relate to the similarity between children's and parents' concepts of God. Specifically, the study examined how the frequency of parents' engagement of children in religious socialization practices, and parents' beliefs in the importance of God, related to parent–child conceptual correspondence. We examined concepts pertaining to whether God has properties customarily associated with having a mind and a body. The following discussion focuses on the four main findings of this study; specifically, how these findings add to our understanding of the different ways in which parents and their children reason about the anthropomorphic properties of God, as well as the role parents may play in children's early formation of religious concepts.

How parents and children conceptualized god

The first major contribution of the current study is a replication of prior research, with a racially diverse sample of parent–child dyads, indicating that children generally associate more humanlike traits with God than adults do (e.g., Richert et al., 2017; Shtulman, 2008). This supports the anthropomorphism hypothesis that children anchor their concept of God in their concept of person (Heiphetz et al., 2016; Lane et al., 2012). Specifically, the current study replicated prior research showing that both adults and children associate a high number of mind-dependent properties to God, but that children associate a much higher number of body-dependent properties to God than adults do (e.g., Shtulman et al., 2019). During early-to-middle childhood, children are more likely to anthropomorphize God compared to their own parents, not just compared to other adults in general. While children conceptualized God as an embodied consciousness, their parents were more likely to conceptualize God as a disembodied consciousness.

Concepts of god and parental socialization

The current study adds to the developmental literature on God concepts with the second major finding of this study related to parents' socialization practices: that the frequency of socialization activities was

related to parents', but not to children's individual concepts of God. Prior studies have indicated that parents who view belief in God as important have children who associate less humanlike limitations to God's mind (Lane et al., 2010, 2012); and parents who believe God is real have children who believe the same (Cui et al., 2020). The current study revealed that parents who associated more anthropomorphic traits with God (both mind- and body-dependent) were more likely to report engaging their children in activities (i.e., participation) and discourse (i.e., testimony) that focused on God.

One possible explanation for this pattern is that our measure of religious socialization (i.e., child engagement) served as a proxy for parents' *desire to socialize* their children, rather than as a proxy for the *dissemination of conceptual content*. In support of this interpretation, entity importance and child engagement were highly related such that 66% of the variance in one explained the variance in the other. It has been suggested that a desire for social connectedness is at the root of the tendency to anthropomorphize non-human agents (Epley et al., 2007; Epley et al., 2008), and the relations in our study between parents' concepts of God, rates of socialization and the perceived importance of God, seem to support that suggestion among adults.

A limitation of the current study was that the measure of parental socialization did not capture qualitative aspects of engagement such as the emotions elicited, or the specific content parents shared during the activity. Positive emotional arousal increases the likelihood that children will remember an experience (Tyng et al., 2017). Further, knowing parents' conception of God is only a rough proxy for what information parents end up sharing with their children. Thus, future research should examine parents' goals for religious engagement, as well as the content and nature of the engagement itself.

Parent–Child conceptual correspondence

The final two major findings of this study pertain to how children's and parents' concepts were related to each other, or what we have referred to as 'conceptual correspondence'. The current study is unique in focusing specifically on measuring parent–child correspondence, and in examining factors that covary with conceptual correspondence. First, as predicted, parent–child dyads corresponded more closely about mind-dependent attributes than body-dependent attributes, a finding driven by parents attributing a fewer number of body-dependent attributes to God overall (as discussed earlier). Second, although entity importance was directly related to correspondence in the attribution of mind-dependent properties to God, religious engagement fully mediated the relation between entity importance and correspondence about body-dependent properties. We discuss what these two findings might indicate about variation in embodied concepts of God, and the role of parental socialization, in the following paragraphs.

The above pattern of findings indicates that relative to God's psychological attributes, removing or retaining embodied elements in one's concept of God is especially sensitive to religious socialization (Barlev & Shtulman, 2021). This interpretation is supported by research indicating that greater variation in concepts of God tends to occur in the attribution of body-dependent properties, not mind-dependent properties (Shtulman et al., 2019; Shtulman & Lindeman, 2016). Another compatible explanation for these findings is that the activities parents engage children in incorporated embodied depictions of God. The testimony shared with children about God often incorporates language implying that God has mind- and body-dependent functions, and the cultural tools present in religious rituals similarly cue an anthropomorphic heuristic (Heiphetz et al., 2016). For example, in Christian traditions, God is often depicted in a human form (e.g., in nativity scenes, artwork). Adults also make statements about God that imply the existence of a body such as saying, 'God is in Heaven' or 'God created all things'. In a child's experience, an agent must have a physical presence to 'be' somewhere and hands in order to 'create'.

Conceptualizing God as having a mind, and a body in which to house that mind, is consistent with agent-related intuitions (Heiphetz et al., 2016; Lane, 2021). Though we accounted for children's

executive functioning, it was unrelated to conceptual correspondence; possibly because socialization experiences have not encouraged children to suppress their intuitions. Overriding intuitions about God's physical presence by viewing God as a bodiless agent may require a particular kind of parental socialization, as it may be uniquely difficult for children to represent violations of expectations regarding the physical world (Nyhof & Johnson, 2017). Thus, future research should continue to examine how specific parental socialization activities relate to embodiment in concepts of God.

Future directions

As noted above, future research should more closely examine the nature of parent socialization practices and how parents and children are interacting together when religious content is involved. Previous research suggests that different theological doctrines may contribute to differences in anthropomorphic reasoning about God. For example, Muslim children make a greater distinction between God's knowledge and humans' knowledge relative to Protestant Christian and Roman Catholic children (Richert et al., 2017). However, the focus of the current study was on religious socialization practices about God (i.e., rituals and discourse) and not religious affiliation – which guided our participant recruitment. As a result, the parent–child dyads in this study came from more varied religious backgrounds and the small sample sizes of our religious groups were too small to permit an examination of parent–child conceptual correspondence between religious groups.

Of additional importance is that children are active in their own development, and actively participate in cultural practices meant to support learning (Rogoff et al., 2015). Although parents provided an estimate of how often they engage their children in religious activities, we do not have qualitative information about the experiences. Research shows that children learn best in school settings when they are actively participating in dialogue (e.g., asking questions, elaborating on concepts), as opposed to passively listening to instruction (Howe et al., 2019; Ronfard et al., 2018). Thus, future studies should also examine the role children play in socialization exchanges.

Conclusion

When reasoning about an abstract agent like God, there is no direct material referent in the physical world to which children can anchor their understanding (Hampton, 2015). Instead, children rely on inferential reasoning guided by cognitive heuristics (Saide & Richert, 2021) and the information disseminated to them by socializing agents (Harris & Koenig, 2006). Removing the embodied nature of God concepts may be the most developmentally difficult and the most sensitive to religious socialization. Future work on parent–child conceptual similarity should make an effort to examine differences between religious traditions. Future work should also measure the qualitative aspects of the activities and discourse parents engage their children in, such as the role children play and the affective nature (i.e., emotion) of those interactions.

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CONFLICTS OF INTEREST

All authors declare no conflict of interest.

AUTHOR CONTRIBUTIONS

Anondah Saide: Conceptualization; investigation; Writing - original draft. **Rebekah Richert:** Resources; Writing - review & editing.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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