The Early Parenting Attitudes Questionnaire: Measuring Intuitive Theories of Parenting and Child Development

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Abstract

Parenting behaviors and decisions play an important role in determining children's early environment. Are these behaviors driven by an intuitive theory of parenting – a coherent set of beliefs about child development and parent-child relationships? In exploratory work, we asked adults on Amazon Mechanical Turk to endorse a set of propositions about parenting and conducted exploratory factor analyses of their responses. Three distinct factors appeared in responses: an Affection and Attachment factor, an Early Learning factor, and a Rules and Respect factor. In an iterative process, we created a scale of items with subscales designed to measure these factors, which we call the Early Parenting Attitudes Questionnaire (EPAQ). We next conducted a series of studies with groups of parents (on Mechanical Turk and from the membership of a local museum) to estimate the validity of the new scale. We asked whether the predicted factor structure emerged from subsequent confirmatory factor analysis on a new sample, whether agreement with each subscale varied based on demographic factors, and whether intuitive theories predicted self-reported parenting behaviors. The present scale provides an instrument to assess attitudes about parenting and child development, facilitating of investigation and intervention on parenting behaviors.

Keywords: intuitive theories; parenting; child development

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Parents and caregivers play a critical role in forging children's early environment. Thus, developmentalists have long been interested in variability in parenting behaviors and the effects of these behaviors on the developing child. Some of the most foundational work in parenting development involves the assessment of parenting styles and practices as well as their relation to children's behaviors (e.g., Ainsworth, 1979; Baumrind, 1970). A separate – although related – question concerns how parents *conceptualize* parenting. The vast array of individual parenting behaviors and styles may emerge in part from distinct theories that parents hold about parenting and early childhood development (Darling, 1993). It is these theories that are our topic in the current study.

Human knowledge about particular domains of cognition – from the organization of the biological world to the nature of achievement – is not an unstructured mass of facts but instead can be described with some of the same vocabulary used in describing scientific theories (Gopnik & Wellman, 1994). This idea, sometimes referred to as the "theory theory," posits that knowledge is organized into *intuitive theories*: sets of core assumptions and propositions that organize the processing of new information and decision-making. These theories may or may not be consciously articulated; even implicit intuitive theories have been shown to determine behavior in other domains (Dweck & Leggett, 1988; Erdley, 1997). Intuitive theories have provided a highly successful framework for understanding cognition across a wide range of domains, including biology (e.g., Hatano & Inagaki, 1994), psychology (e.g., Baron-Cohen et al., 2001), physics (e.g., Smith & Vul, 2013), causality (e.g., Gopnik et al., 2004), motivation (e.g., Dweck, Chiu, & Hong, 1995), and many others.

Here we ask about what theories parents have about their roles as parents? How do they conceptualize what their "job" is as a parent – do they see themselves as instilling

responsibility? Establishing emotional bonds? Educating? Or simply providing for basic needs? In our study, we investigate the dimensions along which parents differ in their underlying attitudes about parenting infants and young children. Our contribution is to begin to develop a psychometrically-valid survey instrument for measuring these attitudes via parents' reports about their own parenting attitudes.

An extremely large literature – both within and outside of psychology – has investigated parents' beliefs and attitudes about parenting (see Miller, 1988 for review). A full review of this literature is beyond the scope of the current article, but we note that the broad idea that parents have widely varying attitudes about parenting is a key conclusion. Just to take one example, Lareau (2003)'s notion of "concerted cultivation" – that higher socioeconomic status parents differentially aim to foster children's talents – has been immensely influential. This idea would certainly qualify as part of an intuitive theory of parenting – that is, for some parents, an assumed role for a parent is to identify and train specific capacities.

Another highly influential framework for characterizing parenting styles delineates permissive, authoritative, and authoritarian styles of parenting (Baumrind, 1971). This framework has been particularly useful for understanding links between parenting behaviors and child outcomes (e.g., Williams et al., 2009). The focus of this work has been on behaviors that generally manifest later in childhood, however, meaning that it is less useful for describing parenting approaches during infancy and early childhood.

In addition to this broader literature, a number of specific instruments exist for measuring parents' knowledge, beliefs, and attitudes. For example, the Knowledge of Infant Development Inventory is a 57 item instrument that assesses facts about parenting norms and child behavior (KIDI; MacPhee, 2002). While specific knowledge about the norms and science of child development likely influences attitudes and behavior (see e.g., Rowe, 2008 for a concrete example using the KIDI), parenting attitudes cannot be inferred from knowledge

alone (Miller, 1988). Instead, an intuitive theory of how to parent is likely a distinct construct, relating to goals as well as knowledge.

In recent work closer to our own, Taylor and Bergin (2019) proposed the parent/caregiver involvement scale, a short instrument designed to provide an assessment of parenting quality for parents of infants. Further, Suskind et al. (2018) proposed the Survey of Parent/Provider Expectations and Knowledge (SPEAK), which focuses primarily on language input and media exposure. While both of these measure aspects of parents' attitudes, neither provides a broad base of items that could be used to reveal the structure of an intuitive theory (as is our aim).

In the current work, in an attempt to estimate the structure of parenting beliefs, we had groups of adults in a convenience sample report their agreement with a series of propositions about parenting and early child development, and conducted exploratory and then confirmatory factor analysis on the responses (Clark & Watson, 1995; Furr, 2011; Simms, 2008). By iterating on this process, we identified candidate 3 dimensions of parenting attitudes on which participants differ, which we term "Affection and Attachment," "Early Learning," and "Rules and Respect." The propositions we retained after removing items with low factor loadings or low intercorrelations form a new scale, the Early Parenting Attitudes Questionnaire (EPAQ).

We next conducted a two studies focusing on parents and aimed at estimating ecological validity for the scale. Specifically, we asked whether parenting attitudes – as assessed by the EPAQ – varied based on demographic factors and whether attitudes were related to their self-reported parenting behaviors. In the following sections, we describe the process of generating scale items, determining the factor structure of the beliefs we measured, and these initial steps towards validating the scale.

Scale Construction

In the initial phase of project, we attempted to construct a set of questions that could be used to measure variation in intuitive theories of parenting. We generated 54 items that described various attitudes about parenting and child development that we predicted parents might differ on. We selected these items based on a literature review of previous parenting research, including existing measures and theories such as the Knowledge of Infant Development Inventory (KIDI, MacPhee, 2002), Baumrind's parenting framework (Baumrind, 1970), and theories of attachment parenting (Jones, Cassidy, & Shaver, 2014). Items included in the initial set related to parents' emotional and physical relationships with their children, their beliefs about children's early learning, beliefs about children's autonomy, and a variety of other topics.[1].

We administered the initial scale to 250 adults located in the United States, recruited via Human Intelligence Tasks (HITs) posted on Amazon's Mechanical Turk (AMT) marketplace. Mechanical Turk enables the recruitment of samples of workers participating in the marketplace; workers select "jobs" to complete – in this case, our survey – so they cannot be considered a random sample.[2] Although our primary goal was to assess knowledge in parents, we began the process of scale construction using convenience samples of adults (not all of whom were parents). This decision was made in order to facilitate rapid iteration and refinement of the set of items in the scale. As mentioned above, in subsequent studies, we administered the scale selectively to parents in order to confirm its properties.

Participants used a 7-point Likert scale to report the degree to which they agreed with

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[1] The full item set from our initial attempt can be viewed in the wiki of our OSF repository: https://osf.io/deqg3.

[2] In this and all subsequent studies, participants indicated their informed consent prior to participating. All research, including the consent statement, were approved by Stanford University's Institutional Review Board (Protocol #20009).

each statement from 0 (Do not Agree) to 6 (Strongly Agree). We began by conducting exploratory factor analysis (EFA) to assess the dimensionality of the scale. Based on the output of a parallel analysis (Horn, 1965), we retained 5 factors in this initial model. We subsequently dropped any items that had factor loadings less than .40 on the relevant factor, as well as any items that had factor loadings greater than .40 on another factor as well.

We repeated this process a total of 7 times, adjusting wording and recruiting new samples of naive participants on AMT. After several iterations, the parallel analysis began returning 3 factors, so we retained 3 factors in subsequent factor analyses. The first factor appeared to corresponded to a theory about affection and attachment and captured the idea that emotionally close parent-child relationships are important for development. The second factor corresponded to ideas around the importance of fostering early learning. The third factor corresponded to ideas around rules and respect, including children's autonomy and behavioral control. We titled these factors Affection and Attachment (AA), Early Learning (EL), and Rules and Respect (RR). Once we had identified these categories, we dropped items belonging to each category (based on factor loadings) if analyses revealed that Cronbach's alpha for that category would be increased by dropping the item. We also added new items that were theoretically consistent with the categories that had emerged. To control for response sets (e.g., a tendency to rate all items highly; Simms, 2008), some items were rephrased such that half of the items in each subscale were negatively worded.

Study 1

Our first study was a confirmatory factor analysis of the factors recovered in the previous scale-construction effort. Our goal was to ensure that the factor decomposition we observed in previous exploratory efforts was a good description of the full scale. Participants were not screened for parenthood, thus we expect that the sample would contain both parents and non-parents; the goal of this initial study was simply to make a confirmatory

test of the factor structure we recovered in previous samples on an identical study.

Methods

Participants. Our final sample consisted of a new group of 250 participants recruited on Amazon Mechanical Turk. Of these participants, 47.6% reported having one or more children.

Participants were 45.6% male, 52.0% female; 2.4% other or decline to state. Participants were 79.2% White, 2.4% Black, 10.8% Asian or Asian-American, and 7.6% multiple, other, or decline to state. 9.2% of the sample reported Hispanic ethnicity. The large majority of our participants were between 20 and 49 years old: 41.2% of participants were 20-29, 35.2% were 30-39, 10.8% were 40-49. The modal level of education was a four-year college degree (38.0%) with a large additional proportion reporting some college education (33.6%) and the remainder evenly split between a high school degree (11.2%) and a graduate degree (13.6%).

Procedure and Materials. Participants filled out the EPAQ items using a 7-point Likert scale. The final set of items comprising the three subscales is presented in Table 1. Participants were asked to fill out a short demographic form, providing age, gender, number of children, level of education, language, race, ethnicity, and age of youngest and oldest child. Participants additionally completed the MacArthur Ladder, a measure of subjective social status that asks participants to rate their status from 1–10 using a picture of a ladder.[3]

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[3] We used the version of the ladder available at https://macses.ucsf.edu/research/psychosocial/usladder.php.

Results and Discussion

All data and analytic code for this project are available at https://osf.io/deqg3. Cronbach's alpha for the whole scale was 0.90, for the AA subscale was 0.82, for the EL subscale was 0.83, and for the RR subscale was 0.81. Items within subscales were highly correlated, but items across subscales are highly correlated as well, which may reflect response biases to rate all items particularly high or low.

We next examined the loadings of individual items onto the three factors (Figure 2). Items loaded onto the three factors in a way that was roughly consistent with our established subscales, but the factors did not pull apart completely. Specifically, several EL items loaded strongly (above .40) on the AA factor ("It is good to let children explore and experiment," loading = 0.56; "Babies can learn a lot just by playing," loading = 0.69; "Parents can help babies learn language by talking to them," loading = 0.61; "Parents can prepare young children to succeed in school by teaching them things, such as shapes and numbers," loading = 0.48) and several AA items loaded strongly on the EL factor ("Parents should not try to calm a child who is upset, it is better to let children calm themselves," loading = 0.47; "Children and parents do not need to feel emotionally close as long as children are kept safe," loading = 0.63; "Too much affection, such as hugging and kissing, can make a child weak," loading = 0.41). Additionally, several RR items loaded strongly onto the EL factor ("It is okay if young children boss around their caregivers," loading = 0.57; "It is okay if children see adults as equals rather than viewing them with respect," loading = 0.42, "Young children should be allowed to make their own decisions, like what to play with and when to eat," loading = 0.42; and "Parents do not need to worry if their child misbehaves a lot," loading = 0.46). In contrast, no AA or EL items loaded strongly onto the RR factor, suggesting that in the population we sampled this was the most separable of the three proposed intuitive theories.

Given the partial overlap of the EL and AA factors in particular, it is possible that participants' responses on these items were driven to some extent by a more general attitude towards more involved parenting. For example, in attachment theory, the primary caregiver is posited to be a primary source for learning interactions, whether those interactions are about behavior/emotion regulation or more academic topics (Sroufe, 2005). Additionally, although it was unexpected, the relatively strong loading of these items onto the EL factor could reflect a general attitude that relates children's autonomy with their early learning. For example, some parents may believe that children who are strong-willed will be at an advantage for learning from their mistakes.

Despite the partial overlap of the EL and AA factors in the population we sampled – which was mostly White, highly educated, and from the United States – it is possible that these factors would be more separable in other cultural contexts. For example, perhaps there is a particular focus among White, highly educated U.S. parents on promoting early learning and affectionate parenting. Because the EL and AA subscales measure theoretically separable constructs, we nevertheless decided to retain this distinction. With these points in mind, we decided to move forward with the present version of the scale.

Study 2: Variability in parenting attitudes based on demographic factors

Our second study had two goals. First, we were interested in exploring whether the factor structure identified in Study 1 would apply to a group of parents. Second, approaches to parenting are known to differ across cultures and groups. To better understand whether the parenting attitudes captured by our survey reflect group differences, we examined average scores on the EPAQ subscales based on demographic factors. To be able to fulfill this second goal, we required a large sample; thus we collaborated with a local children's museum to survey their members, a convenience sample of families with some demographic diversity. We note that our sample consists only of respondents to an email solicitation; thus

selection biases (e.g., parents curious about parenting) likely narrow the distribution of attitudes in the sample even beyond the initial selection based on museum membership.

Methods

Participants

Participants were 679 members of a local children's museum. Parents received an email from the museum membership list informing them about the opportunity to participate in a study about parenting attitudes. If they were interested, they were asked to provide consent and fill out the survey via a link in the email.

Participants were 84.7% female. On average, they were highly educated, with 15.0% of participants having a doctorate, 42.9% having a professional degree, 33.8% having a 4-year-college degree, 3.1% having a 2-year college degree, 4.4% completing some college, 0.6% completing high school, and 0.1% not completing high school. Participants mostly identified as White (51.7%) or Asian (30.0%), with 5.2% identifying as Hispanic or Latino, 0.7% identifying as Black or African American, 0.1% identifying as American Indian or Alaska Native, 0.4% identifying as Native Hawaiian or Pacific Islander, 8.0% identifying as Multiple Ethnicities, 2.9% reporting their ethnicity as "Other", and 0.9% not reporting their ethnicity. Participants were 18-24 years (0.4%), between 25-34 years (0.1%), between 35-44 years (55.1%), between 45-54 years (7.4%), between 55-64 years (0.9%), and between 65-74 years (1.9%). Participants reported having 1 child (37.4%), 2 children (48.3%), 3 children (10.2%), 4 children (3.1%), 5 children (0.7%), and 0.1% did not report how many children they had.

Procedure

Parents first completed the EPAQ, and then provided information about their gender, level of education, age, ethnicity, and the number of children they had.

Results and Discussion

Figure 3 displays the average EPAQ scores for each demographic category. To quantify any possible group differences, we fit separate Bayesian mixed-effects ordinal regression models for each subscale (AA, EL, RR) with the following structure, with likert ratings of agreement for each item (1-6) entered as dependent measures: `agreement rating ~ age + education + ethnicity + gender + number of children + (1 | subject) + (1| item)`. Groups with fewer than 20 cases were removed from plots and analyses to avoid over-fitting. Although parents reported their age in terms of a range (e.g., "25–34"), we treated approximate age as a continuous variable in analyses, using the median of the range parents selected. We also calculated education in years for each of the categories parents reported, so that education could be treated as continuous.

Table 2 displays the results of the regression analyses. We found that stronger agreement with AA attitudes was associated with identifying as Hispanic or Latino (β = 0.72, 95% CI = 0.34 - 1.11), White (β = 0.31, 95% CI = 0.12 - 0.49), or multiple ethnicities (β = 0.50, 95% CI = 0.18 - 0.82) compared to Asian (the comparison level). Having a greater number of children was associated with lower agreement with AA attitudes (β = -0.14, 95% CI = -0.24 - -0.03), as was identifying as Male (β = -0.70, 95% CI = -0.92 - -0.48). Parent education was not meaningfully associated with AA scores.

We found that stronger agreement with EL scores was associated with identifying as White (β = 0.44, 95% CI = 0.25 - 0.62) or multiple ethnicities (β = 0.56, 95% CI = 0.22 - 0.90), and having more children was associated with slightly lower agreement with EL scores

(β = -0.14, 95% CI = -0.24 - -0.03). No other demographic variables were related to EL scores.

Finally, we found that stronger agreement with RR attitudes was associated with having a greater number of children (β = 0.15, 95% CI = 0.04 - 0.25), and identifying as White was associated with lower agreement with RR attitudes (β = -0.20, 95% CI = -0.38 - -0.01).

These results suggest that parenting attitudes vary based on some demographic factors. The strongest effect we observed was of gender on AA attitudes, with females reporting stronger agreement with these items. This pattern could reflect a cultural expectation for females to more readily display affection, and/or theories of attachment parenting which often focus on physical closeness between mother and child (Pederson et al., 1990). They could also reflect norms with respect to primary caregiving, with mothers more often spending relatively more time with children. We also found that parents who identified as Asian reported lower AA agreement compared to other racial groups, which is consistent with previous research showing that Asian parents are more likely to have an authoritarian parenting style compared to White parents (Chao, 2000) and show less outward affection (Wu, 2005). We also found that identifying as White or Multiple Ethnicities was associated with greater agreement with EL attitudes. This could reflect a contemporary Western focus on exploration and play as important learning opportunities in childhood, which is captured by the EL subscale (Fisher, 2011). Finally, we found some relationship between attitudes and number of children, such that parents with more children tended to endorse RR items more and EL items less.

Although these results begin to suggest some meaningful demographic variability in attitudes, it should be noted that these results are not necessarily representative of groups outside the convenience sample we recruited. Participants were members of a children's museum, meaning that they likely agree more strongly with attitudes favoring early learning

compared to the general population. Participants also self-selected into the study with the knowledge that it was about parenting attitudes, meaning that this group may have been particularly curious about parenting. Due to these factors, the range of responses may have been restricted compared to other groups (e.g., there may have been fewer parents with low EL scores compared to the broader population of parents we would like to assess). Further investigations with a broader range of education and racial and ethnic backgrounds and a greater proportion of fathers could provide additional information about demographic variability in attitudes.

Study 3: Relation of attitudes to parenting behaviors

Another way of assessing the ecological validity of the EPAQ is to ask whether the parenting attitudes it measures are related to actual parenting behaviors. For example, do parents who strongly agree with items on the Early Learning subscale read to their children more often? Do parents who strongly endorse items on the Rules and Respect subscale give more time-outs? To assess this question, we recruited a sample of parents on Amazon Mechanical Turk (unlike Study 1, in this case we screened explicitly for parenthood). We asked parents to complete the EPAQ and then rate the frequency with which they engaged in a number of parenting behaviors.

Methods

Participants

Participants were a new and independent sample of 240 adults recruited through Amazon's Mechanical Turk. To identify parents in our sample, we requested that only parents complete the survey, and then followed up by asking how many children participants

had at the end of the survey. If the total sample, 1.2% responded "0" or indicated that no child was under 5 (2.4%) and were dropped from analyses, leaving 240.

Participants were 50.4% male, 47.9% female; 1.7% other or decline to state. Participants were 80.4% White, 8.3% Black, 8.3% Asian or Asian-American, and 2.9% other or decline to state. 6.2% of the sample reported Hispanic ethnicity. Again the majority of our participants were between 20 and 49 years old: 30.4% of participants were 20-29, 59.2% were 30-39, 9.2% were 40-49.

Procedure

Parents completed the EPAQ and then responded about how often they engaged in 12 different parenting behaviors, focusing on the prior month. Of the 12 behaviors, four corresponded theoretically to each EPAQ category (Table 3). Parents chose between the following frequency options: "Multiple times per day", "Most days", "Once or twice per week," "Occasionally," "Almost never," "Never," and "My child is too young for this." Parents who reported that they did not have children under the age of 5 were excluded from analyses, and their data were excluded for any items for which parents responded "My child is too young for this."

Results and Discussion

The distribution of frequencies that parents reported is displayed in Figure 4. To assess whether parenting behaviors are associated with parenting attitudes, we calculated participants' average EPAQ subscale scores and fit separate Bayesian ordinal logistic mixed-effects regressions for the three categories of behaviors. We used the brms package (Bürkner & others, 2017) with default priors. The regressions had the following structure:

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behavior frequency ~ AA EPAQ score + EL EPAQ score + RR EPAQ score + child
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`age + (1 | subject) + (1| item)` (Table 4). This model structure enabled us to estimate the differential predictive relationship between the target subscale and the set of target behaviors, given that the three subscales are correlated with each other. We expected that if attitudes are meaningfully related to behaviors, the domain-consistent EPAQ subscale score for a given behavior would be higher than the domain-inconsistent subscale scores. The relation between EPAQ scores and behavior frequencies are presented in Figure 5.

We found that the frequency of AA behaviors was positively associated with AA attitudes ($\beta = 0.81$, 95% CI = 0.53 - 1.12), but not RR or EL attitudes or child age. Frequency of EL behaviors was positively associated with stronger agreement with both AA ($\beta = 0.37$, 95% CI = 0.02 - 0.71) and EL attitudes ($\beta = 0.52$, 95% CI = 0.18 - 0.88). The frequency of RR behaviors was positively associated with stronger RR attitudes ($\beta = 0.34$, 95% CI = 0.05 - 0.63), and to a lesser extent, child age ($\beta = 0.03$, 95% CI = 0.01 - 0.05).

These results suggest that parenting attitudes as assessed by the EPAQ have a meaningful relationship to the actual behaviors parents report engaging in with their children. One interpretation is that the EPAQ measures beliefs that drive parents' decisions and behavior. If this were true, intervening on these beliefs could be an effective way of promoting behavior change in parents, for example, to promote opportunities for early learning.

The current study is a step towards evaluating the relation between beliefs and action in the domain of early parenting, though our design has some limitations. First, data are correlational rather than the result of an explicit intervention; thus, any observed pattern is consistent with multiple causal hypotheses. For example, reflection on recent behaviors could lead to particular answers on attitude questions (or vice versa), or could be a consequence of cultural or socioeconomic variables beyond those we measured, with no direct relationship between beliefs and attitudes. In addition, it is possible that participants' self-reported behaviors capture their intentions rather than their actual behaviors. Future work using an

intervention approach, and/or a diary method of self-report – while both far more difficult to implement than the current study – would help distinguish these possibilities.

General Discussion

In the present work, we established a new scale to measure attitudes about parenting and child development. We found that peoples beliefs were organized into three apparent categories: Rules and Respect, Affection and Attachment, and Early Learning. These subscales capture meaningful differences in how people view child development and the relative importance of different parenting behaviors. In addition, we found meaningful differences in attitudes across demographic groups and we observed the expected relations between parenting attitudes and behaviors. This work provides initial evidence that meaningful differences in adults' attitudes about child development and parenting can be assessed by our new scale.

Although we did not measure connections with later parenting styles directly, we speculate that some of our scales might relate to later attitudes. For example, our RR subscale might relate to relative authoritarianism in the framework of Baumrind (1971). In our samples, we did not observe huge variation in this dimension, but this lack of variability is likely due to the relative demographic homogeneity of our samples. Further evidence across a broader demographic range would provide additional support for the scale and might better allow links between scale measurements and descriptions of parenting behaviors in particular groups (e.g., Rogoff et al., 1993).

Intuitive theories are a powerful explanatory framework for considering the structure of human knowledge and the origins of behavior. The current work presents a new way to measure attitudes in parents of infants and young children, attempting to elucidate the components of an intuitive theory of parenting. This approach may be useful for other

researchers who want to consider the possible impact of parent attitudes on behaviors observed in experimental or naturalistic settings. Given both the variability in attitudes towards parenting across groups and the importance of improving parenting outcomes, intuitive theories of parenting may provide a tool for better understanding links between the two.

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Table 1

Early Parenting Attitudes Questionnaire items.

Category	Item
AA	Children should be comforted when they are scared or unhappy.
	Its important for parents to help children learn to deal with their emotions.
	Parents should pay attention to what their child likes and dislikes.
	A child who has close bonds with his or her parents will have better relationships later on in life.
	Children who receive too much attention from their parents become spoiled.*
	Too much affection, such as hugging and kissing, can make a child weak.*
	Children and parents do not need to feel emotionally close as long as children are kept safe.*
	Parents should not try to calm a child who is upset, it is better to let children calm themselves.*
EL	It is good to let children explore and experiment.
	Parents can help babies learn language by talking to them.
	Parents can prepare young children to succeed in school by teaching them things, such as shapes and numbers.
	Babies can learn a lot just by playing.
	It is not helpful to explain the reasons for rules to young children because they wont understand.*
	Children dont need to learn about numbers and math until they go to school.*
	Reading books to children is not helpful if they have not yet learned to speak.*
	Babies cant learn about the world until they learn to speak.*
RR	It is very important that children learn to respect adults, such as parents and teachers.
	It is very important for young children to do as they are told, for example, waiting when they are told to wait.
	Children should be grateful to their parents.
	It is very important that there are consequences when a child breaks a rule, big or small.
	It is okay if young children boss around their caregivers.*
	It is okay if children see adults as equals rather than viewing them with respect.*
	Young children should be allowed to make their own decisions, like what to play with and when to eat.*
	Parents do not need to worry if their child misbehaves a lot.*

Note:

*Indicates reverse coded items.

Table 2

Results of separate Bayesian ordinal logistic regressions of demographic factors on agreement with AA, EL, and RR attitudes.

Subscale	Factor	Estimate	Est. Error	Lower 95% CI	Upper 95% CI
AA	Parent Age	-0.00	0.01	-0.01	0.01
	Hispanic or Latino	0.72	0.20	0.34	1.11
	Multiple Ethnicities	0.50	0.16	0.18	0.82
	White	0.31	0.09	0.12	0.49
	Parent Education	0.02	0.02	-0.01	0.05
	Number of children	-0.14	0.05	-0.24	-0.03
	Male	-0.70	0.11	-0.92	-0.48
EL	Parent Age	0.01	0.01	-0.00	0.02
	Hispanic or Latino	0.26	0.19	-0.12	0.64
	Multiple Ethnicities	0.56	0.17	0.22	0.90
	White	0.44	0.09	0.25	0.62
	Parent Education	0.02	0.02	-0.01	0.05
	Number of children	-0.14	0.05	-0.24	-0.03
	Male	-0.18	0.11	-0.41	0.04
RR	Parent Age	-0.00	0.01	-0.01	0.01
	Hispanic or Latino	0.27	0.20	-0.11	0.67
	Multiple Ethnicities	-0.02	0.17	-0.34	0.31
	White	-0.20	0.10	-0.38	-0.01
	Parent Education	-0.02	0.02	-0.05	0.01
	Number of children	0.15	0.06	0.04	0.25
	Male	-0.17	0.12	-0.39	0.06

Table 3

Parenting activities reported on by parents.

Category	In the last month, how often did...
AA	you and your child talk about feelings (e.g., when he/she was sad/angry)?
	you and your child spend time cuddling?
	your child sleep in the same bed as you?
	you hug or kiss your child?
EL	you read to your child?
	you practice numbers or letters with your child?
	you share facts or observations about the world when you were doing other tasks (e.g., did you know butter comes from cows? while shopping at the grocery store)?
	your child watch educational programming (e.g., shows like Sesame Street) or play with educational apps (e.g., apps designed to teach numbers, colors, shapes, etc.) on a tablet or mobile device?
RR	you talk sternly to your child when he/she did something you dont want?
	you give your child time out or other punishments for acting out?
	you talk about setting limits with your child (e.g., only 10 minutes of screen time or no hitting)?
	your child help or try to help with chores or tasks (including cleaning up his/her toys)?

Table 4

Results of separate Bayesian ordinal logistic regressions of EPAQ scores and child age on frequency of parenting behaviors in Affection and Attachment (AA), Early Learning (EL), and Rules and Respect (RR) categories.

Behavior Category	Factor	Estimate	Est. Error	Lower 95% CI	Upper 95% CI
AA	AA EPAQ score	0.81	0.15	0.53	1.12
	RR EPAQ score	-0.02	0.11	-0.24	0.19
	EL EPAQ score	-0.01	0.14	-0.30	0.26
	Child Age	0.01	0.01	-0.00	0.02
EL	AA EPAQ score	0.37	0.18	0.02	0.71
	RR EPAQ score	0.20	0.13	-0.06	0.45
	EL EPAQ score	0.52	0.18	0.18	0.88
	Child Age	0.01	0.01	-0.00	0.03
RR	AA EPAQ score	0.10	0.21	-0.30	0.50
	RR EPAQ score	0.34	0.15	0.05	0.63
	EL EPAQ score	0.02	0.21	-0.40	0.42
	Child Age	0.03	0.01	0.01	0.05

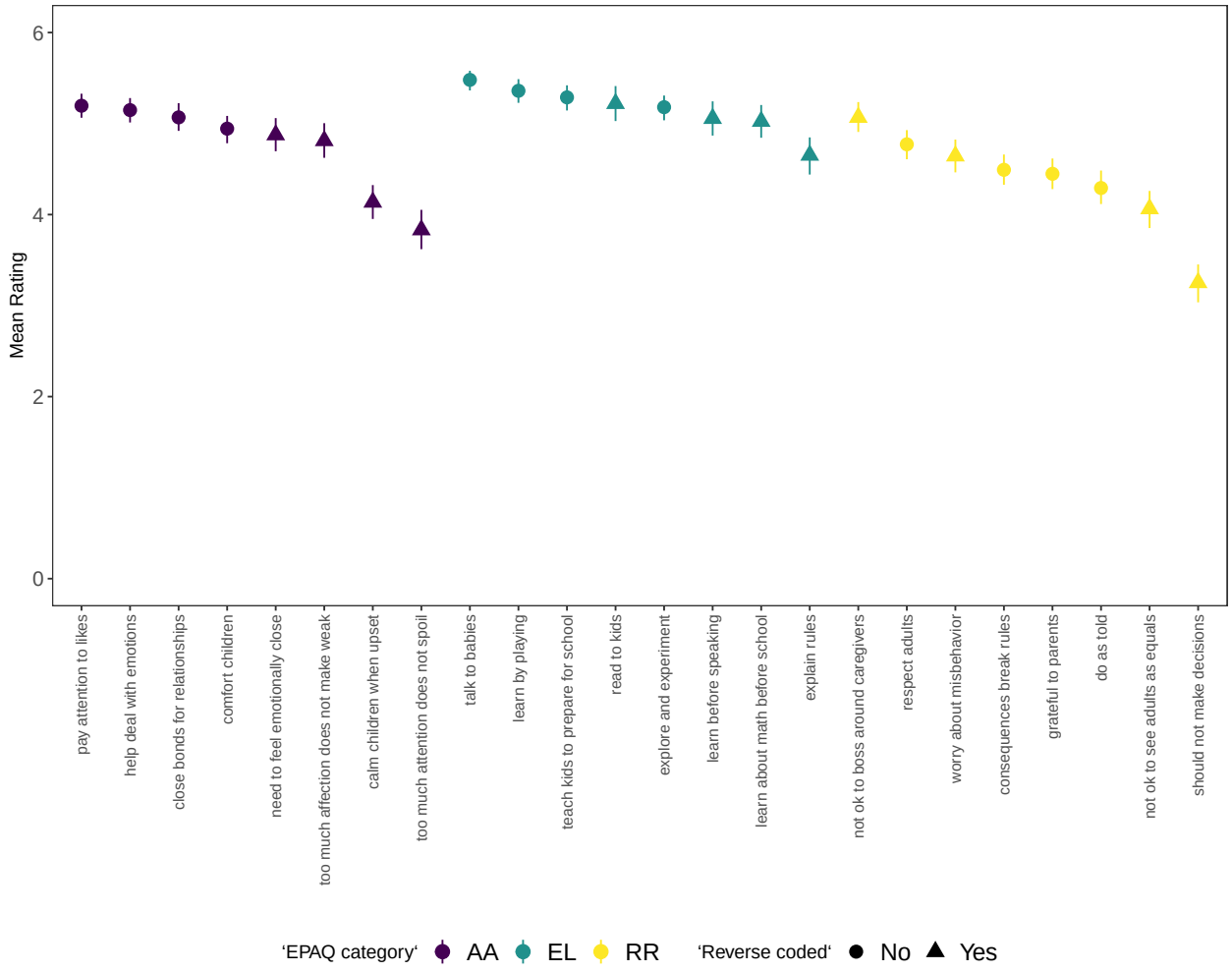

Figure 1. Average ratings for individual EPAQ items.

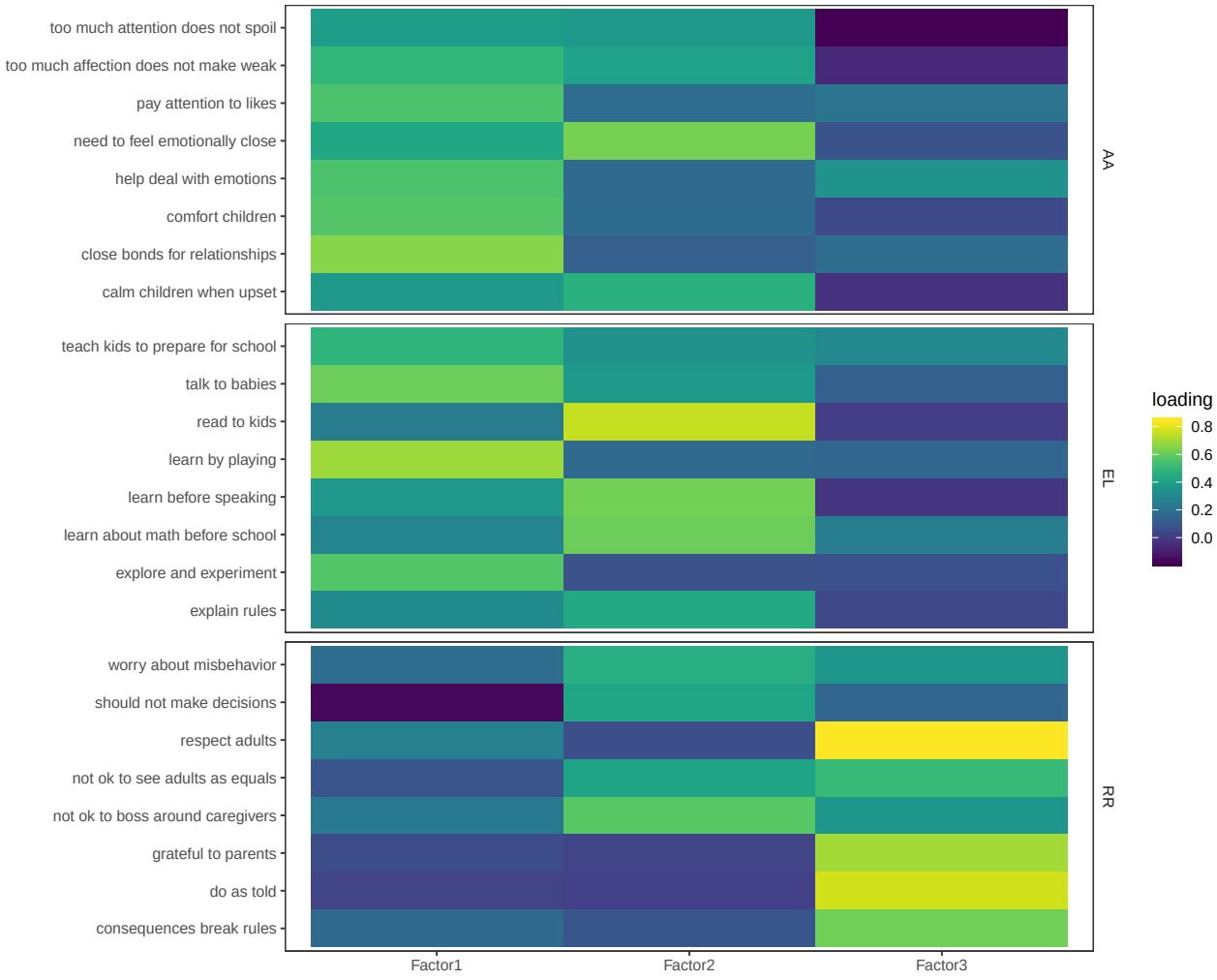

Figure 2. Factor loadings on individual EPAQ questions from Study 1.

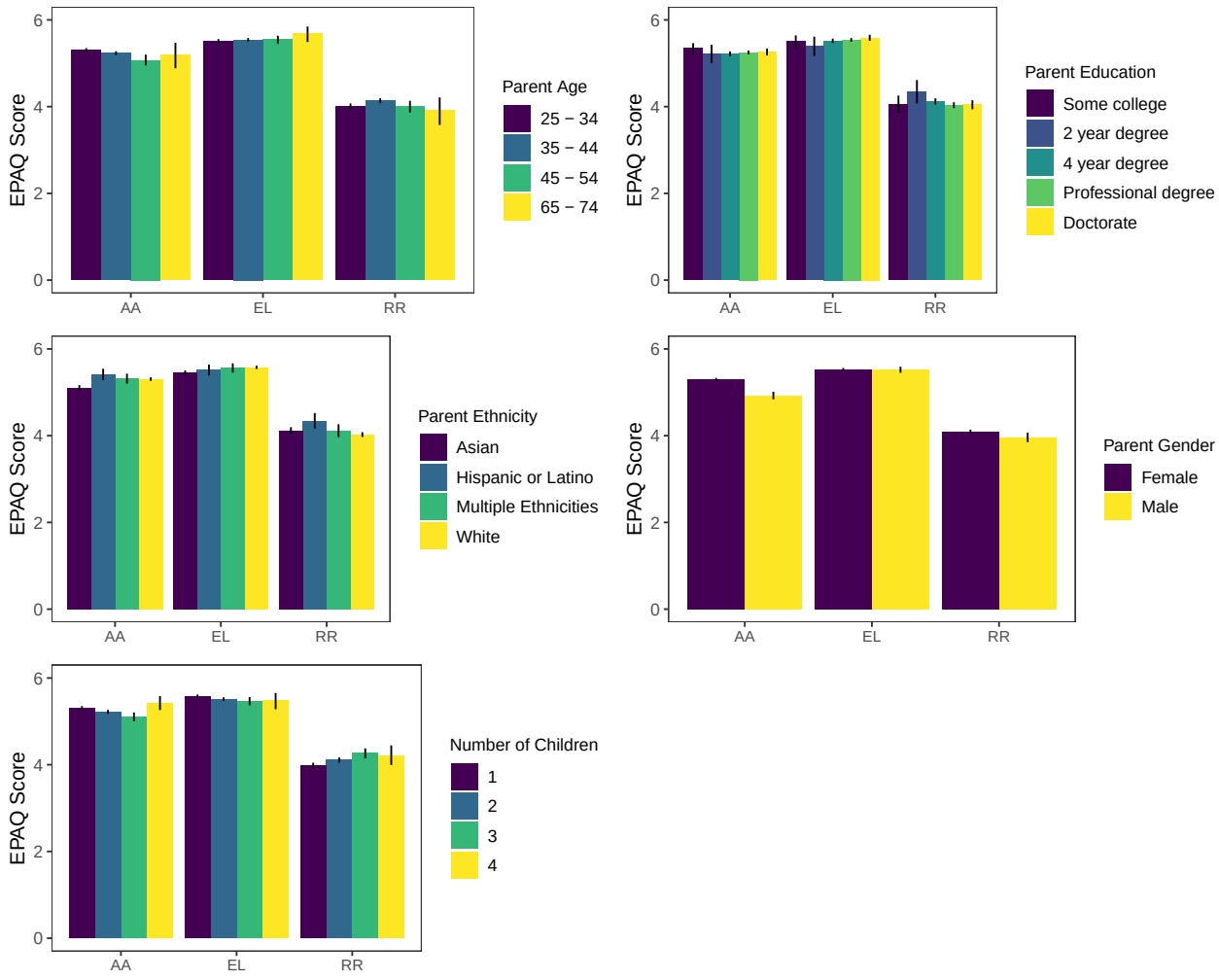

Figure 3. Demographic variability in EPAQ scores as measured in Study 2. Error bars represent +/-95% CI computed by non-parametric bootstrap.

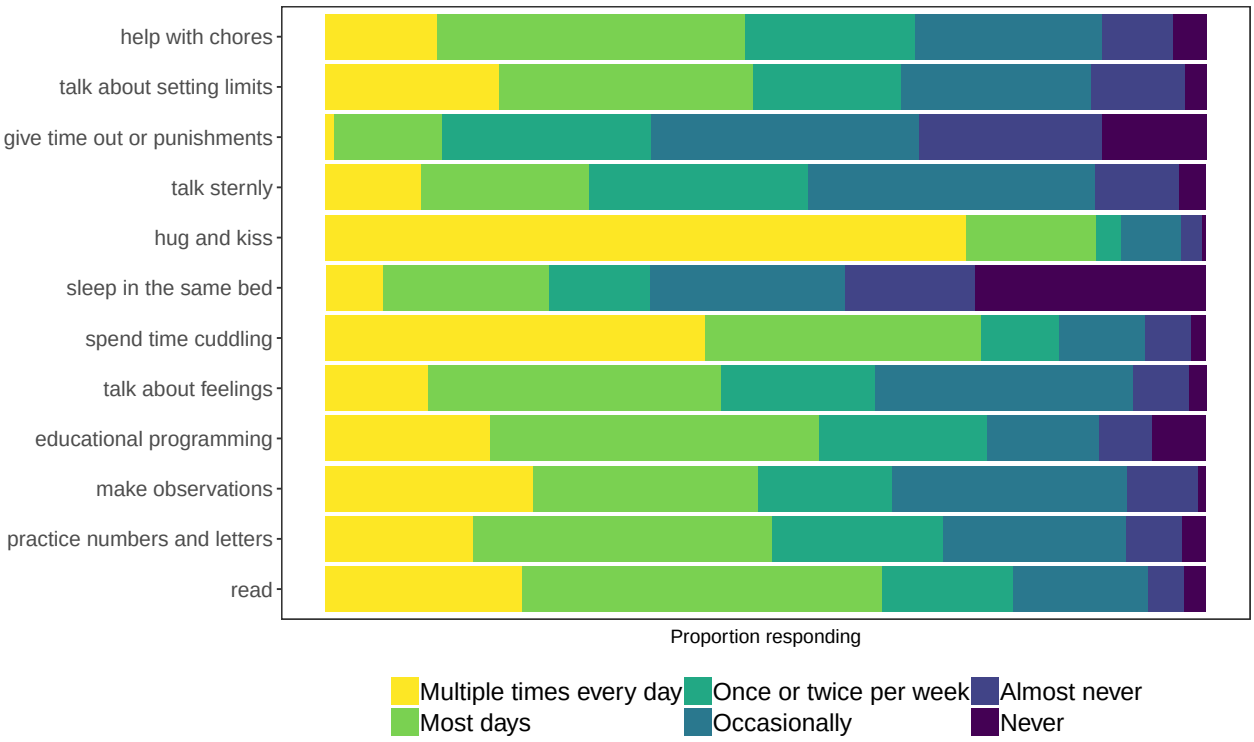

Figure 4. Frequencies of parenting activities reported by parents (Study 3).

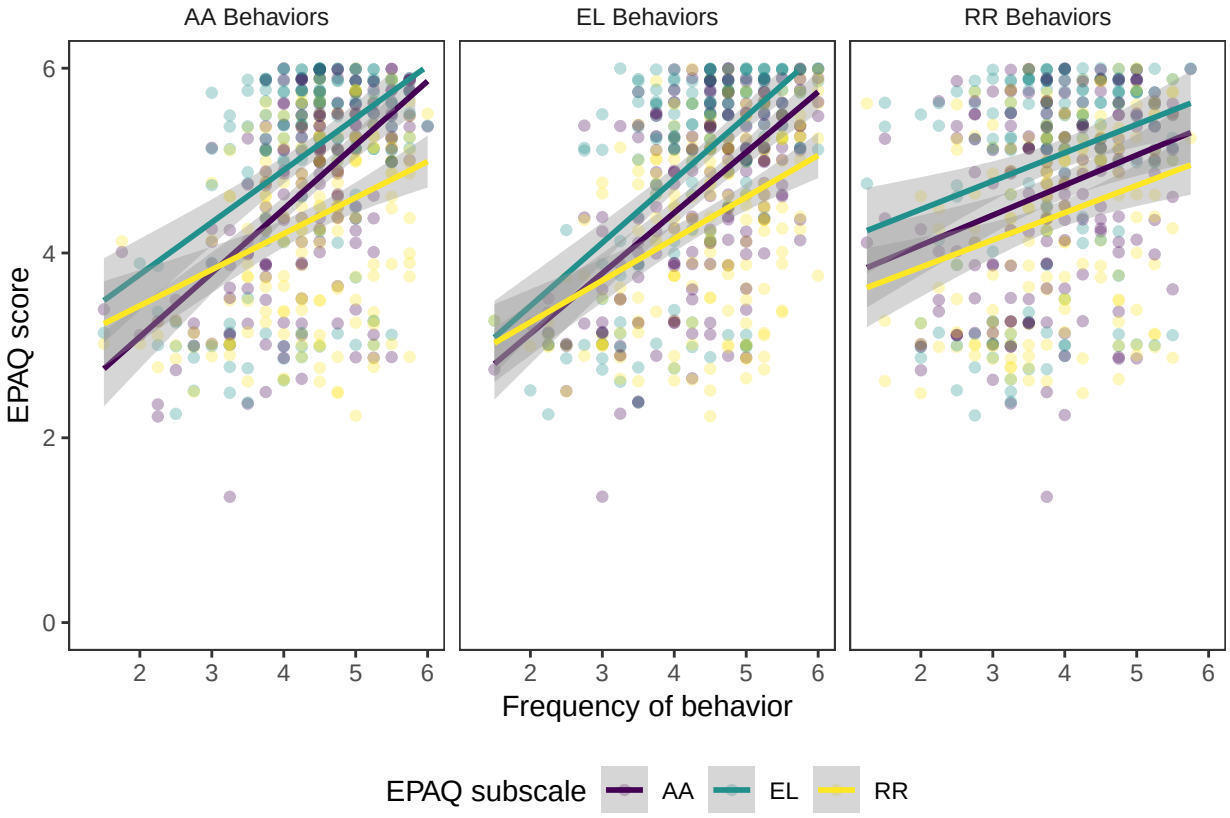

Figure 5. Relations between EPAQ subscale scores (Affection and Attachment, Early Learning, and Rules and Respect) and the frequency of parenting behaviors, divided into the same categories (Study 3).