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RESEARCH ARTICLE

Parental Values Are Associated With How Parents Feel About Their Infants' Sleep, but Not the Quality of Infants' Sleep

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ABSTRACT

Values help shape behavior and influence how individuals assess themselves and others. Previous research on the relation between values and parenting has largely overlooked the impact of values on parenting during infancy. This study is the first to link parents' value systems to contexts meaningful to parents of infants—sleep and parent-child interactions. We explored the value systems underlying individual differences in parents' cognitions about their infants' sleep, including whether there were gender differences in parents' values. We examined whether those values directly related to their own parenting behaviors and interactions with their infants, and whether those values subsequently related to the quality of their infants' sleep. 1685 parents of infants (3–18 months) participated in an online survey on values and parenting-related choices and beliefs. Families used *Nanit*, a video baby monitoring system that uses computer vision technology to calculate nightly summary sleep characteristics (e.g., *quality* of night sleep, *parent visits*, *night wakings*). Value profiles depended on parent gender and were associated with cognitions about infant sleep and with parents' interactions with their infants, but were not associated with the quality of infants' sleep. These findings have implications for anticipating factors that could be stressful around the transition to parenthood and for interventions targeting parents' mental health and infants' sleep health.

1 | Introduction

Sleep is crucial for healthy learning and development. In infancy and toddlerhood, the quality of night sleep predicts cognitive achievement and readiness to learn the next day (e.g., Horger, DeMasi, et al. 2021; Scher 2005; Zhang et al. 2022). Sleep fragmentation has been associated with infants' memory encoding, focused attention, and ability to imitate (Berger et al. 2025; Konrad et al. 2016; Seehagen et al. 2015). Sleep quality and timing are also related to emotional reactivity and processing of emotional information (McLaughlin et al. 2022; Seehagen et al. 2021). Across the lifespan indices of sleep continuity are considered appropriate indicators of sleep quality (Ohayon et al. 2017). Common measures of continuity in infant sleep include sleep efficiency (ratio of total sleep time to time in bed) and number of nightly awakenings (Ohayon et al. 2017). The more efficient infants' sleep and the fewer nightly wakings, the more mature or higher the quality of sleep. Because sleep is so important across developmental domains, a growing body of research has emerged to define the factors that contribute to high quality infant sleep (e.g., Kahn et al. 2020).

1.1 | The Contribution of Parental Cognitions to Infants' Sleep

Parents play a significant role in the development of infants' sleep behaviors (e.g., Sadeh et al. 2010; Tikotzky 2017). Specifically, parental behaviors at bedtime and during the night can reflect their cognitions around infant sleep. Parents' beliefs about safety recommendations, about their own agency in creating safe sleep environments, and about reliable sources of information are related to how they position their infants in the crib (Carlin et al. 2018). Caregivers cognitions about the extent to which they should be involved in soothing their infants when they awaken at night impact the quality of infants' sleep over the first year. Parents' "emotional availability" in the context of sleep contributes to better regulation of their children's sleep (Teti et al. 2010). In contrast, parent over-involvement can lead to infants' fragmented sleep and poor sleep-wake regulation in toddlers (Sadeh et al. 2010; Simon and Scher 2023).

Parents' bedtime behaviors may also reflect cultural or personal values. A series of cross-cultural comparisons of predominantly Asian versus predominantly non-Hispanic White[1] countries have revealed differences in sleep patterns, sleeping arrangements, and parents' perceptions of sleep problems (e.g., Karasik et al. 2023; Mindell et al. 2010, 2013; Sadeh et al. 2011). Subsequent investigations into what drives these differences speculate that parental belief about sleep "may reflect differences between collectivistic and individualistic cultures" (Zreik et al. 2021). For example, some parenting practices encourage infants to fall asleep independently and to learn to self-soothe (Sadeh et al. 2009). Autonomy and independence may be more valued by individualistic cultures and be reflected in parenting practices surrounding bedtime routines. Understanding individual differences in parents' education, culture, beliefs, and environments can inform the development of interventions that help parents create healthy sleep environments for their infants (e.g., Bucko et al. 2021).

1.2 | Values

Values are abstract desired concepts that reflect what is important in individuals' lives and play a crucial role in shaping behavior and influencing how individuals assess themselves and others. Parents' values and goals play an important role in children's socialization (e.g., Döring et al. 2017). The typical framework for studying the relation between parents' values and childrearing has been the transmission of values from parent to child. For example, the more that parents emphasized prosocial values of helping and caring and/or deemphasized values of power and achievement, the more similar their elementary school-aged children's values were to their own (Döring et al. 2017). In addition to socializing their children via explicit expression of values, socialization may also occur via parenting choices and practices that have been shaped by parents' values. Parents who value prosociality themselves, for example, may be more highly attuned to their infants' needs (Döring et al. 2017).

Although Schwartz's model of basic human values is the most widely applied and validated framework for examining values across cultures and life domains, it is not the only model. Other approaches include Rokeach's (1973) value survey, the psycholexical approach (De Raad et al. 2016), and Gouveia's functional theory of values (Gouveia et al. 2014), each emphasizing different organizing principles of value systems. However, Schwartz's theory offers a comprehensive and empirically validated circumplex structure that captures motivational conflicts and compatibilities among values, which has been consistently replicated across more than 80 countries (Sagiv and Schwartz 2022). Given its universality, theoretical breadth, and well-developed measurement tools (e.g., the Portrait Values Questionnaire), it is considered the standard model for linking values to parenting and family-related contexts.

Schwartz identified 10 distinct values that can vary in their importance from person to person (Schwartz 1992). On this account, values are organized in a circular structure where adjacent values share similar underlying motivations, while opposing values may contradict one another (see Figure 1). In accordance with value theory, when the pursuit of two values results in the same behavior, those values can be considered compatible. On the other hand, values that lead to contrasting behaviors signify conflicting motivations. Therefore, the disparity between values is represented by positioning them on opposite sides of the circular model.

In addition to reflecting the compatibility of the values with each other, the circular model reflects whether values focus on personal versus social outcomes, and whether endorsement of values serves to avoid anxiety or is anxiety-free (Schwartz et al. 2012). This model has been tested and validated in hundreds of samples around the world (Sagiv and Schwartz 2022), confirming its robustness.

Value orientations vary according to culture by reflecting the normative expectations for a given society (Sagiv et al. 2017; Schwartz 2013). There are robust and meaningful within-culture individual differences as well (Bardi and Schwartz 2003; Schwartz 2013). Subgroups within a broader culture, such as religious groups, can have conflicting values, but even in highly specialized subgroups, such as social workers or teachers from the same country, individual differences in values predicted variability in professional outcomes (Hadar and Benish-Weisman 2019; Levin et al. 2020).

As illustrated in the innermost circle of Figure 1, these 10 values can be categorized into four higher-order groups based on two orthogonal bipolar dimensions, where each opposing end reflects conflicting motivations. The first dimension centers around the conflict between self-enhancement and self-transcendence. Self-enhancement values (power and achievement) revolve around attaining personal goals through excelling and exerting control over others, while self-transcendence values (universalism and benevolence) emphasize the concern for the well-being and interests of others.

The second dimension encompasses the conflict between openness to change and conservation values. Openness to change values (stimulation, self-direction, and hedonism) emphasize the pursuit of novelty, new ideas, experiences, and actions. Conversely, conservation values (conformity, tradition,

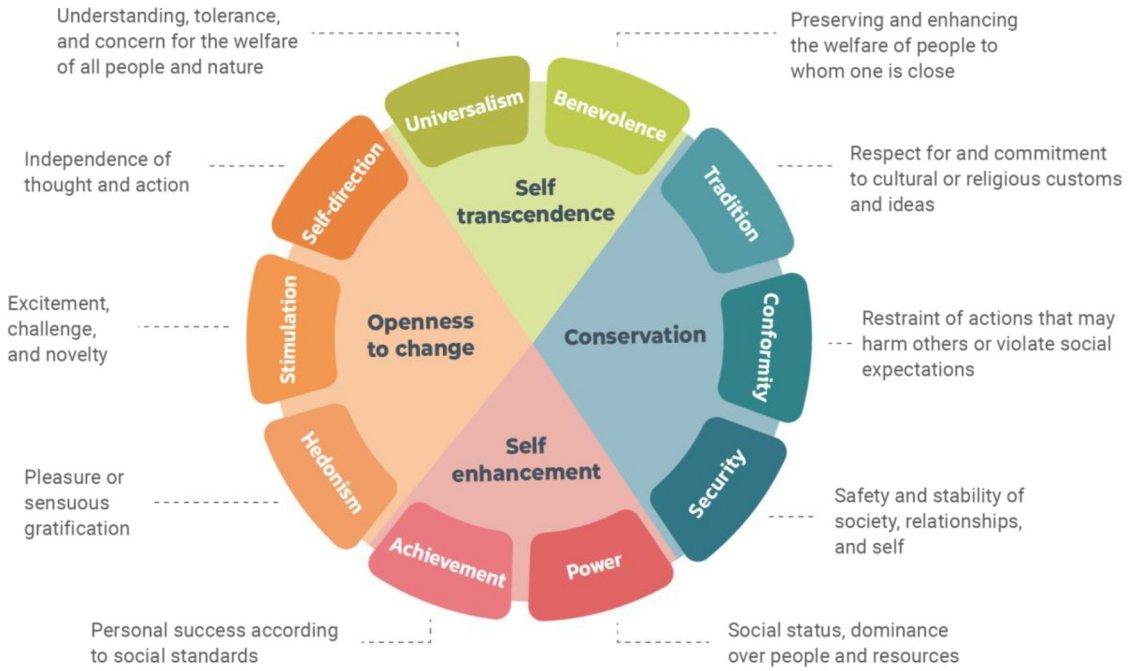

FIGURE 1 | The theoretical model of the structure and definitions of the 10 values. Each value represents a broad motivational goal (reprinted with permission, Benish-Weisman 2024).

and security) underscore the importance of preserving the existing state of affairs to safeguard oneself and society.

1.3 | Values and Parenting

Whether major life transitions prompt changes in values seems to depend on the degree of change associated with the transition. For example, neither starting a new job, nor retiring after decades of employment were associated with changes in values (Bardi et al. 2014; Burr et al. 2014), whereas immigration, which involves significant change across multiple areas, was associated with changes in values (Bardi et al. 2014). Becoming a parent—one of the most life-changing transitions of adulthood—has also been associated with a change in values. After becoming mothers, women endorsed conservation values more strongly than they had before, although new fathers' values changed minimally (Lönnqvist et al. 2018).

Research on the role of values in parenting has primarily focused on later childhood or adolescence, while infancy has received much less attention. Studies demonstrate that values shape cognitions and behaviors in multiple life domains, including political attitudes, prosociality, and parenting goals, with emerging evidence on links between values and cognitive styles (Anglim and Marty 2024; Sagiv and Schwartz 2022). For example, parental endorsement of conservation values has been associated with greater emphasis on obedience, while openness-to-change values relate to encouragement of independence (Knafo and Schwartz 2004). Gender differences in value priorities, such as women scoring higher in self-transcendence and men higher in self-enhancement, have also been consistently observed (Anglim and Marty 2024; Schwartz and Rubel 2005). Positioning our study within this body of work highlights the novelty of examining how values relate to cognitions about infants' sleep and to early parent–child interactions, two highly salient domains during the transition to parenthood.

The relationship between parents' values and their parenting behaviors has not been systematically studied in the context of parenting infants. To date, there has been no investigation into how values shape the experiences and perceptions of becoming a new parent. Moreover, most of the studies that examine the role of values in parenting have focused on mothers' values.

1.4 | Aims

The aim of this study was to examine whether first time parents' values were related to parenting-related cognitions and actions and, in turn, infants' experiences. We chose two contexts that rank amongst parents' leading concerns: infant sleep and creating a home environment that fosters learning and development (El-Sheikh and Sadeh 2015; Porter and Ispa 2013). We chose sleep as a primary context because it is fundamental to the mental and physical health of all members of the family and because parents spend a significant amount of time thinking about their infants' sleep (establishing routines, getting used to new schedules, determining the right amount, etc.) during the first year (El-Sheikh and Sadeh 2015). Because parental cognitions stem from their values (Johnston et al. 2018), we asked whether parents' values would be related to their cognitions about infant sleep. We hypothesized that parents who valued self-transcendence would experience less stress about their infants' sleep than parents who valued self-enhancement because of the social focus of that value profile and its emphasis on the welfare of others with whom one identifies or is close (see Figure 1; Schwartz 2016; Schwartz et al. 2012). We also hypothesized that parents who valued openness to change, values that attribute importance to novelty and new experiences,

would adjust more easily to the demands associated with infant sleep care than those who valued conservation values.

We chose the home environment as the second context because parents make choices about how they structure their home. Because characteristics of the home are modifiable, we asked whether parents' values relate to opportunities for interaction in their homes. We expected that parents' values would shape the choices they made. Specifically, parents who value caring for others' needs (i.e., self-transcendence values) would be more involved in interactive games with their children, parents who attribute importance to novelty and stimulation (i.e., openness to change values) would allow their children to move freely, and parents who value safety and preserving the status quo (i.e., conservation values), would be more involved in restricting behaviors.

Finally, we expected to find gender differences in parents' values. Mothers of school-aged children placed more importance on self-transcendence and conservation values than fathers of school-aged children, who placed more importance on self-enhancement and openness-to-change values (Döring et al. 2017; Schwartz and Rubel 2005). We also expected that new mothers' values were more likely to be in flux than those of new fathers (Lönnqvist et al. 2018). However, in the first 6 months of infancy, mothers are more likely to put infants to sleep at night and tend to them when they wake up during the night (Tikotzky et al. 2010). To test our hypotheses, we asked parents about their concerns about infants' sleep, took objective measures of infants' sleep quality, asked parents about opportunities for movement and social interaction in the home, and determined parents' value profiles based on their responses to the Portrait Values Questionnaire.

2 | Method

2.1 | Participants

1685 parents (77% mothers) from 32 countries participated in this study. Most were from the United States and Canada (76.6% and 15.5%, respectively) and most (97.2%) were married. 78.2% of parents were between the ages of 30 and 39 years old. 90.5% of parents had a college or postgraduate degree and 76.2% of the sample earned at least $100,000 per year; only 2.1% earned < $50,000 per year. 74.8% were employed, 12.1% on parental leave, and 11.3% were stay-at-home parents. Most families lived in the suburbs (53.5%), with 35.9% living in urban areas and 10.4% living in rural areas. The sample was predominantly white (77.6%), with 1.7% Black or African American, 9.3% Asian, 6.1% Hispanic, and 0.2% Native American. The mean age of the infants of these caregivers was 8.93 months (SD = 4.35 months; range = 3–18 months). All families were users of the Nanit home video baby monitor (described in detail under *Infant Sleep Metrics*).

The Nanit userbase received an invitation via email to participate in a study on the relation between home environment and infant sleep. Any parent was welcome to participate. Those who consented completed a survey comprising 3 unique measures using Alchemer (formerly Survey Gizmo) and agreed to share their infant's objective sleep metrics from the prior 2 weeks collected for research purposes using a computer-vision algorithm. Participants were entered to win a $400 Amazon gift card. The data were collected internally by Nanit for quality improvement purposes of product development. Nanit provided a de-identified data set of participants' sleep metrics for secondary analysis to the first two authors. As such, the response rate to the initial call for participation is unavailable because the company did not keep that information.

The present study was conducted according to guidelines laid down in the Declaration of Helsinki, with electronic informed consent obtained from a parent of each child before any data collection. All procedures involving human subjects in this study were approved by the Institutional Review Board of the College of Staten Island (protocol #2022-0607-CSI).

2.2 | Measures

2.2.1 | Portrait Values Questionnaire (PVQ)

The PVQ includes 40 short vignettes ("portraits") describing a person's goals, each one pertaining to one of 4 values organized along two bipolar dimensions (Schwartz 2016). For each portrait, participants rated the similarity between the person described in the portrait (matched to the gender of the respondent) and themself on a 6-point Likert scale (from 1 = *not like me at all* to 6 = *very much like me*). After centering participants' responses around their average response to control for response tendency (Schwartz 1992), subscale scores for each value were calculated. Along one dimension, the two opposite values were *self-enhancement* (7 items, α = 0.80) versus *self-transcendence* (10 items, α = 0.77). These values capture the opposition between values that reflect success/achievement and power over others and those that reflect concern for the welfare and interests of others, respectively. Sample items on this dimension included "*It is important to him to be in charge and tell others what to do. He wants people to do what he says*" and "*It is important to him to respond to the needs of others. He tries to support those he knows.*" The two opposite values along the other dimension were *openness-to-change* (10 items, α = 0.76) versus *conservation* (13 items, α = 0.78) which capture the opposition between values that reflect independence of thought and readiness for change and those that reflect order and resistance to change, respectively. Sample items on this dimension included "*He really wants to enjoy life. Having a good time is very important to him*" and "*It is important to him always to behave properly. He wants to avoid doing anything people would say is wrong.*"

This measure has been validated cross-culturally (Schwartz et al. 2001) and used with different populations including parents (Benish-Weisman et al. 2013; Knafo-Noam et al. 2020; Schwartz 1992). A previous study found that bias in value ratings due to social desirability was negligible because all values are defined as positive (Schwartz et al. 1997).

2.2.2 | Parental Cognitions on Infant Sleep Questionnaire (PCISQ)

The PCISQ is a 20-item survey of parents' beliefs about infants' sleep disturbances, such as crying or waking during the night (Sadeh et al. 2007). This survey was originally administered only to mothers (Morrell 1999), but it has since been adapted and administered to both mothers and fathers. For each item, participants rated on a 6-point Likert scale from *strongly agree* to *strongly disagree* how much they related to a thought or a feeling about a sleep-related situation. The questionnaire has 5 subscales regarding difficulty *setting limits* (5 items, $\alpha = 0.82$), *anger* at infant's demands (5 items, $\alpha = 0.55$), *doubt* about parenting competence (5 items, $\alpha = 0.60$), beliefs in the importance of *feeding* to soothe the infant during the night (3 items, $\alpha = 0.64$), and concerns about the infant's *safety* in the crib at night (2 items, $\alpha = 0.52$). A sample question about feeding, for example, would be "When my child wakes at night, I think I might not have fed him/her enough during the day."

2.2.3 | Infant Sleep Metrics

Infants contributed at least 3 nights of sleep data ($Mean_{nights} = 9.27$, $SDnights = 4.28$) prior to parents completing the survey; 71.7% had at least 7 consecutive nights of sleep data (see Figure 2) (Acebo et al. 1999). Sleep was measured using Nanit, a commercial video baby monitoring system (UdiSense Inc., DBA Nanit). In the Nanit system a camera mounts over infants' cribs and videotapes them in their crib. The streaming video is analyzed using a proprietary computer vision algorithm that is based on established, published guidelines from actigraphy and videosomnography for coding infants' sleep (Anders and Keener 1985; Sadeh et al. 1995). Nanit documents sleep and wake states as accurately as parent report, actigraphy, and polysomnography (DeMasi et al. 2024; Horger, Marsilliani, et al. 2021; Tikotzky et al. 2023). The system also includes a smartphone app that parents download to define a crib zone and a parent pick-up zone in the video feed. The crib zone outlines the area of the crib where movement detected by the algorithm would be attributed to the infant. The parent pick-up zone outlines an area next to the crib where movement detected by the algorithm would be attributed to a caregiver. Parents also use the app to receive summaries of nightly sleep statistics and notifications.

Using the computer vision algorithm, Nanit generates the nightly sleep measures of *sleep efficiency*, calculated as the proportion of time spent in the crib asleep out of the total time spent in the crib; *wake episodes*, number of times infants awoke during the night for 5 min or longer; and *parent visits*, the number of times parents visited the crib during the night.

Because the data set was originally collected internally by Nanit and deidentified prior to sharing with the authors, we were limited in our ability to determine what affected the number of nights of sleep data provided by each infant. Previous studies that have used the Nanit camera to measure infants' sleep have accounted for missing data primarily due to parents removing their infants from the cribs (Horger, Marsilliani, et al. 2021; Tikotzky et al. 2023). It is also possible that a Wi-Fi outage could prevent data collection of sleep metrics if the video stream was interrupted.

2.2.4 | Affordances in the Home Environment for Motor Development—Infant Scale (AHEMD-IS)

Parent-infant interactions were measured by a subscale from the AHEMD-IS. This 35-item questionnaire was developed to evaluate the opportunities for movement, play, and social and environmental interactions available in individuals' homes (Caçola et al. 2015b; Gabbard et al. 2008). It has 4 dimensions (Physical Space, Variety of Stimulation, Fine-Motor Toys, and

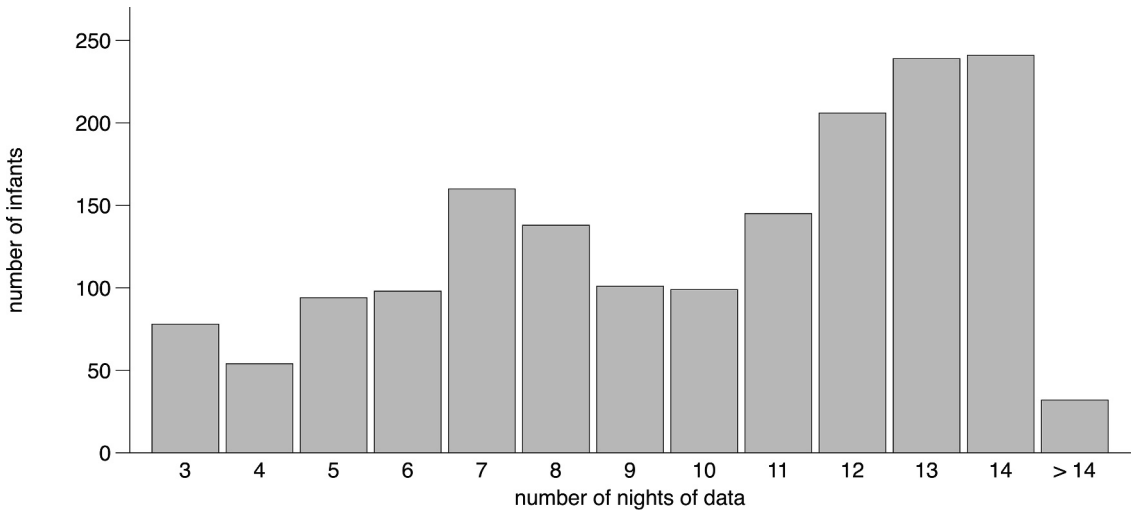

FIGURE 2 | Histogram showing the distribution of the number of nights of sleep data infants contributed. Fewer than three nights of data can yield unreliable measurements (Acebo et al. 1999).

Gross-Motor Toys), but for the purposes of this study, we focused on five questions addressing opportunities for parents to interact with their infants and infant experiences that depended on parenting choices. Although originally validated for optimizing motor development, applications for the AHEMD-IS have since broadened to include clinical and research uses (Caçola et al. 2015a). Parents reported whether they regularly played body-focused, verbal, *interactive games*; and how frequently they *carried* their infants; placed them in a *restricted area* such as a playpen; gave them *tummy time*; and allowed them to *move freely* around the home. Caçola et al. (2015a) reported the validity as 0.66–0.76, ICC values of 0.99 for interrater reliability and 0.95 for intrarater reliability, and 0.77 for internal consistency.

2.3 | Data Analysis Plan

First, we conducted a set of preliminary analyses to examine infants' sleep characteristics and determine whether and when there were gender differences in parents' responses. To address our questions regarding the relation between parents' values and parenting-related cognitions and actions, we ran correlations between higher-order value profiles and PCISQ and AHEMD-IS scores separately for mothers and fathers. To address our questions about the impact of parents' values and cognitions on infant sleep, we ran correlations between parents' higher-order value profiles and PCISQ scores and infant sleep characteristics separately for mothers and fathers. To contend with limitations in Schwartz's model that do not allow for the investigation of individual differences in values systems, we adopted a current approach for evaluating patterns of value endorsement (e.g., Daniel et al. 2020; Levin et al. 2020; Ungvary et al. 2018). Using the four higher order groups of values as predictors, latent profile analysis (LPA) identified patterns of parents' value endorsement and the number of profiles that best fit the data separately for mothers and fathers. Lastly, we ran a series of ANOVAs to test whether there were differences between values profiles in PCISQ scores, AHEMD-IS scores, and infant sleep metrics.

3 | Results

3.1 | Preliminary Analyses

3.1.1 | Summary of Descriptive Sleep Metrics

There were no differences in infants' sleep characteristics based on whether the parent participating in the study was the mother or father, so subsequent analyses of infants' sleep were carried out as a single sample. Comparisons of infants' sleep metrics across 16 age groups (each month from 3 to 18 months) reflected typical sleep patterns that matured with time, consistent with previously reported findings (Anders 1979; Berger and Moore 2021; Galland et al. 2012). Infants' sleep became more efficient with age ($F(15, 1699) = 44.90$, $p < 0.001$, $\eta^2 = 0.29$), infants woke less frequently during the night as they got older ($F(15, 1409) = 86.72$, $p < 0.001$, $\eta^2 = 0.44$), and parents visited their infants during the night less frequently as infants got older ($F(15, 1409) = 21.96$, $p < 0.001$, $\eta^2 = 0.17$).

3.1.2 | Gender Differences in Parents' Responses

A series of independent samples *t*-tests compared mothers' and fathers' responses on the four higher-order value profiles (self-enhancement, self-transcendence, openness-to-change, and conservation) aggregated from the 10 basic values. As shown in Table 1 (rows 1–4), there were significant differences between mothers and fathers for 3 of the 4 higher-order value profiles. Mothers scored significantly higher than fathers on self-enhancement values and conservation values. Fathers scored significantly higher than mothers on openness-to-change values.

A series of independent samples *t*-tests compared mothers' and fathers' responses on their responses on the PCISQ and their responses on the AHEMD-IS. There were significant differences between mothers and fathers for 4 of the 5 PSISQ subscales, with mothers scoring higher than fathers on setting limits, doubt, and safety, and fathers scoring higher on anger (see Table 1, rows, 5–9). There were significant differences between mothers and fathers for 3 of the 5 AHEMD items, with fathers scoring higher than mothers on playing interactive games and putting infants in restricted areas, but mothers scoring higher on giving infants opportunities to move (see Table 1, rows, 10–14). There were no differences between mothers and fathers for any of the Nanit-generated sleep metrics because the camera captured all night visits to the crib without distinguishing which parent attended to the infant.

TABLE 1 | Mothers' and fathers' higher-order value profiles, cognitions about infant sleep, and parent-infant interaction opportunities in the home environment.

	Mother	Father	*t*
PVQ			
1. Self-transcendence	4.36 (0.45)	4.33 (0.40)	1.35
2. Self-enhancement	3.66 (0.70)	3.59 (0.64)	1.73*
3. Openness to change	4.04 (0.49)	4.23 (0.46)	6.67***
4. Conservation	3.80 (0.47)	3.73 (0.44)	2.52**
PCISQ			
5. Setting limits	2.04 (1.11)	1.67 (0.95)	5.60***
6. Anger	0.97 (0.68)	1.07 (0.74)	2.39**
7. Doubt	1.05 (0.79)	0.86 (0.73)	4.24***
8. Feeding	1.50 (1.13)	1.40 (1.09)	1.56
9. Safety	1.60 (1.15)	1.18 (1.02)	6.51***
AHEMD-IS			
10. Interactive game	0.74 (0.44)	0.79 (0.41)	1.81*
11. Carrying	1.09 (0.52)	1.14 (0.56)	1.55
12. Restricted area	0.81 (0.68)	0.93 (0.72)	2.76**
13. Tummy time	1.13 (0.82)	1.09 (0.79)	0.87
14. Free to move	1.61 (1.02)	1.35 (1.02)	4.47***

*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.

3.2 | Correlations Between Values and Cognitions

Means and standard deviations for values and parental cognitions about infant sleep subscales, as well as correlations between the variables, are presented in Tables 2 (mothers) and 3 (fathers). Mothers and fathers ranked self-transcendence values as the most important to them, followed by openness-to-change values. Conservation values were ranked third in importance and self-enhancement values were ranked least important. In accordance with the theoretical model, self-transcendence values were moderately negatively correlated with self-enhancement and weakly negatively correlated with openness-to-change and conservation values. Conservation values were negatively correlated with openness-to-change values (strong) and self-enhancement values (moderate) but were weakly negatively correlated with self-transcendence values. Openness-to-change values and self-enhancement were unrelated.

Maternal cognitions were significantly negatively correlated with openness-to-change values. In addition, anger was positively correlated with self-enhancement and doubt was negatively correlated with conservation. Maternal cognitions were moderately and strongly correlated with each other.

In contrast to the mothers, fathers' openness-to-change values were unrelated to cognitions, self-transcendence values were negatively related to anger and feeding, and conservation values were positively related to setting limits, doubt, and feeding. Like the mothers, fathers' self-enhancement values were positively correlated with anger. Paternal cognitions were moderately and strongly correlated with each other.

3.3 | Infant Sleep

Neither infant sleep characteristic (quality or wakings) nor parental visits were correlated with portrait values for mothers or fathers. However, for mothers, sleep characteristics were significantly correlated with maternal cognitions about sleep. For all cognition subscales except *safety*, the greater the maternal concern, the more disrupted the infants' sleep with more night wakings, more maternal visits, and worse overall quality of sleep (Table 2, rows 10–12). Similarly, for fathers, sleep characteristics were significantly correlated with paternal cognitions about setting limits, doubt, and feeding (Table 3, rows 10–12). Unlike mothers, paternal concern about anger over infants' sleep was only related to parental visits to the crib at night and paternal concern about infants' safety during sleep was only negatively related to infant sleep quality.

3.4 | Correlations Between Values and Parent-Infant Interactions

Spearman correlations between value profiles and the parent-infant interaction items on the AHEMD-IS revealed several significant relationships. For mothers (see Table 4), self-transcendence and openness-to-change values were positively associated with mothers playing interactive, body-centered games with their infants, whereas self-enhancement values were negatively associated. Self-enhancement values were also negatively associated with placing infants in restricted areas, such as a playpen, and giving infants freedom to move around the home, whereas conservation values were positively associated with how often infants were placed in restricted areas. Openness-to-change values were positively associated with how often infants were placed in tummy time and how often they were free to move independently around the home. Self-transcendence values were negatively associated with frequency of tummy time. All significant correlations for mothers were weak. For fathers, only conservation values were weakly, negatively related to playing interactive games (see Table 5).

3.5 | Value Profiles

Using the tinyLPA package in RStudio (Rosenberg et al. 2019), a series of models with one to six profiles was evaluated to see which best fit the data. With each model, an additional profile was added. The bootstrap likelihood ratio test (BLRT) compares each new iteration of the model to the previous one, with a

TABLE 2 | Means, standard deviations, and Pearson correlations between values and maternal cognitions.

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11
1. ST	4.36	0.45	—										
2. SE	3.66	0.70	−0.55***	—									
3. OP	4.04	0.49	−0.18***	−0.02	—								
4. CO	3.80	0.47	−0.15***	0.40***	−0.64***	—							
5. Setting limits	2.04	1.11	−0.01	0.03	−0.07**	0.03	—						
6. Anger	0.97	0.68	−0.03	0.12***	−0.09***	−0.01	0.24***	—					
7. Doubt	1.05	0.79	0.02	0.04	−0.15***	−0.07**	0.52***	0.38***	—				
8. Feeding	1.50	1.13	−0.01	0.04	−0.08**	0.03	0.48***	0.28***	0.52***	—			
9. Safety	1.60	1.15	−0.03	0.06*	−0.09***	0.03	0.26***	0.24***	0.46***	0.30***	—		
10. Parental visits	1.88	2.23	0.03	−0.01	−0.03	0.01	0.36****	0.11***	0.25***	0.27***	0.03	—	
11. Infant sleep quality	0.89	0.07	0.02	−0.03	0.02	0.01	−0.20***	−0.07**	−0.18***	−0.24***	0.03	−0.47***	—
12. Night wakings	3.82	2.16	−0.01	0.03	−0.04	0.01	0.16***	0.06*	0.14***	0.20***	−0.01	0.59***	−0.68***

Abbreviations: CO, conservation values; OP, openness-to-change values; SE, self-enhancement values; ST, self-transcendence values.
*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$, two-tailed.

TABLE 3 | Means, standard deviations, and Pearson correlations between values and paternal cognitions.

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11
1. ST	4.33	0.4	—										
2. SE	3.59	0.64	−0.59***	—									
3. OP	4.23	0.46	−0.06	−0.05	—								
4. CO	3.73	0.44	−0.23***	−0.32***	−0.69***	—							
5. Setting limits	1.67	0.95	−0.09	0.02	−0.09	0.13*	—						
6. Anger	1.07	0.74	−0.16***	0.13**	0.01	0.02	0.26***	—					
7. Doubt	0.86	0.73	−0.08	0.02	−0.08	0.14***	0.58***	0.49***	—				
8. Feeding	1.40	1.09	−0.19***	0.04	−0.05	0.16***	0.51***	0.34***	0.58***	—			
9. Safety	1.18	1.02	−0.08	−0.02	−0.05	0.11*	0.38***	0.38***	0.53***	0.37***	—		
10. Parental visits	2.10	2.86	−0.03	−0.03	0.07	−0.01	0.43****	0.09***	0.19***	0.20***	0.03	—	
11. Infant sleep quality	0.88	0.07	0.03	−0.02	0.10	−0.09	−0.31***	−0.01	−0.25***	−0.24***	−0.11*	−0.44***	—
12. Night wakings	3.93	2.18	−0.04	0.04	−0.01	0.02	0.29***	−0.05	0.19***	0.18***	0.06	0.62***	−0.69***

Abbreviations: CO, conservation values; OP, openness-to-change values; SE, self-enhancement values; ST, self-transcendence values.
*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$, two-tailed.

TABLE 4 | Spearman correlations between values and mother-infant interaction items on the AHEMD-IS.

	ST	SE	OP	CO
1. Interactive game	0.06*	−0.07**	0.09**	−0.05
2. Carrying	−0.01	0.01	0.00	0.00
3. Restricted area	−0.03	−0.07*	0.04	0.06*
4. Tummy time	−0.08**	0.01	0.06**	−0.01
5. Free to move	0.04	−0.09***	0.06*	0.01

Abbreviations: CO, conservation values; OP, openness-to-change values; SE, self-enhancement values; ST, self-transcendence values.
*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$, two-tailed.

TABLE 5 | Spearman correlations between values and father-infant interaction items on the AHEMD-IS.

	ST	SE	OP	CO
1. Interactive game	0.05	0.04	0.06	−0.12*
2. Carrying	0.01	0.02	−0.01	0.04
3. Restricted area	−0.04	0.02	−0.04	0.08
4. Tummy time	0.00	0.01	0.09	−0.06
5. Free to move	0.06	−0.01	0.04	−0.05

Abbreviations: CO, conservation values; OP, openness-to-change values; SE, self-enhancement values; ST, self-transcendence values.
*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$, two-tailed.

small probability value indicating a significantly better fit than the previous model (Tein et al. 2013). The most common indices of fit are the Akaike information criterion (AIC) and Bayesian information criterion (BIC), based on the maximum likelihood estimates of the model, with lower values indicating a better fit. An additional measure of fit is entropy, an index of classification uncertainty. A higher entropy value indicates a better fit.

For the maternal model, the BLRT test indicated that the five-model profile (p-value > 0.05) was not a significantly better fit than the four-model profile and only one other model had a lower AIC value than the model with four profiles (see Table 6). Thus, the model with four profiles was selected.

The next step was to identify the four profiles, which are described in Table 7 and depicted in Figure 3a. The profiles were labeled based on the bipolar dimensions laid out according to value theory. The *social-focused* profile attributed the highest importance to self-transcendence and conservation. The second profile was *undifferentiated-OP* with the highest importance placed on the two opposing higher order values of openness to change and conservation. The *growth-focused* profile attributed the highest importance to self-transcendence and openness to change values and the lowest importance to self-enhancement values. The fourth profile was *undifferentiated-ST* with the highest importance placed on the two opposing higher order values of self-transcendence and self-enhancement. To confirm the profile distinctions, one-way ANOVAs tested whether the four profiles differed in their value profiles. There were significant main effects of profile on all values (see Table 7, rows 1–4). Post hoc Bonferroni tests revealed that for self-enhancement and self-transcendence, all profiles were different from each other, all p-values < 0.01, For openness-to-change, all profiles were different from each other except for *growth-focused* and *undifferentiated-ST*, all p-values < 0.01, For conservation, *social-focused* differed from *undifferentiated-OP* and *undifferentiated-ST* differed from all other profiles, all p-values < 0.01.

For the paternal model, the BLRT test indicated that the three-model profile (p-value < 0.05) was not a significantly better fit than the two-model profile (see Table 8). Moreover, the BIC value was the second smallest for the two-model profile. Thus, the model with two profiles was selected.

The next step was to identify the two profiles, which are described in Table 9 and depicted in Figure 3b. Again, the profile labels reflect the value dimensions as laid out according to value theory (Schwartz et al. 2012). The *growth-focused* profile attributed the highest importance to openness-to-change and self-transcendence values. The *anxiety-based* profile was higher in conservation and self-enhancement values. To confirm the

TABLE 6 | Latent profile analysis model fit for mothers.

Classes	Log likelihood	AIC	BIC	Entropy	BLRT	*p*
1	−1605.34	3238.69	3311.04	—	—	—
2	−1581.89	3221.78	3371.64	0.23	46.91	0.01
3	−1559.82	3207.64	3435.03	0.37	44.13	0.06
4	−1538.67	3195.33	3500.23	0.49	42.31	0.03
5	−1533.76	3215.52	3597.94	0.46	9.81	0.98
6	−1498.72	3175.44	3635.37	0.58	70.09	0.05

Note: Smaller log-likelihood values indicate better model fit. The bootstrap likelihood ratio test compares the Ko-class model to a K-1-class model.
Abbreviations: AIC, Akaike information criterion; BIC, Bayesian information criterion; BLRT, bootstrap likelihood ratio test.

TABLE 7 | Maternal value profile differences.

	Social-focused		Undifferentiated-OP		Growth-focused		Undifferentiated-ST		
	n = 289		*n* = 266		*n* = 320		*n* = 422		
	Mean	SE	Mean	SE	Mean	SE	Mean	SE	*F*
ST	4.72	0.02	3.93	0.02	4.28	0.01	4.46	0.02	235.62***
SE	3.13	0.03	3.64	0.04	3.47	0.02	4.18	0.03	205.78***
OP	3.83	0.03	4.24	0.03	4.04	0.02	4.06	0.03	34.96***
CO	3.92	0.03	4.04	0.03	3.97	0.01	3.42	0.02	191.47***
Setting limits	2.18	0.06	1.92	0.07	2.07	0.06	2.01	0.05	2.80*
Anger	0.98	0.04	0.91	0.04	0.93	0.04	1.03	0.03	2.22
Doubt	1.12	0.05	0.92	0.04	1.11	0.04	1.05	0.04	3.77**
Feeding	1.56	0.07	1.35	0.07	1.55	0.06	1.53	0.06	2.19
Safety	1.69	0.07	1.48	0.07	1.60	0.06	1.63	0.06	1.63

Abbreviations: CO, conservation values; OP, openness-to-change values; SE, self-enhancement values; ST, self-transcendence values.
*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.

profile distinctions, independent-samples *t*-tests revealed that the profiles differed significantly in their value profiles for all values (see Table 9, rows 1–4).

Pearson chi-square analyses revealed no significant relationships between maternal or paternal values profiles and children's age groups, so subsequent analyses do not differentiate by age, $x^2 = 61.09$, p = n.s. and $x^2 = 12.89$, p = n.s., respectively.

3.6 | Parental Cognitions and Value Profiles

Based on the idea that individuals organize their values into a coherent system, shaped by the inherent compatibilities and conflicts among those values, it is important to study not only the association between parenting-related cognitions and actions and specific values, but also in relation to value profiles. Therefore, one aim of this study was to assess whether parental cognitions around infants' sleep differed according to value profile. To do this, a series of one-way ANOVAs with mothers' profile (*social-focused*, *undifferentiated-OP*, *growth-focused*, *undifferentiated-ST*) as a between-subjects factor revealed main effects of profile on mothers' difficulty setting limits and on doubts about their parenting competence (see Table 7, rows 5–9). Post hoc Bonferroni tests demonstrated that the *undifferentiated-OP* profile scored lower on the setting limits subscale than the *social-focused* profile and lower on the doubt subscale than the *social-focused* and *growth-focused* profiles.

For fathers, a series of independent-samples *t*-test revealed that the *anxiety-based* profile scored significantly higher than the *growth-focused* profile on the feeding subscale (see Table 9). Father profiles did not differ on any of the other parental cognitions subscales.

3.7 | Parental and Infant Behaviors and Value Profiles

A second aim of this study was to examine whether parents' value profiles were related to their infants' sleep or their own parenting behaviors. One-way ANOVAs revealed no main effects of value profile on maternal visits to the crib or on infants' sleep efficiency or night wakings. Independent-samples *t*-test revealed no effect of value profile on paternal visits to the crib, or on infants' sleep efficiency or night wakings.

A binary logistic regression was conducted to examine the association between mothers' value profile (*social-focused*, *undifferentiated-OP*, *growth-focused*, *undifferentiated-ST*) and their response to whether they regularly played interactive games with their infants (*yes*, *no*). The model was not statistically significant. A series of ordinal logistic regressions were

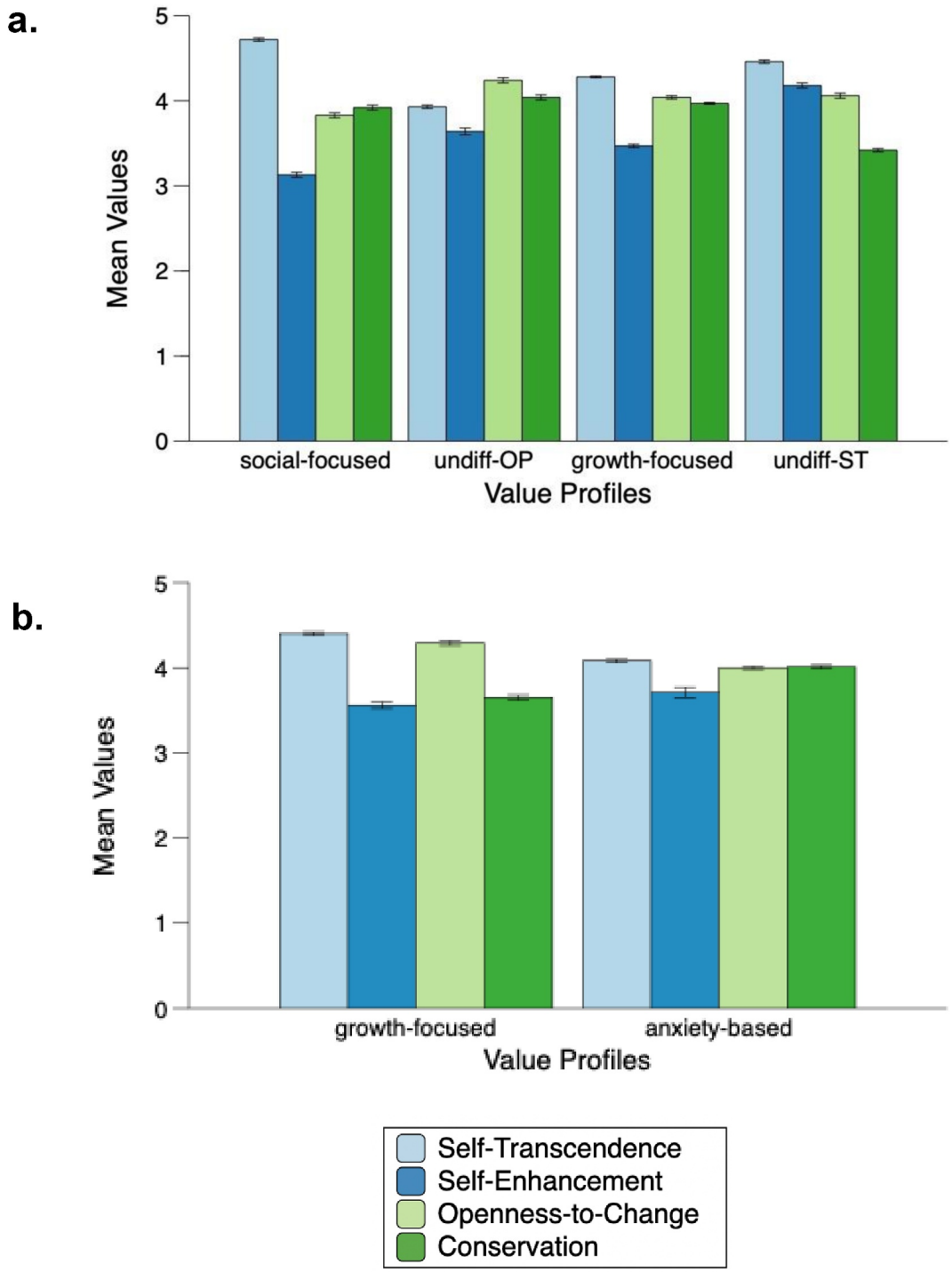

FIGURE 3 | Value endorsement by value profile membership for mothers (a) and fathers (b).

conducted to examine the association between mothers' value profile (*social-focused*, *undifferentiated-OP*, *growth-focused*, *undifferentiated-ST*) and their responses (*Never*, *Sometimes*, *Almost Always*, *Always*) to how often they carried their infants; placed them in a restricted area; gave them tummy time; and allowed them to move freely around the home. None of these models were statistically significant.

A binary logistic regression was conducted to examine the association between fathers' value profile (*growth-focused*, *anxiety-based*) and their response to whether they regularly played interactive games with their infants (*yes*, *no*). The model was not statistically significant. A series of ordinal logistic regressions were conducted to examine the association between fathers' value profile (*growth-focused*, *anxiety-based*) and their responses (*Never*, *Sometimes*, *Almost Always*, *Always*) to how often they carried their infants; placed them in a restricted area; gave them tummy time; and allowed them to move freely around the home. The only overall model to be statistically significant was for placing infants in a playpen or restricted area, $\chi^2(1) = 4.52$,

TABLE 8 | Latent profile analysis model fit for fathers.

Classes	Log likelihood	AIC	BIC	Entropy	BLRT	*p*
1	−316.11	660.22	715.68	—	—	—
2	−287.96	633.92	748.79	0.65	56.30	0.03
3	−264.26	616.53	790.81	0.74	47.39	0.12
4	−251.76	621.51	855.21	0.56	25.02	0.76
5	−238.47	624.93	918.05	0.66	26.58	0.69
6	−217.81	613.63	966.16	0.77	41.30	0.06

Note: Smaller log-likelihood values indicate better model fit. The bootstrap likelihood ratio test compares the Ko-class model to a K-1-class model.
Abbreviations: AIC, Akaike information criterion; BIC, Bayesian information criterion; BLRT, bootstrap likelihood ratio test.

TABLE 9 | Paternal value profile differences.

	Growth-focused $n = 304$		Anxiety-based $n = 84$		
	Mean	SE	Mean	SE	*t*
ST	4.40	0.02	4.08	0.02	6.71***
SE	3.56	0.04	3.71	0.06	1.91*
OP	4.29	0.03	4.00	0.02	5.27***
CO	3.65	0.03	4.01	0.02	7.12***
Setting limits	1.66	0.05	1.69	0.10	0.23
Anger	1.04	0.04	1.14	0.10	1.11
Doubt	0.85	0.04	0.91	0.10	0.61
Feeding	1.36	0.06	1.58	0.13	1.63*
Safety	1.17	0.06	1.22	0.12	0.39

Abbreviations: CO, conservation values; OP, openness-to-change values; SE, self-enhancement values; ST, self-transcendence values.
*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.

$p < 0.05$ (see Figure 4). The assumption of proportional odds (parallel lines) held for the model, $\chi^2(3) = 2.26$, $p = 0.323$. The odds ratio was −1.67 (95% CI [−0.996, −0.03]), $p < 0.05$, indicating that fathers with the growth-focused value profile were more likely to report that they never put their infants in a restricted area (29%) than fathers with the anxiety-based profile (15.5%). The model accounted for approximately 1% of the variance in the outcome, McFadden's pseudo-$R^2 = 0.01$.

4 | Discussion

To the best of our knowledge, this study was the first to investigate the relationship between new parents' values and their experiences surrounding parenting an infant. We asked whether new parents' values were related to their cognitions about their infant's sleep, opportunities for social interactions, infant sleep quality, and whether gender differences in parents' values were related to these relationships. Because parent gender predicted differences in aggregated value profiles, we ran subsequent analyses separately.

Our findings replicated previous work in which men scored higher than women on hedonism, stimulation, and self-direction (openness-to-change profile) and in which women scored higher than men on security (conservation profile) (Schwartz and Rubel 2005). However, unlike previous work, there was no difference between mothers and fathers in self-transcendence; typically, women score higher on universalism and benevolence which comprise that value profile. This difference may stem generally from fathers' new role, with the specific life transition of fatherhood increasing the importance of values that emphasize "protection for the welfare of all people" and deriving from the "survival needs of individuals," as well as values that emphasize "solidarity" and "survival" of the group (Schwartz 2016, 66). There may also be something unique about this particular group of new fathers who self-selected to participate in a study on parenting; they may be more involved in parenting or value parenting more than the average man or average father.

We did not replicate previous work that examined gender differences in parents' responses on the PCISQ (Sadeh et al. 2007). That study generally found no differences, except for mothers scoring higher than fathers on anger and safety. In contrast, mothers in our sample scored higher than fathers on setting limits, doubt, and safety, whereas fathers in our sample scored higher than mothers on anger. A key difference between the two studies was that in the original mothers and fathers were reporting on the same child, whereas in the current study they are independent samples. Gender differences between parents may actually reflect individual differences in the child. Another important difference was that in the original, criterion for participation was that both parents had to complete the questionnaire, whereas in our study only one parent needed to complete the surveys. Perhaps families in which both parents are highly involved or have the resources to muster participation by both parents are more likely to share similar beliefs and experiences than families in this study which only necessitated the participation of one parent.

4.1 | Summary of Values

4.1.1 | Social Values

Mothers who endorsed *self-transcendence* values were more likely to play interactive, body-centered games with their infants and less likely to place their children in tummy time. Thus, mothers who placed significant importance on the welfare of their child were more likely to use maternal practices, such as

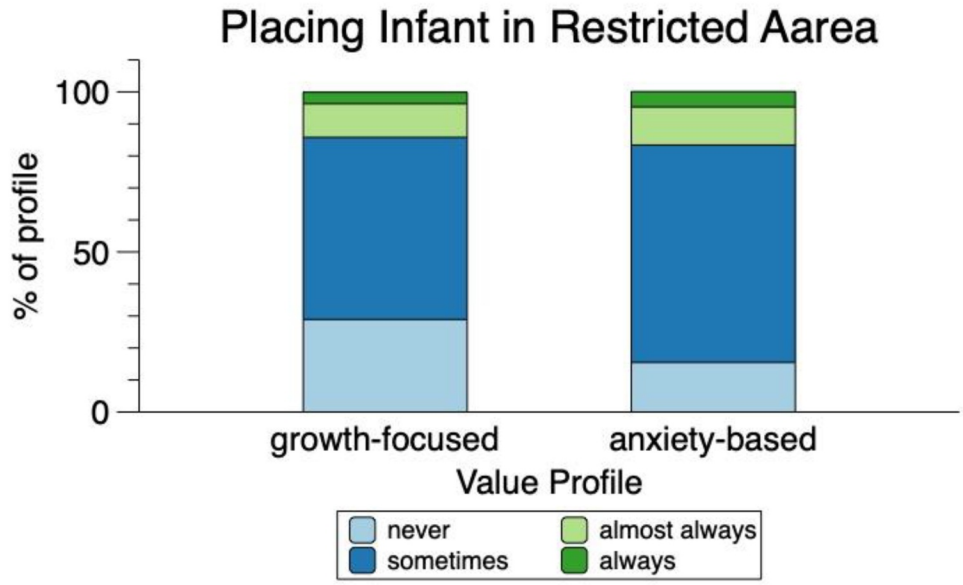

FIGURE 4 | Fathers with a growth-focused value profile were almost twice as likely as fathers with an anxiety-based value profile to never place their infants in restricted areas in the home.

game-playing, that involved enhancing the wellbeing and enjoyment of the child. They seemed also to avoid activities that might lead to the discomfort of their children. Generally, mothers who endorsed *self-transcendence* tended to focus on what the baby wanted and enjoyed.

Conservation was negatively associated with doubt related to infant sleep for mothers, whereas for fathers, *conservation* was positively associated with all sleep cognitions except for anger which was unrelated. Mothers who endorsed *conservation* values were also more likely to restrict infants to particular areas of the home. Thus, mothers who endorsed a more traditional role, were most likely to designate a specific area in the home for their infants and were more certain about their choices related to sleep. Fathers who embraced a more traditional role had more concerns about everything related to infant sleep, except for anger. It can be that these fathers feel less competent in their parental role, which might be perceived traditionally as a woman's role. Similarly, fathers with an *anxiety-based* values profile had stronger beliefs about the importance of feeding to soothe infants at night and worry about infants going hungry at night than fathers with a *growth-focused* profile.

4.1.2 | Individual Values

Openness-to-change was negatively associated with every measure of maternal cognition about sleep (limits, anger, doubt, feeding, safety). Mothers who endorsed *openness-to-change* values had the most positive emotional response to infant sleep—the least worry and the fewest negative feelings as measured by the PCISQ. These mothers were also more likely to play interactive, body-centered games with their infants, place them in tummy time, and allow infants the freedom to move. Thus, mothers who valued new experiences and independent thought and action also allowed their child more freedom of movement and held fewer negative parenting cognitions regarding their infant's sleep. As our study is correlational, we cannot determine the direction of the relations, but it could be that mothers who enjoy positive parenting also have more resources that allow them to attribute more importance to free thinking and behavior (Daniel et al. 2023). It could also be that valuing new ideas and experiences prepares new parents for the changes associated with welcoming a new baby to the family.

Self-enhancement was positively associated with anger around sleep issues for both mothers and fathers. Studies have found that self-enhancement values related to a desire to feel anger as these values reflect perceptions of power and dominance and separate the self from others (Tamir et al. 2016). In the one study ever conducted linking sleep to values, researchers found that adolescents' circadian rhythms predicted their value endorsements (Vollmer and Randler 2012). Adolescents who were "morning types"—those who preferred early bedtimes at night and early wake times in the morning—were more likely to endorse the social value of self-transcendence. In contrast, "evening types" were more likely to endorse the individual value of self-enhancement. In a different study, college students who were evening types had more difficulty coping with stressful environmental demands than morning types (Mecacci and Rocchetti 1998). Perhaps parents who endorsed self-enhancement more than other values were also more likely to be evening types. This could account for the anger they expressed regarding infants' sleep as new routines and obligations would be perceived as stressful.

Mothers who endorsed *self-enhancement* values were less likely to play interactive, body-centered games with their infants, less likely to restrict infants to particular areas, and less likely to allow infants the freedom to move. Thus, these mothers appeared to exhibit a mix of controlling and autonomy-supportive behaviors, possibly reflecting both a tendency to exert control over their child and a desire to foster mastery and independence. Values are generally stable, but life transitions, such as going from middle childhood to adolescence or becoming a mother (although not for becoming a father), can

precipitate change (Daniel et al. 2020; Lönnqvist et al. 2018). For example, although the effect sizes were relatively small, new mothers moved closer to the Conservation pole of the value dimension that opposes Conversation values with Openness to Change values, but women who were not new mothers did not show this value change. Because we did not track parents' values over time, we have no way of knowing whether value profiles were stable or changed upon parenthood. Children and adolescence whose values were less coherent at an initial assessment were more likely to show change in their values over time (Daniel et al. 2024). Having two undifferentiated profiles as we found for the mothers in our sample is unusual, but it may reflect our unique population of new mothers who have recently experienced a significant life transition and are likely to be in the midst of value change.

Despite meaningful relations between parents' higher order values and value profiles and their beliefs about sleep and other parenting behaviors, there was no direct relation between values and the quality of infants' sleep. Sleep is a primary concern of parents (El-Sheikh and Sadeh 2015), but not all values relate strongly to everyday behaviors (Bardi and Schwartz 2003). In a non-clinical sample such as this one, children's basic sleep needs are expected to be met, suggesting that essential, normative infant behaviors go beyond specific value endorsements by parents. To that end, variability in infants' sleep quality was minimal, all in the typical range, but mothers' and fathers' feelings about providing that care, as measured via the PCISQ, varied across higher-order values. Infants of parents who harbored feelings of anger around their infants' sleep may have nevertheless slept well because of a buffering effect of the other parent's involvement (Ragni and De Stasio 2020). These findings have potential implications for the mental health of parents and the sleep health of infants. For example, the ability of mothers to strike a balance between their own emotional needs and those of their toddlers (Simon and Scher 2023), mothers' separation anxiety (Scher and Blumberg 1999), and difficulties with limit setting have all been associated with infants having problems falling or staying asleep (Knappe et al. 2020). Assessing individual differences or specifically assesing parents' a priori values that they bring with them to childrearing would anticipate factors that could create stress for them around the transition to parenthood.

The lack of relation between parents' values and infant sleep was not generalizable to other caregiving behaviors. For example, despite pediatricians' recommendations to provide tummy time for infants who sleep supine, maternal values varied in their association with tummy time frequency, suggesting that they did not prioritize their infants receiving that experience in the same way that they ensured that their infants slept well.

4.2 | Limitations and Future Directions

One key limitation to this study is the lack of diversity in education, SES, and race/ethnicity in this sample of families. While focusing on a sample of Nanit users allowed us to easily reach a large sample and collect objective sleep metrics without having to meet individually with each family to provide equipment, there may be something unique about this sample. Families may choose to use this type of baby monitor due to concerns or anxieties related to their baby's sleep or because they are inordinately interested in technology or data about their child. Moreover, this particular baby monitoring system is not inexpensive. By necessity of the technology, this sample only represents infants who slept in their cribs, thereby excluding families who bedshare or nights of data when infants slept out of the crib. Future work on this topic must rely less on a convenience sample of users and seek out samples that are representative of other demographics. Despite the self-selected sample, however, the data were still sufficiently variable and the assessments sensitive enough to capture individual differences. Other value profiles would likely be revealed in samples of caregivers with different parenting practices. This could be possible, albeit on a smaller scale, with actigraphy measures of infants' sleep for families who co-sleep, bedshare, or prefer not to use a video monitor for any reason. Other future smaller-scale work may compare mothers and fathers of the same infants so that these findings can directly speak to previous work and address infant-driven individual differences.

A second limitation is that these data represent just a snapshot of the relation between mothers' values and parenting concerns and practices. Entering into parenthood might change mothers' values (Lönnqvist et al. 2018), and mother's internal characteristics such as self-awareness. Future work should take multiple measurements longitudinally over infants' first year to examine whether mothers' values or the relation between values and parenting outcomes change as a function of increasing parenting expertise. A related approach could be to cross-sectionally compare parents who have had their first child to parents who have had more than one child. Longitudinal design will also allow for the examination of mediation processes, such as cognitions, as an explanatory process of the relations between parental values and behaviors.

The snapshot approach to this initial investigation into the relation between parents' personal values and parenting behavior did not allow for a comprehensive battery of testing for other factors that could mediate, influence, or otherwise relate to parents' values. For example, parents' values may be related to underlying personality factors, which we did not measure. A 60-study meta-analysis showed that while personality traits and personal values were distinct constructs, cognitively based personality traits (but not affective traits) were related to values (Parks-Leduc et al. 2015). Future models could expand their scope and complexity based on these early findings.

4.3 | Conclusion

In sum, this study may be the first to link mothers' and fathers' values to the context of and circumstances surrounding infant sleep. We showed that parents' values were related to their sleep-related cognitions and parent-infant interactions. That is, how parents felt about providing that sleep-related care and everyday parent-infant behaviors varied according to their values. The transactional model of infant sleep captures the "complex and

multidimensional" relationship between parenting and infant sleep (Sadeh et al. 2010, 94). Because parenting plays such a pivotal role in affecting infant sleep, interventions aimed at targeting infants' sleep health are successful when they include some aspect of parent education. These findings provide converging evidence that any interventions targeting parents' mental health and infants' sleep health must consider the bi-directional relationship between parents' values and their prenatal cognitions about and behaviors related to infant sleep (Sadeh et al. 2010; Simon and Scher 2023).

Author Contributions

Sarah E. Berger: conceptualization, investigation, funding acquisition, writing – original draft, methodology, visualization, writing – review and editing, formal analysis, project administration, resources. **Maya Benish-Weisman:** writing – review and editing, conceptualization. **Shambhavi Thakur:** data curation, project administration. **Natalie Barnett:** conceptualization, methodology, resources.

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Ethics Statement

The ethics committee that approved this study was the College of Staten Island University-Integrated Institutional Review Board (UI-IRB), which is guided by the principles of the Belmont Report and the terms of CUNY's Federalwide Assurance (FWA) for the Protection of Human Subjects with the US Department of Health and Human Services (DHHS) Office for Human Research Protections (OHRP).

Conflicts of Interest

Dr. Berger is on the Scientific Advisory Board of Nanit. Dr. Barnett and Ms. Thakur are employed by Nanit.

Data Availability Statement

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

Endnotes

[1] Although the original study cited here used the term "Caucasian," APA now recommends avoiding the term to describe race due to its problematic origins. Given that this recommendation was not in place at the time the cited study was conducted, we now refer to the cited sample as "White."

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