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EMPIRICAL ARTICLE

Predictors of Young Adults' Primal World Beliefs in Eight Countries

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ABSTRACT

Primal world beliefs ("primals") capture understanding of general characteristics of the world, such as whether the world is *Good* and *Enticing*. Children ($N = 1215$, 50% girls), mothers, and fathers from Colombia, Italy, Jordan, Kenya, Philippines, Sweden, Thailand, and United States reported neighborhood danger, socioeconomic status, parental warmth, harsh parenting, psychological control, and autonomy granting from ages 8 to 16 years. At age 22 years, original child participants reported their primal world beliefs. Parental warmth during childhood and adolescence significantly predicted *Good*, *Safe*, and *Enticing* world beliefs, but other experiences were only weakly related to primals. We did not find that primals are strongly related to intuitive aspects of the materiality of childhood experiences, which suggests future directions for understanding the origins of primals.

Primal world beliefs ("primals") capture individuals' basic understanding of what sort of world this is. For example, is the world dangerous or safe? Dull or enticing? Barren or abundant? Theory and research on primals have advanced over the last five years in personality and social psychology (e.g., Clifton et al. 2019), but the concept of primals is nascent in the study of development (Lansford et al. 2023). A key question facing developmental scientists is to understand how primals form.

1 | Primal World Beliefs

Clifton et al. (2019) initiated the recent study of primals by analyzing many inputs, including over 1700 descriptions in 385 sacred texts, philosophical treatises, novels, political speeches, and films from Western and non-Western cultures as well as more than 80,000 tweets that began with "The world is..." Factor analytic techniques were used to distill a manageable structure of 26 world belief dimensions. They named them "primal world

beliefs" ("primals" for brevity) not to indicate that the beliefs were somehow inborn but to distinguish the type of simple, adjectival qualities being ascribed to the world that met criteria (e.g., *dangerous*, *malleable*, and *interesting* versus *composed of chemical elements* or *made by God*). A set of 26 dimensions emerged from the statistical analysis. One overarching primal, *Good*, represents the overall belief that the world is a good (versus bad) place. Three secondary primals, *Safe* (versus dangerous), *Enticing* (versus dull), and *Alive* (versus mechanistic) fit the data best at a slightly more granular level. The remaining 22 tertiary primals capture more specific beliefs, such as that the world is *Progressing* (versus declining) and *Abundant* (versus barren).

Primals are similar to or incorporate some other psychological constructs that have been more widely studied, such as the belief in a just world (Hafer and Bègue 2005). Just world belief has been tied to a wide range of life outcomes; those who see the world as just tend to be kinder, happier, and more hard-working but also blame victims (Bartholomaeus and Strelan 2019). Primals cover a wider scope of beliefs, beyond whether the world is just, and to date, no longitudinal research has investigated predictors of primals.

In adulthood, primals are as stable over time as personality traits (Clifton et al. 2019) and are strongly correlated with life satisfaction, depression, and optimism (Clifton and Meindl 2022; Stahlmann et al. 2020). However, researchers have struggled to identify naturally occurring life events and experiences that reliably change primals. Even when the entire world became objectively more dangerous during the COVID-19 pandemic, dangerous world belief did not increase (Ludwig et al. 2023). Many researchers and laypersons have a strong intuition that the content of our primals directly reflects the material content of our backgrounds (which is consistent with some research on just world belief; Thomas 2022). For example, if you see the world as dangerous, that reliably means you have experienced more danger in your life than the average person. Kerry et al. (2024) surveyed 494 laypersons and 486 researchers who made hypotheses along these lines. However, in a sample of 14,481 people, all hypotheses were unsupported, with expected relations on average 12 times larger than actual relations. Believing that the world is *Abundant* or *Pleasurable* was only weakly correlated with growing up in a poorer household, being poor currently, and living in a poorer neighborhood (Kerry et al. 2024). In addition, believing that the world is *Good*, *Safe*, or *Just* was unrelated or only weakly correlated with having a serious illness such as cancer or cystic fibrosis (Kerry et al. 2024).

Although this prior research sheds little light on where primals come from, it does shed light on the inadequacy of widespread intuition that primals reflect lived experience in a straightforward, perhaps reductive way. It also means that primals researchers are still, in many ways, at square one, having so far failed to identify life experiences that reliably change primals. However, (a) most datasets used so far have been cross-sectional data collected from adults and (b) targeted at intuitions that are perhaps needlessly reductive. What is missing from the extant literature is prospective longitudinal research examining experiences during childhood and adolescence—measured during childhood and adolescence—as predictors of subsequent primals in adulthood.

2 | Possible Predictors of Primals

We identified six possible predictors of primals on the basis of their salience in theoretical frameworks of child development and the empirical support for their importance as predictors of a range of developmental outcomes, although these constructs have not previously been tested as predictors of the development of primals. The hypothesized predictors range from characteristics of neighborhoods and the socioeconomic status of families—allowing improved tests of two hypotheses examined by Kerry et al. (2024)—which provide different affordances and access to material resources, to four characteristics of the psychological and affective climate of the family—moving beyond Kerry et al.'s (2024) hypotheses that were focused on the material circumstances of the environment, not the relational circumstances. In identifying possible predictors of primals, we attended to cross-cultural generalizability versus specificity, recognizing that because children are socialized in particular cultural contexts, they tend to develop beliefs that are generally consistent with others in their culture regarding how and why the world operates as it does in general and in specific domains such as spirituality (Davoodi and Clegg 2022).

First, we examined Neighborhood Danger. In bioecological theory (Bronfenbrenner and Morris 2006), neighborhood characteristics are part of the exosystem in which development is situated. Neighborhood danger during childhood and adolescence predicts internalizing problems (for a meta-analysis see Miliauskas et al. 2022), externalizing problems (dos Santos et al. 2023), and health problems (Miller et al. 2022) as well as a range of socioemotional and cognitive outcomes into adulthood (Sharifian et al. 2020). It seems reasonable to hypothesize that neighborhood danger would impede the development of the *Safe* primal. However, adolescents sometimes report feeling safe even in neighborhoods with high crime rates (Zuberi 2018). In cross-sectional data, Kerry et al. (2024) found no relation between dangerous world belief and local crime rates.

Second, we examined Family Socioeconomic Status (SES). Family SES plays a prominent role in many developmental theories, including the Family Stress Model of Economic Hardship, which posits that economic distress predicts more problematic parenting and, in turn, poorer child mental health (Conger et al. 2020). Across low-, middle-, and high-income countries, family income has been found to predict a range of outcomes during childhood (Lansford et al. 2019). Family SES during childhood also prospectively predicts a range of outcomes in adulthood, including brain structure and functioning (Dufford et al. 2020) and educational and economic outcomes (Gibb et al. 2012). Previous cross-sectional research on adults has demonstrated only a weak correlation between concurrent SES and the *Abundant* primal, but it is possible that prospective relations may be different. For example, changes in family income during childhood may predict the *Progressing* primal if children come to believe that the world is

getting better or worse as a function of improvements or decrements in their family's financial situation. However, Kerry et al. (2024) found no significant relation between adults' reports of improvements in their social class across their lifetime and *Progressive* world belief.

Third, moving beyond material circumstances and Kerry et al.'s (2024) hypotheses, we examined Parental Warmth, which represents parents' acceptance, caring, and support of their children and is a cornerstone, along with control, of several theories of parenting. For example, classic typology models of parenting describe authoritative, authoritarian, permissive, and neglectful parenting with reference to dimensions of warmth and control (Baumrind 1967; Maccoby and Martin 1983). Warmth is also a central tenet of Interpersonal Acceptance-Rejection Theory, which argues for the universal importance of feeling loved and accepted for human development (Rohner 2021). A review of 12 meta-analyses that included 149,440 people from 31 countries from all continents except Antarctica concluded that warmth is related to children's psychological adjustment and that experiencing parenting warmth during childhood predicts psychological adjustment into adulthood (Khaleque and Ali 2017). For example, in a nationally representative sample of 3000 adults, ages 25 to 74 years, in the United States, parental warmth during early childhood was a principal factor associated with decreased levels of depressive symptoms and of chronic illness into people's 70s (Shaw et al. 2004). Experiencing parental warmth during childhood and adolescence may be central to developing the belief that the world is *Good*, *Safe*, and *Enticing*.

Fourth, we examined Harsh Parenting, operationalized as corporal punishment (e.g., spanking, slapping) and psychological aggression (e.g., calling the child names like lazy or stupid, yelling at the child). In theoretical models that differentiate the overall climate of the parent–child relationship from specific behaviors, warmth would typically be part of the overall climate, and corporal punishment and psychological aggression would be specific behaviors (Darling and Steinberg 1993). A meta-analysis including 111 effect sizes from 160,927 children demonstrated that corporal punishment is related to more child internalizing and externalizing problems and to more antisocial behavior and mental health problems in adulthood (Gershoff and Grogan-Kaylor 2016). In addition, a systematic review of 149 quantitative and 17 qualitative studies concluded that verbal abuse as a component of psychological aggression predicts a range of internalizing and externalizing problems across the lifespan (Dube et al. 2023). These findings hold across different cultural contexts, and in the Sustainable Development Goals guiding the international agenda through 2030, the United Nations (2024) has identified both corporal punishment and psychological aggression as important to eliminate in child protection efforts internationally. In contrast to warmth, harsh parenting during childhood and adolescence may impede the development of the belief that the world is *Safe*, and also *Good* and *Enticing*.

Fifth, we examined Parents' Psychological Control. Psychological control involves parents' attempts to influence children's thoughts and emotions with techniques such as love withdrawal and guilt induction, which can undermine children's healthy development (Barber 2002). In contrast to behavioral control, which has variable associations with children's adjustment in different cultural contexts (Rothenberg et al. 2020), psychological control is related to more child behavior problems across cultural contexts (Yan et al. 2020). Experiencing parental psychological control in childhood is also related to mental health problems into adulthood (Johnson et al. 2001). Psychological control may inhibit the development of the belief that the world is *Enticing*.

Sixth, we examined Parents' Autonomy Granting, which refers to parents respecting and promoting their children's opinions, perspectives, volitional functioning, and ideas, encouraging and supporting their children in following their self-endorsed interests (Soenens et al. 2009). Despite differences across cultural contexts in norms about how much autonomy is expected or desired, parents grant children more autonomy as they move into adolescence (Lansford et al. 2021). Even in cultural contexts that have been characterized primarily as collectivistic, some degree of parental autonomy granting is related to more adolescent prosocial behavior (Zhou et al. 2022) and better school achievement (Wang et al. 2017). Parental autonomy granting may contribute to the development of the belief that the world is *Enticing*.

As primals characterize beliefs about the world, and these beliefs may be affected by the broad sociodemographic and cultural contexts in which people live, studying predictors of primals cross-nationally is particularly important. For example, some countries are objectively safer than others, as indicated by differences in homicide rates (Rogers and Pridemore 2023) and average life expectancy (UNDP 2019). Whether these national differences are reflected in primal world beliefs is still unknown, but previous theoretical work suggests that features of national culture nuance within-culture psychological processes (Smith and Bond 2019). In the present study, we examined associations of experiences during childhood and adolescence with primals in early adulthood in eight countries that were selected because they vary across several important dimensions. For example, the countries rank 8th–147th out of 189 countries on the United Nations Human Development Index, an indicator of a country's health and income status (UNDP 2019). The countries also vary in religiosity, with Sweden as one of the most secular countries in the world, and predominant religious affiliations (e.g., Muslim in Jordan, Catholicism in the Philippines, Buddhism in Thailand; Pew Research Center 2015). In addition, the countries vary on individualism and collectivism, with Hofstede Insight's (2023) individualism scores ranging from among the least individualistic (Colombia, China, and Thailand) to the most individualistic (United States) countries in the world. The countries also vary on a number of dimensions, such as long-term orientation and emancipation, described in other models of culture (Minkov and Kaasa 2021). This variability across countries enables us to test whether variance in prediction of primals is more accounted for by within- versus between-culture factors.

3 | The Present Study

The present study leveraged a longitudinal, international dataset to probe deeper into the sorts of childhood experiences that might predict primals in adulthood. We posed a range of hypotheses, two of which are the same straightforward, widely

expected, seemingly false expectations that Kerry et al. (2024) examined cross-sectionally (i.e., does living in a dangerous neighborhood in childhood relate to seeing the world as more dangerous in adulthood; is experiencing more abundance in childhood tied to believing the world is abundant in adulthood). Other hypotheses, however, move beyond these more reductive material explanations to explore how particular types of experiences with one's parents—arguably the most important relationships in the child's life—might predict primals (see Table 1).

This study has a combination of exploratory features and confirmatory features; it was pre-registered (https://osf.io/sy5xk/?view_only=9ac7c1c90cac4d79a3871bf9da21f6b4sensi). Using prospective longitudinal data from eight countries, we test the following pre-registered hypotheses. We predicted that neighborhood danger and harsh parenting (corporal punishment, yelling) experienced in childhood and adolescence would be associated with low scores on the *Safe* primal in early adulthood; parental warmth and autonomy granting (as opposed to psychological control) in childhood and adolescence would predict the *Enticing* primal in early adulthood; and low socioeconomic status (SES) in childhood and adolescence would predict low scores on the *Abundant* primal in early adulthood. Because we have data on change over time in household income across childhood and adolescence, we also tested whether a decline in household income from childhood to adolescence is associated with lower scores on the *Progressing* primal in early adulthood. Although not specifically listed in our pre-registered hypotheses, the literature might also suggest hypotheses that parental warmth would predict higher scores on the *Safe* primal and that harsh parenting would predict lower scores on the *Enticing* primal. Because *Good* is an overarching primal that encompasses both *Safe* and *Enticing*, *Good* may also be predicted by high parental warmth and low harsh parenting. Ours is the first study to examine longitudinal associations between a range of experiences during childhood and adolescence with primals assessed in early adulthood and to assess these associations in an international sample across eight countries, making it uniquely poised to test hypotheses regarding the role of early experiences in the development of primals.

TABLE 1 | Definitions of primals, sample items, and hypothesized predictors.

Primal	Sample item	Hypothesized predictors
Good (vs. bad; overarching primal that encompasses the other primals)	"Most things in the world are good"	Parental warmth (+) Harsh parenting (–)
Safe (vs. dangerous)	"I tend to see the world as pretty safe"	**Neighborhood danger** (–) Parental warmth (+) **Harsh parenting** (–)
Enticing (vs. dull)	"No matter where we are, incredible beauty is always around us"	**Parental warmth** (+) Harsh parenting (–) **Psychological control** (–) **Autonomy granting** (+)
Progressing (vs. declining)	"Though the world has problems, on the whole things are definitely improving"	**Decline in income** (–)
Abundant (vs. barren)	"The world is an abundant place with tons and tons to offer"	**Socioeconomic status** (–)

Note: Predictors in bold were listed in the preregistered hypotheses, but other predictors listed are also plausible based on previous research.

4 | Method

4.1 | Participants

The current study is part of a larger project called Parenting Across Cultures (PAC; Lansford et al. 2021), which includes 1338 children (M_{age} = 8.59 years, SD = 0.68, range = 7–11 years; 50% girls), their mothers (n = 1283, M_{age} = 37.04 years, SD = 6.51), and their fathers (n = 1170, M_{age} = 40.19 years, SD = 6.75) at wave 1 of 13 annual waves collected between 2008 and 2022. Most parents lived together (82%) and were biological parents (97%); nonresidential and non-biological parents also provided data. In the overall project, families were recruited from 13 cultural groups in nine countries, including Jinan (n = 120) and Shanghai, China (n = 123); Medellín, Colombia (n = 108); Naples (n = 102) and Rome (n = 111), Italy; Zarqa, Jordan (n = 114); Kisumu, Kenya (n = 100); Manila, Philippines (n = 120); Trollhättan/Vänersborg, Sweden (n = 129); Chiang Mai, Thailand (n = 120); and Durham, NC, United States (n = 102 Black, n = 110 white, n = 99 Latino). For the current study, as primals data (the outcome of interest) were not collected in China, our sample comprises 1215 participants (50.3% females). In the other eight countries, 816 of the original child participants provided age 22 data. Data for the study were collected over the span of thirteen years of annual data collection. In the final year, 67% of the original sample provided data about primals. Participants who provided follow-up data did not differ from the original sample for parental education but did differ by country, gender, parental warmth, and harsh parenting. Attrition rates were high in Sweden (67%) and Thailand (42%). Conversely, the retention rate was high in Italy (78% for Naples, 88% for Rome), Kenya (82%), Jordan (82%), and Colombia (73%), and medium-high in the Philippines (67%) and in the United States (64%). Missing participants were more males (39% of the initial male participants dropped out from the study compared to 26% of the initial female participants, χ^2 (10) = 124.52, p < 0.001), self-reported higher levels of parental warmth (t [787.29] = 2.62, p = 0.008) and had parents who reported lower levels of harsh parenting (t [543.62] = −3.85, p < 0.001 for fathers, t [803.2] = −4.18, p < 0.001 for mothers). Sensitivity analyses

with just these 816 participants showed no substantive difference in findings compared to models using full information maximum likelihood (FIML) to handle missing data, so the results below report on the full sample of 1215, as missing data experts advocate the use of FIML rather than deletion methods for handling missing data (Rioux and Little 2021).

4.2 | Procedure

Participants were recruited through schools. Sampling included families from each country's majority ethnic group, except in Kenya, where we sampled Luo (13% of the population), and in the United States, where we sampled equal proportions of Black, white, and Latino families. SES was sampled in proportions representative of each city in which participants were recruited. Measures were administered in the predominant language of each data collection site, following forward- and back-translation, cultural adaptation, and meetings to resolve any item-by-item ambiguities in linguistic or semantic content (Erkut 2010). Parents provided informed consent at each time point; children provided assent in the project's early years and provided their own informed consent when they reached the age of legal majority (age 18 years in most countries). In the early years, interviews lasted 1 to 2 h in participant-chosen locations; participants were given the choice of completing the measures in writing or orally. The young adult interviews were conducted either in person or online, but all young adults completed the measures on their own rather than orally. Families were given modest monetary compensation for participating or compensated in other ways deemed appropriate by local IRBs. IRBs approved procedures in each participating country.

4.3 | Measures

In the current study, we used several instruments that showed strong reliability. For all of them, we reported both the overall sample and each country's internal consistency (see Table 2).

Neighborhood danger was assessed using a 7-item questionnaire (Griffin et al. 1999; O'Neil et al. 2001) administered to parents and children at ages 10 and 12 years. They were asked to rate the safety and social climate of their neighborhood (e.g., "A lot of people in my neighborhood are friendly and helpful," "My neighborhood is a dangerous place to live"; 0 = Never/Almost never true, 3 = Always/Almost always true). For each reporter, after reversing positive items reflecting neighborhood safety, a 4-item mean score was used to capture perceptions of neighborhood danger, with higher scores indicating more perceived danger. Considering the high correlations between mothers' and fathers' reports ($r = 0.658$, $p < 0.001$), we created an overall composite of parents' reports of neighborhood danger and used both parents ($\alpha = 0.85$) and children's reports in the current study ($\alpha = 0.68$). The measure has been validated in all countries used in the present study (Deater-Deckard et al. 2019).

Family socioeconomic status (SES) was measured by asking parents to report their education and annual household income when children were aged 9 to 16 years. We computed a composite measure of SES by standardizing and averaging maternal and paternal years of education completed and the gross annual family income over the past year, averaged across childhood and adolescence ($\alpha = 0.97$).

Parental warmth was measured using the Parental Acceptance-Rejection/Control Questionnaire-Short Form (PARQ/Control-SF; Rohner 2005), with a 4-point scale (1 = almost never, 2 = once a month, 3 = once a week, 4 = every day) administered to parents and children at ages 8–10 and 12–14. After reversing negative items reflecting hostility (e.g., "I punish my child severely when I am angry" or "My mother/father punishes me severely when she/he is angry"), neglect (e.g., "I pay no attention to my child" or "My mother/father pays no attention to me"), and rejection (e.g., "I resent my child" or "My mother/father resents me"), we combined in a single composite scale those reverse scores and the parental warmth scores (e.g., "I make it easy for my child to confide in me" or "My mother/father makes it easy for me to confide in her/him"), with higher scores meaning greater parental warmth (and lower parental hostility, neglect, and rejection). Considering the high correlations between mothers' and fathers' reports ($r = 0.474$, $p < 0.001$), we created an overall composite of parents' reports of parental warmth. We then use parents' ($\alpha = 0.89$) and the children's reports in the current study ($\alpha = 0.92$). This measure has been translated into over 60 languages and has been widely used in parenting research around the world (e.g., Khaleque and Ali 2017), including in all countries in the present study (e.g., Rothenberg et al. 2020).

Harsh parenting was assessed at ages 8 through 15 years, on average, using six dichotomous items from the Multiple Indicator Cluster Surveys (UNICEF 2006), capturing both corporal punishment and psychological aggression from the parents toward the child (e.g., "Hit or slapped him/her on the face, head or ears," "Shouted, yelled at or screamed at him/her"). The items were selected by UNICEF by convening an international panel of 25 experts to identify candidate items from existing valid and reliable measures of caregiving; field testing candidate items via cognitive interviews and quantitative surveys in the Americas, South Asia, and Africa; and convening a second international panel of 27 experts to evaluate items' performance within and across diverse cultures and settings. The items that resulted from this process were adapted from the Parent–Child Conflict Tactics Scale and the World SAFE survey questionnaire. As mothers' and fathers' reports were highly correlated ($r = 0.600$, $p < 0.001$), we created an overall composite of mothers' and fathers' reports of harsh parenting ($\alpha = 0.94$).

Parents' psychological control and autonomy granting were measured using the Parental Psychological Control Measure (Barber 1996). Parents and children at ages 10 and 12–16 years were asked to rate the extent to which parents make decisions for their children (e.g., "I tell my child that my ideas are correct and that he/she should not question them" or "My parents tell me that their ideas are correct and that I should not question them") versus letting children make their own decisions (e.g., "I let my child make his/her own plans for things he/she wants to do" or "My parents let me make my own plans for things I want to do") and how often parents try to control how children think or feel or manipulate them psychologically (e.g., "I won't let my child do things with me when he/she does something I don't like" or "My parents won't let me do things with them

TABLE 2 | Cronbach's alphas by culture for each variable.

	Neighborhood danger		Family SES	Parental warmth		Harsh parenting	Psychological control		Autonomy granting		Abundant	Progressing	Safe	Enticing	Good
	P	C	P	P	C	P	P	C	P	C	C	C	C	C	C
Medellín, Colombia	0.82	0.64	0.97	0.91	0.94	0.95	0.87	0.79	0.62	0.65	0.72	0.83	0.64	0.64	0.79
Naples, Italy	0.62	0.60	0.97	0.85	0.89	0.92	0.90	0.78	0.62	0.73	0.83	0.81	0.82	0.70	0.80
Rome, Italy	0.69	0.63	0.95	0.89	0.90	0.89	0.82	0.66	0.60	0.63	0.79	0.86	0.79	0.74	0.80
Zarqa, Jordan	0.75	0.60	0.92	0.81	0.93	0.78	0.75	0.70	0.58	0.52	0.70	0.72	0.57	0.60	0.65
Kisumu, Kenya	0.79	0.57	0.77	0.77	0.88	0.93	0.89	0.77	0.74	0.66	0.54	0.65	0.54	0.67	0.72
Manila, Philippines	0.65	0.45	0.97	0.91	0.93	0.92	0.85	0.69	0.66	0.62	0.65	0.73	0.76	0.63	0.82
Trollhättan, Sweden	0.80	0.80	0.78	0.89	0.89	0.86	0.91	0.84	0.80	0.79	0.76	0.85	0.70	0.73	0.80
Chiang Mai, Thailand	0.75	0.68	0.92	0.87	0.93	0.87	0.88	0.88	0.60	0.59	0.75	0.75	0.72	0.77	0.84
U.S. Black	0.77	0.65	0.97	0.60	0.95	0.82	0.92	0.86	0.79	0.62	0.70	0.82	0.62	0.59	0.63
U.S. White	0.70	0.65	0.92	0.88	0.91	0.95	0.93	0.77	0.63	0.73	0.74	0.91	0.77	0.88	0.88
U.S. Latino	0.84	0.60	0.98	0.87	0.95	0.95	0.95	0.68	0.77	0.62	0.79	0.75	0.76	0.73	0.82

Abbreviations: C, children's reports; P, parents' reports.

when I do something they don't like"). Responses were provided on a 4-point scale (1 = strongly disagree to 4 = strongly agree). This measure yields two subscales, the Psychological Control subscale and the Autonomy Granting subscale, with higher scores indicating more psychological control and autonomy granting. For each subscale, we created a composite for parents ($r = 0.603$, $p < 0.001$ for psychological control; $r = 0.262$, $p < 0.001$ for autonomy granting), and used the composite of parents' reports ($\alpha = 0.94$ for psychological control and 0.70 for autonomy granting) and the children's ones ($\alpha = 0.82$ for psychological control and 0.69 for autonomy granting). The measure has been validated in all countries included in the present study (Skinner et al. 2022).

Primal world beliefs were assessed using a 30-item version of the Primals Inventory (Clifton et al. 2019) administered to the original child participants when they were age 22 years, on average. The instrument is a brief version developed from the 99-item Primals Inventory, which measures 26 basic (i.e., primal) beliefs about the world. The current study focuses on five primal word beliefs: *Abundant* (e.g., "The world is an abundant place with tons and tons to offer"), *Progressing* (e.g., "Though the world has problems, on the whole things are definitely improving"), *Safe* (e.g., "I tend to see the world as pretty safe"), *Enticing* (e.g., "No matter where we are, incredible beauty is always around us"), as well as one overarching primal *Good* (e.g., "Most things in the world are good"). After reversing negative belief items, we created the primals scores by averaging participants' answers (α for *Abundant* = 0.70, α for *Progressing* = 0.80, α for *Safe* = 0.70, α for *Enticing* = 0.71, α for *Good* = 0.78). Finally, as we administered the Primals Inventory for the first time in the current sample, in line with other cross-cultural longitudinal investigations, we utilized the alignment method (Muthén and Asparouhov 2014) to test for measurement invariance in factor loadings and intercepts across all cultural groups for each primal. We found 0% non-invariance for factor loadings and 2.3% for intercepts for *Abundant* primal, 4.5% non-invariance for factor loadings and 0% for intercepts for *Progressing* primal, 0% non-invariance for factor loadings and 1.5% for intercepts for *Safe* primal, 0% non-invariance for factor loadings and 2.6% for intercepts for *Enticing* primal, and 0% non-invariance for factor loadings and 2.4% for intercepts for *Good* primal. All these values fell below Muthén and Asparouhov's (2014) 25% threshold for acceptable non-invariance, indicating acceptable measurement invariance across cultures in our sample.

4.4 | Analysis Plan

We tested the hypotheses that experiences assessed during childhood and adolescence would predict primals in early adulthood. We ran full information maximum likelihood multilevel models with random intercepts for countries. The random intercept captures the differences in primals across cultures (Enders and Tofighi 2007). We ran five separate multilevel models (one for each primal) to evaluate associations between childhood and adolescence predictors and early adulthood primals. Each model included as predictors the fixed effects of neighborhood danger (parents' and children's reports), family SES (parents' reports), parental warmth (parents' and children's reports), harsh parenting (parents' reports), psychological control (parents' and children's reports), and autonomy granting (parents' and children's reports), and primals as outcomes (one primal for each model). To test associations between changes in family income from childhood to adolescence and the *Progressing* primal in early adulthood, we first calculated a difference score by subtracting family income when children were aged 16 from family income when children were aged 9 years, aiming to capture changes in family income across years. We then ran a separate full information maximum likelihood multilevel model with random intercepts for culture and the family income difference score as the predictor and the *Progressing* primal as the outcome. In every model, we included gender as a covariate and applied the Bonferroni correction to control alpha inflation due to multiple testing. We used R software (version 4.2.2., R Core Team 2020) to perform all statistical analyses.

5 | Results

No significant associations of neighborhood danger, family SES, harsh parenting, or psychological control with primals were discovered, but we discovered relations of parental warmth with *Good*, *Safe*, and *Enticing*. Table 3 reports the means and standard deviations for each variable, and Table 4 depicts correlations among the variables. Five multilevel models with Bonferroni correction were run to test whether experiences during childhood and adolescence were related to primals in early adulthood.

Considering the multilevel nature of our data, we examined the within- and between-culture relations between our predictors and the primals. For each primal, most variance was within culture, not between cultures. The ICC, the proportion of variance between cultures, was 0.014 for *Abundant*, 0.129 for *Progressing*, 0.091 for *Safe*, 0.104 for *Enticing*, and 0.109 for *Good*. Overall, these relatively low ICCs limit our power to detect between-culture differences in primals development and show that the variance was due primarily to individual variation within cultures. Predictors included in the models explained approximately 8.7% of the variance in the *Abundant* primal model ($R^2 = 0.087$), 14.5% ($R^2 = 0.145$) in the *Progressing* primal model, 13.4% ($R^2 = 0.134$) in the *Safe* primal model, 20.9% ($R^2 = 0.209$) in the *Enticing* primal model, and 19.0% ($R^2 = 0.190$) in the *Good* primal model.

Table 5 shows the results. We discovered that parental warmth reported by children significantly predicted *Good*, *Safe*, and *Enticing* but not *Progressing* or *Abundant*. In particular, individuals who experienced and directly reported high parental warmth during childhood and adolescence were likely to have higher levels of *Safe* ($\beta = 0.18$, SE = 0.13, 95% CI = 0.08, 0.27, $p = 0.002$), *Enticing* ($\beta = 0.17$, SE = 0.12, 95% CI = 0.08, 0.26, $p = 0.002$), and *Good* ($\beta = 0.21$, SE = 0.01, 95% CI = 0.12, 0.30, $p < 0.001$) world beliefs in early adulthood. We also discovered that autonomy granting reported by children significantly predicted *Enticing* world belief ($\beta = 0.11$, SE = 0.06, 95% CI = 0.03, 0.18, $p = 0.024$): individuals who experienced and directly reported high autonomy granting from their parents during childhood and adolescence were likely to have higher levels of *Enticing* in early adulthood. Finally, we found a gender effect for

TABLE 3 | Descriptive statistics for each cultural group (respondents are reported with P and C).

	Neighborhood danger		Family SES	Parental warmth		Harsh parenting	Psychological control		Autonomy granting		Abundant	Progressing	Safe	Enticing	Good
Group	**P**	**C**	**P**	**P**	**C**	**P**	**P**	**C**	**P**	**C**	**C**	**C**	**C**	**C**	**C**
Medellín, Colombia $n = 108$	0.72 (0.73)	0.64 (0.58)	−0.18 (0.86)	3.78 (0.15)	3.68 (0.24)	0.17 (0.11)	2.72 (0.43)	2.51 (0.33)	3.45 (0.23)	3.30 (0.41)	3.56 (0.71)	2.45 (0.97)	2.99 (0.65)	3.67 (0.60)	3.39 (0.55)
Naples, Italy $n = 102$	1.23 (0.78)	0.78 (0.59)	−0.49 (0.67)	3.77 (0.12)	3.65 (0.19)	0.20 (0.10)	2.52 (0.52)	2.34 (0.39)	3.37 (0.36)	3.19 (0.39)	3.45 (0.82)	1.86 (0.87)	2.40 (0.78)	3.51 (0.62)	2.95 (0.55)
Rome, Italy $n = 111$	0.65 (0.46)	0.45 (0.45)	0.00 (0.68)	3.70 (0.15)	3.63 (0.22)	0.21 (0.11)	2.25 (0.46)	2.19 (0.35)	3.38 (0.27)	3.20 (0.43)	3.27 (0.79)	1.60 (0.84)	2.33 (0.74)	3.46 (0.63)	2.88 (0.54)
Zarqa, Jordan $n = 114$	0.37 (0.43)	0.49 (0.45)	−0.65 (0.36)	3.51 (0.24)	3.37 (0.29)	0.26 (0.16)	2.81 (0.23)	2.67 (0.35)	3.01 (0.26)	3.09 (0.39)	3.22 (0.79)	2.41 (0.77)	2.53 (0.63)	3.04 (0.55)	2.85 (0.45)
Kisumu, Kenya $n = 100$	0.64 (0.42)	0.68 (0.47)	−0.84 (0.34)	3.5 (0.17)	3.40 (0.22)	0.29 (0.16)	2.31 (0.32)	2.51 (0.35)	3.09 (0.38)	2.83 (0.49)	3.31 (0.78)	2.80 (0.82)	2.79 (0.67)	3.28 (0.68)	3.16 (0.53)
Manila, Philippines $n = 120$	0.68 (0.64)	0.62 (0.49)	0.15 (0.83)	3.65 (0.20)	3.54 (0.27)	0.19 (0.14)	2.51 (0.37)	2.63 (0.37)	3.31 (0.30)	2.96 (0.46)	3.24 (0.74)	2.38 (0.82)	2.36 (0.72)	3.21 (0.60)	2.90 (0.58)
Trollhättan, Sweden $n = 129$	0.07 (0.13)	0.09 (0.21)	0.94 (0.55)	3.80 (0.12)	3.73 (0.17)	0.07 (0.05)	1.79 (0.27)	1.86 (0.38)	3.08 (0.28)	3.20 (0.39)	3.29 (0.79)	2.13 (0.83)	2.81 (0.70)	3.40 (0.70)	3.03 (0.57)
Chiang Mai, Thailand $n = 120$	0.49 (0.46)	0.61 (0.52)	−0.17 (0.66)	3.58 (0.21)	3.47 (0.24)	0.10 (0.10)	2.27 (0.32)	2.34 (0.33)	3.31 (0.27)	3.24 (0.38)	3.11 (0.73)	2.31 (0.74)	2.24 (0.66)	2.86 (0.69)	2.62 (0.58)
U.S. Black $n = 102$	0.37 (0.51)	0.46 (0.56)	0.18 (0.66)	3.80 (0.15)	3.70 (0.25)	0.13 (0.10)	2.20 (0.37)	2.39 (0.34)	3.20 (0.33)	3.13 (0.45)	3.33 (0.77)	1.93 (0.90)	2.32 (0.64)	3.31 (0.60)	2.93 (0.45)
U.S. White $n = 110$	0.14 (0.28)	0.19 (0.25)	1.21 (0.55)	3.78 (0.12)	3.77 (0.14)	0.09 (0.09)	1.82 (35)	2.17 (0.43)	3.25 (0.32)	3.27 (0.37)	3.59 (0.79)	2.04 (0.98)	2.50 (0.77)	3.61 (0.80)	3.07 (0.69)
U.S. Latino $n = 99$	0.39 (0.55)	0.36 (0.48)	−0.26 (0.86)	3.77 (0.18)	3.67 (0.29)	0.10 (0.11)	2.36 (0.40)	2.41 (0.38)	3.13 (0.36)	2.99 (0.43)	3.39 (0.80)	2.45 (0.97)	2.58 (0.77)	3.61 (0.80)	3.16 (0.45)

Note: Means and standard deviations are reported.
Abbreviations: C, children's reports; P, parents' reports.

TABLE 4 | Bivariate correlations.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
(1) Neighborhood danger (P)	1.00														
(2) Neighborhood danger (C)	**0.46**	1.00													
(3) Family SES (P)	**−0.41**	**−0.36**	1.00												
(4) Parental warmth (P)	**−0.17**	**−0.19**	**0.33**	1.00											
(5) Parental warmth (C)	**−0.14**	**−0.33**	**0.35**	**0.54**	1.00										
(6) Harsh parenting	**0.23**	**0.22**	**−0.34**	**−0.53**	**−0.39**	1.00									
(7) Psychological control (P)	**0.31**	**0.29**	**−0.57**	**−0.39**	**−0.35**	**0.46**	1.00								
(8) Psychological control (C)	**0.18**	**0.21**	**−0.39**	**−0.28**	**−0.36**	**0.33**	**0.52**	1.00							
(9) Autonomy granting (P)	**0.09**	0.02	**0.08**	**0.20**	**0.15**	−0.06	0.01	**−0.14**	1.00						
(10) Autonomy granting (C)	**−0.06**	**−0.19**	**0.21**	**0.24**	**0.40**	**−0.19**	**−0.23**	**−0.13**	**0.12**	1.00					
(11) Abundant	−0.06	**−0.09**	**0.13**	**0.17**	**0.18**	**−0.08**	**−0.13**	−0.05	−0.01	**0.16**	1.00				
(12) Progressing	−0.05	−0.04	**−0.12**	−0.05	−0.04	−0.01	**0.07**	**0.08**	**−0.08**	−0.04	**0.30**	1.00			
(13) Safe	−0.04	−0.05	−0.02	**0.10**	**0.14**	−0.06	0.02	−0.03	−0.03	0.049	**0.39**	**0.54**	1.00		
(14) Enticing	−0.04	**−0.13**	**0.18**	**0.26**	**0.32**	**−0.17**	**−0.17**	**−0.14**	0.06	**0.21**	**0.67**	**0.21**	**0.42**	1.00	
(15) Good	−0.04	**−0.09**	0.04	**0.19**	**0.25**	**−0.12**	−0.06	−0.04	−0.00	**0.13**	**0.63**	**0.46**	**0.82**	**0.82**	1.00

Note: Bold values significant at $p < 0.05$.

TABLE 5 | Multilevel models predicting primals from childhood and adolescence experiences.

	Abundant			Progressing			Safe			Enticing			Good		
	β (SE)	**95% CI**	***p***	**β (SE)**	**95% CI**	***p***	**β (SE)**	**95% CI**	***p***	**β (SE)**	**95% CI**	***p***	**β (SE)**	**95% CI**	***p***
Neighborhood danger (P)	0.00 (0.05)	−0.08, 0.09	1.00	−0.00 (0.06)	−0.09, 0.08	1.00	−0.02 (0.05)	−0.10, 0.07	1.00	−0.00 (0.04)	−0.08, 0.08	1.00	−0.02 (0.00)	−0.10, 0.06	1.00
Neighborhood danger (C)	−0.03 (0.06)	−0.11, 0.05	1.00	−0.06 (0.07)	−0.13, 0.02	0.724	−0.02 (0.05)	−0.09, 0.06	1.00	−0.03 (0.05)	−0.11, 0.04	1.00	−0.02 (0.00)	−0.10, 0.05	1.00
Family SES (P)	0.05 (0.04)	−0.04, 0.15	1.00	−0.04 (0.05)	−0.14, 0.06	1.00	−0.03 (0.04)	−0.12, 0.07	1.00	0.07 (0.03)	−0.02, 0.16	0.735	−0.00 (0.00)	−0.10, 0.09	1.00
Parental warmth (P)	0.08 (0.19)	−0.02, 0.18	0.680	0.05 (0.23)	−0.05, 0.15	1.00	0.07 (0.18)	−0.03, 0.17	0.900	0.02 (0.16)	−0.07, 0.12	1.00	0.07 (0.00)	−0.03, 0.16	0.915
Parental warmth (C)	0.11 (0.14)	0.01, 0.20	0.157	0.04 (0.16)	−0.06, 0.13	1.00	0.18 (0.13)	0.08, 0.27	**0.002**	0.17 (0.12)	0.08, 0.26	**0.002**	0.21 (0.01)	0.12, 0.30	**<0.001**
Harsh parenting (P)	0.04 (0.26)	−0.05, 0.13	1.00	−0.03 (0.30)	−0.12, 0.05	1.00	−0.02 (2.4)	−0.11, 0.07	0.696	−0.04 (0.22)	−0.12, 0.05	1.00	−0.04 (0.01)	−0.13, 0.05	1.00
Psychological control (P)	−0.08 (0.08)	−0.17, 0.02	0.634	0.04 (0.09)	−0.06, 0.14	1.00	0.07 (0.07)	−0.03, 0.17	0.773	−0.06 (0.07)	−0.15, 0.04	1.00	0.02 (0.06)	−0.07, 0.12	1.00
Psychological control (C)	0.04 (0.08)	−0.05, 0.12	1.00	−0.03 (0.09)	−0.11, 0.06	1.00	−0.03 (0.07)	−0.12, 0.05	1.00	−0.02 (0.06)	−0.10, 0.06	1.00	−0.00 (0.05)	−0.09, 0.07	1.00
Autonomy granting (P)	−0.07 (0.08)	−0.15, 0.00	0.245	−0.03 (0.10)	−0.10, 0.05	1.00	−0.05 (0.08)	−0.13, 0.02	0.780	−0.05 (0.07)	−0.12, 0.02	0.815	−0.07 (0.06)	−0.14, 0.01	0.371
Autonomy granting (C)	0.09 (0.07)	0.02, 0.17	0.089	−0.00 (0.08)	−0.08, 0.07	1.00	−0.00 (0.06)	−0.09, 0.07	1.00	0.11 (0.06)	0.03, 0.18	**0.024**	0.06 (0.05)	−0.01, 0.13	0.563

Note: Standardized estimates, standard errors, 95% confidence intervals, and significant *p*-values (Bonferroni correction) are in bold reported in the table.

TABLE 6 | Multilevel model predicting progressing primal from family income.

	Progressing		
	β (SE)	**95% CI**	***p***
Family income change	−0.00 (0.06)	−0.08, 0.06	0.803

Note: Standardized estimates, standard errors, 95% confidence intervals, and *p*-values are reported in the table.

Abundant world belief, with women showing lower values than men ($\beta = -0.11$, SE = 0.05, 95% CI = −0.18, −0.04, $p = 0.011$).

To test whether a change in family income across childhood and adolescence was connected to *Progressing* world belief, we ran another FIML model with culture as a random intercept and the difference score of family income as the predictor. No significant associations between changes in family income in childhood and adolescence and *Progressing* world belief in early adulthood emerged (see Table 6).

6 | Discussion

Despite widespread intuition, we did not find that primals straightforwardly reflect material circumstances, including childhood material circumstances. We did not find that neighborhood danger, as measured in childhood, predicted seeing the world as safe in adulthood. We also did not find that childhood SES, as measured in childhood, predicted Abundant world belief scores in adulthood. These findings replicate Kerry et al.'s (2024) findings, but now across eight countries and comparing adulthood primals to data collected prospectively, starting in childhood. This finding is important because it suggests that, although improving the material circumstances of children is obviously worthwhile for a legion of reasons, material circumstances are not, on their own, a powerful force shaping the development of primal world beliefs.

Our hypotheses about primals reflecting parenting approaches, however, fared a bit better, but still not very well. Harsh parenting and psychological control during childhood and adolescence did not predict primals in early adulthood. However, parental warmth was an important exception. This is a hopeful finding for parents, teachers, and others who help care for children, as it suggests avenues for research exploration as well as intervention.

In many respects, primals may function more as schemas, or as social axioms through which people interpret their experiences and structure their interaction with the social world (Leung and Bond 2004), rather than as beliefs that are highly reliant on prior experiences (Clifton 2020). Primals may be comparable to understanding schemas as shortcuts that help people know how to behave in a given situation rather than having to approach each new situation as a blank slate (Huesmann 2018). It is possible that when people have an experience that contradicts the primal they already hold, they discount or reframe the experience so that it fits within the existing primal rather than adjusting the primal to encompass the new experience, as people sometimes do when they have an experience that contradicts a schema. This process is akin to assimilation versus accommodation in Piaget's classic theoretical framework. When people have an experience that is consistent with the primal they already hold, they may use that new experience to justify why they believe as they do, as also sometimes occurs with schemas.

It is possible that if people hold positive primals, such as believing that the world is *Safe* or *Enticing*, they will behave as if it is, which might generally have benefits for well-being, but could have negative consequences if they behave as if the world is safe when they are actually in an objectively dangerous situation. In an ethnically and racially diverse sample in New York City, 53% of parents reported wanting their child to think of the world as dangerous, and only 8% of parents reported wanting their child to think of the world as very safe (Clifton and Meindl 2022). Children do need to be prepared to cope with the world in which they live, and the worlds in which some children live are objectively more dangerous than others (Henry et al. 2019). However, believing that the world is a dangerous place is related to less job and life satisfaction, worse health, and more depressed affect and suicidality in adulthood (Clifton and Meindl 2022).

Despite finding little support for most hypotheses regarding how experiences during childhood and adolescence would be related to primals in adulthood, a notable exception arose with respect to parental warmth during childhood and adolescence, which significantly predicted young adults' beliefs that the world is *Good*, *Safe*, and *Enticing*. It is possible that, as a cornerstone of the emotional climate of the parent–child relationship, parental warmth plays a more important role than specific parental behaviors or broader environmental factors such as neighborhood danger or family SES, which often have indirect effects on children's and adolescents' adjustment via parenting (Cuellar et al. 2015). As in attachment theory, which emphasizes how sensitive and responsive caregiving during infancy shapes internal working models of social relationships that set the stage for future adjustment (Fearon and Roisman 2017), parental warmth may shape beliefs about the world as a whole.

The present study has various strengths, including the longitudinal design following participants from age 8 to 22 years; the inclusion of children's, mothers', and fathers' reports of the families' neighborhoods, SES, and parenting during childhood and adolescence; and the inclusion of participants from eight countries, which expands the study of primals beyond the United States and western Europe where previous studies of primals have been conducted and enables understanding of within- versus between-culture variance in associations of experiences during childhood and adolescence with primals in early adulthood. The study also has limitations. First, the samples were not nationally representative, so national-level inferences are not appropriate, and care should be taken not to generalize the findings beyond the cultural groups that were included in the samples. Second, if primals had already developed early in childhood, the primals may have preceded neighborhood danger, socioeconomic status, parental warmth, harsh parenting, psychological control, and autonomy granting assessed from ages 8 to 16. Third, primals were self-reported by young adults (as they would have to be to assess individuals' beliefs about the world), and some of the predictors also were self-reported. Thus, it is possible that if children already believed that the world is

Safe, for example, the primal could have affected their reports of neighborhood danger or parental warmth. The data are correlational, so causal relations cannot be asserted, and the question of where and when developmentally the primal came from in the first place remains open. A key question that awaits further study is what predicts the emergence of primals.

Another important future direction will be to study primals during childhood and adolescence rather than adulthood. The 26 primals in the structure proposed by Clifton et al. (2019) were gleaned from adults. Children and adolescents may describe the world differently from adults, and even if both children and adults describe the world as *Good*, their conceptualizations of what makes the world good are likely to differ. In addition, some primals may emerge later than others, much as some emotions develop later than others (Hoemann et al. 2019).

Parental warmth may directly contribute to children's beliefs about the world, as in attachment relationships when sensitive and responsive caregiving forms the basis for future working models of relationships (Fearon and Roisman 2017). For example, feeling safe within the parent–child relationship may help foster the belief that the world is safe, and warmth within the parent–child relationship may also foster beliefs that the world is enticing and good. Future research should also examine factors that might explain indirect associations between parental warmth and primals. One possibility is that child temperament or personality could elicit particular environmental responses that also predict primals. For example, children with easy temperaments may elicit warmer responses from parents and more positive responses from others than children with difficult temperaments, which in turn might contribute to more positive primals. In addition, an analysis of the genetic origins of primal world beliefs suggests that primals, though not as heritable as personality traits, are quite heritable (Perizonius et al. 2024). Future research could explore the extent to which "parent warmth" is measuring the degree to which the parents already had positive primals and are transmitting their primals intergenerationally through genetics or parental warmth.

As the first longitudinal and multi-country study of primal world beliefs, this study advances understanding of how primals are related to experiences in childhood and adolescence. We did not find that primals are strongly related to the materiality of childhood experiences or straightforwardly related to numerous aspects of parenting. However, parental warmth during childhood and adolescence significantly predicted belief that the world is *Good*, *Safe*, and *Enticing* in early adulthood—a hopeful finding for caregivers and researchers alike. Nevertheless, we did not find that experiences during childhood and adolescence of neighborhood danger, family SES, harsh parenting, psychological control, and autonomy granting were directly associated with the development of primals, as we expected.

Our findings give some hope to parents and other caregivers. These are among the first indications that parenting in childhood and adolescence is correlated with primals during early adulthood. It is usually infeasible to simply increase one's socioeconomic status or to make one's neighborhood, let alone the entire world, substantially safer. However, these aspects of childhood experiences were not significantly correlated with primal world beliefs. Simply fostering a warm environment in the home—something most parents can attain—holds promise as an avenue for understanding how experiences in childhood and adolescence are related to beliefs in adulthood.

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Ethics Statement

Data collection for this study was approved by the Duke University IRB as well as the University IRBs at each data collection site.

Data Availability Statement

The data are not publicly accessible but are available from the first author upon reasonable request. The analytic code is available from the first author. The measures necessary to attempt to replicate the findings presented here are publicly accessible at the following URL: parentingacrosscultures.org. The analyses presented here were preregistered. The preregistration is available at the following URL: https://osf.io/sy5xk/?view_only=9ac7c1c90cac4d79a3871bf9da21f6b4.

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