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Applied Developmental Science

ISSN: 1088-8691 (Print) 1532-480X (Online) Journal homepage: http://www.tandfonline.com/loi/hads20

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To cite this article: Darcia Narvaez, Lijuan Wang & Ying Cheng (2016) The evolved developmental niche in childhood: Relation to adult psychopathology and morality, Applied Developmental Science, 20:4, 294-309, DOI: 10.1080/10888691.2015.1128835

To link to this article: http://dx.doi.org/10.1080/10888691.2015.1128835

APPLIED DEVELOPMENTAL SCIENCE
2016, VOL. 20, NO. 4, 294–309
http://dx.doi.org/10.1080/10888691.2015.1128835

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ABSTRACT

Following prior work linking childhood experience to adult outcomes, we used an evolutionary framework to examine effects of childhood experience on adult psychopathology and morality. Every animal provides an early life developmental system, developmental manifold or "niche" for its young, a set of inherited extra-genetic characteristics that match up with the maturational schedule of the offspring to optimize development. Humans inherit a niche first shaped over 30 million years ago with the emergence of social mammals and modified through human evolution. The human "evolved developmental niche" (EDN) has been related to positive outcomes in young children. Using an adult sample ($n = 606$), we examined adult retrospective recollection of childhood EDN and its relation to attachment, psychopathology, sociomoral capacities, and ethical orientations. Significant direct and indirect effects were found through mediation models, with EDN predicting Social Engagement orientation through perspective taking, Social Opposition orientation through lack of perspective taking and Social Withdrawal orientation through personal distress.

Introduction

Increasing evidence indicates that childhood experience can have substantial effects on various adult outcomes such as health and wellbeing. Embracing a relational developmental systems (RDS) approach, we used an extra-genetic evolutionary framework for framing childhood experience and examined the effects of self-reported childhood experience on adult attachement, psychopathology, sociomoral capacities, and ethical orientation.

Relational developmental systems meta-theory

Developmental research is increasingly framed according to a process-relational and relational developmental systems meta-theory, "a holistic approach that treats *endogenous activity, change, becoming, process, necessary organization* and *relations* as fundamental categories" for theory and methods construction in developmental research (Overton & Molenaar, 2015, pp. 3–4, emphasis in original). Development is a non-linear co-constructive process, with individual self-organization and social-contextual processes constantly interacting (<——>). Multiple co-acting factors, contingent on and sensitive to context, shape the trajectory of an individual-in-context according to processes of epigenetics and plasticity. RDS takes a lifespan perspective of "systematic intraindividual changes," typically focusing on orthogenesis (normal development) or pathogenesis (development of psychopathology) (Overton, 2015, p. 63). Herein, we explore what might be called *ethogenesis*, the development of moral capacities (Narvaez, in press-b). To date, most moral psychology research has emphasized cognitive functions like reasoning or judgment, with little emphasis on the dynamic construction of biosociality, the psychosocial neurobiological underpinnings of human morality. An ethogenetic approach focuses on whole, embodied, socially-embedded persons who interact and develop within layered dynamic contexts over the lifespan.

Childhood experience, attachment, and health

For decades, the Adverse Childhood Experiences (ACE) research program has examined the effects of adversity in childhood. ACE is a collaborative project between Kaiser Permanente's Health Appraisal Clinic in San Diego and the Centers for Disease Control and Prevention, in which over 17,000 patients have participated with results documented in over 50 empirical publications examining the effects of adverse childhoods on health. Adversity variables measured include abuse in the family (psychological, physical, sexual), family substance abuse, mental illness, and imprisonment. These variables are additively predictive of poor health

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outcomes and early death in adulthood (Anda et al., 2006; Dong et al., 2004; Felitti et al., 1998; Green et al., 2010). Childhood adversity is consistently probabilistically related to chronic disease in later life (Cromer & Sachs-Ericsson, 2006). That is, a greater number of adverse experiences corresponds to an increased chance of autoimmune disease and depressive disorders throughout adulthood (Chapman et al., 2004; Dube et al., 2009). In fact, ACE scores have been related to 18 different outcomes in various domains, theoretically because of "the cumulative exposure of the developing brain to the stress response with resulting impairment in multiple brain structures and functions" (Anda et al., 2006, p. 174). The interactions of genetic, epigenetic (e.g., dysregulation of stress response; Meaney, 2010), and/or developmental factors may correspond with a shift in trajectory based on the timing of the trauma or neglect (Cole, Michel, & O'Donnell Teti, 1994). As a result of developmental stress, the individual may adopt learned helplessness, poor self-care or other patterns of behavior that lead to poor health outcomes (Maunder & Hunter, 2008).

Early life experience can also influence the *relational* capacities of an individual. This is evident initially in attachment style. Attachment is generally understood as the bond an infant develops to the primary caregiver, usually the mother, which generally can be secure or insecure (Bowlby, 1969; Crittenden, 1992; Main, 1981, 1995). *Secure* attachment develops when the caregiver is consistent in responsiveness and communication of affect and meaning. Secure attachment does not develop with caregivers who show patterns of being inconsistently responsive or nonresponsive. Although attachment is often discussed as an "internal working model" of the relationship with the caregiver, the mediators of attachment security are physiological. The physiological systems of young mammals are typically regulated by maternal contact and responsiveness (Hofer, 1995; McKenna & Mosko, 1994; McKenna et al., 1994). For example, breastfeeding releases oxytocin in the mother and provides oxytocin through breast milk to the infant, promoting bonding between them; endogenous opioids maintain the bond, which promotes proximity to one another facilitating attachment (Depue & Morrone-Strupinsky, 2005). These physiological systems simultaneously downregulate stress and enhance immunity in both child and mother. Accordingly, breastfeeding is a good example of mutually-beneficial, adaptive developmental regulation (Overton, 2015). In fact, neurobiologically, the attachment system, is intertwined with the activation and modulation of the stress response (Porges, 2001, 2011; Schore, 2001). Eventually, just the thought of the secure-attachment figure (e.g., mother) can calm down a stress reaction in the child. Thus, secure attachment can counter stress and indicates capacities to regulate affect through and within intimate social relationships (Allen & Fonagy, 2002; Fonagy, Steele, Moran, Steele, & Higgitt, 1991). Attachment security is related to positive outcomes that can be carried into adulthood such as social skills and self-regulation (Kochanska, 2002; Sroufe et al., 2005). In contrast, lack of attachment security is related to increased disease and physical suffering and a key marker is dysregulated stress response (Maunder & Hunter, 2001, 2008). When the stress response is activated, the mind and body are mobilized to escape from threat (Sapolsky, 2004). In order to flee or fight, the sympathetic system shifts blood flow to muscles and away from higher-order thinking. If this mobilization does not lead to safety, the parasympathetic system takes over, introducing a type of physiological-cognitive-emotional paralysis to guard energy and preserve the body (freeze, faint). A chronically activated stress response over time wears down physiological immunity and health (McEwen & Seeman, 1999; Seeman, Singer, Rowe, Horwitz, & McEwan, 1997). Moreover, whenever the stress response is active, executive functions are impaired, making it hard to think in a complex or creative manner (Arnsten, 2009). Lack of secure attachment generally indicates some habitual form of dysphoria in social relationships and is related to the use of non-social means for mood improvement, such as eating, smoking, and the use of substances like alcohol or drugs (Maunder, Lancee, et al., 2006). One particular form of insecure attachment, anxious attachment, is related to higher levels of physical symptoms in otherwise-healthy undergraduates (Pellegrini, Hicks, Roundtree, & Inman, 2000) and adult patients (Ciechanowski, Katon, Russo, & Dwight-Johnson, 2002).

Adult attachment refers to relationships in which one's subjective feeling of security is affected [although the feeling can shift by context (Maunder, Panzer, et al., 2006)]. Attachment style measured longitudinally in childhood and adulthood tends to match up unless adverse experiences occurred in the interim (e.g., abuse, life-threatening illness, mental disorders or parental death, or divorce). For example, attachment measured at age 1 and age 20 matched up for 72% of (middle-class, white) participants (Waters, Merrick, Treboux, Crowell, & Albersheim, 2000). In a longitudinal study of adult women over 15 years, attachment style was fairly robust and stable, with correlations in the .50 and .60 range (Klohnen & John, 1998). It should be noted that high-risk samples show less stability in attachment style from infancy to adulthood (e.g., in one case only 39% were stable with 35% of the sample

drifting from secure to dismissive; Weinfield, Sroufe, & Egeland, 2000).

Attachment style is generally thought to be primarily a matter of nurture. As noted, caregiver responsiveness matters (Kochanska, 2002). Our question was whether other characteristics of early care would be related to the development of secure attachment. We examined evolved parenting practices that support child development.

The aforementioned findings are no surprise to those who hold a process-relational approach to human development (Overton, 2015) or an ecobiodevelopmental view (Shonkoff et al., 2012). We would like to expand the notion of RDST to include an extra-genetic evolutionary inheritance, the evolved developmental niche.

Evolved developmental niche

Recently, attention has been drawn to caregiving environments that evolved to optimize development of the young (Narvaez & Gleason, 2013; Narvaez, Panksepp, Schore, & Gleason, 2013c; Narvaez, Valentino, Fuentes, McKenna, & Gray, 2014). Every animal has a niche for its offspring that matches up with the maturational schedule of the infant and represents a set of inherited extra-genetic features that foster thriving or optimal development in offspring (Gottlieb, 1997, 2002). The human niche is a slight variant of the intensive parenting that emerged over 30 million years ago with the social mammals and Old World Monkeys (Konner, 2010). Human infants are born the most helpless relative to other primates, as part of an evolutionary shift that included bipedalism, intensifying parenting even further (Trevathan, 2011). Humans are born 9–18 months early compared to other animals, with only 25% of adult brain size in place at full-term birth, requiring supportive caregiving during a period of rapid growth, immense plasticity and lengthy dependency. The EDN can easily be conceptualized as an adaptive developmental system that was consistently provided over most of human history. Although biological evolutionary shifts (e.g., bipedalism) modified the EDN by intensifying it over a long period of time due to increasing biological needs of the neonate (born more and more immaturely), those biological needs have not receded despite the fact that recent cultural evolution has altered modern day parenting practices (e.g., infant formula, babies sleeping alone and left to cry).

The characteristics of the "evolved developmental niche" for young children (EDN; Narvaez, Wang, et al., 2013) have been identified by anthropologists who study small-band hunter-gatherer societies around the world (Hewlett & Lamb, 2005; Konner, 2005). These societies represent the type of society in which the human genus spent 99% of its history (Konner, 2010). The EDN for young children includes frequent and lengthy breastfeeding, affectionate touch (and no corporal punishment), responsiveness to the child's needs, lots of play, positive social climate and social embeddedness (integrated in a context of care). Each of these characteristics has known effects on physiological, psychological and/or social wellbeing (for reviews of each characteristic, see Narvaez, Panksepp, et al., 2013a). We mention only a sample of findings. Beyond its many physiological benefits (Centers for Disease Control and Prevention, 2014), *breastfeeding* is correlated longitudinally over a decade with less externalizing and internalizing behaviors (Oddy et al., 2010). *Positive (affectionate) touch* increases oxytocin release (Carter, 2003; Feldman, 2007) and adult reports of low amounts of affectionate parental touch in childhood are correlated with contemporaneous levels of depression (Takeuchi et al., 2009). *Active physical play* releases oxytocin in both parents and correlates with infant oxytocin levels, especially when interaction is synchronous (Feldman, Gordon, & Zagoory-Sharon, 2010; Feldman, Gordon, Schneiderman, Weisman, & Zagoory-Sharon, 2010). In contrast, negative touch (*corporal punishment*) is related to decreased mental health and increased aggression (Gershoff, Lansford, Sexton, Davis-Kean, & Sameroff, 2012). *Positive social support* in childhood promotes healthy development of physiological regulatory systems (e.g., immunity, HPA axis) with long term effects over the lifetime (Taylor, Repetti, & Seeman, 1997). Social support generally benefits mental and physical health; positive (or negative) *family* social support can have the greatest effects (for a review, see Umberson & Montez, 2010). In this study we separate social support variables into home (emotional) climate and responsive social environment.

In short, the evolved development niche is an adaptive relational system that has significant effects on how well brain/body systems develop– from endocrinology and immunity to self-regulation capacities, including stress reactivity and mental health. Self-regulation is fundamental for social development too; therefore, it is implicated in sociomoral relations.

Early experience and morality

Early care is related to relational capacities later in life. Longitudinal studies demonstrate that children who receive responsive parenting not only are more likely to develop secure attachment but socio-moral capacities (Kochanska, 2002). Good early care develops a sense of self-in-relation to others, allowing for synchrony and

reciprocal relations (Emde, Biringen, Clyman, & Oppenheim, 1991; Schore, 2003a, 2003b; Trevarthen, 2001). Responsive parenting fosters greater moral capacities such as empathy and conscience, and children who do not receive supportive parenting early are less likely to behave prosocially (Kochanska, 2002). They are more likely to be self-centered and troublesome (Sroufe, Egeland, Carlson, & Collins, 2005). Social perspective taking and empathy require regulation of personal distress but insecure attachment makes this difficult. For example, in a study of young children, less attachment security was linked to less empathy for a distressed stranger (Van der Mark, van Ijzendoorn, & Bakermans-Kranenburg, 2002). Thus, the foundations of attachment and its neurobiological underpinnings co-constructed by responsive parenting have effects on moral capacities. Proposals for the mechanism between early care and social capacities often include the development of the right hemisphere, which grows rapidly in the first years of life when self-regulatory systems are being established (Chiron, Nabbout, Lounes, Syrota, & Dulac, 1997). Children without supportive early care can have multiple self-regulatory deficits related to right-hemisphere development, such as poor prefrontal executive control, hyper-reactive stress response and a poorly functioning vagus nerve which makes intimacy difficult (Porges, 2011; Schore, 1994, 2003a, 2003b). Early experience influences how stress reactive one is (e.g., Lupien, McEwen, Gunnar, & Heim, 2009) as well as social engagement skills and capacities for imagination (for reviews see Emde et al., 1991; Greenspan & Shanker, 2004, Schore, 1994). Unless early experience is supportive, prefrontal controls of subcortical survival systems are likely to be underdeveloped, not only leading to a quick shift to fight-flight-freeze-faint when perceiving threat but to a low threshold for threat generally (McEwen & Seeman, 1999).

Developing secure attachment and well-shaped stress response systems in childhood are building blocks for social relations as well as moral capacities. If the stress response is activated in social situations, the orientation becomes necessarily one of self-focus. Without the development of self-regulatory controls of stress response systems, the individual may have a propensity to fall into stress-reactivity and self-focused response. The individual can become generally socially distrustful, leading to less agreeableness and less openness to new ideas and perspectives (Narvaez, 2014). In contrast, when self-regulation systems work properly and prosocial emotions are active, the mindset will be one of *social engagement* and relational attunement. This allows the individual to feel empathy and take the perspectives of others.

Current study

Whereas there are indicators that adverse childhood experiences affect mental and physical health in adulthood (Felitti & Anda, 2005), others have found that family closeness and support mitigate risk behavior and psychosocial problems (Hillis et al., 2010). The present study was designed to find out whether certain experiences in childhood provide a buffer for wellbeing in adulthood (mental, social and moral). Specifically, we were interested in adults' childhood experience of the evolved developmental niche, broadly conceived. We developed a short measure of EDN history to administer to adults. As with the ACE studies, it was a self-report measure of general childhood experience before age 18. We were interested in the relation of EDN history to several adult outcomes: secure attachment, psychopathology, moral capacities (e.g., empathy, perspective taking), and ethical orientations (engagement, social opposition, social withdrawal). We expected positive relations between variables representing positive childhood experiences and wellbeing in terms of secure attachment and (lack of) psychopathology, as well as prosocial moral capacities and ethical orientation. To examine the pattern of results, we planned to conduct analyses of single elements. We also tested a single-factor, holistic composite.

Ethical orientations were probed in light of triune ethics meta-theory, which identifies several moral orientations from which individuals take moral action (Narvaez, 2008, 2014, in press-a). Protectionist orientations are focused on self-protection generally or through habitual externalizing (*Social Opposition*) or internalizing (*Social Withdrawal*). In contrast, an *Engagement* orientation is oriented to relational attunement: being emotionally and cognitively present to others in the moment.

In this study we attempt to establish a pathway linking the evolved developmental niche to ethical orientation in adulthood. We hypothesized that experience consistent with the EDN builds secure attachment (and its lack does not) and that secure attachment fosters basic moral capacities such as empathy and perspective taking. In turn we expect this pathway to lead to varied ethical orientations: a route from secure adult attachment through lack of psychopathology, empathy or perspective taking to an Engagement ethic. We expected two routes through poor attachment and psychopathology: one through personal distress to Social Withdrawal or compliant morality and the other through poor perspective taking and low empathy to Social Opposition or combative morality.

Method

Participants

The sample contained a total of 606 adults ($M_{age} = 28.41$ years, $SD = 11.22$; 51.5% male). 206 of them were students in introductory psychology courses at a private USA Midwestern university ($M_{age} = 18.82$ years, $SD = 1.16$) who were recruited through a psychology experimental pool and received course credit. To increase variability and generalizability, we also recruited 400 adults through Amazon Mechanical Turk ($M_{age} = 33.35$ years, $SD = 10.88$), an online resource for collecting survey data from adult volunteers who are paid. These participants were recruited through Amazon Turk's mechanism for advertising a study. The racial/ethnic composition of the total sample was as follows: 69% Euro-American, 6% African American, 15% Asian or Asian American, 6% Hispanic/Latino, and 4% Native American.

Exclusion criteria

To ensure that all data analyzed were reliable and not produced by bots or uncooperative subjects, the data were first cleaned by eliminating entries that were completed in under 10 minutes, where reported ages were inconsistent with reported birth dates, incorrect answers to an elementary arithmetic question or a trick question. In total, seventeen participants were deleted using these criteria.

Ethics statement

The research was approved by the University of Notre Dame Human Subjects Institutional Review Board. Online consent was obtained before participants started the survey.

Measures

Evolved developmental niche history

As with the ACE studies, the measure of evolved developmental niche was a self-report measure of general childhood experience before age 18. The Evolved Developmental Niche History (EDNH) measure was developed to assess adult recollections of childhood experiences in/consistent with the evolved developmental niche (see the Appendix for the full measure.) We analyzed ten questions.[1] Affectionate touch and corporal punishment were each assessed with one item. Three questions addressed "responsive childhood" (happy, supportive, needs met) and were averaged ($\alpha = .921$). Two questions about free play (outside, inside) were averaged ($r = .611$). Two questions (averaged) assessed family togetherness (doing things together as a family outside the home and inside the home, $r = .527$), a measure of social embeddedness. To measure home climate, we included questions about home climate in terms of common feelings experienced, six negative and four positive sets which were averaged to form a negative climate variable ($\alpha = .876$) and a positive climate variable ($\alpha = .848$), respectively.

Attachment

To measure adult attachment, we used the single-item secure attachment rating from the Close Relationship Questionnaire (Bartholomew & Horowitz, 1991). Respondents rated how much the item was like them: "It is easy for me to become emotionally close to others. I am comfortable depending on others and having others depend on me. I don't worry about being alone or having others not accept me."

Internalizing psychopathology

We measured mental psychopathology, specifically, internalizing psychopathology, with the 64-item Inventory of Depression and Anxiety Symptoms without suicidality[2] (IDAS; Watson et al., 2007). Given a list of symptoms, participants indicate the degree to which they have experienced each symptom "*during the past 2 weeks, including today*" using a five-point Likert scale ranging from *not at all* to *extremely*. Anxiety is represented by panic, social anxiety, and traumatic intrusions whereas, insomnia, lassitude, appetite loss, and appetite gain assess depression (Watson et al., 2007). A composite mean score was calculated by adding all subscales plus dysphoria and ill-being subscales, and dividing by the total number of items. We refer to this score as internalizing pathology (IP; $\alpha = .907$).

Moral capacities

To measure moral capacities, we used the three subscales from M. H. Davis' (1983) Interpersonal Reactivity Index, empathic concern ($\alpha = .836$, six items), perspective-taking ($\alpha = .871$, seven items), and personal distress ($\alpha = .850$, seven items), all answered with a Likert-type scale (1 = not at all like me, 7 = just like me). The empathic concern subscale measures the tendency to experience warm and compassionate feelings for others, the perspective-taking subscale measures the tendency

[1] Although we also asked about breastfeeding, there were too many people who could not remember (23.1%) or did not respond (51.6%); therefore, we did not include this variable in the analyses.

[2] This was an online study of an anonymous sample; our IRB does not support asking suicidality questions in those circumstances.

to consider other people's point of view, and personal distress reflects discomfort felt when others are in pain. The correlations among the three subscales were as predicted: personal distress was negatively correlated with empathic concern ($r = -.097$) and not correlated with perspective taking ($r = .018$). The latter two were positively correlated ($r = .487$). The correlations are of tiny to moderate sizes and thus we will model them separately.

Ethical orientations

For the analysis of morality we used items to measure different ethical orientations based on Triune Ethics Meta-theory (Narvaez, 2008, 2013, 2014, in press-a). For each orientation, a set of words representative of the orientation is presented followed by four statements regarding how desirable the set of characteristics is to the participant and how visible they are to others in the respondent's behavior (e.g., "My friends think I am like this"). Participants rate agreement with the statements using a 5-point Likert-type scale (1 = strongly disagree, 5 = strongly agree). We examined three orientations: Engagement (caring, compassionate, merciful, cooperative; $\alpha = .891$); Social Opposition (combative, vigilant, belligerent, fierce; $\alpha = .919$); Social Withdrawal (submissive, yielding, timid, unassertive; $\alpha = .869$). The correlations among the three mindsets were as predicted: Engagement was negatively correlated with Social Opposition ($r = -.303$) and Social Withdrawal ($r = -.186$) and the latter two were positively correlated ($r = .277$). The correlations were of moderate size suggesting that they are distinct constructs.

Procedure

Participants filled out the measures online and took on average less than 30 minutes. Students received course extra credit and Amazon Turk participants were paid.

Results and discussion

Table 1 displays means, standard deviations, and ranges for key variables. Correlations among the EDN history variables are presented in Table 2. The directions of the correlations were all expected and the sizes ranged from small ($r = -.113$) to medium ($r = .663$). To examine the EDN measure, we fitted a one-factor confirmatory factor analysis (CFA) model to the EDN history variables with the robust maximum likelihood estimation method (estimator = MLr) in Mplus. The model fit indices yielded mixed suggestions about the fit of the model. For example, the Chi-square test of model fit (Chi-square value = 44.84, df = 14, $p = .000$) showed that the CFA model fitted the data significantly worse than the saturated model. However, RMSEA =.060 (equals the widely accepted good-fit cutoff of 0.06), CFI =.960 (above the widely accepted good-fit cutoff of .95), and SRMR =.036 (smaller than .08, the widely accepted upper limit cutoff of good-fit) all indicated that the one-factor model fitted the data adequately well (Hu & Bentler, 1999). We also fitted a two-factor model to the data but the model fit indices did not show the two-factor solution (Chi-square = 40.460, df = 8, $p = .000$, RMSEA =.082, CFI =.958, and SRMR =.022) to fit significantly better than the one-factor model. Given that the chi-square test tends to over-reject true population models and the "rules of thumb" provided in Hu and Bentler (1999), we believe the one-factor solution provided adequate fit. For this reason, and to facilitate the understanding of the concept of the EDN and more straightforward use of the EDN history measure for future research as suggested by a reviewer, we calculated a composite EDN score for each individual. For the mediation models to be described below, we used both the EDN history variables individually and the composite EDN variable as the Input variable.

Mediation models with each EDN history variable as the input variable

Mediation models were fitted to the data to test our hypothesis on the underlying mechanism of how EDN history affects morality of adults (see Figure 1). In Figure 1, $b1$ stands for the path coefficient from EDN to secure adult attachment; $b2$ is the path coefficient from secure adult attachment to psychopathology; $b3$ is the path coefficient from psychopathology to moral capacity; $b4$ is the path coefficient from moral capacity to ethical orientation; and c' is the direct effect of EDN on ethical orientation after controlling for all the mediators. Our hypothesis was that EDN-consistent experiences during childhood foster secure adult attachment which influences psychopathology, which in turn affects sociomoral capacities that influence ethical orientation. For the EDN history variables, we included affectionate touch, corporal punishment, play, family togetherness, positive home climate, negative home climate, and responsive childhood into the mediation models separately. Moral capacity variables included perspective taking, empathy, and personal distress and were entered in the models separately. Ethical orientation variables included Engagement, Social Withdrawal, and Social Opposition. Note that each mediation model was a saturated structural equation model and thus each model had the perfect model fit (Chi-square = 0; RMSEA = 0; CFI = 1).

Table 1. Means and standard deviations.

	Mean	Standard Deviation	Range
	Evolved Developmental Niche		
Affectionate Touch	3.71	1.05	1–5
Corporal Punishment	2.37	1.03	1–5
Play (inside and outside)	4.58	1.08	1–6
Family Togetherness (inside and outside)	3.82	.85	1–5
Positive Home Climate	4.30	.94	1–6
Negative Home Climate	2.80	.83	1–5.83
Responsive Childhood	4.03	1.03	1–5
Composite EDN Score*a*	3.73	.62	1.68–4.79
	Outcome Variables		
Secure Attachment	4.48	2.07	1–7
Psychopathology	3.51	1.33	2–9.07
Empathy	3.74	.74	1–5
Perspective Taking	3.57	.68	1.14–5
Personal Distress	2.54	.79	1–5
Engagement	4.16	.69	1–5
Social Opposition	1.86	.92	1–5
Social Withdrawal	2.03	.92	1–5

[a]The composite score was calculated in this way: (Affectionate Touch +6 – Corporal Punishment +Play *5/6 + Family Togetherness +Positive Home Climate *5/6 + Responsive Childhood Total + [7 – Negative Home Climate]*5/6)/7.

Table 2. Correlations among the Evolved Developmental Niche history variables.

	Positive Touch	Corporal Punishment	Play	Family Togetherness	Positive Home Climate	Negative Home Climate
Corporal Punishment	−.276**					
Play	.343**	−.112**				
Family Togetherness	.380**	−.217**	.346**			
Positive Home Climate	.411**	−.270**	.348**	.410**		
Negative Home Climate	−.323**	.370**	−.207**	−.332**	−.583**	
Responsive Childhood	.604**	−.371**	.360**	.465**	.662**	−.458**

Note. $^{**}p < .01$. $^{*}p < .05$.

To evaluate the overall mediation effect for each mediation model, we conducted the joint test of significance in conjunction with the test of the product term. Specifically, for the joint test of significance, we checked the significance of the path coefficients b1–b4. For the test of the product term, we tested the null hypothesis: H0: $b1 \times b2 \times b3 \times b4 = 0$ with the Sobel test. In addition, we also obtained the 95% bootstrap bias corrected confidence interval to estimate $b1 \times b2 \times b3 \times b4$. If all the individual path coefficients are significantly different from 0 and the 95% bootstrap bias corrected confidence interval of the overall indirect effect $b1 \times b2 \times b3 \times b4$ does not include 0, we conclude that the overall mediation effect is significantly different from 0 at the 0.05 significance level. With a significant mediation effect, if *c'* is not significantly different from 0, it is called a complete mediation; otherwise, it is a partial mediation (MacKinnon, 2008). This approach for testing indirect effects has been recommended and widely used due to its good performance in terms of both type I error rates and statistical power via simulation studies (MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002; Hayes & Scharkow, 2013). All the mediation models were fitted in Mplus.

The results showed that when empathy was included as a mediator (a moral capacity variable), the path estimates from psychopathology to empathy ($\widehat{b3}$) and from empathy to Social Withdrawal ($\widehat{b4}$) were not significantly different from 0. Therefore, the data did not support including empathy as a mediator. We address this in the discussion section.

When perspective taking was included as a mediator (moral capacity), we found that secure adult attachment, psychopathology, and perspective taking significantly mediated the relations of all the EDN history variables including affectionate touch, punishment, play, family togetherness, positive home climate, negative home climate, and responsive childhood, to Engagement. Similarly, secure adult attachment, psychopathology, and perspective taking significantly mediated the relations of the EDN history variables to Social Opposition. In contrast, for Social Withdrawal, the path estimates from perspective taking to Social Withdrawal ($\widehat{b4}$) were not significantly different from 0 and thus the related mediation models were not supported.

When personal distress (moral capacity negated) was included as a mediator, the paths from personal distress to neither Engagement nor Social Opposition (b4) were significant and thus the related mediation models were not supported. In contrast, we found that (lack of) secure adult attachment, psychopathology, and personal

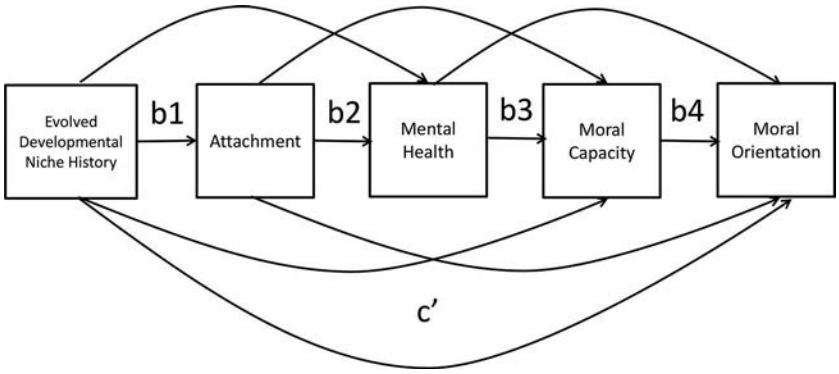

Figure 1. From EDN history to morality: A theoretical mediation model. *Note.* *b*1 stands for the path coefficient from EDN to secure adult attachment; *b*2 is the path coefficient from secure adult attachment to psychopathology; *b*3 is the path coefficient from psychopathology to moral capacity; *b*4 is the path coefficient from moral capacity to moral orientation; and c′ is the direct effect of EDN on moral orientation after controlling for all the mediators.

distress significantly mediated the relations of all the EDN history variables to Social Withdrawal. Table 3 displays the path coefficient estimates, their *p* values, and the combined mediation effect sizes ($1 - c'/c$; c is the direct effect coefficient without including any mediator and c′ is the direct effect coefficient after including the mediators) of each supported mediation model. To summarize, Figure 2 displays the mediation models supported by our empirical data.[3]

Mediation models with the overall EDN composite variable as the input variable

When the overall EDN composite variable was used as the input variable in the mediation models, the results we observed from the mediation models using the EDN history variables separately were replicated (Table 4).

These results largely confirmed our predictions. We found significant chains of effects from EDN history variables through adult attachment, psychopathology and at least one moral capacity for each ethical orientation. For Engagement the relation was a positive chain through perspective taking. For Social Opposition, it was a negative chain through perspective taking. For Social Withdrawal, it was a negative chain through personal distress.

Discussion

We postulated that childhood experience more consistent with the evolved developmental niche might offer a supportive environment for promoting mental health and social well-being. We developed a retrospective measure of early life experience based on the evolved developmental niche that includes questions about affectionate touch, corporal punishment, play, family togetherness, positive and negative home climate, and responsive childhood. We examined whether self-reported childhood experiences were related to psychopathology, moral capacities and ethical orientation. Our expectations were largely supported. With few exceptions, early experiences were correlated with secure adult attachment, internalizing psychopathology, moral (in)capacities (empathy, perspective taking, personal distress), and ethical orientations.

Mediation models linked early childhood experience to ethical orientations in expected directions. We tested three ethical orientations: Engagement, Social Opposition, and Social Withdrawal. Our mediation models demonstrated mediated and unmediated paths to ethical orientations. The three mediated paths included EDN-consistent childhood experiences, secure adult attachment, lower psychopathology, greater perspective taking and Engagement, or greater perspective taking and lower Social Opposition, or lower personal distress and lower Social Withdrawal. This conforms with prior findings indicating that with abuse or neglect, perspective taking is defensively inhibited (Fonagy, Gergely, Jurist, & Target, 2004). An unmediated pathway went through personal distress to Social Withdrawal. This also conforms with prior research showing that personal

[3]If the findings from the mediation models were simply due to chance or due to Type I errors, we would expect about 5% of significant mediation results. In the mediation analyses, the number of mediation tests we did was 72. The proportion of significant mediation results was 33.3%. There were nine combinations of moral capacities (empathy, perspective taking, and personal distress) and ethical orientations (engagement, social opposition, and social withdrawal) for the mediation analyses. The significant mediation effects were found in three combinations: perspective taking with engagement, perspective taking with social opposition, and personal distress with social withdrawal. For the other six combinations, none of the mediation effects were significant.

Moreover if the findings were due to chance, there would not be any pattern in the significant findings. The findings from the mediation models work for both all of the individual EDN variables and the composite EDN variable, not just for one or two randomly selected EDN variables. Therefore, we are confident that the findings are not due to chance or Type I errors.

Table 3. Path coefficient estimates and *p* values of the supported mediation models with an individual EDN variable as the input variable.

EDN	*b*1	*b*2	*b*3	*b*4	*b*1**b*2 (**b*3**b*4)	*c*′	Mediation Effect (1 − *c*′/*c*)
Moral Capacity: Perspective Taking; Moral Orientation: Engagement							
Affectionate Touch	.463 (.000)	−.154 (.000)	−.051 (.002)	.287 (.000)	.001 (.009)	.080 (.002)	Partial (35.5%)
Corporal Punishment	−.280 (.000)	−.159 (.000)	−.050 (.003)	.283 (.000)	−.001 (.031)	−.107 (.000)	Partial (26.7%)
Play	.470 (.000)	−.127 (.000)	−.045 (.007)	.272 (.000)	.001 (.022)	.119 (.000)	Partial (33.3%)
Family Togetherness	.444 (.000)	−.121 (.000)	−.046 (.012)	.278 (.000)	.001 (.028)	.147 (.000)	Partial (29.5%)
Positive Home Climate	.737 (.000)	−.114 (.000)	−.046 (.006)	.270 (.000)	.001 (.026)	.173 (.000)	Partial (30.8%)
Negative Home Climate	−.604 (.000)	−.093 (.000)	−.069 (.000)	.291 (.000)	−.001 (.013)	−.067 (.098)	Complete (53.4%)
Responsive Childhood	.574 (.000)	−.125 (.000)	−.058 (.001)	.301 (.000)	.001 (.006)	.139 (.000)	Partial (23.3%)
Moral Capacity: Perspective Taking; Moral Orientation: Social Opposition							
Affectionate Touch	.463 (.000)	−.154 (.000)	−.051 (.002)	−.243 (.000)	−.001 (.021)	−.100 (.005)	Partial (20%)
Corporal Punishment	−.281 (.000)	−.159 (.000)	−.050 (.003)	−.239 (.000)	.001 (.054)	.072 (.061)	Complete (35.1%)
Play	.470 (.000)	−.127 (.000)	−.045 (.007)	−.232 (.000)	−.001 (.049)	−.073 (.047)	Partial (51.4%)
Family Togetherness	.444 (.000)	−.121 (.000)	−.046 (.012)	−.232 (.000)	−.001 (.057)	−.164 (.001)	Partial (43.4%)
Positive Home Climate	.737 (.000)	−.114 (.000)	−.046 (.006)	−.245 (.000)	−.001 (.044)	.087 (.051)	Complete (na)
Negative Home Climate	−.604 (.000)	−.093 (.000)	−.069 (.000)	−.248 (.000)	.001 (.028)	.082 (.193)	Complete (63.9%)
Responsive Childhood	.574 (.000)	−.125 (.000)	−.058 (.001)	−.246 (.000)	−.001 (.019)	−.057 (.146)	Complete (50%)
Moral Capacity: Personal Distress; Moral Orientation: Social Withdrawal							
Positive Touch	.463 (.000)	−.154 (.000)	.176 (.000)	.343 (.000)	−.004 (.001)	−.068 (.031)	Partial (54.1%)
Corporal Punishment	−.280 (.000)	−.159 (.000)	.179 (.000)	.353 (.000)	.003 (.008)	.067 (.117)	Complete (28.0%)
Play	.470 (.000)	−.127 (.000)	.174 (.000)	.343 (.000)	−.004 (.004)	−.052 (.124)	Complete (70.8%)
Family Togetherness	.444 (.000)	−.121 (.000)	.172 (.000)	.341 (.000)	−.004 (.004)	−.144 (.002)	Partial (53.2%)
Positive Home Climate	.737 (.000)	−.114 (.000)	.173 (.000)	.339 (.000)	−.005 (.007)	−.136 (.000)	Partial (52.3%)
Negative Home Climate	−.602 (.000)	−.093 (.000)	.174 (.000)	.344 (.000)	.003 (.009)	.094 (.082)	Complete (68.7%)
Responsive Childhood	.547 (.000)	−.125 (.000)	.181 (.000)	.350 (.000)	−.004 (.002)	−.080 (.012)	Partial (57.1%)

Note. *b*1 stands for the path coefficient from EDN to secure adult attachment; *b*2 is the path coefficient from secure adult attachment to psychopathology; *b*3 is the path coefficient from psychopathology to moral capacity; *b*4 is the path coefficient from moral capacity to moral orientation; and *c*′ is the direct effect of EDN on moral orientation after controlling for all the mediators. The values outside the parentheses are path coefficient estimates and the values inside the parentheses are *p* values, except for the last column. For the *b*1**b*2**b*3**b*4 coefficient (a measure of the mediation effect), the *p* values were from the Sobel tests, which have been found to have low power problem. All the 95% bias corrected bootstrap confidence intervals indicated that the *b*1**b*2**b*3**b*4 coefficients included in this table were significant at the 0.05 significance level. For 1 − c′/c, na means that we had an inconsistent mediation (c′ has an opposite sign compared to *b*1**b*2**b*3**b*4 (MacKinnon, Fairchild, & Fritz, 2007); but it is still a meaningful mediation). In this case, it is not applicable to calculate 1 − c′/c.

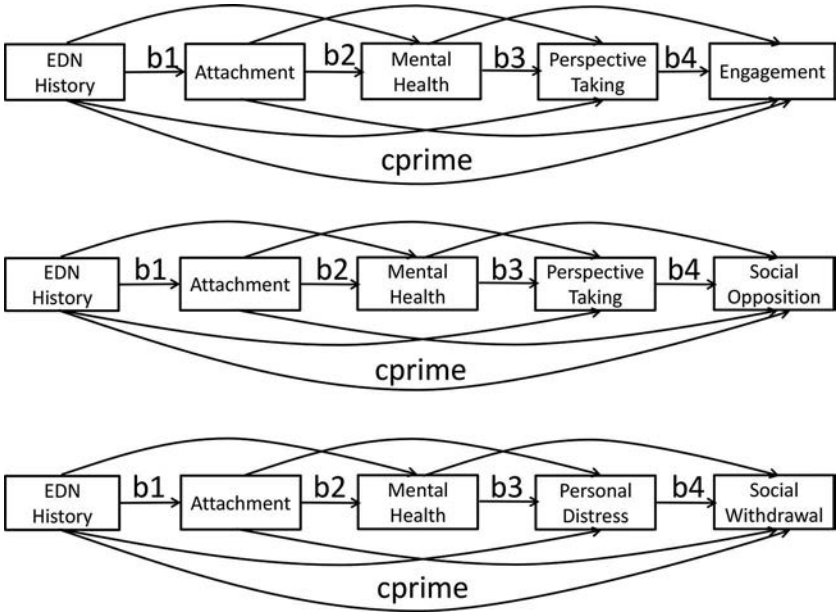

Figure 2. From EDN history to morality: Mediation models supported by our empirical data. *Note.* *b*1 stands for the path coefficient from EDN to secure adult attachment; *b*2 is the path coefficient from secure adult attachment to psychopathology; *b*3 is the path coefficient from psychopathology to moral capacity; *b*4 is the path coefficient from moral capacity to moral orientation; and c′ is the direct effect of EDN on moral orientation after controlling for all the mediators.

Table 4. Supported mediation models with the overall EDN composite variable as the input variable.

*b*1	*b*2	*b*3	*b*4	*b*1**b*2 (**b*3**b*4)	*c*′	Mediation Effect ($1 - c'/c$)
Moral Capacity: Perspective Taking; Moral Orientation: Engagement						
1.155 (.000)	−.095 (.000)	−.046 (.046)	.290 (.000)	.001 (.081)	.310 (.000)	Partial (22.7%)
Moral Capacity: Perspective Taking; Moral Orientation: Social Opposition						
1.155 (.000)	−.095 (.000)	−.046 (.046)	−.252 (.000)	−.001 (.112)	−.165 (.010)	Partial (49.8%)
Moral Capacity: Personal Distress; Moral Orientation: Social Withdrawal						
1.155 (.000)	−.095 (.000)	.232 (.000)	.295 (.000)	−.005 (.002)	−.162 (.013)	Partial (65.2%)

Note. *b*1 stands for the path coefficient from EDN to secure adult attachment; *b*2 is the path coefficient from secure adult attachment to psychopathology; *b*3 is the path coefficient from psychopathology to moral capacity; *b*4 is the path coefficient from moral capacity to moral orientation; and *c*′ is the direct effect of EDN on moral orientation after controlling for all the mediators. The values outside the parentheses are path coefficient estimates and the values inside the parentheses are *p* values, except for the last column. For the *b*1**b*2**b*3**b*4 coefficient (a measure of the mediation effect), the *p* values were from the Sobel tests, which have been found to have low power problem. All the 95% bias corrected bootstrap confidence intervals indicated that the *b*1**b*2**b*3**b*4 coefficients included in this table were significant at the 0.05 significance level.

distress undermines empathy and prosociality, drawing attention to the self instead (Batson, 2011). Though we expected significance, the mediation models including empathy were not successful. Specifically, the prediction of empathy by psychopathology was not significant in the large mediation model. A history of major depressive disorder is known to increase sensitivity to sad faces (Mandal & Bhattacharya, 1985) due to deficient inhibition of emotional information (Goeleven, De Raedt, Baert, & Koster, 2006). This may increase empathy scores as respondents note their responsiveness to sadness or distress in others.

Thus for the EDN measure, given the data from our sample, we found a one-factor solution, which supported the use of a composite score for the measure. The use of a composite score should facilitate understanding "of the concept of the EDN," and the use of the EDN history measure in future research. Nevertheless, data from different samples would be helpful for further testing the factor structure of the EDN measure in the future.

We also used the overall EDN composite variable as the input variable for the mediation analyses. The results replicated what we found from the mediation models with the individual EDN variables. Such results have two implications. First, they provided support that the findings we found are unlikely due to Type I errors. Second, they supported the use of an EDN-history composite score in future studies.

Our findings align with the process-relational approach of relational developmental systems metatheory which emphasizes the holistic, self-organizing nature of development-in-relation fundamental to human becoming (Overton, 2013). Although most developmental research focuses on ortho- or patho-genesis, an examination of the evolved developmental niche across the lifespan could offer, not only ethogenesis (development of morality), which was the focus here, but what might be termed eudaimonigenesis (development of flourishing). The EDN may provide an organizing framework for measuring the six necessary features of the RDS: "(a) organization of processes (also termed structure and system); (b) embodiment; (c) order and sequence, (d) direction; (e) epigenesis and emergence; and (f) relative permanence and irreversibility" (Overton, 2015, p. 63).

Evolutionary systems involve much more than genetic and epigenetic inheritances, such as symbols and culture (Jablonka & Lamb, 2005), niche construction (Odling-Smee, Laland, & Feldman, 2003), or organismic self-organization (Kauffman, 1993). Certainly these other factors are involved in human thriving as well. The authors suspect, however, that the EDN components are foundational for flourishing—the cake, so-to-speak, whereas other inheritances are the frosting—a set of factors whose quality can vary to some degree. That is, particular symbolic or cultural heritages are less fundamental to neurobiological development, that is, unless they thwart the provision of the EDN. Research is needed to investigate the interactions among these factors.

Implications for research, policy, and practice

The view presented here is that early moral capacities are by and large developed in a biosocial manner—conception, gestation, birth, early feeding experiences being mostly out of control of the child. That is, at first, the baby emerges with evolved biological needs that are (or are not) supported by cultural and familial practices, shaping the early psyche of the child. Subsequently, development becomes bio*psycho*social as the child's developing self-co-acts with experience and throughout the rest of life, biological, individual and sociocultural features co-act, co-construct, and co-evolve the individual (Greenberg & Partridge, 2010). But because of babies' initial lack of autonomy and because of the long term impact on their well-being, providing babies with the EDN may be a matter of social justice. Narvaez (2013) suggested that perhaps a baby "bill of rights" is

required to alert adults to baby needs. Just like providing health care to children is considered a fundamental right, no matter what their family's religion is (Offit, 2015), providing the caregiving that babies evolved to need may be no less a human right. Yet, modern practices and policies thwart the ability, capacity or desire of parents to provide EDN-consistent care and thus undermine children's ability early on to actualize their potential.

In the USA at least, cultural evolution has displaced attention to providing the EDN. Although babies have not changed in their basic needs, cultural practices often assume EDN-consistent practices are unnecessary. The discrepancy between culture and biological evolution suggests that widespread education about the EDN and its importance is needed for all ages in all walks of life. Parents and parenting advocates need to be educated about the EDN as there are widespread misconceptions about the benefits of such things as corporal punishment or free play. Schools should provide education about child development and parenting to all ages. Multiple ways to educate adults should be explored (e.g., public service announcements; government and professional advocacy and guidelines). Public media should take note of these findings and use the EDN as a baseline against which alternatives are measured. A precautionary principle should be employed against any contrary practice. Within the scientific community, any research evidence that contradicts the EDN should be highly scrutinized with the highest standards—of longitudinal evidence into adulthood of no harm done across multiple biopsychosocial variables. For example, decreasing parental responsiveness through graduated extinction has been shown to extinguish the unwanted behavior of infant crying (Ferber, 2006; Ramos & Youngclarke, 2006; for a review, see Mindell, Kuhn, Lewin, Meltzer, & Sadeh, 2006). However, these studies do not adhere to the highest standards of longitudinal evidence or of showing no harm done across multiple biopsychosocial variables; and they entirely sidestep the issue of positive human development (which takes into account biological, psychological, and social well-being, not just no evidence of measured harm). "Effectiveness" of a behavioral intervention—successful extinction of an unwanted behavior—does not mean effects are null.

Further, programs, policies, and institutional structures can be designed to empower families to strengthen a child's EDN. Here are a few suggestions (see Narvaez, Panksepp, Schore, & Gleason, 2013b, for more). First, it must begin with support during pregnancy so that the mother has as little stress as possible since gestational stress leads to an irritable baby, more difficult to care for (E. P. Davis & Sandman, 2010). Second, the medical professions must be educated about the EDN and modify their practices to support it. For example, all hospitals should be baby-friendly, which means practices supportive of mother-child bonding and breastfeeding (as the USA CDC is now advocating since 2011; whereas, Sweden converted its hospitals in the 1990s when the WHO advocated baby-friendly principles). The aim should be to keep stress minimal to mother and child to establish a mutually-responsive relationship. Hospital and medical practices should provide doulas and midwives who support soothing perinatal experiences, as in other advanced nations. Third, government and work policies should mandate paid maternity/paternity leave for at least a year if not longer which would allow parents to provide responsive attention without worrying about work issues. Unlike the United States, other advanced nations have policies that support families and young children—from one or more years of parental leave (e.g., Sweden), to visits from nurses and personal assistants to do laundry and cooking (e.g., France). Such support should be followed by opportunities to work at home in the early years of a child's life.

Limitations and future directions

Several limitations should be acknowledged. Because it the questionnaire used is retrospective, it is impossible to know whether the respondents are accurate or honest in their recollections regarding aspects of life many years prior to survey completion. Some aspects from earlier childhood, like breastfeeding, may not be recalled accurately. Moreover, we did not have data regarding the EDN during participants' formative years of attachment development. Future research on the EDN would do well to employ a multimethod approach in order to capture the EDN across development. Second, there may be a relation between being healthy and being optimistic about one's childhood experiences, making causal direction of effects indeterminable. In addition, the cross-sectional data used in the study did not allow us to imply temporality and causality. Thus, future longitudinal studies are needed. Third, we used a single-item measure of secure adult attachment, which worked well, but an examination of these findings with a longer attachment measure is warranted. In addition, other measures of wellbeing should be employed. Fourth, beyond corporal punishment and negative home climate, we did not examine the full scope of adverse childhood experiences. It could be that sexual abuse or family violence or addiction would provide additional information about early experiences that

relate to wellbeing and morality. Fifth, our study was designed to examine internalizing mental health symptoms. Externalizing psychopathology should also be examined. Sixth, interactions between heritable traits and mediation pathways should also be studied. For example, fearful temperament explained additional variance beyond poor attachment security in predicting infants' reaction to a stranger's distress (van der Mark et al., 2002). Seventh, we did not collect income information which may be related to our outcomes. Poor health outcomes are often associated with lower income because of increased stress, as well as limited healthcare, nutrition, and education (Maunder & Hunter, 2008[4]).

Finally, the research component of the paper reflects a still-early portion of a research program where the theoretical model is interrogated with hypothesis searching as well as hypothesis testing; that is, hypothesis testing would be conducted differently in a research program at a later period of development (see Cattell, 1966). In future research, different samples should be used to test planned meditation effects to verify our results.

Conclusion

These findings add to the converging evidence that childhood experience reaches into mental health and sociomoral functioning in adulthood. Early life stress such as neglect and abuse can have profound effects on longterm health outcomes (Shonkoff et al., 2012). Yet, an absence of adverse childhood experiences may not be enough to ensure mental health and more relational moral functioning. For example, college students in the USA, normally considered the cream of the crop of a society, are exhibiting decreased mental health (Substance Abuse and Mental Health Services Administration, 2012), decreased empathy (Konrath, O'Brien, & Hsing, 2011), and increased avoidant attachment (Konrath, Chopik, Hsing, & O'Brien, 2014). Previously, EDN-consistent experience was linked to greater empathy, conscience and self-regulation in 3–5 year old children (Narvaez, Gleason, et al., 2013; Narvaez, Wang, et al., 2013). Our findings suggest that examining the effects of the evolved developmental niche on older samples may be warranted. Although our findings are preliminary they suggest, along with prior studies, that childhood experiences that conform with those that emerged over the course of human evolution may be important for health and socio-moral wellbeing in later life.

[4]Health outcomes for people under age 50 in the United States are among the worst in a 17-member developed-nation comparison and have been trending downward for decades and there is little understanding of its cause (National Research Council, 2013). The report notes, for example, that the USA has higher rates of chronic disease and mortality among adults, regardless of wealth and there are higher rates of injuries and untimely death among adolescents and small children. Although the National Research Council (2013) report did not draw any conclusions about the sources for American's health disadvantage, early life experiences are implicated.

Acknowledgments

We thank Ashley Lawrence for her assistance in collecting the data. We thank anonymous reviewers and the editor for their excellent suggestions.

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Appendix

Evolved Developmental Niche History (EDNH)

When answering the following questions please think of your experience growing up (all the years before age 18). Note: When we refer to "parent/guardian," think of anyone who took care of you like a mother or father.

A. Breastfeeding

1. Were you breastfed? Yes No I don't know
   If Yes, for how long? _____ (put months or years as appropriate)

B. Touch

2. How often were you affectionately touched, kissed, or hugged by at least one of your parents or guardians? (Never, Rarely, Sometimes, Often, Very often)
3. Did you ever receive corporal punishment from a parent or guardian (e.g., hit, spanked, slapped, pinched)? (Never, Rarely, Sometimes, Often, Very often)

E. Responsive Social Environment

4. Overall, was your childhood a happy one?
   Very slightly or not at all A little Moderately Quite a bit Very much
5. How much support and affection did you receive in your childhood?
   Very little or none at all A little Moderate amount Quite a lot Very much
6. How responsive were your parents or caregivers to your needs?
   Very little or none at all A little Moderate amount Quite a lot Very much

F. Play

7. How much did you play freely with other children OUTSIDE (play organized by the children; not in organized activities)?
   Never, Rarely, A few times, More than a few times, Often, Very often
8. How much did you play freely with other children INSIDE (play organized by the children; not in organized activities)?
   Never, Rarely, A few times, More than a few times, Often, Very often

G. Social Embeddedness

9. How often did you do things together as a family OUTSIDE the home (e.g., going to religious services, shows, community events, visiting parks, traveling)?
   Every day More than once a week Every week Every two weeks Once a month
   A few times a year Less than yearly
10. How often did you do things together as a family AT HOME (e.g., eating together, doing chores together, playing)?
    Multiple times a day Every day Almost every day Every two weeks Once a month
    Less than monthly

H. Social Climate

11. In your family home when you were a child (from age 0-18), please rate the emotion sets according to how frequently you felt them.

Don't recall, Never or almost never, Rarely, Regularly, Frequently, Always or almost always

[Negative Home Climate]

a. GRIEF (Downhearted, Sad, or Lonely)
b. HUMILIATION (Humiliated, Demeaned, or Shamed)
c. GUILT (Ashamed, Guilty, or Blameworthy)
d. FEAR (Dread, Tense, Nervous, or Scared)
e. ANGER (Angry, Hostile, Irritable, or Scornful)
f. NUMBNESS (Apathetic, Numb, Passive, or Shut Down)

[Positive Home Climate]

g. JOY (Excited, Happy, Jovial, or Lively)
h. EXPANSIVE (Open, Playful, or Creative)
j. SELF-ASSURED (Proud, Confident, or Fearless)
k. SERENE (Calm, Relaxed, or at Ease)