Basic Needs Satisfaction and Its Relation to Childhood Experience

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Abstract

Humanity's evolutionary inheritances include many things beyond genes, such as self-organization and a developmental system for raising the young (evolved developmental niche or evolved nest). We present an evolutionary understanding of human species-typical and atypical development and need provision, as well as adult outcomes in species-typical contexts. Maslow noted that thwarting of basic needs fulfillment in early life has effects over the long term but he did not describe what a positive experience in early life looks like. We Insert before this sentence: "We provide an evolutionary picture here." describe the development of a retrospective basic needs fulfillment measure based on the Basic Needs Satisfaction Survey whose validation was described in Chapter 2 . We tested the usefulness of basic needs history against an existing measure of evolved developmental niche history which were highly correlated in two studies. Hierarchical regression indicated that Basic insert before "the measure,"

Needs History explained more of the variance than evolved developmental niche history capitalize these words (because it refers to a measure by that name) .

Keywords

Basic needs
Evolved developmental niche
Early experience
Evolution
Health

Basic needs research has focused primarily on grown individuals. Although when Abraham Maslow introduced the idea of basic needs to psychology he had intuitions about the basic needs of young children, he did not specify what those needs look like. And, although he displayed some inkling of human evolutionary inheritance, he did not have a full grasp of what that looks like either. For example, as mammals, a baby's physiological, safety and love needs are inseparable and self-esteem is shaped by the caregivers and caregiving environment from the beginning of life. In this chapter, we zero in on early experience, briefly describing the expansion of basic needs theory in terms of humanity's evolutionary heritage.

The basic needs identified by Maslow (1970) include physiological needs (e.g., food, water), safety needs (e.g., protection, stability), belonging and love needs (e.g., affectionate relationships), esteem needs (e.g., competence, mastery, self-esteem), and self-actualization (the fulfillment of one's own nature). Researchers have shaped a set of common measures that are epitomized by Susan Fiske's (2004) BUCET list. BUCET stands for belonging needs, understanding (meaning, purpose), control (which includes mastery, competence), self-enhancement (which includes self-actualization), and trust (a sense of benevolence from the world). In Chapter 2 , we described the development and validation of the Basic Needs Satisfaction Survey (BNSS) to measure the BUCET list as a whole. In this chapter, we discuss the extension of that measure into childhood recollection and compare it to another measure of basic needs fulfillment based on humanity's evolutionary history.

Back to Childhood

Like most of psychology, Maslow (1970) focused on needs and outcomes at the adult level. Little attention was drawn to how basic needs can be met in early life, what they are specifically, and their long-term effects. Because of the dominance of psychoanalysis and its study of neuroticism at the time, Maslow did note the relationship between neuroticism and early experience:

Most neurotic symptoms or trends amount to basic-need-gratification-bent impulses that have somehow got stymied or misdirected or confused with other needs or fixated on the wrong means. Other symptoms, however, are no longer gratification-bent but are simply protective or defensive. They have no goal but to prevent further hurt or threat or frustration. (Maslow, 1954, p. 30)

In fact, Freud ascribed neuroticism to every human being, due to the uncontrollable nature of (his idea of) the Id. Freud described the Id as a "cauldron of seething excitement" that has no organization or "unified will" where "contradictory impulses exist side by side without neutralizing each other or drawing apart" and instead "combine in compromise formations under the overpowering economic pressure towards discharging their energy…instinctual cathexes seeking discharge—that, in our view is all that the id contains" (Freud, 1933, pp. 103–105). He argued that the Id's innate impulses could only be contained by a strong ego under the direction of a superego (the internalization of civilization via parental direction). To the ears of developmental psychologists attuned to the evolutionary needs of a young child change to "young children" (described below), Freud's description sounds like the results of a baby untouched and frustrated, whose whole system has become largely dysregulated.

Maslow and others at the time were bowing to Freudian psychoanalysis as having covered the territory of early experience, especially since psychoanalysis linked patients' neuroticism to early experience. The Freudians and the humanistic psychologists agreed that early life experience played a role in neuroticism, the anxiety produced by early psychic trauma that produces defenses (the part of Freud's theory that has been corroborated by research, unlike his emphasis on sexual causes; see Sletvold, 2016). Ego psychologists, taking the relational turn, began to point to responsive aspects of interaction and experience between mother and child (e.g., Winnicott's, 1957, advocacy that good-enough mothering entailed yielding to the child's "omnipotence"). However, none of these psychologists specified the type of early care that humans as a species evolved to expect other than general responsiveness (Cassidy, Jones, & Shaver, 2013).

The lack of basic needs provision is a form of stress that leads to ill health and illbeing—"crippled spirits" (Maslow, 1970, p. 33). We examine next what early stress does to a child.

Early Life Stress

Maslow, along with psychoanalysts of the time, thought that the illness of self-deprecation resided in the unconscious. We now know that it is much more deeply neurobiological, and it starts in early life. For example, the stress response system must be protected from either overheating or collapsing due to challenges the young

child's brain and body are not yet ready to handle (Niehoff, 1999) and systems like the oxytocinergic endocrine system can be under- or mis-developed (McLaughlin, Sheridan, & Nelson, 2017).

There is increasing concern about the long-term effects of early stress, naming it "toxic" (Shonkoff et al., 2012; Young-Bruehl, 2012). Here is a sampling of research findings about early life stress. If, for example, a baby is left to cry for a length of time, several detrimental outcomes occur. His brain is flooded with high levels of toxic stress hormones that eventually kill neuronal connections (Blunt Bugental, Martorell, & Barraza, 2003; Gunnar & Donzella, 2002). Pain circuits are activated and opioids, which otherwise promote feelings of wellbeing, diminish (Eisenberger, Lieberman, & Williams, 2003; Panksepp, 2003; Zubieta et al., 2003). In reaction to nonresponsive care, the baby may shut down emotional expression, making it seem as if he is fine when cortisol readings indicate he is not (Hertsgaard, Gunnar, Erikson, & Nachmias, 1995; Middlemiss, Granger, Goldberg, & Nathans, 2012; Perry, Pollard, Blakely, Baker, & Vigilante, 1995). Animal studies show that ongoing experiences of grief (e.g., from physical isolation) set up conditions for chronic mood disorders (Watt & Panksepp, 2009) and a fear-generating environment can lead to anxiety disorders in later life (Adamec, Shallow, & Budgell, 1997). Unrelieved distress in early life influences the genetic expression of a key neurotransmitter, gamma-aminobutyric acid (GABA), leading to anxiety and depression disorders as well as the use of alcohol for stress relief (Caldji, Francis, Sharma, Plotsky, & Meaney, 2000; Hsu et al., 2003). Finally, the stress response systems can be wired permanently for oversensitivity, leading to predispositions for depression and anxiety, poor mental and physical health outcomes, and accelerated aging and mortality (Anisman, Zaharia, Meaney, & Merali, 1998; de Kloet, Sibug, Helmerhorst, & Schmidt, 2005; Plotsky, Owens, & Nemeroff, 1998; Preston & de Waal, 2002).

When a dysregulatory response becomes chronic, it forms the foundation for further psychopathologies (Cole, Michel, & Teti, 1994). Chronic early stress or trauma increases the amygdala's capacity to learn and express fear associations and decreases the capacity of the prefrontal cortex to control it, creating a vicious cycle that escalates fear and anxiety, spiraling into more stress and dysregulation. Toxic stress can increase glucocorticoids, causing cell death in the limbic system's affective centers and thereby create abnormalities in emotion circuitry (Benes, 1994; DeKosky, Nonneman, & Scheff, 1982; Kathol, Jaeckle, Lopez, & Meller, 1989). High reactivity (linked to greater activation in the right prefrontal cortex) in early life is likely to become a part of personality, setting up the body for lifelong hyperreactive stress response, greater symptoms of anxiety or depression and less happiness (Davis & Sandman, 2010; Kagan & Snidman, 2004; Lupien, McEwen, Gunnar, & Heim, 2009). Emotion dysregulation in early life is related to subsequent mental illness, including a propensity for violence (Davidson, Putnam, & Larson, 2000; Davidson & Slagter, 2000).

This quick review provides a sense that early stress is detrimental for the short and long term. But can we identify what children actually *need* to receive in early life, beyond generalities of "responsiveness"? Yes, our evolutionary heritage provides clues.

Evolutionary Baselines

Humanity's evolutionary history shaped basic needs. Humans are a special kind of social mammal—one that is co-constructed extensively after birth. From the perspective of evolution and our animal nature, some of Maslow's distinctions among basic needs are artificial—separating physiological from belonging needs does not match our mammalian nature. Mammals grow best when they feel safe in relational communion (love) which starts with mother and then extends to others; esteem needs are part of growing as an effective creature (Schore, 2003a, 2003b). So, Maslow's list of basic needs is less a hierarchy than a set of components.
AQ2

Where can we get baselines for species-typical needs? We must look at our evolutionary history. It is often assumed that human evolution is gene-centric and oriented to selfishness (Dawkins, 1976). But there are other evolutionary theories. To establish baselines for normal optimal development, we must understand humanity's heritages and potential, and how evolution has brought about both needs and fulfillment of those needs. Humans inherit a number of things from their ancestors beyond genes, including basic needs. One theory that takes into

account development is evolutionary systems theory (Oyama, Griffiths, & Gray, 2001). It notes a rich set of inheritances such as culture, ecology, self-organization, and a developmental system. Each animal self-organizes its own development based on experience. And self-organization aims for fulfillment of the species' nature. We can see this more easily in plants. The burdened bonsai tree keeps aiming for the sun, breaking the strings tying it down. So, too, humans. Individuals grow in the ways that are allowed by their environments. Persons aim to fulfill themselves. They may get waylaid and thwarted, but the aims are still there. We think Maslow would have appreciated knowing about the inheritance of self-organization:

What if the organism is seen as having "biological wisdom"? If we learn to give it greater trust as autonomous, self-governing, and self-choosing, then clearly we as scientists, not to mention physicians, teachers, or even parents, must shift our image over to a more Taoistic one. …asking rather than telling…nonintruding, noncontrolling…noninterfering observation rather than a controlling manipulation…receptive and passive rather than active and forceful. (Maslow, 1971, p. 15)

One of the most important inheritances from a psychological perspective is the developmental system for the young—the means by which the community satisfies basic needs and ensures that the offspring grows in a species-typical manner. Like all animals, humans evolved a nest or niche for their young that matches up with the maturational schedule of the offspring (Gottlieb, 2002). The human evolved developmental niche (EDN) adds a couple of features to the longstanding social mammalian nest that emerged over 30 million years ago. Humanity's EDN is particularly intensive because of the newborn's immaturity. Humans are born 9–18 months early compared to other animals and so should have minimal distress postnatally when physiological systems establish their parameters. The common characteristics of the EDN for babies and young children have been garnered from recurring patterns seen among small band hunter-gatherer communities around the world, which represent human society in prehistory or 99% of human genus existence (Konner add before Konner: Hewlett & Lamb, 2005; , 2005):

- Soothing perinatal experiences (e.g., no separation of mother and baby or imposed distress)
- Deep social support and positive climate for mother and child
- Responsiveness to needs, keeping baby distress to a minimum
- Affectionate touch: Lots of holding, carrying, rocking
- Extensive breastfeeding
- Allomothers, a "village" of multiple responsive adult caregivers (mother is not isolated or expected to care for the child on her own)
- Self-directed play in the natural world with multi-aged playmates

Taking evolution of species into account, then, we can consider evolved needs as basic needs. Each species has its set of needs for normal proper development so we can call them *species-expectant* needs. And when they are not met, it is toxically stressful, undermining health and wellbeing for the long term (note Harlow's monkeys deprived of maternal touch, 1958).

Although some aspects of early life basic needs have been examined by psychologists, it has been limited. For example, we know that a mutually responsive relationship between mother and child leads to secure attachment and greater capacities for prosocial and cooperative behavior longitudinally (Eisenberg, 1995; Kochanska, 2002; Sroufe, Egeland, Carlson, & Collins, 2008; Zahn-Waxler & Radke-Yarrow, 1990). However, most other positive aspects of early experience (e.g., evolved niche) are in the early stages of study. Nevertheless, neurobiological studies demonstrate the effects of evolved niche components on human functioning and disposition. Here are a few examples of a growing literature. Regarding *touch*, skin to skin contact at birth facilitates the release of

oxytocin in mother and infant, reducing childbirth stress (Bystrova et al., 2003). Keeping mother and child together after birth leads to greater child self-regulation a year later (Bystrova et al., 2009). Harry Harlow (1958) studied the effects of maternal *touch* deprivation on mammalian brains (monkeys), finding longlasting effects on self-regulation and sociality. Further studies in humans indicate that maternal *touch* decreases cortisol release, which otherwise benefits the immune system as cortisol kills immune cells (Field & Hernandez-Reif, 2013). A lack of *breastfeeding* in the first week of life is related to greater depression and withdrawal as well as abnormal reflexes (Hart, Boylan, Carroll, Musick, & Lampe, 2003). *Allomothers* are critical supports for promoting mother's responsive attention to her child (Hrdy, 2009). *Self-directed play* fosters the growth in the orbitofrontal cortex and its linkages to other parts of the brain in mammals, which take a large role in decision-making (Pellis & Pellis, 2009). For longer reviews, see Narvaez, Panksepp, Schore, and Gleason (2013). Add to end of paragraph:
An adult measure of the evolved developmental niche in childhood has been associated with mental health, sociality and morality (Narvaez, Wang & Cheng, 2016).
AQ3

Lack of the evolved developmental system is described as undercare (Narvaez, 2014). Undercare is stressful, representing toxic early stress. On the other hand, good early care influences synaptogenesis and neuroplasticity —aspects of a well-functioning brain so that when early care is appropriate, these features are enhanced (e.g., increased hippocampal NMDA subunit mRNA expression; Bredy, Grant, Champagne, & Meaney, 2003; Bredy, Zhang, Grant, Diorio, & Meaney, 2004).

Current Studies center this header

Maslow did not focus on what is necessary to develop a healthy, non-neurotic child but that is what we are examining in our lab generally. We are testing the importance of the EDN, which appears to be necessary for optimal development (for example, see prior publications: Narvaez & Gleason, 2013; Narvaez, Gleason et al., 2013; Narvaez, Gleason, Lefever, Wang, & Cheng, 2016; Narvaez, Wang, Gleason, Cheng, Lefever, & Deng, 2013).

Much of current literature regarding childhood experience has focused on the influence of negative experiences and the effects on physical health later in life. For example, the Adverse Childhood Experiences Study (ACEs; Felitti & Anda, 2005) conducted assessments among Kaiser Permanente clients, evaluating types of childhood trauma, and found that the more types of adversity experienced, the worse were adult health outcomes. Studies of other samples found similar outcomes (e.g., Anda et al., 2006). We wanted to compare the effects of ACEs with basic needs satisfaction on health outcomes. But first, we wanted to examine the effects of early experience as measured by the EDN. Does the presence of EDN components or their lack influence health outcomes?

Study 1

Method

Participants and General Procedure

A general population sample of 400 adults from the United States was recruited and paid through Amazon Mechanical Turk. Individuals were electronically provided with an explanation of the study, a consent form, and the study measures. All study measures were compiled into a survey that was administered in a single online session using Qualtrics. Those who decided to participate were paid about $4.50 per hour for their completion of the survey, which took on average approximately 40 minutes. The final sample consisted of 374 of the recruited participants who successfully completed the survey (excluding those who did not finish the survey, or who spent fewer than 15 minutes answering the question). For the final sample ($n = 374$; 52.1% male) participants ranged in age from 18 to 81 ($M_{age} = 33.96$, $SD = 11.07$). The racial/ethnic composition of the sample was as follows: 77.8% White, 8.0% African American, 10.4% Asian, 4.8% Hispanic/Latino, 1.6% Native American, 0.3% immigrant, 0.3% other. Yearly income varied substantially; 10.2% reported less than $15K per year, 23.8%

reported $15–30K, 27.5% reported $30–50K, 19.5% reported $50–75K, 11.0% reported $75–100K, and 8.0% reported over $100K.

Measures

Unless otherwise noted, mean composite scores were computed for analysis.

Basic Needs

We used the BNSS (described in Chapter 2), which has two subscales: Effectance (11 items, e.g., "People care about me"; $\alpha = .87$) and Discouragement (8 items, e.g., "My life is meaningless" ; $\alpha = .88$) using a Likert-type scale (1 = *strongly disagree*, 5 = *strongly agree*). High scores indicated higher agreement toward each construct. AQ4

Evolved Developmental Niche

Early developmental environment was assessed using The change to: "the Evolved Developmental Niche History measure (EDNh....

(It needs to be written out the first time) EDNh measure (EDNh; Narvaez, Wang, & Cheng, 2016), a self-report measure of adult recollections of frequency of experiences in childhood (before age 18). We included eight factors. (1) Two items measured touch: *affectionate touch* (physical positive touch such as hugs and kisses) and *corporal punishment* (hit, spanked, slapped, pinched), using a 5-point Likert-type scale (1 = *never*, 5 = *very often*); (2) three items assessed a *responsive social environment* score (happy, supportive, needs met; 5-point Likert-type scale: 1 = *very little, or not at all*, 5 = *very much;* $\alpha = .92$); (3) two questions addressed *self-directed play*: free play outside, and free play inside (5-point Likert-type scale: 1 = *never*, 5 = *very often*) ($r = .59$); (4) *social embeddedness* was measured with two items (doing things together as a family outside the home and inside the home, respectively) ($r = .62$), using a 5-point Likert-type scale (1 = *less than yearly*, 5 = *every day*); (5) to measure social support as *positive home climate*, participants rated the frequency of four positive emotions experienced (joy, expansiveness, self-assurance, and serenity; $\alpha = .88$; 6-point Likert-type scale: 1 = *don't recall*, 6 = *always or almost always*); (6) With the same response scale, *negative home climate* was measured by asking participants to rate the frequency of four sets of positive emotions experienced (grief, humiliation, guilt, fear, anger, and numbness; $\alpha = .90$). A EDNh composite score was also computed which weights and combines these items to form an overall score reflecting the childhood environment. See Narvaez, Wang, and Cheng (2016) for scoring formula.

Health Measures

To assess the relation between Basic Needs History (BNh) and health, we collected measures of physical health.

Physical Health Status

Physical health status was measured using seven basic health items, all using Likert-type scales. Three items assessed health in the last month (e.g., "In the past month I have felt physically unwell"; 1 = *Almost Never*, 5 = *Almost Always*), one item rating their current health (1 = *Bad*, 5 = *Excellent*), one item reporting health history (1 = *I have more than one major disease for which I take medication*, 7 = *It has always been excellent*), and one item each comparing current health status to previous health status and to the health status to those of others their age (1 = *Worse*, 3 = *Better*). Since these seven items used differing scale points, each item was standardized, and a mean score was computed using *z* scores to form a "physical health status" score ($\alpha = .82$), which high scores indicating better health status.

Physical Health Behavior

Five items assessed behaviors related to negative impacts of health; one item each regarding the frequency of clinic visits (1 = *Never*, 6 = *More than once a month*), hospitalizations in the past year (1 = *No*, 3 = *Yes, 3 or more*

times), prescription drug usage (1 = *none*, 5 = *eleven or more*), and over the counter medication usage 1 = *I almost never use nonprescription medications*, 3 = *I use a lot of nonprescription medications*), and one item reporting perception of health status preventing participation in desired activity (1 = *not at all*, 3 = *to a great extent*). Since these five items were on different scales, each item was standardized, and a mean score was computed using *z* scores to form a "physical health behavior" score ($\alpha = .68$) which higher scores indicating more frequent health-related behavior.

Results and Discussion

Descriptive statistics are shown in Table 3.1. Correlations are shown in Table 3.2.

Table 3.1

Study 1 means, standard deviations, minimum, and maximum for basic needs satisfaction (effectance, discouragement) Evolved Developmental Niche history (EDNh) subscales and physical health measures

Variable	Mean (SD)	Minimum	Maximum
Effectance	3.88 (0.65)	1.45	5.00
Discouragement	2.18 (0.88)	1.00	5.00
Affectionate touch	3.24 (1.17)	1.00	5.00
Corporal punishment	2.60 (1.13)	1.00	5.00
Responsive social environment	3.62 (0.95))	1.00	5.00
Self-directed play	3.72 (0.95)	1.00	5.00
Social embeddedness	2.38 (0.95)	1.00	5.00
Negative home climate	2.79 (1.00)	1.00	6.00
Positive home climate	4.05 (1.12)	1.00	6.00
EDNh composite	3.41 (0.95)	1.11	4.70
Physical health status	0.00 (3.22)[a]	−9.77	6.69
Physical health behavior	0.00 (3.23)[a]	−3.76	12.22
Note $N = 374$			
[a]Physical health status and physical health behavior were calculated by standardizing seven and five items, respectively			

Table 3.2

Study 1 correlations among BNSS (effectance, discouragement), Evolved Developmental Niche history (EDNh) subscal and physical health measures

Variable	1	2	3	4	5	6	7	8	9	10	11
1. Effectance	−										
Note $N = 374$. $*p < 0.05$, $**p < 0.01$											

Variable	1	2	3	4	5	6	7	8	9	10	11
2. Discouragement	−.73**	–									
3. Affectionate touch	.21**	−.22**	–								
4. Corporal punishment	−.14**	.19**	−.20**	–							
5. Responsive social environment	.29**	−.29**	.63**	−.42**	–						
6. Self-directed play	.20**	−.14**	.39**	−.09	.34**	–					
7. Social embeddedness	.20**	−.21**	.42**	−.24**	.43**	.31**	–				
8. Negative home climate	−.24**	.30**	-.37**	.47**	−.70**	−.22**	−.31**	–			
9. Positive home climate	.38**	−.32**	.51**	−.33**	.75**	.39**	.43**	−.57**	–		
10. EDNh composite	.33**	−.34**	.73**	−.58**	.88**	.53**	.63**	−.73**	.81**	–	
11. Physical health status	.24**	−.29**	−.06	−.13*	.18**	.05	.05	−.19**	.16**	.14**	–
12. Physical health behavior	−.18**	.17**	.08	.12*	−.12*	−.01	−.03	.18**	−.15**	−.11*	−.56*

Note $N = 374$. *$p < 0.05$, **$p < 0.01$

One variable was left out of the means tables and analyses. We asked participants whether they were breastfed and 90 (24.1%) said they did not know. Breastfeeding experience was not significantly related to the two subscales of basic needs (Effectance: $r = .08$; Discouragement: $r = -.04$) nor to the health variables (good physical health: $r = .08$, poor physical health: $r = -.05$). As a result, we did not include this variable in the analyses.

Table 3.2 displays correlations among the BNSS, EDNh variables, and the health measures. These correlations provide validation and evidence of the relation between childhood needs fulfillment and physical health. The correlations showed that a responsive social environment was positively related to physical health status and negatively related to physical health behavior, suggesting that a responsive environment may have positive health implications. Affectionate touch provision did not relate to physical health, however, the experience of corporal punishment was negatively related to good physical health and positively related to poor physical health, suggesting that corporal punishment has detrimental health effects. Self-directed play experience and social embeddedness in childhood did not relate to health in adulthood. Further, the correlations showed that negative climate was related negatively to health status and positively to physical health behavior, while positive climate had the opposite relations. The composite childhood variable, EDNh, was also related to physical health, such that it was positively related with physical health status and negatively associated with physical health behavior. In all, these results suggest that fulfillment of childhood needs positively relates to good health

status, particularly in the cases of responsive environment and positive climate, while lack of childhood needs fulfillment relates to poor health status and more frequent health treatment behavior, particularly in the case of corporal punishment and negative climate. It seems that the lack of fulfillment of childhood needs represents a stressful childhood experience, while fulfillment of childhood needs is likely to be indicative of less stressful experiences. Additionally, while self-directed play, social embeddedness, and positive touch were not related on their own, they were included in the significantly related composite childhood variable. This may suggest that the components on their own may not individually contribute to health, but an overarching consistently supportive environment may be most beneficial.

Based on previous research indicating a relationship between childhood experiences and health, and between basic needs satisfaction and health outcomes, in Chapter 2 we showed the usefulness of a basic needs self-assessment as a tool for understanding this relationship. As a next step, we modified the wording and instructions for that tool, making it into a retrospective measure of basic needs satisfaction in childhood. We expected that scores on basic needs satisfaction in childhood would be related to better health scores in adulthood.

Study 2

Method

Participants and General Procedure

Following approval from the university's Institutional Review Board, we recruited a general population sample of 350 adults from the United States through Amazon Mechanical Turk. Participants took a survey online through Qualtrics and were paid about $3.00 per hour, taking about 40 minutes on average. We excluded 37 participants with incomplete data plus one who did not take the task seriously, resulting in a final sample of 312 participants (47.1% male; ages 18–70 years; $M_{age} = 37.90$). Participants self-identified as the following: 80.8% Euro-American Caucasian, 10.9% African American, 4.8% Asian, 5.4% Hispanic/Latino, 1.3% Indian/Native American. Annual household income variability is as follows: 10.6% less than $15,000; 17.3% $15,000–$30,000; 29.8% $30,000–$50,000; 20.8% $50,000–$75,000; 11.9% $75,000–$100,000; 9.6% over $100,000. Participants were also asked to describe their financial situation in terms of affording basic needs (food, household bills): 6.4% said they often lacked enough money for basic needs; 13.5% sometimes lack enough money for basic needs; 40.7% said they have enough money for basic needs but could not afford extras; 36.5% said they have enough to afford basic needs and many extras; and 2.9% said they have far enough money for both basic needs and desires. A small portion (12.8%) of the sample were full-time students. Of those who were not full-time students, about half (49.3%) were married, and 62.5% had completed a college education or higher.

Measures

Participants completed measures regarding social desirability, childhood experience, measures to validate the new measure, and outcome measures.

Basic Needs History

To measure basic needs satisfaction during childhood, we asked participants to report on their experience during the first 18 years of their life in regard to our 19 basic psychosocial needs items. A Likert-type scale was used to assess the extent to which respondents agreed (1 = *strongly disagree*, 5 = *strongly* agree) with each statement during their childhood. Two subscales formed Effectance History (11 items, e.g., "I felt like I fit into at least one social group"; $\alpha = .95$) and Discouragement History (8 items, e.g., "I felt like there was nothing I could do to change my life"; $\alpha = .85$). See Appendix 3.1 for the full list of items. Mean scores were computed for the two subscales, with a high score indicated higher agreement with each construct. To validate this measure, which we called BNh, we collected several measures of similar constructs as described next.

Validation Measures

For validation of the BNh measure, we assessed the relation with BNSS and various other interpersonal fulfillment or nonfulfillment measures.

Basic Needs Satisfaction

Participants responded to two subscales of the BNSS (see Chapter 2); Effectance (11 items, e.g., "People care about me"; $\alpha = .87$) and Discouragement (8 items, e.g., "My life is meaningless"; $\alpha = .88$) using a Likert-type scale (1 = *strongly disagree*, 5 = *strongly agree*). The BNSS measures contemporaneous basic needs satisfaction. A mean of the positively valanced items made up the Effectance score, while a mean of the negatively valanced items made up the Discouragement scale, with high scores indicated higher agreement with the construct.

Belongingness Thwarting

The Interpersonal Needs Questionnaire (Van Orden, Cukrowicz, Witte, & Joiner, 2012) was used to evaluate thwarted belongingness (10 items, e.g., "I feel unwelcome in most social situations"; 1 = *Absolutely untrue*, 7 = *Absolutely True;* $\alpha = .94$). A mean score was computed, with high scores indicating more thwarted belongingness.

Understanding

The Purpose in Life Test (Crumbaugh, 1968) measured individuals' experience of meaning and purpose in life (20 items, e.g., "In life I have…"), using a 5-point Likert-type scale. The response scale varied for each question (e.g., "In life I have…" 1 = *No goals or aims*, 5 = *Clear goals and aims;* $\alpha = .94$). A mean score was computed, with high scores indicate a greater purpose in life.

Control

The Mastery Scale (Pearlin & Schooler, 1978) assessed control (six items, e.g., "I have little control over the things that happen to me"), using a 4-point Likert-type scale (1 = *Strongly Agree*, 4 = *Strongly Disagree*; $\alpha = .89$). A mean score was computed, with high scores indicate feelings of control and mastery over life's circumstances.

Thwarting Self-Enhancement

The revised-negative version of the Rosenberg Self Esteem Scale (Greenberger, Chen, Dmitrieva, & Farruggia, 2003) evaluated lack of self enhancement (10 items, e.g., "At times I think I am no good at all"; 1 = *Strongly Disagree*, 6 = *Strongly Agree*; $\alpha = .95$). A mean score was computed, with high scores indicating low feelings of self-esteem.

Distrust

To measure distrust, the IPIP Distrust subscale (Goldberg et al., 2006, p. 10 items, e.g., "I distrust people"; 1 = *Very inaccurate*, 5 = *Very accurate*; $\alpha = .92$) was used. A mean score was computed, with high scores indicating high feelings of interpersonal distrust.

Social Desirability

Social desirability was evaluated using the shortened Marlowe–Crowne Social Desirability Scale (Crowne & Marlow, 1964; eight items, e.g., "Are you quick to admit making a mistake?"), using a 3-point Likert-type scale (1 = *No*, 2 = *Don't know*, 3 = *Yes*).

Childhood Experiences

To measure childhood experience, we included measures of adverse childhood experiences, attachment style, early developmental environment change to "niche history" .

Adverse Childhood Experiences

Adverse childhood experiences were measured using the short form of the Adverse Childhood Experiences Scale (ACEs; Felitti & Anda, 2005; $\alpha = .79$). This scale measures 10 different types of childhood trauma, five personal (i.e., physical abuse, verbal abuse, sexual abuse, physical neglect, and emotional neglect) and five related to other family members (i.e., alcoholic parent, mother victim of domestic violence, family member in jail, family member diagnosed with mental illness, and disappearance of parent). Respondents responded *yes* or *no* whether they experienced each trauma prior to their 18th birthday. The total number of trauma types reported was summed, such that the ACEs score ranged from 0 (no experience with childhood trauma) to 10 (experience with all of the traumas).

Attachment

We assessed adult *secure attachment* using the single-item rating of secure attachment from the Relationships Questionnaire (Bartholomew & Horowitz, 1991). Participants read a description of a secure attachment style and indicated to what extent the rating was like them on a 7-point Likert-type scale (1 = *Not at all like me*, 7 = *Very much like me*).

Evolved Developmental Niche History (EDNh)

The same EDNh measurement was used from Study 1 to assess childhood experience (Narvaez et al., 2016). Reliability information for each subscale was as follows: *responsive social environment*, $\alpha = .94$; *self-directed play* (2 items), $r = .64$; *social embeddedness* (2 items), $r = .47$; *negative home climate*, $\alpha = .92$; *positive home climate*, $\alpha = .83$. Touch variables were two single items: *affectionate touch* and *corporal punishment*.

Health Measures

To assess the relation between BNh and health, we collected measures of physical and mental health.

Physical Health

Physical health status and *physical health behavior* were measured using the same items and scoring shown above in Study 1. In each case, each item was standardized, and a mean score was computed using z scores to form an overall score.

Mental Health

Mental health was measured with the Inventory of Depression and Anxiety Symptoms (IDAS; Watson, Clark, & Tellegen, 1988; Watson et al., 2008). Participants rated the extent to which they experienced various feelings, sensations, or problems (e.g., "I felt depressed") in the past two weeks (1 = *Not at all*, 5 = *Extremely*) for 11 subscales: *General Depression*, *Anxiety*, *Dysphoria*, *Ill Temperament*, *Lassitude*, *Insomnia*, *Appetite Loss*, *Appetite Gain*, *Panic*, *Traumatic Intrusions*, and *Wellbeing*. Suicidality was excluded due to IRB restrictions.
AQ5

Results and Discussion

Means and standard deviations are displayed in Table 3.3. Correlations are listed in Tables 3.4, 3.5, and 3.6.

Table 3.3

Study 2 means, standard deviations, minimum, and maximum

Variable	Mean (SD)	Minimum	Maximum

Variable	Mean (SD)	Minimum	Maximum
Effectance history	3.57 (0.80)	1.00	5.00
Discouragement history	2.48 (1.00)	1.00	5.00
Effectance (now)	3.94 (0.61)	1.13	5.00
Discouragement (now)	2.29 (0.83)	1.00	5.00
Adverse childhood experiences	0.18 (0.22)	0.00	1.00
Secure attachment	3.48 (0.87)	1.00	5.00
Affectionate touch	3.43 (1.13)	1.00	5.00
Corporal punishment	2.50 (1.11)	1.00	5.00
Responsive social environment	3.72 (0.91)	1.00	5.00
Self-directed play	3.84 (0.80)	1.00	5.00
Social embeddedness	3.08 (0.71)	1.00	5.33
Negative home climate	2.81 (0.92)	1.00	6.00
Positive home climate	4.06 (1.04)	1.00	6.00
EDNh composite	3.49 (0.66)	1.39	4.76
Belongingness thwarting	3.40 (0.71)	1.15	4.65
Understanding	2.70 (0.50)	1.00	4.00
Control	2.40 (1.28)	1.00	6.00
Enhancing self thwarting	2.77 (0.82)	1.00	5.00
Distrust	3.57 (0.80)	1.00	5.00
Physical health status[a]	0.00 (0.76)	−2.12	1.35
Physical health behavior[a]	0.00 (0.66)	−0.72	2.26
Wellbeing	2.08 (0.51)	1.39	3.75
Depression	2.86 (0.98)	1.00	5.00
Social desirability	2.16 (0.57)	1.00	3.00
Note $N = 312$			
[a]Physical health status and behavior were calculated by standardizing seven and five items, respectively			

Table 3.4

Study 2 correlations among Basic Needs history (BNh) subscales (effectance history, discouragement history) and existing measures of basic needs thwarting

Variable	1	2	3	4	5	6	7	8	9
1. Effectance history	–								
2. Discouragement history	−.83**	–							
3. Effectance (now)	.54**	−.44**	–						
4. Discouragement (now)	−.44**	.54**	−.74**	–					
5. Belongingness thwarting	−.43**	.46**	−.73**	.72**	–				
6. Understanding	.44**	−.48**	.72**	−.79**	−.71**	–			
7. Control	.29**	−.33**	.42**	−.58**	−.50**	.56**	–		
8. Enhancing self thwarting	−.39**	.52**	−.68**	.78**	.69**	−.75**	−.52**	–	
9. Distrust	−.24**	.30**	−.35**	.43**	.42**	−.37**	−.24**	.35**	–

Note $N = 312$. ~~*$p < 0.05$,~~ **$p < 0.01$

Table 3.5

Study 2 correlations among Basic Needs history (BNh) Subscales and existing child experience measures, physical and me

Variable	1	2	3	4	5	6	7	8	9	10
1. Effectance history	–									
2. Discouragement history	−.83**	–								
3. Adverse childhood experiences	−.50**	.56**	–							
4. Secure attachment	.32**	−.32** should be -.32**	−.22**	–						
5. Affectionate touch	.48**	−.43** should be -.43**	−.38**	.37**	–					
6. Corporal punishment	−.28**	.27**	.44**	−.16**	−.20**	–				
7. Responsive social environment	.69**	−.67**	−.71**	.38**	.63**	−.40**	–			
8. Self-directed play	.49**	−.44**	−.27**	.18**	.43**	−.13*	.47**	–		
9. Social embeddedness	.38**	−.42**	−.40**	.22**	.30**	−.23**	.43**	.35**	–	

Note $N = 312$. *$p < 0.05$, **$p < 0.01$

Variable	1	2	3	4	5	6	7	8	9	10
10. Negative home climate	−.57**	.70**	.65**	−.28**	−.34**	.38**	−.65**	−.29**	−.33**	–
11. Positive home climate	.78**	−.72**	−.50**	.35**	.55**	−.24**	.74**	.51**	.41**	−.50*
12. EDNh composite	.74**	−.73**	−.69**	.40**	.73**	−.56**	.89**	.62**	.60**	−.70*
13. Physical health status	.27**	−.33**	−.29**	.32**	.17**	−.13*	.31**	.16**	.17**	−.38*
14. Physical health behavior	−.20**	.21**	.29**	−.22**	−.05	.15**	−.22**	−.11	−.15**	.26**
15. Depression	−.31**	.46**	.31**	−.35**	−.14*	.07	−.28**	−.14*	−.31**	.40**
16. Wellbeing	.42**	−.46**	−.18**	.48**	.29**	−.06	.34**	.24**	.21**	−.29*
17. Social desirability	.07	−.17**	−.02	.18**	.05	.06	.03	-.03	.09	−.12*

Note $N = 312$. *$p < 0.05$, **$p < 0.01$

Table 3.6

Study 2 hierarchical regression predicting physical health status

	Phvsical health status merge columns on this line and keep title centered					
Model	***b***	**SE**	***β***	**R^2 (adjusted)**	**R^2 change**	***F* ~~change~~**
Model 1				.11 (.11)	~~.11~~	19.28**
Effectance history	−.01	.09	−.01			
Discouragement history	−.26	.07	−.34**			
Model 2				.12 (.11)	.01	4.16*
Effectance history	−.07	.10	−.08			
Discouragement history	−.21	.08	−.27**			
EDNh composite	.19	.10	.17*			
Model 3				.13 (.12)	.01	2.00
Effectance history	−.06	.10	−.06			
Discouragement history	−.19	.08	−.25*			
EDNh composite	.12	.11	.10			
Adverse childhood	−.04	.03	−.11			

experiences	−.04	.05	−.11			
Model 4				.17 (.15)	.04	3.73**
Effectance history	−.08	.10	−.08			
Discouragement history	−.23	.08	−.30*			
EDNh composite	.09	.11	.08			
Adverse childhood experiences	-.02	.03	−.07			
Sex	−.03	.08	−.02			
Age	−.01	<.01	−.15**			
Income	.08	.03	.15*			
Social status	<.01	<.01	−.04			

Note $N = 312$. *$p < 0.05$, **$p < 0.01$

	Phvsical health status merge columns on this line and keep title centered					
Model	***b***	**SE**	***β***	***R*** **(adjusted)**	***R*** **change**	***F*** ~~**change**~~
Model 5				.19 (.16)	.05	6.33*
Effectance history	−.05	.10	−.05			
Discouragement history	−.18	.08	−.24*			
EDNh composite	.10	.11	.09			
Adverse childhood experiences	−.02	.03	−.07			
Sex	−.08	.08	−.05			
Age	-.01	<.01	−.15**			
Income	.08	.03	.16**			
Social status	<.01	<.01	−.03			
Social desirability	.19	.08	.14*			

Note $N = 312$. *$p < 0.05$, **$p < 0.01$

We did not analyze two variables. We asked participants whether they were breastfed and 93 (29.8%) said they did not know. Breastfeeding experience was not significantly related to the two subscales of basic needs (Effectance: $r = .02$; Discouragement, $r = -.003$) nor to the health variables (good physical health: $r = .09$, poor physical health: $r = -.03$). As a result, we did not include this variable in the analyses. Also, of the males, 120 indicated they were circumcised and 46 said they were not. Circumcision was not significantly correlated with basic needs satisfaction (Effectance: $r = -.13$; Discouragement, $r = .09$) nor with the health variables (good

physical health: $r = -.15$, $p < .06$, poor physical health: $r = .07$). As a result, we did not include this variable in the analyses.

First, for validation purposes, we examined Pearson correlations among the BNh, BNSS, and measures of BUCET list variables. See Table 3.4. The two BNh subscales were strongly negatively related to one another and, similarly, the two subscales for concurrent BNSS were strongly negatively related to one another. However, correlations between history and concurrent basic needs were more moderate, suggesting that participants were in fact responding differently to retrospective and concurrent reports of basic needs. Further, BNh subscales were significantly correlated with the BUCET measures, with positive associations between Effectance History and negative with Discouragement History for the positively valanced scales of Understanding and Control, and negative associations with Effectance History and positive with Discouragement History for the negatively valanced scales of Belongingness Thwarting, Self-Enhancement Thwarting and Distrust. These relationships contribute to evidence of construct validity for the new BNh measure.

To further establish the relationship between basic needs and childhood experiences, Pearson correlations among childhood experience—ACES, attachment, EDNh and BNh subscales—were examined (Table 3.5). All of the childhood variables were significantly correlated with the BNh subscales. Unsupportive childhood experiences (i.e., ACEs, emotional punishment, and negative climate) were correlated positively with Discouragement History and negatively with Effectance History whereas supportive childhood experiences (i.e., secure attachment, social embeddedness, self-directed play, responsiveness, affectionate touch, and positive climate) were correlated positively with Effectance History and negatively with Discouragement History.

Next, we examined Pearson correlations among BNh and adulthood health variables (Table 3.5). All of the childhood experiences were significantly correlated with measures of health in adulthood. Supportive childhood experiences were correlated positively with physical health status and wellbeing and negatively with physical health behavior and depression while unsupportive childhood experiences were correlated positively with physical health behavior and depression and negatively with physical health status and wellbeing. In addition, ACEs was positively related to poor physical and mental health and negatively related to good physical and mental health. There was no relation between ACEs and social desirability. Again, here, we can infer that supportive childhood experiences, assessed both via EDNh and ACEs may be representative of less stressful experiences in childhood. We also examined correlations among health variables and social desirability, finding a positive relation between social desirability and physical health status, no relation with physical health behavior, a negative relation with depression, and a positive relation with wellbeing. These relations suggest that it may be more socially desirable to report having good physical and mental health, and less desirable to report poor mental health. Or, when people feel good, they express a rosier outlook ("Pollyanna effect"; Boucher & Osgood, 1969).

Last, we performed hierarchical regressions to mimic what we found in Chapter 2 with the BNSS scales predicting physical and mental health variables. The goal of these models was to investigate which BNh subscale accounted for greater variance in predicting physical and mental health, and whether this effect was beyond that due to control variables and beyond that of the other childhood-history variables, ACEs and EDNh. To examine which subscale accounted for greater variance in predicting an outcome, we included Effectance History and Discouragement History in the first model. In the second model, we added ACEs and the EDNh Composite to assess whether negative experiences or EDNh-consistent experience accounted for additional variance. In the third model, we added demographic control variables (i.e., sex, age, income, and social status) to assess whether the subscales still accounted for significant variance, and last we added social desirability. Hierarchical regressions were separately conducted for physical health status, physical health behavior, wellbeing, and depression (see Tables 3.6, 3.7 , 3.8, and 3.9).

Table 3.7

Study 2 hierarchical regression predicting physical health behavior

	Physical health behavior merge columns on this line and keep title centered		

keep title centered

Model	*b*	SE	*β*	R^2 (adjusted)	R^2 change	*F* ~~change~~
Model 1				.05 (.04)	~~.05~~	7.42**
Effectance history	−.08	.08	−.10			
Discouragement history	.08	.07	.13			
Model 2				.05 (.04)	.01	2.23
Effectance history	−.04	.09	−.05			
Discouragement history	.05	.07	.08			
EDNh composite	−.13	.09	−.13			
Model 3				.09 (.08)	.03	11.43**
Effectance history	−.07	.09	−.08			
Discouragement history	.01	.07	.02			
EDNh composite	.03	.10	.03			
Adverse childhood experiences	.08	.02	.26**			
Model 3				.11 (.09)	.03	2.09
Effectance history	−.06	.09	−.07			
Discouragement history	.03	.07	.05			
EDNh composite	.05	.10	.05			
Adverse childhood experiences	.07	.02	.22**			
Sex	.10	.07	.07			
Age	.01	<.01	.10			
Income	−.05	.03	−.10			

Note $N = 312$. ~~*$p < 0.05$,~~ **$p < 0.01$

Physical health behavior merge columns on this line and keep title centered

Model	*b*	SE	*β*	*R* (adjusted)	*R* change	*F* ~~change~~
Social status	<.01	<.01	.03			
Model 4				.11 (.09)	.00	0.01
Effectance history	−.06	.09	−.07			

Discouragement history	.04	.07	.05			
EDNh composite	.05	.10	.05			
Adverse childhood experiences	.07	.02	.22**			
Sex	.10	.08	.07			
Age	.01	<.01	.10			
Income	−.05	.03	−.10			
Social status	<.01	<.01	.03			
Social desirability	.01	.07	.01			
Note $N = 312$. ~~*$p < 0.05$,~~ **$p < 0.01$						

Table 3.8

Study 2 hierarchical regression predicting wellbeing

	Wellbeing merge columns on this line and keep title centered					
Model	***b***	**SE**	***β***	**R^2 (adjusted)**	**R^2 change**	***F*** ~~**change**~~
Model 1				.22 (.21)	~~.22~~	42.91**
Effectance history	.16	.11	.13			
Discouragement history	−.34	.09	−.35**			
Model 2				.22 (.21)	.001	.46
Effectance history	.14	.12	.11			
Discouragement history	−.32	.09	−.33**			
EDNh composite	.08	.12	.06			
Model 3				.24 (.23)	.02	6.91**
Effectance history	.10	.12	.08			
Discouragement history	−.36	.09	−.37**			
EDNh composite	.25	.13	.17			
Adverse childhood experiences	.08	.03	.18**			
Model 4				.26 (.24)	.02	2.17
Effectance history	.09	.12	.07			
Discouragement history	−.28	.10	−.28**			

Discouragement history	−.38	.10	−.38**			
EDNh composite	.23	.13	.16			
Adverse childhood experiences	.08	.03	.18*			
Sex	.21	.10	.11*			
Age	<.01	<.01	−.04			
Income	.07	.04	.10			
Social status	<.01	<.01	−.03			
Model 5				.29 (.27)	.03	12.15**
Effectance history	.14	.12	.11			
Discouragement history	−.30	.10	−.31**			

Note N = 312. *$p < 0.05$, **$p < 0.01$

	Wellbeing merge columns on this line and keep title centered					
Model	***b***	**SE**	***β***	***R*** **(adjusted)**	***R*** **change**	***F*** ~~**change**~~
EDNh composite	.25	.13	.17			
Adverse childhood experiences	.08	.03	.17*			
Sex	.12	.10	.06			
Age	<.01	<.01	−.06			
Income	.07	.04	.11*			
Social status	<.01	<.01	−.02			
Social desirability	.31	.09	.18**			

Note N = 312. *$p < 0.05$, **$p < 0.01$

Table 3.9

Study 2 hierarchical regression predicting depression

	Depression merge columns on this line and keep title centered					
Model	***b***	**SE**	***β***	R^2	R^2	***F***

				(adjusted)	change	change
Model 1				.22 (.22)	.22	44.54**
Effectance history	.14	.06	.22*			
Discouragement history	.32	.05	.64**			
Model 2				.22 (22)	.00	.03
Effectance history	.14	.06	.22*			
Discouragement history	.32	.05	.63**			
EDNh composite	−.01	.06	-.01			
Model 3				.23 (.22)	.01	3.05
Effectance history	.13	.06	.20*			
Discouragement history	.31	.05	.60**			
EDNh composite	.05	.07	.06			
Adverse childhood experiences	.03	.02	.12			
Model 3				.25 (.23)	.02	1.69
Effectance history	.12	.06	.19*			
Discouragement history	.29	.05	.57**			
Adverse childhood experiences	.05	.07	.06			
EDNh composite	.03	.02	.12			
Sex	.02	.05	.02			
Age	<.01	<.01	−.07			
Income	−.04	.02	−.13*			
Social status	<.01	<.01	.04			
Model 4				.26 (.24)	.01	5.45*
Effectance history	.11	.06	.17			
Discouragement history	.26	.05	.52**			
Adverse childhood experiences	.04	.07	.06			

Note: $N = 312$. *$p < 0.05$, **$p < 0.01$

	Depression merge columns on this line and keep title centered					
Model	***b***	**SE**	***β***	***R***	***R***	***F***

				(adjusted)	change	change
EDNh composite	.02	.02	.12			
Sex	.05	.05	.05			
Age	<.01	<.01	−.06			
Income	−.05	.02	−.13*			
Social status	<.01	<.01	.03			
Social desirability	−.11	.05	−.12*			
Note $N = 312$. *$p < 0.05$, **$p < 0.01$						

AQ6

In the regression predicting *physical health status*, although Effectance History had been significantly correlated with each of the physical and mental health outcomes, Discouragement History consumed the variance for good physical health, accounting for 11% of the variance, whereas Effectance History was not a significant predictor (see Table 3.6). Adding EDNh Composite also made a significant contribution to the explained variance (11%), whereas adding ACEs in Model 3 did not. When adding the demographic control variables in model 4, age and income both significantly contributed to variance explained (15%) with age being negatively related to physical health status and income being positively related. Last, adding social desirability also significantly added to the variance explained (16%), and social desirability was positively related to reporting physical health status. When all variables were included, Discouragement History was still the strongest predictor of physical health status, which can be seen by the standardized beta. This suggests that when an individual felt like their childhood needs were not fulfilled, they were likely to report lower physical health status, and this effect was above and beyond that found by examining other childhood experience variables and demographic factors that often contribute to health outcomes.

In the regression predicting *physical health behavior*, neither Effectance History nor Discouragement History was significant predictors in model 1, although they did contribute to 4% of explained variance (see Table 3.7). Adding EDNh Composite did not significantly contribute to variance explained, but adding ACEs did (8%). ACEs was significantly positively related to physical health behavior. When adding the demographic control variables in model 4, none of the variables contributed to the explained variance, nor did social desirability in the last model. Overall, the variables explained 9% of the variance in physical health behavior, but only ACEs was a significant contributor. This suggests that when an individual reported more adverse experiences as a child, they were more likely to report behaviors associated with poor physical health, and this effect was above and beyond that found by examining other childhood experience variables and demographic factors that often contribute to health outcomes.

In the regression predicting *wellbeing*, although Effectance History had been significantly correlated with each of the physical and mental health outcomes, Discouragement History consumed the variance for wellbeing, accounting for 21% of the variance, whereas Effectance History was not a significant predictor (see Table 3.8). Adding EDNh Composite did not make a significant contribution to the explained variance (21%), whereas adding ACEs did significantly contribute (23%). Despite being negatively related to wellbeing in the correlations, ACEs was positively related to wellbeing in this model. This suggests a suppression effect rather than multicollinearity (ACEs VIF = 1.94), so this relationship is uninterpretable. Next, when adding the demographic control variables in model 4, sex significantly contributed to variance explained (24%) with women showing more favorable outcomes regarding wellbeing. Last, adding social desirability also significantly added to the variance explained (27%), and social desirability was positively related to reporting wellbeing. When all variables were included, Discouragement History was still the strongest predictor of wellbeing, which can be seen by examining the standardized beta. This suggests that when an individual felt like their childhood

needs were not fulfilled, they were less likely to report high wellbeing, and this effect was above and beyond that found by examining other childhood experience variables and demographic factors that often contribute to mental health outcomes.

In the regression predicting *depression*, both Effectance History and Discouragement History were predictive in explaining variance for depression (22%; see Table 3.9). The positive relation between depression and Effectance History was inversed from the relationship in the correlations, which may again suggest issues with multicollinearity (Effectance VIF = 3.95). When adding EDNh Composite, no additional variance was explained, nor with ACEs. When adding the demographic control variables in model 4, income significantly contributed to variance explained (23%), such that higher income related to lower depression. Last, adding social desirability also significantly added to the variance explained (24%), and social desirability was negatively related to depression. When all variables were included, Discouragement History was still the strongest predictor of depression, which can be seen by the standardized beta. This suggests that when an individual felt like their childhood needs were not fulfilled, they were likely to also report higher depression, and this effect was above and beyond that found by examining other childhood experience variables and demographic factors that often contribute to health outcomes.

General Discussion

The purpose of these studies was to better understand the relationship between childhood experience and health in adulthood and whether basic needs satisfaction early in life plays a role. We first used an existing measure of childhood experience, EDNh, to assess the relation between childhood needs fulfillment and physical health and found that responsive social environment and positive climate, indicative of a supportive childhood environment, were related to reports of physical health status and low frequency of physical health behaviors. Further, we found that experiences of corporal punishment and negative climate, both of which are indicative of a stressful childhood experience, were related to physical health behaviors and lower physical health status. Additionally, use of an overall childhood environment variable revealed that higher fulfillment of childhood experiences consistent with the EDN was related positively to physical health status and negatively to physical health behavior, suggesting that the overall supportive environment during childhood is an important component for physical health in later life. Although prior studies had found a relation between EDNh scores and mental health (e.g., Narvaez et al., 2016), this was the first time their relation to physical health was examined and confirmed.

In a second study, we modified the BNSS to capture retrospective view of childhood psychosocial needs fulfillment, BNh. We validated the measure and showed that it was moderately correlated with the BNSS scale, indicating the participants were differentiating between past needs satisfaction and current needs satisfaction. Again, we examined the relation to the new scale with physical and mental health. We found that childhood experience, measured both via BNh and EDNh, were related to reports of physical and mental health. The new BNh scale was related to the specific experiences in childhood, as measured by the EDNh, suggesting that perhaps these practices contribute to basic needs satisfaction. Further research should be conducted to examine the relationship between specific EDN practices, like affectionate touch, and basic needs satisfaction, ideally through a longitudinal study.

Last, we tested whether a BNh measure would perform as well or better than a more specified list of components as described by the EDN. We used various hierarchical regression models to test the predictive power of BNh and EDNH along with various control variables and found that Discouragement History, or a lack of basic psychosocial needs fulfillment in childhood, was the strongest predictor of physical health status, wellbeing, and depression, which suggests that when an individual felt like their childhood needs were not fulfilled, they were likely to report lower physical health status, less wellbeing, and more depression. We also found that in respect to physical health behavior, ACEs was the strongest predictor, change to dash beyond basic needs, EDN, and any change to "the" demographic variables we included. These results indicate that stressful childhood experiences are especially important in predicting health outcomes, including both physical and mental health, concurring with prior research showing that higher ACES scores correspond to poorer health outcomes in

adulthood (Felitti & Anda, 2005). As new paragraph we noted earlier, stress in early life can cause toxicity in developing systems (e.g., Shonkoff et al., 2012). But human maturation lasts a good while because of the time it takes a human to reach adulthood (around age 20 for general physical development, nearly age 30 for the brain's executive functions). Along the way, there are several sensitive periods in development (early childhood, early adolescence, early adulthood) for shaping wellbeing or illbeing. Childhood experiences along the maturational pathway may shift health trajectories depending on the timing, intensity, and duration of the experience, leaving a mark into adulthood. Further studies must be done to tease out the buffering of the EDN, and its characteristics throughout development, and the toxicity of adverse childhood experiences.

As found in other studies, age was negatively related to self-assessed good health. The age range of our samples went up to age 81 (70 in the second sample), so it included the time period when physical ailments proliferate. Income explained significant variance in the final models for the mental health variables, wellbeing, and depression. Longitudinal studies have demonstrated a graded association between socioeconomic status and health (e.g., Marmot, Shipley, & Rose, 1984), as discussed in Chapter 1 . The importance of sufficient wealth for health concurs with a review of research on the importance of economic equality on mental and physical health as well as societal wellbeing (Wilkinson & Pickett, 2011).
AQ7

Limitations and Future Directions

These were cross-sectional studies with convenience samples of adults from the United States. Longitudinal, cross-cultural research is needed with larger diverse samples. Further validation is needed to examine the usefulness of the BNh measure.

Conclusion

Examining childhood experience, even retrospectively, may add considerable predictability to the wellbeing of individuals. In the next chapter, we examine the effects of basic needs on moral outcomes, examining for example whether basic needs satisfaction mediates the relation between childhood experience and moral orientations and behavior.

Appendix 3.1: Basic Needs History (BNh)

BNSSH When answering the following questions please think of your experience growing up (all the years before age 18). Please indicate the extent to which you agree or disagree with each of the following statements with respect to your childhood. put a line of space before table

I felt like…	**Strongly disagree (1)**	**Disagree (2)**	**Neither agree nor disagree (3)**	**Agree (4)**	**Strongly agree (5)**
…people cared about me. (1)	❍	❍	❍	❍	❍
…I fit into at least one social group. (2)	❍	❍	❍	❍	❍

Scoring
BNSShEffectance: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11
BNSShDiscouragement: 12, 13, 14, 15, 16, 17, 18, 19

I felt like…	**Strongly disagree (1)**	**Disagree (2)**	**Neither agree nor disagree (3)**	**Agree (4)**	**Strongly agree (5)**

… I had influence on those who were important in my life. (3)	❍	❍	❍	❍	❍
…I could shape my world. (4)	❍	❍	❍	❍	❍
…Other people valued my skills. (5)	❍	❍	❍	❍	❍
…I could make choices that mattered in key areas in my life. (6)	❍	❍	❍	❍	❍
…I could safely make my way in the world. (7)	❍	❍	❍	❍	❍
… I could find the support that I need from others when necessary. (8)	❍	❍	❍	❍	❍
…I had goals for my life. (9)	❍	❍	❍	❍	❍
…I had opportunities in my life to improve my skills and talents. (10)	❍	❍	❍	❍	❍
… that things would improve even though I may have felt unhappy at times. (11)	❍	❍	❍	❍	❍
…I didn't belong anywhere. (12)	❍	❍	❍	❍	❍
…there was nothing I could do to change my life. (13)	❍	❍	❍	❍	❍
…I felt incapable in key areas in my life. (14)	❍	❍	❍	❍	❍
…I was boxed in with no freedom. (15)	❍	❍	❍	❍	❍
…the world was a mean place so I had to be careful. (16)	❍	❍	❍	❍	❍
…my life was meaningless. (17)	❍	❍	❍	❍	❍
…I was beaten down. (18)	❍	❍	❍	❍	❍
…I was unhappy with my life. (19)	❍	❍	❍	❍	❍
Scoring					
BNSShEffectance: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11					
BNSShDiscouragement: 12, 13, 14, 15, 16, 17, 18, 19					

References take off periods after doi numbers

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