

## DISTINGUISHED SCHOLAR ARTICLE

# Bringing life history theory into relationship science

Jeffrey A. Simpson 

Department of Psychology, University of Minnesota, Minneapolis, Minnesota

### Correspondence

Jeffrey A. Simpson, Department of Psychology, University of Minnesota, 75 East River Parkway, Minneapolis, MN 55455.

Email: [simps108@umn.edu](mailto:simps108@umn.edu)

In this article, I review three longitudinal studies that have investigated how exposure to more versus less predictable environments shunt individuals down different developmental pathways. After describing key principles of life history theory and how stress can shape social development over time, I discuss an interrelated set of findings from the Minnesota Longitudinal Study of Risk and Adaptation. Collectively, these studies reveal the pathways through which exposure to more unpredictable, chaotic early-life environments prospectively forecast engaging in riskier behaviors and shorter-term, more opportunistic, and less investing orientations to mating and parenting in one or both genders. I conclude by discussing the broader goals underlying this program of research.

### KEYWORDS

attachment, caregiving, life history theory, risky behavior, stress



Jeffrey A. Simpson is a Distinguished University Teaching Professor and Chair of the Department of Psychology at the University of Minnesota, where he directs the doctoral minor in Interpersonal Relationships Research. His research focuses on interpersonal relationships, evolution and social behavior, and how early interpersonal experiences shape adult development. He has served as the editor of *Personal Relationships* and the *Journal of Personality and Social Psychology: Interpersonal Relations and Group Processes*, and as a President of *IARR*.

I saw those Jakarta markets for what they were: fragile, precious things. The people who sold their goods there might have been poor, poorer even than the folks in Altgeld [in Chicago]. They hauled 50 pounds of firewood on their back every day, they ate little,

they died young. And yet for all that poverty, there remained in their lives a discernible order, a tapestry of trading routes and middle men, bribes to pay, and customs to observe, the habits of a generation played out every day. It was the absence of such coherence that made a place like Altgeld so desperate, I thought to myself; it was the loss of order.

Barak Obama, *Dreams from my Father* (1995, p. 183)

## 1 | INTRODUCTION

Throughout my career, I have been interested in how stress affects the way in which people with different interpersonal histories think, feel, and behave during significant life events. For many years, however, I was bothered by two issues. First, much of the early work on stress in mainstream psychology did not adopt a lifespan perspective. More specifically, it did not seek to understand whether and how stressful events encountered earlier in life shape the course of an individual's social development. Second, most early stress research did not consider the psychological impact that different forms of stress might have on the course of social development.

When I first read Barak Obama's insightful distinction between places like Jakarta, where stress is high but life is fairly predictable (harsh) versus places like gang-ridden Altgeld, where stress is high and life is chaotic (unpredictable), it was an epiphany moment. Suddenly, several pieces of a complicated intellectual puzzle began to fall into place, forming a clearer, more vibrant picture of how certain types of chronically stressful life events might generate unique developmental trajectories. This moment occurred at the perfect time—as I was becoming involved in the Minnesota Longitudinal Study of Risk and Adaptation (MLSRA; Sroufe, Egeland, Carlson, & Collins, 2005), a landmark study that has followed approximately 180 participants from before they were born into middle adulthood. The data collected as part of this 40 year ongoing study has allowed us to determine both whether and how exposure to harsh versus unpredictable stress experienced at different points of life predict several important life outcomes across early-to-middle adulthood.

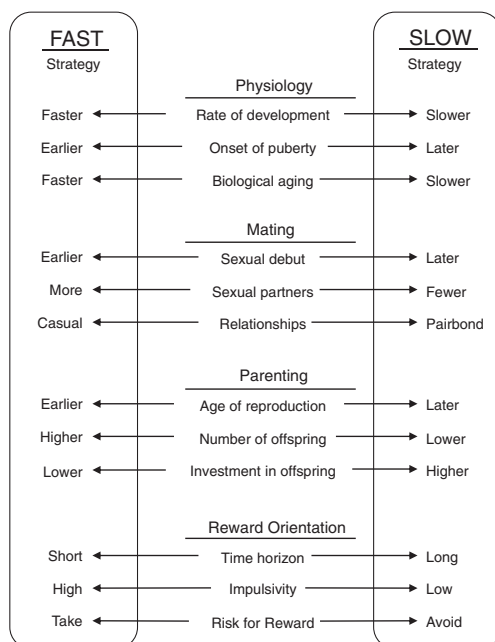
In this article, I review three previously published studies investigating the degree to which exposure to harsh and/or unpredictable forms of stress earlier in life shunt people down different developmental pathways leading into adulthood. This work has been guided by a broad theoretical framework known as life history theory (Del Giudice, Gangestad, & Kaplan, 2016; Kaplan & Gangestad, 2005; Stearns, 1992) along with an evolutionary-informed model of social development (Belsky, Steinberg, & Draper, 1991). After describing basic principles of life history theory and the Belsky et al. (1991) model, I discuss how our research team has tested an interconnected series of hypotheses using the MLSRA sample. Viewed together, these studies reveal how exposure to unpredictable environments prospectively predicts engaging in riskier behaviors and shorter-term, more opportunistic, less investing orientations to mating and parenting. I conclude by discussing two overarching goals of this program of research.

### 1.1 | Life history theory

Life history theory is a meta-theoretical framework that explains why organisms—including humans—spend the limited amount of time, energy, and resources they have on certain traits, behaviors, and life tasks rather than others to promote reproductive fitness—their success at propagating genes to future generations (Del Giudice et al., 2016; Kaplan & Gangestad, 2005). According to life history thinking, individuals can increase their reproductive fitness in two fundamental ways. First, either consciously or more often unconsciously, they can invest in specific traits or attributes that

affect the timing of their mortality (i.e., when they die). Second, they can invest in traits/attributes that influence the timing of their reproduction (i.e., when they reproduce). This process is complicated by the fact that different life history traits/attributes can, at times, have opposite effects on mortality or fertility. For example, traits/attributes that increase fertility through stronger or more sustained mating effort (e.g., working hard to attract or maintain relationships with desirable mates) can compromise survival because some of the features that make people more attractive as romantic partners, especially in the case of men, involve engaging in risky acts (Roney, 2016) or weaken the immune system (Grafen, 1990). One example of the latter is testosterone, which tends to make men more attractive as potential mates, but can also impair their immune system. Moreover, devoting more time, energy, and resources to physical growth during development usually limits fertility when individuals are younger, but often enhances it as they enter adulthood (Charnov, 1993). Additionally, allocating the time, energy, and resources needed to ensure that one's children grow up to be strong, healthy, and well-socialized adults may constrain a parent's future rate of fertility. Most people, therefore, face three interrelated trade-offs as their lives unfold, namely the degree to which they invest in: (a) current (immediate) reproduction versus future (delayed) reproduction; (b) higher quantity versus higher quality offspring; and more broadly (c) mating effort versus parenting effort.

Because people differ in how they make these life history trade-offs (either consciously or unconsciously), they also vary in the life history strategies they enact, especially with regard to patterns of mating and parenting in adulthood (Gangestad & Simpson, 2000). A growing body of research has revealed one key dimension on which life history strategies systematically vary: the slow-to-fast continuum (Ellis, Figueredo, Brumbach, & Schlomer, 2009; Nettle, 2010; Promislow & Harvey, 1990). Slow and fast strategies are each associated with a distinct cluster of correlated traits/attributes that are believed to facilitate the enactment of each strategy (see Figure 1; Griskevicius et al., 2013). At a physiological level, for example, fast (compared to slow) strategies are characterized by relatively earlier physiological development and earlier sexual maturation. At a psychological level, fast strategies entail a stronger focus on shorter-term outcomes, being more opportunistic, and pursuing



**FIGURE 1** Correlates of faster versus slower life history strategies

immediate rewards, whereas slow strategies are characterized by longer-term planning, greater cooperation with others, and delaying gratification to improve future payoffs (see also Simpson, Griskevicius, Szepeswol, & Young, 2017).

From an evolutionary standpoint, fast strategies are adaptive because they increase the likelihood of reproducing before dying at a relatively younger age. This was probably true in our ancestral past and it remains so today, given that more difficult environments tend to have more threats and challenges as well as fewer resources. The evolutionary adaptive value of pursuing a slow strategy, on the other hand, is that it allows individuals to reap the benefits of slowing down the rate of development so current investments can yield larger future gains, which also was probably true during our ancestral past and remains so today (see Del Giudice et al., 2016).

A life history framework, therefore, articulates why, from the standpoint of reproductive fitness, it would be adaptive for people to enact a slow or a fast strategy in adulthood. However, it does not differentiate two important types of stress: harshness (which characterizes environments like Jakarta) and unpredictability (which defines environments like Altgeld). Consistent with Obama's insightful description of these two very different types of environments, there are good theoretical reasons to believe that children who grow up in chaotic, unpredictable environments may be especially likely to develop the constellation of traits, attributes, and behaviors typical of a fast life history strategy (Ellis et al., 2009).

According to Ellis et al. (2009), harshness refers to age-specific rates of morbidity and mortality in the local environment. In Western societies, harshness is most commonly indexed by socioeconomic status (SES) due to the fact that lower SES is linearly related to both morbidity and mortality rates (Adler, Boyce, Chesney, Folkman, & Syme, 1993; Chen, Matthews, & Boyce, 2002; Ellis et al., 2009). More specifically, the harsher an environment is, the higher the rate of morbidity (e.g., illness, injury) and mortality (death) at every age within a society.

Unpredictability, on the other hand, refers to stochastic changes (fluctuations) in the harshness of environmental conditions across time. Unpredictability is indexed by significant changes in the ecology of the family that directly impact parents and their children, such as frequent changes in parents' job status, residential changes, and parental transitions such as divorce and remarriage (see Belsky, Schlomer, & Ellis, 2012). According to Ellis et al. (2009), the amount of harshness and/or unpredictability experienced during childhood should uniquely forecast outcomes associated with the enactment of fast versus slow life history strategies in adulthood.

As reflected in Obama's opening quote, the distinction between harshness and unpredictability is important because environments can be harsh, unpredictable, both, or neither. A harsh environment, like Jakarta, may involve long-term poverty that permits sustainability and survival over time. Although exposure to this type of stress is taxing, it is at least predictable, allowing individuals to learn about, prepare for, and cope with difficult future circumstances and events. In unpredictable, chaotic environments like Altgeld, however, difficult events crop up unexpectedly, never fully permitting individuals to prepare for or cope well with them. In these chaotic, tumultuous environments, stress is more difficult to manage because events occur suddenly and tend to be less controllable. Thus, as Obama observed in Altgeld, exposure to more unpredictable environments should have more lasting effects on people, especially if it occurs early in life when the body and mind are more open to programming (see Miller & Chen, 2013).

## 1.2 | The Minnesota Longitudinal Study of Risk and Adaptation

The MLSRA has followed approximately 180 individuals (participants) from before they were born into early adulthood (see Sroufe et al., 2005). All of the participants were born to first-time mothers

living below the poverty line at the time of their recruitment at free public health clinics in Minneapolis, Minnesota in 1975–1976. Many of the participants, therefore, were exposed to a wide variety of life stressors that varied in their intensity and duration across the lifespan.

The sample has several other features that make it well-suited for examining whether and how exposure to different amounts of harshness and/or unpredictability at different points of life are prospectively related to adult outcomes associated with the enactment of fast or slow life history strategies. For example, at multiple points of development, the MLSRA has excellent measures of: (a) each participant's environment (e.g., coder-rated measures of the unpredictability and harshness of the local environment), (b) coder-rated observational measures of parenting quality/support from videotaped mother-participant interactions during childhood, (c) self-reported measures of participants' risk-taking tendencies, (d) interview measures of both attachment representations and restricted (slow) versus unrestricted (fast) sociosexuality in early adulthood, and (e) interview measures and coder-rated observational measures of parental investment from videotaped participant–child interactions as participants (in adulthood) were parenting their own children.

## 2 | STUDY 1: UNPREDICTABILITY, GENDER, AND RISK-TAKING

The primary goal of our initial study was to determine whether there was a connection between exposure to unpredictability and/or harshness and different forms of sexual behavior and risk-taking, which are indicators of adopting a fast versus a slow life history strategy (Simpson, Griskevicius, Kuo, Sung, & Collins, 2012). A second goal was to discern whether there might be a sensitive period of stress exposure. Prior evidence indicates that children are more sensitive and attuned to environmental cues during the first few years of life, especially to the quality of parental care they receive (Del Giudice & Belsky, 2011; Ellis et al., 2003; Quinlan, 2003). Thus, we also examined whether early-life unpredictability and/or harshness uniquely forecasts sexual behavior and risk-taking later in life. One hundred and sixty-two MLSRA participants (48% female), all of whom had measures on the relevant variables, were included in the analyses.

### 2.1 | Measures

Following conventional practices (e.g., Belsky et al., 2012; Ellis et al., 2009), harshness was assessed by SES calculated from information obtained from mothers' interviews, both early in their child's (the participant's) life (at 3 time-points under the age of 5) and later in his/her life (at 5 time-points between ages 6 and 16). Unpredictability was assessed by coders' ratings of life stress interviews that asked about changes in each mother's employment status, residence, and cohabitation patterns, both early in their child's life (at 5 time-points under the age of 5) and later during development (at 5 time-points between ages 6 and 16).

We examined five outcome measures, each of which reflect one of two major components of life history strategies. The first two outcomes assessed sexual behavior. Because fast life history strategies tend to be associated with earlier sexual activity and more sexual partners (Ellis et al., 2009; Kaplan & Gangestad, 2005), we assessed: (a) the age of first sexual intercourse (sexual debut), and (b) the number of lifetime sexual partners reported by participants by age 23. The second set of outcomes were indicators of deviant tendencies associated with risky behaviors. Because fast life history strategies are characterized by more opportunistic, risky, and short-term orientations, we assessed each participant's level of: (c) aggression, (d) delinquency, and (e) ties to criminal activity. Aggression and delinquency were reported by participants when they were 23 years-old. Their extent of

involvement in criminal activities/behavior was rated by coders from an interview when participants were age 23.

## 2.2 | Results

We then conducted a series of regression analyses, one for each of the five outcome measures. The findings for the sexual behavior outcomes revealed that individuals who had been exposed to more unpredictable early environments (i.e., during the first 5 years of life) reported more sexual partners by age 23 (standardized  $\beta = 0.19$ ,  $p < 0.05$ ), statistically controlling for their level of harshness both early (from ages 1 to 5) and later (from ages 6 to 16) in childhood as well as the level of unpredictability later in childhood (from ages 6 to 16). Furthermore, individuals who were exposed to harsher early environments (during the first 5 years of life) reported engaging in first sex at an earlier age ( $\beta = -0.23$ ,  $p < 0.05$ ), statistically controlling for their level of unpredictability both early and later in childhood as well as their level of harshness later in childhood. These statistically controlled results are important because they suggest that the effects of early unpredictability and harshness are specific to what might be a “sensitive period” in early life, and they endure over time.

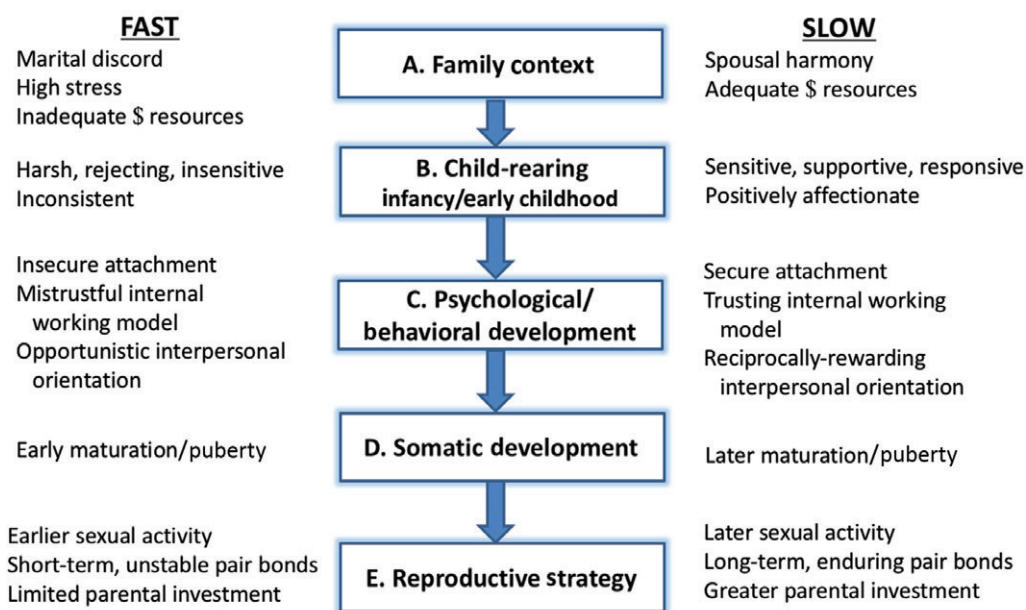
The results for opportunistic, risky, and short-term orientations revealed that individuals exposed to more unpredictable early-life environments (during the first 5 years of life) also scored higher on aggression, delinquency, and criminal activity at age 23. Once again, all of these effects remained statistically significant when unpredictability and harshness later in development (from ages 6 to 16) and either unpredictability or harshness early in life (from ages 1 to 5) were statistically controlled (aggression  $\beta = 0.18$ ; delinquency  $\beta = 0.25$ ; criminal activity  $\beta = 0.44$ ; all  $ps < 0.05$ ).

In summary, this initial study confirmed that exposure to more unpredictability in particular during the opening years of life forecasts greater risk-taking tendencies in early adulthood, as indexed by having more sexual partners and scoring higher on aggression, delinquency, and ties to criminal activity at age 23. Moreover, the analyses controlling for possible confounds indicate that these effects are specific to early unpredictability experiences.

## 3 | STUDY 2: UNPREDICTABILITY AND SOCIOSEXUALITY

Although life history theory offers a compelling framework for understanding why certain people enact fast or slow life history strategies, it does not delineate the processes or stages through which each strategy unfolds developmentally (Szepeswol et al., 2017). What kinds of intervening experiences during social development shunt individuals toward fast versus slow life history strategies in adulthood?

Belsky et al. (1991) proposed one of the first evolutionary-based models of social development in humans. According to this model, the primary evolutionary function of early social experience is to prepare children for the social and physical environments they are likely to inhabit during their lifetime. The model focuses on the rate of physical and sexual development (faster versus slower) and, therefore, primarily on the offspring quantity versus quality trade-off (Belsky, 1997; Belsky et al., 1991). Based on this line of reasoning, certain information contained in the early environment should allow individuals to adopt a more successful reproductive strategy—one that, on average, would best increase their inclusive fitness—in their future environments during adulthood. If, for example, parents are stricter, more demanding, or more rejecting in difficult (harsh) or rapidly changing (unpredictable) environments in which there is much competition for limited resources, offspring who are more aggressive and less cooperative are likely to experience higher reproductive fitness



**FIGURE 2** Developmental pathways of divergent reproductive strategies

over time compared to those who are less aggressive and more cooperative. Conversely, offspring reared in environments with better parenting and more plentiful and predictable resources could increase their fitness by adopting a more cooperative, communal orientation (see Hinde, 1986).

As shown in Figure 2, the Belsky et al. (1991) model has five stages. It proposes that: (a) early contextual factors in and around the family of origin (e.g., the amount of stress, spousal harmony, financial resources) should affect; (b) early childrearing experiences (e.g., the amount of sensitive, supportive, and responsive caregiving). These experiences, in turn, should affect (c) psychological and behavioral development (e.g., attachment patterns, internal working models), which in turn ought to influence; (d) somatic development (i.e., how quickly sexual maturation is reached) and eventually; (e) the adoption of distinct mating and parenting patterns.

Belsky et al. (1991) further propose that two developmental trajectories culminate in two different reproductive strategies in adulthood. One strategy reflects a short-term, opportunistic orientation toward close relationships, particularly with regard to mating and parenting, in which sexual intercourse occurs somewhat earlier in life, romantic pair bonds tend to be less stable and shorter in duration, and parental investment is lower. According to the model, the adoption of this fast orientation should have increased the quantity of offspring on average in evolutionary history. The second strategy reflects a more investing, longer-term orientation toward mating and parenting in which sexual intercourse happens later in life, romantic pair bonds tend to be stronger and more enduring, and parental investment is higher. This slow orientation should have increased offspring quality on average in ancestral environments.

A considerable amount of cross-sectional evidence has documented each of these anticipated links with one exception: Males who grow up in more stressful environments do not begin puberty earlier than males who grow up in less stressful environments, although females who grow up in more stressful environments do mature sexually at a comparatively earlier age (see Simpson & Belsky, 2016, for a review). Few if any studies, however, have tested this model with good prospective data.

Study 2, therefore, was designed to address two predictions. First, informed by the results of Study 1, we predicted that exposure to more unpredictable environments early in life would prospectively predict more unrestricted sociosexuality in early adulthood (i.e., a fast strategy). Second, we predicted that the quality of early maternal support as well as participants' attachment representations of childhood would serially mediate the link between exposure to greater unpredictability early in life and more unrestricted sociosexuality in early adulthood.<sup>1</sup>

To test these ideas, we (Szepeswol et al., 2017) analyzed data from the MLSRA. One hundred and fifty-five MLSRA participants (49% female), all of whom had measures on the relevant variables, were included in the analyses.

### 3.1 | Measures

Unpredictability and harshness were assessed using the same measures as in Study 1. We also assessed the unpredictability of each participant's current environment at age 23. Current unpredictability was measured with the same items used to assess early unpredictability (i.e., changes in employment status, changes in residence, and changes in cohabitation status during the past year). We used this measure to ascertain whether the effects of early-life unpredictability remained significant after current unpredictability was statistically controlled.

Early maternal support was assessed by videotaped social interactions between each mother and her child. Specifically, when participants were 24 and 42 months old, they and their mothers were videorecorded engaging in a series of problem-solving and teaching tasks. The tasks increased in complexity until they became too difficult for any child to solve without some assistance. Mothers were told to allow their child to attempt each task independently, but to offer help if/when they thought it was appropriate to do so. Each videorecorded session was then rated by trained coders for each mother's quality of support on 7-point scales. Mothers who showed interest and were attentive to the needs of their child, who responded well and contingently to their child's emotional signals, and who reinforced their child's success received high scores. Mothers who were distant, hostile, or unsupportive received low scores. The average of the 24- and 42-month scores was our measure of early maternal support.

When participants were 19 years-old, their attachment representations were assessed via the Adult Attachment Interview (AAI; George, Kaplan, & Main, 1985). The AAI is a semi-structured interview that measures the degree to which individuals have a coherent narrative regarding their early experiences with caregivers (parents), primarily between the ages of 5 and 12. Participants were asked to describe their early relationships with their caregivers and to discuss episodes of separation, rejection, abuse, or loss. The transcribed AAIs were then rated by trained coders on 9-point scales using Main and Goldwyn's (1998) coding system. We used the coherence of mind scale, which assesses each individual's ability to freely explore his/her feelings about childhood experiences in an organized/emotionally well-regulated versus a nonorganized/emotionally dysregulated manner, as our measure of attachment security (see Raby, Cicchetti, Carlson, Egeland, & Collins, 2013; Roisman, Madsen, Hennighausen, Sroufe, & Collins, 2001).

Sociosexuality in early adulthood was assessed by an interview that participants completed at age 23. The sociosexuality coding focused on participants' responses to 14 interview questions that asked about their current romantic relationship, their relationship history during the prior 2 years, and their ideal romantic relationship. Coders rated each participant's responses to these items for evidence of restricted versus unrestricted sociosexuality on a 5-point scale. Low scores were given to participants

<sup>1</sup>The MLSRA does not have measures of pubertal timing, so we could not test this component of the Belsky et al. (1991) model.



who displayed no evidence of short-term dating or sexual promiscuity, who wanted to be in a romantic relationship with only one person, and/or who were currently in a long-term romantic relationship (or had been in one recently). High scores were given to participants who reported multiple dating and sexual partners (most or all of whom were short-term) and/or who were interested in dating multiple people.<sup>2</sup> Coders' averaged ratings served as our measure of sociosexuality in early adulthood.

### 3.2 | Results

To determine whether early unpredictability uniquely forecasts more unrestricted sociosexuality at age 23, we conducted a series of regression analyses. Consistent with our central hypothesis, exposure to greater unpredictability early in life predicted more unrestricted sociosexuality at age 23 ( $\beta = 0.20, p < 0.05$ ), statistically controlling for early harshness, current (adult) unpredictability, and several other variables. As expected, men were more unrestricted than women on average ( $\beta = 0.29, p < 0.05$ ), but gender did not moderate the effects of either early or current unpredictability in forecasting sociosexuality.

Following this, we examined whether receiving more supportive parenting early in life (based on the behavioral observations of maternal supportive presence when participants were 24 and 42 months old) and whether secure attachment representations during adolescence (based on participants' AAI scores at age 19) mediated the link between exposure to early-life unpredictability and unrestricted sociosexuality at age 23 (see Figure 3). Consistent with our hypothesis, exposure to more unpredictable environments early in life was associated with receiving less maternal support during the same time-period, statistically controlling for early harshness. Lower quality early maternal support, in turn, predicted less secure attachment representations of childhood at age 19, which then predicted being more unrestricted at age 23. This was the best-fitting model of several alternative models we tested (see Szepeswol et al., 2017, for details).

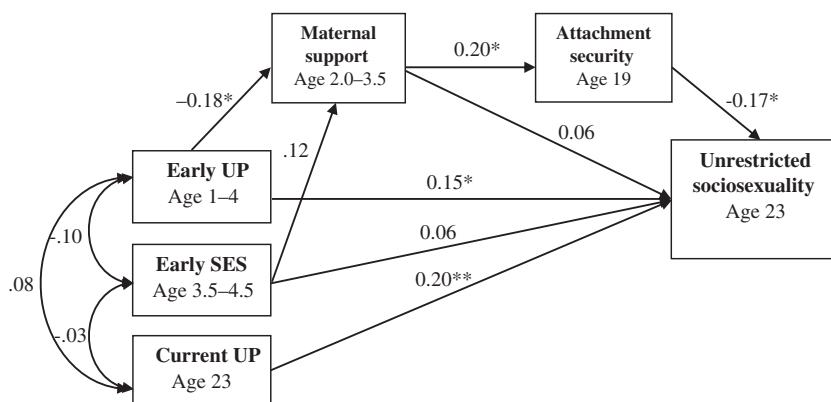
In summary, Study 2 confirms that exposure to more unpredictable environments early in life uniquely predicts more unrestricted sociosexuality (i.e., the adoption of a fast life history strategy) in early adulthood. In addition, the developmental pathways that best account for this connection are consistent with the evolutionary model of social development proposed by Belsky et al. (1991).

## 4 | STUDIES 3a AND 3b: UNPREDICTABILITY AND PARENTING

Although the life history strategies of both women and men should be responsive to the environmental conditions in which they grew up, these strategies may unfold somewhat differently for each gender, particularly with respect to parenting (Szepeswol, Simpson, Griskevicius, & Raby, 2015). One reason for this is that the selection pressures encountered by males and females during evolutionary history were not identical (Buss & Schmitt, 1993; Gray & Anderson, 2010), mainly because the costs and benefits associated with parenting are slightly different for each gender, especially during the early stages of parenting. This asymmetry is partly attributable to how female mammals reproduce (i.e., internal fertilization and gestation) combined with the greater investment they need to devote to early offspring care (i.e., nursing) (Trivers, 1972). Males, by comparison, have lower obligatory initial parental investment, which means they have fewer initial energetic costs associated with having children. This asymmetry is also reinforced by the social roles into which women and men tend to be

---

<sup>2</sup>The results of Study 2 report how early unpredictability is related to unrestricted sociosexuality in adulthood (rather than how early predictability is related to restricted sociosexuality in adulthood, as reported in Szepeswol et al., 2017). The interpretation of both sets of findings, however, is the same.



**FIGURE 3** Mediation analysis: Standardized direct and indirect effects ( $\beta$ s) of early unpredictability (UP) on unrestricted sociosexuality in early adulthood. Effects are estimated using full information maximum likelihood.  $N = 155$ , SES: socioeconomic status \* $p < 0.05$  \*\* $p < 0.01$

socialized, with women usually being more inclined to assume caregiving roles (Wood & Eagly, 2012). For all of these reasons, men are more likely than women to pursue short-term mating and invest somewhat less in parenting, at least during the early stages of parenting (see Geary, 2000).

Furthermore, although maternal care was a virtual necessity for young children to survive in evolutionary history, the incremental value of paternal care may have depended on conditions within the immediate environment (Geary, 2000; Quinlan, 2007). During ancestral times, most men could have improved the physical (Hill & Hurtado, 1996), socioeconomic (Amato, 1998), and emotional (Florsheim, Tolan, & Gorman-Smith, 1996) well-being of their children by investing more time, effort, and/or resources in them. The incremental value of their investment, however, may have been diminished in harsh or unpredictable environments where the total number of offspring may have been more important to men's reproductive fitness than the quality of their offspring (see Ellis et al., 2009). As a result, men might have adjusted to harsh or unpredictable environments by increasing their mating effort and reproducing with more than a single woman, which could have increased their overall reproductive success. Conversely, the principle way in which women could have increased their reproductive success in ancestral environments was to start having children at a younger age (Ellis, 2004). Following this line of reasoning, exposure to higher levels of unpredictability early in life might have a stronger effect on the parenting orientations and behavior of men than women in adulthood.

Turning to a different question, what are the developmental pathways through which a person's childhood environment shapes his or her own parenting practices in adulthood? The Belsky et al. (1991) model once again outlines the theoretically most probable developmental pathways. Until recently, most research testing this model has focused on fast versus slow strategies with respect to mating rather than parenting. Cross-sectional studies have, however, confirmed that heightened risk in one's current environment is associated with poorer parenting (e.g., Conger et al., 2002; McLoyd, 1990, 1998; Quinlan, 2007), indicating that parents have greater difficulty providing high-quality care when their current environment is more stressful (Belsky & Jaffee, 2006; Crnic & Low, 2002). Several other studies have documented intergenerational continuity in parenting practices and behaviors (e.g., Kerr, Capaldi, Pears, & Owen, 2009; Shaffer, Burt, Obradovic, Herbers, & Masten, 2009), revealing that most individuals tend to parent the same way they were parented as children. All of these findings support the notion that the quality of parental care received early in childhood might mediate the link between exposure to more unpredictable early-life environments and the quality of parenting later in adulthood.

In addition, findings from a handful of longitudinal studies have suggested that the developmental systems of children are particularly responsive to the quality of parental care they receive, and that children perceive these cues as indicative of what the conditions in their future environments will be like (e.g., Belsky et al., 2012; Ellis & Essex, 2007; Nettle, Coall, & Dickins, 2011). For most children, the most salient environmental cue within the family environment is the quality and reliability of care they receive on a daily basis (Chisholm et al., 1993; Del Giudice, 2009). The quality of parental care, therefore, should be one key mechanism through which early-life environmental conditions shape life history strategies in adults, particularly with respect to parenting orientations and behavior.

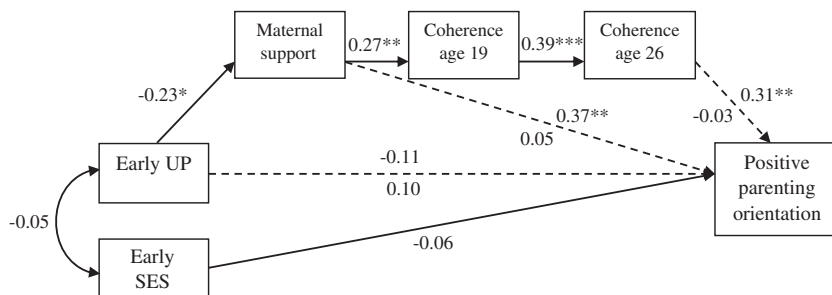
As we saw in Study 2, the quality of parental care received early in life gets translated into beliefs and expectations about the social world, which are organized within the attachment system of children (Bowlby, 1969). Caregivers who provide sensitive, consistent comfort, especially during times of distress, typically generate positive working models of self and others, which result in secure attachment representations (i.e., secure working models). Secure attachment, in turn, promotes a positive view of the world as safe and predictable, which usually culminates in a slow life history strategy that is adaptive reproductively in such environments (Belsky et al., 1991; Del Giudice, 2009; Simpson & Belsky, 2016). Insensitive and unreliable caregiving, in contrast, generates negative working models of self and others, typically resulting in insecure attachment representations. Insecure attachment representations, in turn, lead individuals to view the world as unsafe and unpredictable, which often results in the enactment of a fast life history strategy, which ought to be adaptive in less trustworthy environments (Belsky et al., 1991; Del Giudice, 2009; Simpson & Belsky, 2016).

Consistent with this premise, self-reported romantic attachment insecurity in adults correlates with various indicators of fast life history strategies, such as earlier age of having a first child (Chisholm, Quinlivan, Petersen, & Coall, 2005) and having shorter-term mating orientations (Schachner & Shaver, 2004). Moreover, secure romantic attachment is a critical component of more effective, higher quality parenting (Fearon & Belsky, 2016). Indeed, parents who have more secure (i.e., coherent) states of mind, as assessed by the AAI (George et al., 1985), tend to provide more supportive and sensitive care to their children (Van IJzendoorn, 1995).

Viewed as a whole, this theoretical and empirical literature suggests there should be a specific developmental pathway between exposure to more unpredictable environments during childhood and less positive parenting orientations and behavior in adulthood, a path that should be mediated by poorer care received during childhood. Lower quality care, in turn, ought to produce insecure attachment representations, which eventually result in less positive adult parenting orientations and behavior. Evidence supporting this model would partially explain how intergenerational transmission of parenting typically occurs (George & Solomon, 2008).

To test these ideas, we (Szepeswol et al., 2015) once again turned to data from the MLSRA. One hundred and twelve MLSRA participants (46% female), all of whom had at least one child as well as measures on the relevant variables discussed above, constituted the sample.

In Study 3a, we treated an interview measure of positive parenting orientation as the primary outcome. Specifically, MLSRA participants who were parents completed a semi-structured parenting interview at age 32. All of the interviews were then rated by trained coders for various aspects of participants' views about, and approaches toward, parenting. In Study 3b, we examined a behavioral measure of parental supportive presence as the primary outcome. In particular, MLSRA participants were videorecorded in the lab interacting with their first-born child when their child was 24 and 42 months of age. During these lab sessions, participants' children engaged in the *same* series of problem-solving and teaching tasks that parents had engaged in with their own mothers many years



**FIGURE 4** Multigroup mediation analysis of Study 3a. Dashed paths were allowed to vary between the genders. For these paths, the upper coefficient is for men, and the lower coefficient is for women. Age 32 controls: Unpredictability (UP), socioeconomic status (SES), educational attainment, relationship status, and number of children \* $p < 0.05$ . \*\* $p < 0.01$ . \*\*\* $p < 0.001$

earlier, all of which eventually required some assistance from the parent. Trained coders rated the level of supportive presence provided by each parent during these tasks. Studies 3a and 3b also had prospective measures of each participant's early-life unpredictability, early-life harshness, early maternal supportive presence, and adult attachment representations.

#### 4.1 | Measures

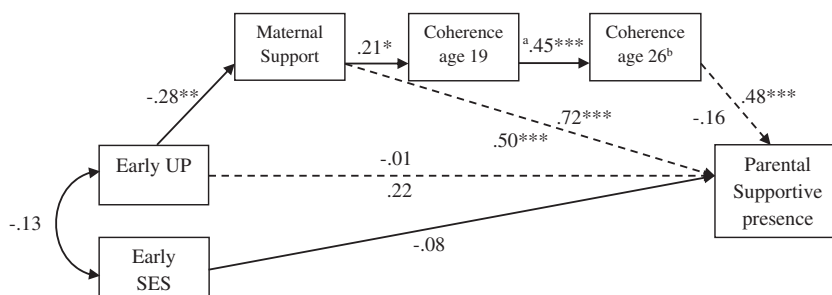
In both Study 3a and 3b, early unpredictability and harshness, current (adult) unpredictability and harshness, early maternal support, and adult attachment representations were all assessed the same way (and at the same times) as they were in Study 2.<sup>3</sup> The parenting behavior of each MLSRA adult participant was assessed when their first-born child was 24 and 42 months old. Specifically, participants and their child completed the same set of tasks as participants had with their own mothers approximately 20–25 years earlier. Trained coders then rated the amount of parental support observed during these tasks. The ratings at 24 and 42 months were correlated, so they were averaged to index each participant's degree of parental supportive presence.

At age 32, participants completed a parenting orientation interview that was rated by coders. It tapped three aspects of parenting: (a) investment/involvement (e.g., the importance of the parental role to the participant); (b) hostility (e.g., parents' discounting/rejecting their children [reverse-keyed]); and (c) emotional connectedness (e.g., parents' personal regard/affection for their children). These measures were highly correlated, so they were aggregated to form a parenting orientation index, with higher scores reflecting a more positive orientation to parenting.

#### 4.2 | Results

The results of Study 3a supported our hypotheses for early-life unpredictability, which pertained to men. In particular, men exposed to more unpredictable environments early in life had a more negative orientation to parenting at age 32 ( $\beta = -0.28$ ,  $p < 0.05$ ), but this was not true for women ( $\beta = 0.09$ ,  $ns$ ). As shown in Figure 4, this direct effect for men was also mediated by early maternal supportive presence and partially mediated by AAI coherence of mind scores assessed at ages 19 and 26. That is, men exposed to more unpredictable early environments were more likely to receive lower quality care from their mothers early in life, which predicted them having more insecure (less coherent)

<sup>3</sup>For Studies 3a and 3b, we also had information on participants' AAI scores assessed at age 26 (in addition to age 19). Attachment security (coherence), therefore, was modeled at both ages.



**FIGURE 5** Multigroup mediation analysis of Study 3b. Dashed paths were allowed to vary between the genders. For these paths, the upper coefficient is for men, and the lower coefficient is for women. Control: Age of parent. <sup>a</sup> This path was constrained to the value of the  $\beta$  between coherence at age 19 and coherence at age 26. <sup>b</sup> For individuals below age 26 at the time of assessment ( $n = 34$ ), coherence at age 19 was carried forward \* $p < 0.05$ . \*\* $p < 0.01$ . \*\*\* $p < 0.001$

attachment representations in early adulthood. These insecure representations, in turn, predicted a less positive orientation to being a parent. The model shown in Figure 4 was the best-fitting model relative to several alternative models we also examined (see Szepesenwol et al., 2015, for details).

Given that these analyses statistically control for men's current (age 32) unpredictability and harshness as well as several other potential confounds (see Szepesenwol et al., 2015), they indicate that early exposure to unpredictable environments has an enduring effect on the adult parenting orientations of men. Furthermore, the mediation results suggest that the effect of early unpredictability on men operates through: (a) their primary caregiver's less supportive parenting in unpredictable environments, and (b) participants' becoming insecurely attached due in part to these earlier experiences.

The results of Study 3b parallel those of Study 3a by revealing that experiencing more unpredictability early in life forecasts not only more negative parenting orientations, but less supportive parenting behavior in men as well as they parent their own children ( $\beta = -0.42$ ,  $p < 0.05$ ). Similar to Study 3a and as displayed in Figure 5, this effect was also mediated by early maternal supportive presence and partially mediated by participants' attachment representations at ages 19 and 26. Once again, this was the best-fitting model in relation to several alternative models we examined (see Szepesenwol et al., 2015, for details).

In summary, this gender moderated effect of early unpredictability reflects a difference in how early rearing environments are related to men's compared to women's parenting in adulthood. One possible reason why women appear to be relatively “immune” to early unpredictability impacting their own parenting may involve the strong social role expectations placed on women (relative to men) to be better or more responsible parents (Wood & Eagly, 2012). Our results, however, also reveal that both genders behave in a less supportive manner toward their children if they received less sensitive care from their own mothers when they were children (see Szepesenwol et al., 2015, for a discussion of these issues).

## 5 | SUMMARY OF FINDINGS AND CAVEATS

Stepping back, these three studies indicate that early exposure to unpredictable, chaotic environments—environments similar to Obama's Altgeld neighborhood in Chicago—have enduring effects on life history outcomes in adulthood, ranging from different forms of risk-taking (Study 1), to sociosexual orientation (Study 2), to parenting (Studies 3a and 3b, but only for men). Importantly, these effects remain statistically significant when several potential confounds are controlled,

including current SES in adulthood, current unpredictability, and several plausible individual differences. In addition, most of these direct effects have indirect paths through theoretically anticipated intervening variables, most importantly the quality of early maternal care/support and the security of childhood attachment representations.

A few caveats, however, must be acknowledged. First, even though these studies are prospective and longitudinal, they are correlational, meaning that causal conclusions cannot be reached. Second, all of the results reported above are based on the same data set. They do not, in other words, reflect three “independent” sets of information. Third, the design of the MLSRA cannot rule out possible genetic confounds that might explain some of these results. Certain genes, for instance, might be responsible for the association between being raised in unpredictable early environments and becoming a less investing parent many years later in adulthood. Fourth, other variables undoubtedly explain additional variance in risk-taking, sexual behavior, and parenting. That being said, the serially mediated models reported in this article provide better fits than several alternative models that we also tested. Fifth, despite the fact that a good percentage of MLSRA participants escaped poverty as their lives unfolded, all of them began life below the poverty line, and many of them experienced wide-ranging and sometimes rapidly changing levels of life stress, care/support, maltreatment, and other life events. The MLSRA, therefore, may be a particularly good sample for detecting effects stemming from early-life unpredictability. Finally, from an evolutionary perspective, it is important to emphasize that the risk-taking, mating, and parenting tendencies documented in these studies are viewed as *adaptive* reactions to difficult early environments based on the notion that they should have increased reproductive fitness in ancestral environments.

## 5.1 | Conclusion: Reaching out

As discussed at the beginning of this article, my motivation to launch this program of research was sparked by Obama's keen insights regarding different types of chronic stress, which mesh nicely with several life history principles. It was also inspired, however, by two broader goals—to bring ideas grounded in life history theory into mainstream relationship science and, at the same time, to bring the best of relationship science to other areas in the social, behavioral, and life sciences. This, in fact, has been one of my overarching missions during the past decade.

When one reflects on the history of relationship science, one can see that it has passed through discernible eras. From the 1960s until the mid-1990s, our field experienced what Ellen Berscheid (1999) called a “greening.” During this period of tremendous growth, scholars spent much of their time and effort developing the field's initial empirical base by documenting a number of foundational findings, many of which were rather descriptive in nature. From the mid-1990s onward, our field began to “blossom” (Simpson & Campbell, 2013) as we tested the major theories and models that now define our field (e.g., interdependence theory, attachment theory, evolutionary theories, and a wide range of interpersonal process models). Although we still may be in this blossoming phase, we are at the cusp of entering a third era, one that will represent the ripening and further maturation of our field. During this next phase, it is my hope that we will begin to integrate and synthesize what we have learned with the theoretical and empirical knowledge gained in other fields.

One way this will happen is by borrowing and applying major theories, models, and principles from other disciplines—including life history theory—to address the most pressing research questions and hypotheses in relationship science. Our research team at Minnesota has attempted to do this by “playing the game” on the theoretical and methodological terrain of related disciplines, especially developmental and evolutionary psychology. But another way this will happen is by showcasing all that relationship science has to offer allied fields. It is comfortable to remain safe in our intellectual

silos, preaching to an already converted audience of believers. As a field, we have a great deal to offer, both theoretically and empirically, to other disciplines. More of us need to reach out and facilitate the ripening and continued maturation of relationship science in the coming years.

## REFERENCES

- Adler, N. E., Boyce, W. T., Chesney, M. A., Folkman, S., & Syme, S. L. (1993). Socioeconomic inequalities in health: No easy solution. *Journal of the American Medical Association*, *269*, 3140–3145. <https://doi.org/10.1001/jama.269.24.3140>
- Amato, P. R. (1998). More than money? Men's contributions to their children's lives. In A. Booth & N. Crouter (Eds.), *Men in families: When do they get involved? What difference does it make?* (pp. 241–278). Mahwah, NJ: Lawrence Erlbaum.
- Belsky, J. (1997). Attachment, mating, and parenting: An evolutionary interpretation. *Human Nature*, *8*, 361–381.
- Belsky, J., & Jaffee, S. (2006). The multiple determinants of parenting. In D. Cicchetti & D. Cohen (Eds.), *Developmental psychopathology: Risk, disorder and adaptation* (Vol. 3, 2nd ed., pp. 38–85). New York, NY: Wiley.
- Belsky, J., Schlomer, G. L., & Ellis, B. J. (2012). Beyond cumulative risk: Distinguishing harshness and unpredictability as determinants of parenting and early life history strategy. *Developmental Psychology*, *48*, 662–673. <https://doi.org/10.1037/a0024454>
- Belsky, J., Steinberg, L., & Draper, P. (1991). Childhood experience, interpersonal development, and reproductive strategy: An evolutionary theory of socialization. *Child Development*, *62*, 647–670. <https://doi.org/10.1111/j.1467-8624.1991.tb01558.x>
- Berscheid, E. (1999). The greening of relationship science. *American Psychologist*, *54*, 260–266. <https://doi.org/10.1037/0003-066X.54.4.260>
- Bowlby, J. (1969). *Attachment and loss*. In *Attachment* (Vol. 1). New York, NY: Basic Books.
- Buss, D. M., & Schmitt, D. P. (1993). Sexual strategies theory: An evolutionary perspective on human mating. *Psychological Review*, *100*, 204–232. <https://doi.org/10.1037/0033-295X.100.2.204>
- Charnov, E. L. (1993). *Life history invariants*. Oxford, England: Oxford University Press.
- Chen, E., Matthews, K. A., & Boyce, W. T. (2002). Socioeconomic differences in children's health: How and why do these relationships change with age? *Psychological Bulletin*, *128*, 295–329. <https://doi.org/10.1037/0033-2909.128.2.295>
- Chisholm, J. S., Ellison, P. T., Evans, J., Lee, P. C., Lieberman, L. S., Pavlik, Z., ... Worthman, C. M. (1993). Death, hope and sex: Life history theory and the development of reproductive strategies. *Current Anthropology*, *34*, 1–24. <https://doi.org/10.1086/204131>
- Chisholm, J. S., Quinlivan, J. A., Petersen, R. W., & Coall, D. A. (2005). Early stress predicts age at menarche and first birth, adult attachment, and expected lifespan. *Human Nature*, *16*, 233–265. <https://doi.org/10.1007/s12110-005-1009-0>
- Conger, R. D., Wallace, L. E., Sun, Y., Simons, R. L., McLoyd, V. C., & Brody, G. H. (2002). Economic pressure in African American families: A replication and extension of the family stress model. *Developmental Psychology*, *38*, 179–193. <https://doi.org/10.1037/0012-1649.38.2.179>
- Crníc, K., & Low, C. (2002). Everyday stresses and parenting. In M. H. Bornstein (Ed.), *Handbook of parenting: Practical issues in parenting* (Vol. 5, 2nd ed., pp. 243–267). Mahwah, NJ: Lawrence Erlbaum.
- Del Giudice, M. (2009). Sex, attachment, and the development of reproductive strategies. *Behavioral and Brain Sciences*, *32*, 1–67. <https://doi.org/10.1017/S0140525X09000016>
- Del Giudice, M., & Belsky, J. (2011). The development of life history strategies: Toward a multi-stage theory. In D. M. Buss & P. H. Hawley (Eds.), *The evolution of personality and individual differences* (pp. 154–176). New York, NY: Oxford University Press.
- Del Giudice, M., Gangestad, S. W., & Kaplan, H. S. (2016). Life history theory and evolutionary psychology. In D. M. Buss (Ed.), *The handbook of evolutionary psychology* (2nd ed., pp. 88–114). New York, NY: Wiley.
- Ellis, B. J. (2004). Timing of pubertal maturation in girls: An integrated life history approach. *Psychological Bulletin*, *130*, 920–958. <https://doi.org/10.1037/0033-2909.130.6.920>
- Ellis, B. J., Bates, J. E., Dodge, K. A., Fergusson, D. M., Horwood, L. J., Pettit, G. S., & Woodward, L. (2003). Does father absence place daughters at special risk for early sexual activity and teenage pregnancy? *Child Development*, *74*, 801–821. <https://doi.org/10.1111/1467-8624.00569>
- Ellis, B. J., & Essex, M. J. (2007). Family environments, adrenarche, and sexual maturation: A longitudinal test of a life history model. *Child Development*, *78*, 1799–1817. <https://doi.org/10.1111/j.1467-8624.2007.01092.x>
- Ellis, B. J., Figueredo, A., Brumbach, B., & Schlomer, G. (2009). Fundamental dimensions of environmental risk: The impact of harsh versus unpredictable environments on the evolution and development of life history strategies. *Human Nature*, *20*, 204–268. <https://doi.org/10.1007/s12110-009-9063-7>
- Fearon, P. R. M., & Belsky, J. (2016). Precursors of attachment security. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (3rd ed., pp. 291–313). New York, NY: Guilford.
- Florsheim, P., Tolan, P. H., & Gorman-Smith, D. (1996). Family processes and risk for externalizing behavior problems among African American and Hispanic boys. *Journal of Consulting and Clinical Psychology*, *64*, 1222–1230. <https://doi.org/10.1037/0022-006X.64.6.1222>
- Gangestad, S. W., & Simpson, J. A. (2000). The evolution of human mating: Trade-offs and strategic pluralism. *Behavioral and Brain Sciences*, *23*, 573–644. <https://doi.org/10.1017/S0140525X0000337X>

- Geary, D. C. (2000). Evolution and proximate expression of human paternal investment. *Psychological Bulletin*, *126*, 55–77. <https://doi.org/10.1037/0033-2909.126.1.55>
- George, C., Kaplan, N., & Main, M. (1985). *The adult attachment interview* (Unpublished protocol). Department of Psychology, University of California, Berkeley, CA.
- George, C., & Solomon, J. (2008). The caregiving system: A behavioral systems approach to parenting. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (2nd ed., pp. 833–856). New York, NY: Guilford Press.
- Grafen, A. (1990). Biological signals as handicaps. *Journal of Theoretical Biology*, *144*, 517–546. [https://doi.org/10.1016/S0022-5193\(05\)80088-8](https://doi.org/10.1016/S0022-5193(05)80088-8)
- Gray, P. B., & Anderson, K. G. (2010). *Fatherhood: Evolution and human paternal behavior*. Cambridge, MA: Harvard University Press.
- Griskevicius, V., Ackerman, J. M., Cantú, S. M., Delton, A. W., Robertson, T. E., Simpson, J. A., ... Tybur, J. M. (2013). When the economy falters do people spend or save? Responses to resource scarcity depend on childhood environments. *Psychological Science*, *24*, 197–205. <https://doi.org/10.1177/0956797612451471>
- Hill, K., & Hurtado, A. M. (1996). *Ache life history: The ecology and demography of a foraging people*. Hawthorne, NY: Aldine de Gruyter.
- Hinde, R. A. (1986). Some implications of evolutionary theory and comparative data for the study of human prosocial and aggressive behaviour. In D. Olweus, J. Block, & M. Radke-Yarrow (Eds.), *Development of anti-social and prosocial behaviour* (pp. 13–32). Orlando, FL: Academic Press.
- Kaplan, H., & Gangestad, S. W. (2005). Life history theory and evolutionary psychology. In D. M. Buss (Ed.), *The handbook of evolutionary psychology* (pp. 68–95). Hoboken, NJ: John Wiley & Sons.
- Kerr, D. C. R., Capaldi, D. M., Pears, K. C., & Owen, L. D. (2009). A prospective three-generational study of fathers' constructive parenting: Influences from family of origin, adolescent adjustment, and offspring temperament. *Developmental Psychology*, *45*, 1257–1275. <https://doi.org/10.1037/a0015863>
- Main, M., & Goldwyn, R. (1998). *Adult attachment rating and classification systems (version 6)* (Unpublished manuscript). University of California, Berkeley, CA.
- McLoyd, V. C. (1990). The impact of economic hardship on Black families and children: Psychological distress, parenting, and socio-emotional development. *Child Development*, *61*, 311–346. <https://doi.org/10.1111/j.1467-8624.1990.tb02781.x>
- McLoyd, V. C. (1998). Socioeconomic disadvantage and child development. *American Psychologist*, *53*, 185–204. <https://doi.org/10.1037/0003-066X.53.2.185>
- Miller, G. E., & Chen, E. (2013). The biological residue of childhood poverty. *Child Development Perspectives*, *7*, 67–73. <https://doi.org/10.1111/cdep.12021>
- Nettle, D. (2010). Dying young and living fast: Variation in life history across English neighborhoods. *Behavioral Ecology*, *21*, 387–395. <https://doi.org/10.1093/beheco/arp202>
- Nettle, D., Coall, D. A., & Dickins, T. E. (2011). Early-life conditions and age at first pregnancy in British women. *Proceedings of the Royal Society B*, *278*, 1721–1727. <https://doi.org/10.1098/rspb.2010.1726>
- Obama, B. (1995). *Dreams from my father*. New York, NY: Times Books.
- Promislow, D. E. L., & Harvey, P. H. (1990). Living fast and dying young: A comparative analysis of life-history variation among mammals. *Journal of Zoology*, *220*, 417–437. <https://doi.org/10.1111/j.1469-7998.1990.tb04316.x>
- Quinlan, R. J. (2003). Father absence, parental care, and female reproductive development. *Evolution and Human Behavior*, *24*, 376–390. [https://doi.org/10.1016/S1090-5138\(03\)00039-4](https://doi.org/10.1016/S1090-5138(03)00039-4)
- Quinlan, R. J. (2007). Human parental effort and environmental risk. *Proceedings of the Royal Society B*, *274*, 121–125. <https://doi.org/10.1098/rspb.2006.3690>
- Raby, K. L., Cicchetti, D., Carlson, E. A., Egeland, B., & Collins, A. W. (2013). Genetic contributions to continuity and change in attachment security: A prospective, longitudinal investigation from infancy to young adulthood. *Journal of Child Psychology and Psychiatry*, *54*, 1223–1230. <https://doi.org/10.1111/jcpp.12093>
- Roisman, G. I., Madsen, S. D., Hennighausen, K. H., Sroufe, L. A., & Collins, A. W. (2001). The coherence of dyadic behavior across parent–child and romantic relationships as mediated by the internalized representation of experience. *Attachment and Human Development*, *3*, 156–172. <https://doi.org/10.1080/14616730126483>
- Roney, J. (2016). Evolutionary psychology and endocrinology. In D. M. Buss (Ed.), *The handbook of evolutionary psychology* (2nd ed., pp. 1067–1083). New York, NY: Wiley.
- Schachner, D. A., & Shaver, P. R. (2004). Attachment dimensions and sexual motives. *Personal Relationships*, *11*, 179–195. <https://doi.org/10.1111/j.1475-6811.2004.00077.x>
- Shaffer, A., Burt, K. B., Obradovic, J., Herbers, J. E., & Masten, A. S. (2009). Intergenerational continuity in parenting quality: The mediating role of social competence. *Developmental Psychology*, *45*, 1227–1240. <https://doi.org/10.1037/a0015361>
- Simpson, J. A., & Belsky, J. (2016). Attachment theory within a modern evolutionary framework. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (3rd ed., pp. 91–116). New York, NY: Guilford.
- Simpson, J. A., & Campbell, L. (2013). The waving of the relationship flag. In J. A. Simpson & L. Campbell (Eds.), *The Oxford handbook of close relationships* (pp. 825–827). New York, NY: Oxford University Press.



- Simpson, J. A., Griskevicius, V., Kuo, S. I. C., Sung, S., & Collins, W. A. (2012). Evolution, stress, and sensitive periods: The influence of unpredictability in early versus late childhood on sex and risky behavior. *Developmental Psychology, 48*, 674–686. <https://doi.org/10.1037/a0027293>
- Simpson, J. A., Griskevicius, V., Szepeswol, O., & Young, E. S. (2017). An evolutionary life history perspective on personality and mating strategies. In A. T. Church (Ed.), *The Praeger handbook of personality across cultures. Volume 3: Evolutionary, ecological, and cultural contexts of personality* (pp. 1–29). Santa Barbara, CA: Praeger.
- Sroufe, L. A., Egeland, B., Carlson, E. A., & Collins, W. A. (2005). *The development of the person: The Minnesota study of risk and adaptation from birth to adulthood*. New York, NY: Guilford Press.
- Stearns, S. (1992). *The evolution of life histories*. Oxford, England: Oxford University Press.
- Szepeswol, O., Griskevicius, V., Simpson, J. A., Young, E. S., Fleck, C., & Jones, R. E. (2017). The effect of predictable early childhood environments on sociosexuality in early adulthood. *Evolutionary Behavioral Sciences, 11*, 131–145. <https://doi.org/10.1037/ebs0000082>
- Szepeswol, O., Simpson, J. A., Griskevicius, V., & Raby, K. L. (2015). The effect of unpredictable early childhood environments on parenting in adulthood. *Journal of Personality and Social Psychology, 109*, 1045–1067. <https://doi.org/10.1037/pspi0000032>
- Trivers, R. L. (1972). Parental investment and sexual selection. In B. Campbell (Ed.), *Sexual selection and the descent of men: 1871–1971* (pp. 136–179). Chicago, IL: Aldine.
- Van IJzendoorn, M. H. (1995). Adult attachment representations, parental responsiveness, and infant attachment: A meta-analysis on the predictive validity of the adult attachment interview. *Psychological Bulletin, 117*, 387–403. <https://doi.org/10.1037/0033-2909.117.3.387>
- Wood, W., & Eagly, A. (2012). Biosocial construction of sex differences and similarities in behavior. In J. M. Olson & M. P. Zanna (Eds.), *Advances in experimental social psychology* (Vol. 46, pp. 55–123). New York, NY: Academic Press.

**How to cite this article:** Simpson JA. Bringing life history theory into relationship science. *Pers Relationship*. 2019;26:4–20. <https://doi.org/10.1111/pere.12269>