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In Defense of Parenthood: Children Are Associated With More Joy Than Misery

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Abstract

Recent scholarly and media accounts paint a portrait of unhappy parents who find remarkably little joy in taking care of their children, but the scientific basis for these claims remains inconclusive. In the three studies reported here, we used a strategy of converging evidence to test whether parents evaluate their lives more positively than do nonparents (Study 1), feel relatively better than do nonparents on a day-to-day basis (Study 2), and derive more positive feelings from caring for their children than from other daily activities (Study 3). The results indicate that, contrary to previous reports, parents (and especially fathers) report relatively higher levels of happiness, positive emotion, and meaning in life than do nonparents.

Keywords

emotions, happiness, life satisfaction, meaning, well-being

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Modern evolutionary psychologists position parenting at the top of the pyramid of human needs to reflect its central role in human life (Kenrick, Griskevicius, Neuberg, & Schaller, 2010). Yet some research has indicated that parenting is associated with reduced well-being (Evenson & Simon, 2005; Kahneman, Krueger, Schkade, Schwarz, & Stone, 2004; McLanahan & Adams, 1987). In particular, attention has revolved around a single study showing that working mothers in Texas enjoy parenting less than watching TV, shopping, or preparing food (Kahneman et al., 2004).

Although recent media accounts paint a dismal picture of parenting, the underlying scientific research is surprisingly unclear and inconsistent. Meta-analyses have linked parenthood to lower marital satisfaction on average (Twenge, Campbell, & Foster, 2003) and to decreases in life satisfaction in the months after childbirth (Luhmann, Hofmann, Eid, & Lucas, 2012). Few analyses, however, have directly compared parents and nonparents on global measures of well-being. Instead, most investigations control for multiple demographic variables, which vary across studies. Some of these studies have found that parents exhibit a higher prevalence of depression (Evenson & Simon, 2005), along with less positive and more negative affect (Ross & Van Willigen, 1996), than do nonparents, whereas others reveal a net zero or small negative parenting effect (e.g., Blanchflower & Oswald, 2004; Di Tella, MacCulloch, & Oswald, 2003; Ferrer-i-Carbonell, 2005). Furthermore, other work suggests that parents do not experience these negative outcomes (Keizer, Dykstra, & Poortman, 2010;

Kohler, Behrman, & Skytthe, 2005; Rothrauff & Cooney, 2008) and, on the contrary, report enhanced feelings of meaning, gratification, and reward (Russell, 1974; Umberson & Gove, 1989; White & Dolan, 2009). Such conflicting findings could be due to the use of divergent methods and measures, which makes it almost impossible to draw clear conclusions from this literature. The importance of this topic and its prominence in popular discourse demonstrates the need for rigorous examination of the link between parenthood and well-being, using multiple methods and broad well-being measures.

To this end, we present three distinct studies that harnessed the strongest methodologies currently available to examine the relationship between parenting and well-being. Specifically, we used a large, nationally representative survey to test whether parents are happier overall than nonparents (Study 1), and we employed an experience-sampling study to test whether parents feel better on a moment-to-moment basis than nonparents do (Study 2). Finally, in Study 3, we used a within-subjects approach to examine whether parents derive more positive feelings from taking care of their children than from their other daily activities. This multimethod strategy allowed us to capture the emotional experience of parenthood more comprehensively while triangulating on the pros and cons of each individual

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methodology, thereby bolstering the reliability of our conclusions. Across methods, we sought converging evidence for the hypothesis that children are associated with happiness and meaning rather than with misery.

Study I

Method

Participants. To test whether parents are happier overall compared with nonparents, we examined data from four waves of a nationally representative sample of U.S. respondents ($N = 6,906$; 52.7% female, 47.3% male) who completed the World Values Survey (WVS; World Values Survey Association, 2006). The four waves of data collection occurred in 1982, 1990, 1995, and 1999, and each respondent participated only once. Respondents' ages ranged from 17 to 96 years ($M = 44.33$, $SD = 18.29$). We chose to use this survey to test the link between parenthood and well-being because (a) respondents are a nationally representative sample, (b) the survey includes appropriate well-being and demographic variables, and (c) it has been used successfully by multiple researchers (Brandt, 2011; Napier & Jost, 2008; Oishi, Diener, Lucas, & Suh, 1999; Suh, Diener, Oishi, & Triandis, 1998).

Materials and procedure. Data were collected via in-person interviews at each wave. The sampling procedures varied slightly by wave; however, the World Values Survey Association (2006) reported that the use of stratified or random sampling procedures resulted in a final sample for each wave that was representative of the population. Initial analyses revealed no significant differences among wave years and no significant interactions between parenthood status and wave year for any of our well-being indicators (happiness, life satisfaction, and thoughts about meaning in life; all $ps > .40$). Consequently, for all subsequent analyses, respondents were collapsed across wave year.

Respondents provided demographic information, including their age, marital status, and sex and how many children they had (among respondents who were parents, $M = 2.68$, $SD = 1.47$). In addition, participants completed single-item measures of happiness, life satisfaction, and thoughts about meaning in life. Happiness was assessed by asking participants how happy they were, "taking all things together," (1 = *very happy*, 2 = *quite happy*, 3 = *not very happy*, 4 = *not at all happy*). Responses were reverse-coded so that higher scores indicated higher levels of happiness. Life satisfaction was assessed by asking participants, "All things considered, how satisfied are you with your life as a whole these days?" They responded on a 10-point scale ranging from 1 (*dissatisfied*) to 10 (*satisfied*). Finally, thoughts about meaning in life were assessed by asking participants, "How often, if at all, do you think about the meaning and purpose of life?" Responses were made on a scale ranging from 1 (*often*) to 4 (*never*); we reverse-scored responses so that higher scores indicated more

frequent thoughts about meaning in life. Single-item measures of well-being have been found to be reasonably valid, correlating moderately with other well-being measures, including written interviews, informant reports, and measures of daily affect (Sandvik, Diener, & Seidlitz, 1993). Indeed, research using the WVS found these single-item measures of well-being to be positively related to affect balance and positive affect, and inversely related to negative affect (Suh et al., 1998).

Results

First, we assessed the direct link between parenthood and well-being. As Figure 1 shows, parents reported higher levels of life satisfaction, $t(6844) = 4.35$, $p < .001$, $r = .05$, happiness, $t(6791) = 2.90$, $p = .004$, $r = .04$, and thoughts about meaning in life than did nonparents, $t(6805) = 3.70$, $p < .001$, $r = .04$. Likewise, correlational analyses showed that having more children was related to greater life satisfaction, $r(6438) = .06$, $p < .001$, and thoughts about meaning, $r(6399) = .05$, $p < .001$, but not to greater happiness. However, these analyses were limited, as potential confounds (such as age) may have been present. Although circumstantial variables have not been consistently related to well-being (Diener, Suh, Lucas, & Smith, 1999), other researchers have treated demographic factors (e.g., parent's age, sex, and marital status) as potential confounds and controlled for them in their analyses. Our goal was to describe the overall relationship between parenthood and well-being, and to explore potential moderators of that relationship, rather than isolating the causal effect of parenthood on well-being by controlling for variables that might be meaningfully or artifactually related to parental status. We included these variables as moderators in our analyses to gain a better understanding of how the emotional experience of parenthood is related to such demographic variables as parent's sex (Table 1), marital status (Table 2), and age (Table 3).¹

Sex of the parent as a moderator. Parent's sex significantly moderated the relation of parenthood to life satisfaction ($b = 0.07$, $p = .009$) and happiness ($b = 0.02$, $p = .005$), but not to thoughts about meaning. Whereas all parents reported more frequent thoughts about meaning than nonparents did, simple-effects analyses revealed that parenthood was associated with increased satisfaction ($b = 0.36$, $p < .001$) and happiness ($b = 0.10$, $p < .001$) only among fathers.

Marital status as a moderator. Marital status also significantly moderated the relation of parenthood to life satisfaction ($b = 0.08$, $p = .003$) and happiness ($b = 0.04$, $p < .001$), but not to thoughts about meaning. Although the trend was in the expected direction, married parents did not differ in satisfaction ($b = 0.06$, $p = .13$) or happiness ($b = 0.02$, $p = .17$) from married people without children, but unmarried parents reported lower happiness ($b = -0.11$, $p < .001$) and satisfaction ($b = -0.21$, $p = .006$) than did their childless counterparts.

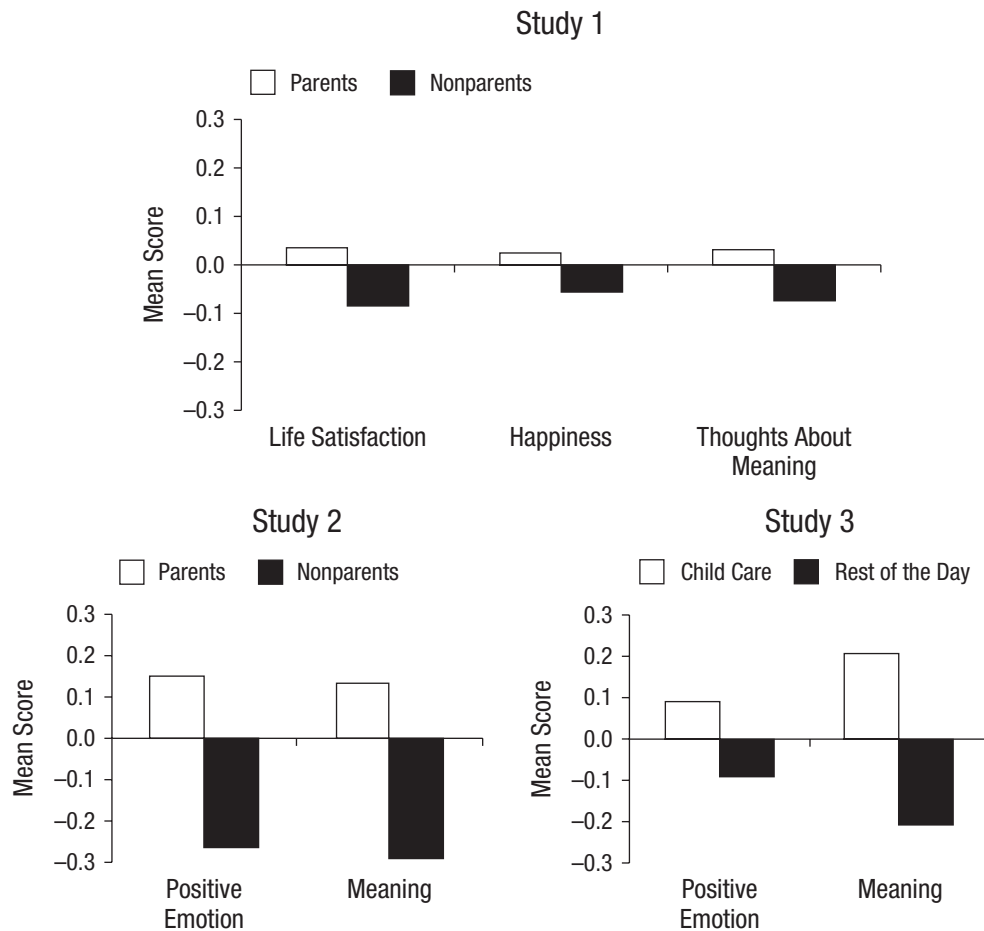


Fig. 1. Mean scores for variables in Studies 1 through 3. For Studies 1 and 2, means for parents and nonparents are shown separately. For Study 3, means for two different times of day (when parents were caring for their children and during the rest of the day) are shown separately. The figure shows standardized means to facilitate comparisons across studies.

Parent’s age as a moderator. Finally, parent’s age significantly moderated the link between parenthood and life satisfaction ($b = 0.01, p < .001$) but not between parenthood and happiness or thoughts about meaning. Simple-effects analyses

revealed that young parents (ages 17–25) were less satisfied with their lives than their childless counterparts were ($b = -0.39, p < .001$), midrange-age parents (ages 26–62) were more satisfied than their childless peers were ($b = 0.42,$

Table 1. Parent’s Sex as a Moderator of Outcome Variables in Study 1

Predictor	Satisfaction ($n = 6,807$)		Happiness ($n = 6,754$)		Thoughts about meaning ($n = 6,769$)	
	<i>b</i>	<i>p</i>	<i>b</i>	<i>p</i>	<i>b</i>	<i>p</i>
Parent’s sex	-0.02	.55	-0.01	.25	-0.08	< .001
Parenthood	0.11	< .001	0.02	.005	0.03	.003
Parenthood × Parent’s Sex	0.07	.009	0.02	.005	0.01	.21

Note: Parent’s sex and parenthood were effects-coded (males = 1, females = -1; parents = 1, nonparents = -1). Each model explained a significant amount of variance—satisfaction: $R^2 = .06, p < .001$; happiness: $R^2 = .002, p = .001$; thoughts about meaning: $R^2 = .011, p < .001$.

Table 2. Marital Status as a Moderator of Outcome Variables in Study 1

Predictor	Satisfaction (<i>n</i> = 6,828)		Happiness (<i>n</i> = 6,775)		Thoughts about meaning (<i>n</i> = 6,790)	
	<i>b</i>	<i>p</i>	<i>b</i>	<i>p</i>	<i>b</i>	<i>p</i>
Marital status	0.32	< .001	0.10	< .001	-0.03	.008
Parenthood	-0.02	.48	-0.02	.08	0.06	< .001
Parenthood × Marital Status	0.08	.003	0.04	< .001	0.004	.72

Note: Marital status and parenthood were effects-coded (married = 1, not married = -1; parents = 1, nonparents = -1). Each model explained a significant amount of variance—satisfaction: $R^2 = .03$, $p < .001$; happiness: $R^2 = .03$, $p < .001$; thoughts about meaning: $R^2 = .003$, $p < .001$.

$p < .001$), and older parents (ages 63 and older) did not differ from older nonparents in life satisfaction ($b = 0.16$, $p = .29$).

Discussion

Study 1 showed that, overall, parents report being happier, more satisfied, and thinking more about meaning in life than nonparents do. Notably, these overall relationships remained positive for fathers and parents between the ages of 26 and 62, but not for mothers, young parents, and single parents. Whereas young and single parents were significantly less happy than their childless peers, no difference was detected between mothers and women without children.

The study's strength was that we used a large, representative sample, which allowed us to detect important moderators. However, our global measures may have prompted parents to overestimate their well-being because of recall biases, dissonance reduction, or beliefs about the desirability of parenting (e.g., Eibach & Mock, 2011; Robinson & Clore, 2002). Furthermore, although parenthood was positively associated with all three global measures of positive well-being included in the WVS, the thinking-about-meaning question may have tapped the *search* for meaning, in addition to the *presence* of meaning (Steger, Frazier, Oishi, & Kaler, 2006); the results for this measure should therefore be interpreted with particular caution. In Study 2, we addressed both of these concerns by using experience sampling to assess moment-to-moment experiences and by incorporating a more valid measure of the presence of meaning.

Participants reported their emotions on five occasions per day for 1 week. We tested whether parents reported more positive emotional experiences and meaning in daily life than did nonparents.

Study 2

Method

Participants. The sample consisted of 329 adults (53% female, 47% male; age = 18–94 years, $M = 56.93$, $SD = 22.66$) drawn from three waves of data collection for an experience-sampling study on emotional experience in adulthood (Carstensen et al., 2011). Sixty-six percent of the participants were European American, 33% were African American, and 1% indicated “other” race. Gender, ethnicity, and socioeconomic status (SES) were stratified across age.

Materials and procedure. After obtaining informed consent and demographic information, we provided participants with an electronic pager and instructed them to complete a brief response sheet each time they were paged. Over the next 7 days, participants were randomly paged five times a day within a 12-hr window. Completed response sheets were returned by mail at the end of each day to monitor compliance. At the end of the week of experience sampling, participants completed reports of global well-being and were paid for their participation (see Carstensen et al., 2011, for a detailed description of the procedure).

Table 3. Parent's Age as a Moderator of Outcome Variables in Study 1

Predictor	Satisfaction (<i>n</i> = 6,816)		Happiness (<i>n</i> = 6,763)		Thoughts about meaning (<i>n</i> = 6,780)	
	<i>b</i>	<i>p</i>	<i>b</i>	<i>p</i>	<i>b</i>	<i>p</i>
Age	0.01	.001	0.00002	.97	0.00	.86
Parenthood	0.10	.001	0.03	.007	0.04	.002
Parenthood × Parent's Age	0.01	< .001	0.001	.22	0.00	.24

Note: Age was centered on mean age; parenthood was effects-coded (parents = 1, nonparents = -1). Each model explained a significant amount of variance—satisfaction: $R^2 = .01$, $p < .001$; happiness: $R^2 = .001$, $p = .02$; thoughts about meaning: $R^2 = .002$, $p = .001$.

Demographics. We assessed parenthood status with a question asking participants to indicate their number of children (among participants who were parents, $M = 2.41$, $SD = 1.27$). Participants were also asked about several additional demographic variables, including their age, sex, ethnicity, SES, and marital status.

Momentary well-being. Experience sampling was used to assess participants' momentary emotional well-being and sense of meaning in daily life. At each of the 35 occasions they were paged, participants indicated how much they were feeling each of 19 emotions on a scale from 1 (*not at all*) to 7 (*extremely*). The list included 8 positive emotions (happiness, joy, contentment, excitement, pride, accomplishment, interest, and amusement) and 11 negative emotions (anger, sadness, fear, disgust, guilt, embarrassment, shame, anxiety, irritation, frustration, and boredom). We created an index of overall positive emotional experience at each occasion by subtracting the average of the 11 negative emotions from the average of the 8 positive emotions for each participant. At Wave 3, participants were also asked to respond to the item, "In the bigger picture of your life, how personally significant and meaningful to you is what you are doing at the moment?" on a scale from 1 (*not at all*) to 7 (*very much*). We averaged across all sampling occasions to compute a single score for positive emotional experience and a single score for meaningfulness for each participant.

Global well-being. Global happiness was assessed with the 4-item Subjective Happiness Scale (Lyubomirsky & Lepper, 1999). Depressive symptoms were assessed with the 20-item Center for Epidemiologic Studies Depression Scale (Radloff, 1977) at Waves 2 and 3.

Results

Initial analyses revealed no significant interactions between parenthood status and wave year for any of our well-being indicators (all $ps > .40$). Consequently, respondents were collapsed across wave year for all subsequent analyses.

As in Study 1, we first examined the relationship between parenthood and well-being with t tests. Parents reported higher levels of global well-being, including more happiness, $t(325) = 2.68$, $p = .008$, $r = .15$, and fewer depressive symptoms, than did nonparents, $t(237) = 2.97$, $p = .003$, $r = -.19$. Parents also reported higher levels of momentary well-being, including more positive emotion, $t(327) = 3.64$, $p < .001$, $r = .20$, and more meaning in life, $t(176) = 2.60$, $p = .01$, $r = .19$, than did nonparents (see Fig. 1).

Parent's sex, age, race, and SES did not moderate the link between parenthood and any of the well-being indicators. However, because of the important moderating role of parent's sex (Keizer et al., 2010; Kohler et al., 2005), we examined the effects of parenthood separately for men and women. As in Study 1, parenthood was more consistently linked to increased well-being for men: Fathers scored higher than did childless men on all well-being indicators (all $ts > 2.30$ and $rs > .23$; Table 4). Mothers reported fewer depressive symptoms, $t(127) = 2.06$, $p = .04$, $r = 0.18$, and marginally more daily positive emotion, $t(171) = 1.86$, $p = .065$, $r = .14$, than did childless women (see Table 4). In addition, relationship status moderated the link between parenthood and depressive symptoms ($b = 1.41$, $p = .012$), such that parents without a partner reported fewer depressive symptoms than did nonparents without a partner, $t(127) = 2.95$, $p < .01$, $r = .25$.

Discussion

Building on Study 1, results of Study 2 showed that parents not only had higher levels of global well-being than did nonparents, but also reported more positive emotional experience and meaning from moment to moment. Thus, across Studies 1 and 2, parents reported relatively greater well-being than did their childless peers both when evaluating their lives as a whole and when rating their momentary experience. Still, we cannot rule out possible selection effects—namely, that happier people may be more likely to become parents. If our hypothesis that parenting is a source of well-being is correct,

Table 4. Differences in Well-Being Between Parents and Nonparents in Study 2

Sex and variable	Parents		Nonparents		t	p	r
	M	SD	M	SD			
Males							
Happiness	5.42	0.95	4.95	1.14	$t(158) = -2.78$	.01	.22
Depression	8.33	6.23	12.11	9.95	$t(108) = 2.45$	.02	-.23
Positive emotion	2.38	1.21	1.70	0.88	$t(154) = -3.63$	< .001	.29
Meaning	4.11	1.15	3.50	1.08	$t(84) = -2.39$	.02	.25
Females							
Happiness	5.42	0.99	5.27	1.18	$t(178) = 0.89$	.38	.07
Depression	10.62	6.92	13.73	9.84	$t(127) = 2.06$	.04	.18
Positive emotion	1.98	1.22	1.61	1.21	$t(171) = 1.86$	.07	.14
Meaning	4.47	1.10	4.22	1.08	$t(91) = 0.97$	.34	.10

then parents should experience more positive states when taking care of their children than when engaging in other daily activities.

Study 3

To address the issue of potential selection effects, in Study 3, we used a within-subjects approach, employing the day reconstruction method (DRM; Kahneman et al., 2004) to compare how parents felt when they were taking care of their children with how they felt during the rest of their days.

Method

Participants. One hundred eighty-six parents (76% women, 24% men; median age = 36 years) with at least one child 18 years old or younger living at home completed our relevant survey items as part of a larger study. We recruited 66 participants in person at public places in British Columbia, Canada, and 120 participants online (91 through Amazon's recruitment service Mechanical Turk² and 29 through local schools and our lab's Web site).

Materials and procedure. As part of a larger survey, parents were asked to report what they did on the previous day, episode by episode, using the DRM (Kahneman et al., 2004), which provides an alternative to experience sampling. For a predetermined set of eight episodes, we asked participants to report what they were doing during each episode from a list of 15 common daily activities (e.g., watching TV, cooking, taking care of children).

In addition, for each of the episodes, we asked participants to answer questions about positive emotions and meaning in life. As in the original DRM, the positive-emotion score was the average of three items: "happy," "warm-friendly," and "enjoying myself." Meaning in life was assessed with a single item for which participants were asked to rate the extent to which they felt "a sense of meaning and purpose in life" during the episode. A separate validation study with 161 parents (Ashton-James, Kushlev, & Dunn, 2011) confirmed that this single item was strongly correlated ($r = .83$) with a 4-item version of the Meaning in Life Questionnaire's Presence of Meaning subscale (Steger et al., 2006). All positive-emotion and meaning items were rated on a scale from 0 (*not at all*) to 6 (*very much*). We calculated two positive-emotion scores and two meaning scores for each parent: One for all episodes when they were taking care of their children and one for all episodes when they were not. This approach allowed us to compare positive emotion and meaning during child care with positive emotion and meaning during all other activities.

Results

Using paired-samples t tests, we found that, on average, parents reported more positive emotion when they were taking care of their children ($M_s = 4.19$, $SD_s = 1.20$) than when

they were not ($M_s = 3.96$, $SD_s = 1.22$), $t(176) = 2.16$, $p = .03$, $r = .16$. They also reported a stronger sense of meaning in life when they were taking care of their children ($M_s = 4.39$, $SD_s = 1.20$) than during all other activities ($M_s = 3.85$, $SD_s = 1.35$), $t(184) = 5.30$, $p < .001$, $r = .36$ (see Fig. 1). Parent's sex did not significantly moderate these results, but potential sex differences cannot be ruled out given the relatively small sample size of this study.

Discussion

Complementing the results from our first two studies, findings of Study 3 demonstrated that taking care of children was associated with greater positive emotion and meaning compared with the other activities parents performed on the same day. Our findings reveal a more positive picture of parenthood than do previous reports, most notably the findings of Kahneman et al. (2004), who used the DRM to evaluate the affective experience of 909 working women in Texas during a set of activities, including taking care of children. It should be noted, however, that the two sets of findings are not contradictory, given the differences in our samples and because we used a different analytic strategy. Kahneman and his colleagues obtained an average positive-affect score for each activity across all participants—both parents and nonparents—and then rank-ordered daily activities by positive affect. Using this approach, they found that taking care of children ranked toward the bottom of the list of daily activities in terms of positive affect. Their analytic strategy was appropriate given the broad goals of their research; hence, they did not report a focused statistical test of our hypothesis that taking care of children provides parents with more happiness, on average, than their other day-to-day activities do.

By contrast, we used a within-subjects analytic strategy by calculating two positive-emotion scores (as well as two meaning scores) for each parent: One for all episodes when the parents were taking care of their children and one for all episodes when they were not taking care of their children. This approach allowed us to compare each parent's score during child care with the same parent's score during other activities the parent engaged in during the day. Thus, we were able to examine whether individual parents experienced higher or lower well-being when taking care of their children than during all other activities they engaged in during the day.

General Discussion

Although the methods in each of our three studies had clear limitations, the consistency of findings across these studies provides strong evidence challenging the widely held perception that children are a source of reduced well-being. To the contrary, parents as a group reported being happier and more satisfied, and thinking more frequently about meaning in life than did their counterparts without children, although this overall pattern was qualified by several demographic moderators (Study 1). Furthermore, compared with nonparents, parents

reported relatively more positive emotion and more meaningfulness on a moment-to-moment basis (Study 2). Finally, parents experienced levels of positive emotion and meaning during child care that significantly exceeded their own daily average (Study 3). Notably, across all three studies, all parents reported higher levels of meaning than did nonparents. In short, our results dovetail with emerging evolutionary perspectives that depict parenting as a fundamental human need (Kenrick et al., 2010).

It is important to note, however, that many of our effect sizes were small, which is unsurprising given the heterogeneity of parents and parenting experiences. Indeed, the present research speaks to this heterogeneity by showing that demographic variables moderated the overall effects of parenting on well-being. In particular, across Studies 1 and 2, fathers were significantly happier than their childless peers were, but mothers mostly showed neither a cost nor a benefit of parenthood. This result is not unexpected, as the pleasures of parenting may be offset by the surge in responsibility and housework that arrives with motherhood (Nomaguchi & Milkie, 2003). Furthermore, parents who were young or unpartnered reported lower levels of happiness and satisfaction than did their childless peers. Yet, like their older or partnered counterparts, they reported experiencing relatively high levels of meaning in life. These findings are consistent with previous research suggesting that young parents, as well as parents with young children at home (who are typically younger themselves), report lower levels of well-being and more stress than do their peers without children (Mirowsky & Ross, 2002; Nomaguchi & Milkie, 2003; Umberson & Gove, 1989).

Happiness is a central life goal for people around the world and has been associated with numerous positive outcomes for work, relationships, and health (Lyubomirsky, King, & Diener, 2005). Consequently, one implication of our research is that if parenthood is associated with happiness, children may benefit as well. Indeed, positive parental factors, such as emotional expression (Haviland & Lelwica, 1987), involvement and warmth (Klein & Forehand, 2000), and self-regulation (Park & Peterson, 2006) have been associated with positive outcomes for children.

Although it is impossible to randomly assign people to become parents, thereby precluding strong causal inferences, we believe that the present findings may be revealing to the general public, especially for those planning a family. Contrary to repeated scholarly and media pronouncements, people may find solace that child care may actually be linked to feelings of happiness and meaning in life.

Declaration of Conflicting Interests

The authors declared that they had no conflicts of interest with respect to their authorship or the publication of this article.

Notes

1. All moderator analyses in Studies 1 and 2 were conducted using effects coding (Cohen, Cohen, West, & Aiken, 2003).

2. Sixty-three additional Mechanical Turk participants were excluded for failing the instructional manipulation check, a validated tool for eliminating participants not following instructions; this elimination rate is consistent with such rates in past online research (Oppenheimer, Meyvis, & Davidenko, 2009).

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