

What We Don't Expect When Expecting: Evidence for Heterogeneity in Subjective Well-Being in Response to Parenthood

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A recent article in *New York Magazine* echoed what psychological studies of parenthood have consistently demonstrated since the 1970s: “Most people assume that having children will make them happier. Yet a wide variety of academic research shows that parents are not happier than their childless peers, and in many cases are less so” (Senior, 2010). There is consistent evidence that, as opposed to other life events that cause transient disruptions in life satisfaction, becoming a parent appears to cause harm to individual subjective well-being (Twenge, Campbell, & Foster, 2003), and that this harm is sustained over time (Clark, Diener, Georgellis, & Lucas, 2008). The current investigation was predicated on the concern that these findings may be the result of the methodology used to examine them. As the experience of parenthood does not represent a unified phenomenon, we employed a methodological approach that allows for the exploration of heterogeneity as well as its predictors. By modeling heterogeneous trajectories within a prospective design from 4 years prior to 4 years after the birth of a parent's first child, we find that the majority of individuals (84.2%) demonstrate no long-term effects on life satisfaction in response to childbirth. Only a small percentage demonstrate the sustained declines (7.2%), and a significant cohort, previously unobserved in the literature, demonstrate dramatic and sustained improvements in response to parenthood (4.3%), providing compelling evidence for heterogeneity in life satisfaction among parents. Key demographic covariates that distinguish between trajectories of response are also explored.

Keywords: parenthood, subjective well-being, latent growth mixture modeling, individual differences

Psychological research on the experience of parenthood has produced seemingly paradoxical findings. On the one hand, parenthood is highly valued for its hedonic benefits (Gilbert, 2006; Powdthavee, 2009) and parents frequently describe a diversity of emotional experiences ranging from ecstatic joy to unrelenting frustration. On the other hand, however, parenthood consistently demonstrates a negative effect on subjective well-being (SWB; LeMasters, 1957; Rossi, 1968; Gove & Geerken, 1977; Glenn & Weaver, 1988; McLanahan & Adams, 1987). LeMasters (1957) was

perhaps the first to observe that the birth of a first child often causes a crisis in new parents, resulting in negative consequences for their mental health and impacting the quality of the spousal relationship. Subsequent studies have evinced similar negative findings. Parents were repeatedly found to be less happy and to garner less satisfaction in their day-to-day lives compared to nonparents (Twenge et al., 2003), despite evidence that demonstrates that parenthood comes with both social and psychological benefits that are typically correlated with SWB, such as generativity and achievement (Erikson, 1963), improved health (Umberson, 1987), and increased life expectancy (Kobrin & Hendershot, 1977). More recent studies have similarly demonstrated that parents decline in their day-to-day levels of happiness and life satisfaction after having a child, and are unable to regain prechildbirth levels even years later (Clark et al., 2008).

In fact, there appears to be evidence that having children generally comes with both negative and positive consequences for parents, and that there may be diversity in the effects of parenthood depending on conditions such as marital status at the time of birth. There is evidence that unmarried parents display more depression than their nonpar-

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ent counterparts but that married parents display less depression than those without children. Furthermore, parenthood has a marked effect on marital strife, and parenthood generally appears to have little effect on the lives of fathers (Nomaguchi & Milkie, 2003). Still, with regard to distress and life satisfaction, there is consistent evidence that parenthood has a detrimental impact on life satisfaction (Barnett & Baruch, 1985; Glenn & McLanahan, 1982; Ross & Van Willigen, 1996), or, at the very least, parenthood makes no impact at all (Baruch, Barnett, & Rivers, 1983; Wethington & Kessler, 1989).

Analyses of the psychological effects of parenthood often rely on cross-sectional techniques comparing parents to nonparent counterparts. This methodology may be problematic, as it precludes analyses of change in response to childbirth. However, longitudinal studies have also demonstrated consistent detrimental costs in terms of relationship functioning beginning as early as pregnancy (Cowan & Cowan, 2000; Grote & Clark, 2001; Rholes, Simpson, Campbell, & Grich, 2001). Longitudinal studies utilizing a prospective design beginning before childbirth have confirmed cross-sectional findings. Using the German Socio-Economic Panel Data Set, Clark et al. (2008) demonstrated that parents decline significantly in response to childbirth on a measure of SWB and that this decline is sustained. Similarly, Doss and colleagues demonstrated that relationship functioning declines significantly and rapidly for both mothers and fathers following childbirth (Doss, Rhoades, Stanley, & Markman, 2009).

The negative effects of parenthood have most recently been investigated in relation to set point theory, a body of research that has examined patterns of SWB in response to major life events. Individual levels of SWB have been shown to remain stable over time around an individual "set point," with fluctuations occurring only surrounding major life events (Diener, Suh, Lucas, & Smith, 1999). Theorists maintain that people respond to major life events with fluctuation in SWB but typically return to baseline levels within about three months (Suh, Diener, & Fujita, 1996). This pattern has been observed in response to events as varied as marriage, winning the lottery, surviving an accident, getting a divorce, or the death of a spouse (Brickman & Campbell, 1971; Brickman, Coates, & Janoff-Bulman, 1978; Suh et al., 1996).

Despite the above demonstrated patterns of response, childbirth has consistently been shown to be an anomalous case in which individual levels of SWB decline in response to the event and do not return to pre-event levels until their children leave home (Walker, 1977; Myers, 1992; Powdthavee, 2009). Clark et al. (2008) presented the most convincing data to date on this point because—unlike many past studies of SWB in response to parenthood that were limited by both the use of relatively small samples and a lack of data on parents prior to the birth of their first child—they used longitudinal data from a large representative panel data set (Haisken-DeNew & Frick, 2003). As a result, they were able to utilize a full treatment of demographic variables and capitalize on a large sample with prechildbirth prospective data. Together, these findings appeared

to indicate that, on average, parenthood represented a unique case that defied the normal return to set point seen in other SWB studies.

It is important to note, however, that data on average responses to important life events can be misleading (Bonanno, Brewin, Kaniasty, & La Greca, 2010; Bonanno & Mancini, in press). As a considerable body of research has demonstrated, although average scores often indicate either a sharp and persistent decline in SWB or a sharp and persistent incline in stress-related symptomatology, these patterns often fail to represent the course of outcome for most people following important life events (Bonanno et al., 2008; Bonanno, Moskowitz, Papa, & Folkman, 2005; Bonanno, Rennie, & Dekel, 2005; deRoon-Cassini, Mancini, Rusch, & Bonanno, 2010; Deshields, Tibbs, Fan, & Talyer, 2006; Galatzer-Levy & Bonanno, 2011; Galatzer-Levy & Bonanno, 2011b; Galatzer-Levy, Bonanno, & Mancini, 2010; Lam et al., 2010). Rather, as this body of research suggests, longitudinal outcomes following such events are best represented by a small set of prototypical outcome trajectories, including strong and enduring reactions, short-lived reactions, and a relative absence of reaction (Bonanno, 2004; Bonanno et al., 2010).

The literature on transitions to parenthood has long expressed caution regarding analyses of central tendencies that demonstrate an overall negative impact of parenthood. Belsky, Spanier, and Rovine (1983) demonstrated that while mean trajectories reveal that parenthood consistently causes a negative impact on the marital functioning, dyadic adjustment, and marital interaction, there are clear individual differences that emerge when using other analytic techniques. In particular, individuals who started off higher on these variables prior to parenthood remained so.

To explore this issue further in the current investigation, we adopted a comparative individual differences framework. Specifically, we revisited the question of parenthood's impact on SWB using the same large prospective data set utilized by Clark et al. (2008). Instead of assuming population homogeneity in response to childbirth, we explored heterogeneity by identifying multiple independent trajectories of response over this same time period, derived from latent growth mixture models (LGMM) analyses. We predicted that, consistent with previous literature, these trajectories would offer a better fit to the data than a simple single-trajectory solution. Additionally, we anticipated that the most common pattern would not be one of enduring loss in SWB after childbirth but, rather, a trajectory that describes generally positive adjustment and little or no disruption in functioning either before or after the birth of a child, similar to that seen in research on human resilience (Bonanno, 2004).

Predictors of Change in SWB After the Birth of a First Child

An important distinction when studying parenthood in comparison to other events that have been addressed in the SWB literature is that parenthood does not represent a discrete event. As such, emergent stressors tend to remain.

We chose predictors from those available in the data set that have been previously demonstrated by the literature to have effects on SWB as well as stress in parenthood. Owing to constraints inherent in the data set, we were limited to broad characteristics and demographics. That being said, it has been noted that individual risk factors may have a cumulative effect on well-being in relationships (Rauer, Karney, Garvan, & Hou, 2008). As such, our modeling strategy reflects recommendations that risk factors be analyzed in a manner that allows for their covariation.

Income has been shown to have mixed effects on individual levels of SWB both in response to parenthood and generally. Specifically, individuals of extremely low socioeconomic status experience significantly lower levels of SWB; however, the difference between individuals with sufficient levels of income and individuals with high levels of income is negligible (Van Boven & Gilovich, 2003; Frank, 2004). Furthermore, psychological transitions in parenthood have been shown to be impacted by prechildbirth sociological factors such as income (Belsky & Rovine, 1990; Rauer et al., 2008). As such, we examined the effects of income immediately prior to the birth of the first child.

Education is another factor that is important to account for in the model. There is evidence that educational attainment may affect satisfaction in the context of marriage (Bahr & Galligan, 1984). The effect of education, however, may be small in the context of other risk factors (Rauer et al., 2008). However, in the context of parenthood, educated parents may generally be better prepared for parenthood (Joshi, 2002). This may have direct effects on SWB in the context of parenthood. As such, it is important to assess the effects of these characteristics on our model of the course of SWB in response to parenthood, especially in the context of other risk factors.

As responsibilities in parenthood tend to vary by gender of the parent, we also included this variable in our analyses. Much of the past literature has demonstrated that women bear the bulk of the parenting costs. Umberson and Gove (1989) describe how mothers tend to take on the role of primary caretaker and, therefore, the burden of the daily demands a child requires. Beyond the more sociological findings that division of labor can impact SWB in parenthood, there is strong evidence that the degree to which expectations in child rearing match the division of labor by gender can strongly impact SWB in parents, particularly for women (Milkie, Bianchi, Mattingly, & Robinson, 2002). Furthermore, there is evidence for gender differences in the experience of support in the relationship, where women report experiencing less support from their spouses (Neff & Karney, 2005). This experience can be of particular impact around parenting. As the literature indicates that women tend to take the largest hit in SWB as a result of daily stressors, experience of support, and the observed mismatch between expectations and reality in the division of labor associated with parenthood, we predicted that gender would be a strong predictor of SWB, where women would display lower levels of SWB in response to parenthood.

Similarly, marital status appears to have high predictive value on SWB for both parents and nonparents, as marriage

has been shown to positively impact SWB (Powdthavee, 2009). Married parents who are living together have shown greater physical and psychological well-being than single parents who have lost a spouse due to death or divorce (Lee, Law, & Tam, 1999). Single parents may be at a disadvantage in comparison to their married counterparts in terms of household income, social functioning, intimate relationships, and social support (Lee et al., 1999), all of which can potentially result in costs to SWB.

Based on these criteria, we explored the effects of the following variables on trajectories of SWB in response to parenthood: gender, marital status, income, and education. The impact of these variables may be closely related to other known stressors. For example, the less educated tend to have less income. As many of these characteristics are closely related, it is important to measure their impact in one model to assess which characteristics are truly impacting levels of SWB after the birth of a child. When choosing covariates, we were aware that any number of individual characteristics could have predictive power on SWB during parenthood, as parenthood is a diverse and complex experience. Due to the nature of a large representative data set, we are able to measure the impact of large social trends but lose the nuance of a small, focused data set. As such, we attempted to choose covariates that would have the greatest use value in assessing who will have the best course in terms of broader societal trends.

Method

Participants and Procedure

Participants for this study were part of the first 20 waves of the German Socioeconomic Panel Study (GSEOP: Haisken-DeNew & Frick, 2003) from 1984–2003, a nationally representative study of German households identified through a multistage random sampling method ($N = 16,795$). All members of the household were asked to participate in annual face-to-face interviews. Data collection addressed a variety of topics, including employment, marital status, life events, health, income, and educational attainment. Response rates were good (60–70%), and attrition was low (from 3–13% per year).

We focused on the subset of the sample that reported experiencing the birth of a first child between 1985 and 2003, limiting the sample to 2,358 participants. The entire sample had approximately the same number of men and women (men = 50.8%) who were, on average, 31.16 years old ($SD = 8.35$), with 11.81 years of education ($SD = 2.67$) and an income of DM 8,433.60 ($SD = 10,540.11$), averaged across waves. There were 1,928 participants (81.8%) who were married at time of the birth of their first child. The sample had 934 couples for whom data was available for both partners. Most participants had at least 6 waves of data present (84.2%). Missing data were as follows: 8 waves, 4.6%; 7 waves, 0.6%; 6 waves, 1.4%; 5 waves, 2.5%; 4 waves, 6.7%; 3 waves, 12%; 2 waves, 13.2%; and 1 wave, 13.9%. For each life event, we analyzed 9 waves of data collected at yearly intervals (4 waves preevent, 1 wave the year of the event, and 4 waves postevent).

Measures

Demographics. At each wave of data collection, *gender* (1 = male, 2 = female), *educational attainment* (years of education), *marital status* (single at time of birth, married at time of birth), and *household income* were assessed. Because we were concerned with the impact of income on the trajectories, we chose to examine the impact of income just prior to childbirth. We chose to examine income prior to, rather than immediately following, childbirth because income in the first year of childbirth may misrepresent parent's overall resources, as income may temporarily dip in response to the demands that come with being a new parent.

Subjective Well-Being (SWB). Participants responded to the question, "How satisfied are you nowadays with your life as a whole?" Respondents rated this question on a scale of 0 (completely dissatisfied) to 10 (completely satisfied).

Statistical Analysis

Using Mplus 6.0, we employed LGMMs to analyze the effects of parenthood in modeling trajectories from 4 years prior to the event to 4 years following the event. We identified latent classes of parenthood response. Owing to the nature of the question, we utilized a three-part piecewise model, with strong results. A piecewise model allows for greater dimensionality without a sacrifice to interpretability (Flora, 2008). Within a piecewise model, multiple progressive linear slopes can be modeled in the place of a single slope covering all time points. Dichotomous variables (gender, marital status) were dummy coded and treated as dichotomous variables in the model. Because of the high number of partners in this data set, and owing to the nature of the question under study, it was important to account for nonindependence in the data. We analyzed the data in Mplus 6.0 using complex survey data techniques following procedures for accounting for nonindependence (Muthén & Muthén, 2010).

Consistent with other multiple trajectory models of response to stressful events, we predicted variability between classes in overall dimensionality as well as the degree of the slope. Also, because we utilized prospective data, we built a model that allows for variability between the slopes before, during, and after the event. As such, our piecewise model utilized three linear slopes, with one knot, or transition point, at 1 year prior to childbirth and one knot at 1 year

after childbirth, as well as the point of comparison set at year 4 (year of childbirth; see Flora, 2008). Slope1 modeled the slope in SWB from four years prior to one year prior to childbirth; Slope2 modeled the year prior to childbirth to the year after childbirth; and Slope3 modeled the year directly after to 4 years after childbirth. This model allowed us to capture patterns of SWB without consideration for the effect of childbirth on the slope (Slope 1); anticipatory, childbirth, and direct postevent effects (Slope 2); and patterns in response to the direct aftermath without effects of childbirth on the slope (Slope 3).

Our analysis of the effect of parenthood on SWB consisted of four steps. First, we identified a univariate single-class growth model without covariates to facilitate model specification for the LGMM. Second, we compared one- to six-class unconditional LGMMs (no covariates), assessing relative fit with conventional indices, including the Bayesian (BIC), sample-size adjusted Bayesian (SSBIC), Akaike information criterion (AIC) indices, entropy values, and the Lo-Mendell-Rubin (LRT) likelihood test (Lo, Mendell, & Rubin, 2001). We sought a model with lower values for the criterion indices, sufficient entropy values, and a significant p value for the LRT (see Table 2). Third, consistent with Flora's (2008) recommendations for building and interpretation, we built a three-piece piecewise model. Finally, covariates (gender, marital status at childbirth, income prior to childbirth, level of education) were assessed in a multinomial logistic regression on class membership.

Results

First, we examined the reliability of the SWB measure within our subpopulation over time. Intercorrelations in SWB were moderate to high at all time points (see Table 1), demonstrating adequate reliability.

Next, we estimated a univariate model designed to capture a single latent growth trajectory of SWB before, during, and after the birth of the subject's first child. This single trajectory based on estimated means at each time point for the entire sample revealed a pattern consistent with that observed in previous studies based on analyses of averaged data; on average, participants in the sample decreased in observed levels of SWB after the birth of their first child, and had not recovered by 4 years after the event ($Est_{st} =$

Table 1
Variability and Intercorrelations of SWB Before and After Childbirth

Subjective Well-Being	<i>M</i> (<i>SD</i>)	1	2	3	4	5	6	7	8
1. Pre year 4	7.34 (1.77)	—							
2. Pre year 3	7.36 (1.75)	.454	—						
3. Pre year 2	7.37 (1.71)	.397	.479	—					
4. Pre year 1	7.52 (1.70)	.361	.449	.452	—				
5. Childbirth	7.49 (1.70)	.338	.364	.397	.484	—			
6. Post year 1	7.24 (1.70)	.371	.409	.381	.422	.507	—		
7. Post year 2	7.14 (1.69)	.340	.357	.313	.376	.467	.550	—	
8. Post year 3	7.15 (1.71)	.314	.345	.340	.399	.436	.555	.588	—
9. Post year 4	7.13 (1.70)	.345	.363	.342	.393	.429	.541	.504	.570

Note. All correlations are significant at $p < .01$. SWB = subjective well-being.

Table 2
Fit Indices For One- To Six-Class Growth Mixture Models For SWB (Unconditional)

Fit Indices	1 Class	2 Classes	3 Classes	4 Classes	5 Classes
AIC	46030.45	45721.24	45602.52	45522.46	45483.02
BIC	46133.87	45851.88	45760.31	45707.53	45695.30
SSBIC	46073.50	45775.63	45668.24	45599.52	45571.40
Entropy	—	.89	.84	.86	.86
LRT p value	—	.03	.04	.24	.02

Note. SWB = subjective well-being; AIC = Akaike information criterion; BIC = Bayesian information criterion; SSBIC = sample size adjusted Bayesian information criterion; LRT = Lo-Mendell-Rubin test.

0.07, $SE = 0.02$, $p < .001$; $Est_2 = -0.16$, $SE = 0.03$, $p < .001$; $Est_3 = -0.06$, $SE = 0.02$, $p < .001$).

Next, to examine the usefulness of an individual differences approach, we fit a progressive number of classes. Improved fit with the addition of classes is indicated by a reduction in the Information Criteria (AIC; BIC; SSA-BIC), a significant LRT, as well as a stronger distinction between classes as demonstrated by a higher level of entropy. As described, to best examine the change dynamics and improve interpretability, we utilized a piecewise model with three linear slopes. This inclusion allowed us to observe the class slopes leading up to childbirth (4 years prior to 1 year prior), the time directly surrounding childbirth (1 year prior to 1 year post), and the relative long term effects (1 year post to 4 years post). We then constructed a model conditional on pertinent covariates, including gender, income just prior to childbirth, whether or not parents were married at the time of childbirth, and educational attainment by childbirth.

Unconditional Model

The fit statistics for one- to five-class solutions for childbirth are summarized in Table 2. Relative to the single-class solution, the two- to five-class solutions demonstrated improvements in the AIC, BIC, and SSBIC. The LRT indicated a significant χ^2 difference from 1 to 2 to 3 classes, with a nonsignificant result for 3 to 4 classes ($p = .24$) and a significant effect for 4 to 5 classes ($p = .02$). Furthermore, entropy indicated appropriately large class specification across models. Though steady improvement was observed in the AIC, BIC, and SSBIC through 5 classes, the addition of a 5th class serves to identify a small anomalous pattern (0.5% of the overall sample). Owing to recommendations that models both conform to parsimony and interpretability (Muthén, 2003, 2004; Nylund, Asparouhov, & Muthén, 2007), we retained the 4-class solution as the best fitting unconditional solution.

We then applied a piecewise model with three conjoined linear slopes with knots, or transition points, to the 4-class solution, as described. The piecewise model allowed us to measure three distinct slopes: one leading up to childbirth from 4 years prior to 1 year prior; one from 1 year prior to childbirth to 1 year after; and one from 1 year after to 4 years after childbirth (see Figure 1).

The majority of participants were assigned to a class, with relatively high and stable levels of SWB across all three slopes (High Stable; 84.2%), or from 4 years prior to childbirth to 4 years after childbirth. This class demonstrated a slight but significant positive effect for Slope 1, and a slight negative effect for Slopes 2 and 3 ($Est_{s1} = 0.10$, $SE = 0.02$, $p < .001$; $Est_2 = -0.12$, $SE = 0.03$, $p < .001$; $Est_3 = -0.06$, $SE = 0.02$, $p < .001$). Though there is a significant effect for the slopes, we observe from the B s and standard error that the effects are quite small. In this case, significant p values may reflect the large sample size, particularly in this class. To further illustrate this point, we observed the change in the estimated mean of SWB for this class from 4 years prior to 4 years after childbirth at 0.01 on the previously described 1–10 Likert scale.

The second largest class (Decreasing; 7.2%) demonstrated a significant positive slope leading up to childbirth, followed by a significant negative slope, and then a marginally significant negative slope following childbirth. This class is most consistent with the single trajectory model ($Est_{s1} = 0.52$, $SE = 0.18$, $p < .01$; $Est_{s2} = -1.35$, $SE = 0.23$, $p < .001$; $Est_{s3} = -0.26$, $SE = 0.17$, $p = .14$). This pattern indicates that this class of individuals responded strongly to becoming parents, with a significant and sizable decline in SWB, and that this loss was sustained.

The next largest class (Increasing; 4.3%) demonstrated a significant decline leading up to childbirth, followed by a significant positive slope following the birth, resulting in higher scores than at baseline. Slope 3 was nonsignificant, indicating that the gains made following the birth were

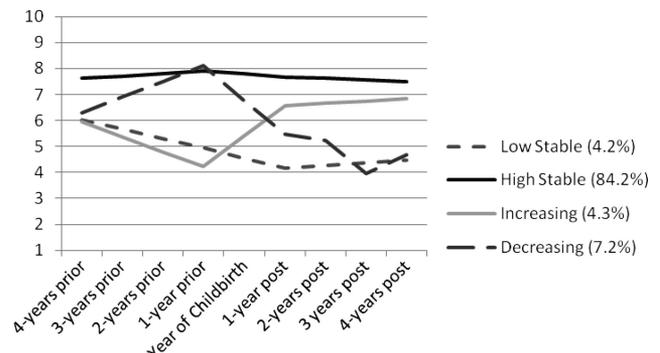


Figure 1. Four-class growth mixture model ($n = 2410$).

sustained ($Est_{s1} = -0.64, SE = 0.24, p < .01; Est_{s2} = 1.22, SE = 0.20, p < .001; Est_{s3} = 0.09, SE = 0.09, p = .29$). This indicates that individuals in this class had a strong positive reaction in response to becoming parents that was sustained even 4 years later.

The smallest class (Low Stable; 4.2%) showed no significant change across all three slopes. This class also had the lowest initial intercept ($Est_{s1} = -0.36, SE = 0.38, p = .35; Est_{s2} = -0.33, SE = 0.22, p = .14; Est_{s3} = 0.05, SE = .21, p = .83$).

Conditional Model

After establishing the best-fitting unconditional model with regard to the fit statistics, interpretability, and parsimony, we chose key covariates based on previous findings in the literature with regard to their impact on SWB during parenting. Based on these criteria, we examined the effects of gender, marital status, income prior to childbirth, and years of education on the course of SWB in response to childbirth by regressing these variables on class membership in a multinomial logistic regression nested in the LGMM.

The multinomial logistic regression model demonstrated mixed results with regard to the selected covariates. The reference class for the multinomial logistic regression was set to the *High Stable* class, as they were the modal response pattern (see Table 3). Members of the *High Stable* class were more likely to have higher educational attainment compared to all other groups, and were more likely to be married at the time of their child's birth compared to the *Increasing* and the *Decreasing* classes; however, they were only more likely to have more money prior to childbirth in comparison to members of the *Increasing* class.

Interestingly, gender was a nonsignificant predictor in distinguishing between classes, indicating that there is an equivalent probability for both men and women of being members of any of the trajectories (see Table 3).

Discussion

Studies of subjective well-being (SWB) in response to childbirth have repeatedly offered the disquieting prognosis that parents consistently show a decline in SWB after having a child and that negative effects are maintained (LeMasters, 1957; Rossi, 1968; Gove & Geerken, 1977; Glenn &

Weaver, 1979; McLanahan & Adams, 1987). Despite consistent evidence that parents garner social, psychological, and health benefits in relation to parenthood (Erikson, 1963; Umberson, 1987; Kobrin & Hendershot, 1977), parents have been shown to be significantly less happy and to demonstrate lower life satisfaction in their day-to-day lives compared to their nonparent counterparts (Twenge et al., 2003). Interestingly, there is some evidence that these observations may have less to do with the experience of parents; rather, these findings may better be explained as an artifact of the statistical techniques utilized in the analysis of responses to childbirth. Belsky et al. (1983) observed that analyses of central tendencies demonstrate declines in multiple facets of parents' lives but that even rudimentary observations of individual differences show that these analyses may be misleading.

In fact, there is consistent evidence that parents do not represent a homogenous population. For example, there is evidence that prechildbirth sociological factors, such as income and education, may impact response patterns (Belsky & Rovine, 1990; Rauer et al., 2008; Joshi, 2002). Similarly, parents of different genders may play significantly different roles in child rearing (Umberson & Gove, 1989) and may have very different experiences of parenthood (Neff & Karney, 2005), while single parents may have a qualitatively unique experience of parenthood compared to their coupled counterparts (Powdthavee, 2009). While we have overwhelming evidence that parenthood does not represent a unified phenomenon, the study of parenthood continues to rely on methodologies that treat parents as a relatively homogenous group that can best be explained in terms of an average response pattern.

In this study, we used latent growth mixture modeling (LGMM) to examine the different pathways people take following the birth of a child. Consistent with a growing body of research on life events and stress responding (e.g., Bonanno et al., 2005; Bonanno, Renniecke, & Dekel, 2005; Deshields et al., 2006; Bonanno et al., 2008; Galatzer-Levy & Bonanno, *in press*; Galatzer-Levy & Bonanno, *in press*), we observed a range of individual differences in response to the birth of a first child.

In our analysis, we observed that most respondents showed minimal changes in their level of SWB over the course of the study, while a subset of parents had divergent responses. These divergent responses were predicted by a

Table 3
Covariate Prediction of Trajectory Class Membership

Covariates	High Stable vs.					
	Low Stable		Increasing		Decreasing	
	<i>Est.</i>	<i>SE</i>	<i>Est.</i>	<i>SE</i>	<i>Est.</i>	<i>SE</i>
Gender	-0.11	0.34	-0.43	0.27	-0.20	0.35
Education	-0.22	0.09*	-0.30	0.10**	-0.20	0.08*
Marital Status	-0.88	0.88	-1.11	0.50*	-1.04	0.45*
Income	0.43	1.31	-3.14	1.01**	-1.97	1.36

* $p < .05$. ** $p < .01$.

variety of factors, including level of education, income, and marital status at the time of birth.

Consistent with the stress literature, the modal response to the birth of a first child was a relatively stable trajectory of high well-being across the 9 years surrounding the time of birth. It is important to note, however, that we observed marked individual differences and several distinct but smaller classes of individuals. One group consistently demonstrated stable high SWB scores and one demonstrated stable low SWB scores. This pattern is consistent with previous literature that argues for strong individual differences in people's set point of SWB (Diener, Oishi, Lucas, 2006). Moreover, these classes have been observed elsewhere in response to stressful life events (e.g., Galatzer-Levy et al., 2010; Mancini, Bonanno, Clark, 2010).

Individuals in the *High Stable* class were more highly educated compared to all other classes and were more likely to be married at the time of childbirth compared to the *Increasing* and the *Decreasing* classes. This may indicate that marital status at the time of childbirth generally has an impact on the stability of well-being, as these two classes demonstrated the greatest degree of change in response to the event. In this context, an individual's level of educational attainment is not likely to simply indicate socioeconomic status, as level of income prior to childbirth only distinguished this class from the *Increasing* class. As such, there is a strong indication that with an increase in education may come an increase in preparedness for parenthood, or at least that becoming a parent is less impactful on SWB for individuals with more education.

We also observed two classes of individuals who responded to the birth of their first child with substantive changes in their level of SWB. One class (7.2%) was observed to decline significantly in response to the birth of their first child and maintained this decline for all subsequent measurement points. Second, we observed a class not otherwise observed in the literature. We titled this class *Increasing* (4.3%), as they are characterized by a sharp incline in their level of SWB in response to the birth of their first child. Individuals in this group maintained these gains for all subsequent time points observed in the study. Interestingly, the *Increasing* class was relatively low in SWB at the onset of the study, 4 years prior to parenthood, and was similar to the *Low Stable* class until the near the event of childbirth, when they deviated sharply in a positive direction. This *Increasing* class differed from the *High Stable* class in consistent ways with the other classes, with the exception of prechildbirth income. This may indicate either that this is a class that increased in income immediately following childbirth—which is unlikely given the financial strain of this event—or that this class of individuals is a relatively low-income group that garnered a benefit in subjective well-being from a child.

We were surprised that no gender differences were observed. The literature on gender differences, both in marriage and parenthood, points to benefits and costs that come with both gender roles. It may be that, at least in terms of SWB, the effects of gender come out in the wash as a result. It may also be the case that our measure is not sensitive

enough, as men and women may report differently. Further exploration of gender differences in this context is warranted.

Limitations and Strengths

This study had both strengths and weaknesses embedded in its execution. One main limitation of this study was that SWB was assessed using a one-item measure. This item was a subjective measure of the individual's sense of his or her own satisfaction with life at that moment. The brevity of the measure was predicated on the large-scale nature of the study. Future studies should include additional measures of life satisfaction that tap into more specific areas, such as health, recreation, and romantic and other relationships, to get a more encompassing view of the individual's subjective well-being (Frisch, Cornell, Villanueva, & Retzlaff, 1992). We also used a relatively limited set of predictors, as the German Socioeconomic Panel was not originally created to analyze the transition into parenthood or psychological factors generally. Specific psychological predictors were absent in this study. Previous longitudinal research on reactions to stressful life events has demonstrated that static psychological factors, such as adult attachment style and personality characteristics, have strong predictive value, especially in differentiating groups that bifurcate in response to a stressful event, as the *Low Stable* and the *Increasing* classes did in this study (Galatzer-Levy & Bonanno, *in press*). Furthermore, factors as diverse as children's temperament (Belsky & Rovine, 1990) and perceived fairness in the division of labor (Milkie et al., 2002) have been shown to impact both psychological well-being and relationship functionality in parents. As such, psychological factors could greatly improve the predictive power of these models. More so, now that heterogeneity has been identified, and a methodology for identifying it has been laid out, an important next step is to identify both demographic factors that predict the *Declining* class and psychological factors that aid in the maintenance of this response. This may be of value so that this class of individuals can be properly targeted for interventions as a significant decline in SWB after childbirth can have dire consequences for the family constellation going forward.

Many of the demographic characteristics utilized in this study are highly culturally bound and may have a different meaning in German culture that is not easily translated into the American cultural context. For example, Germany's educational system is quite distinct from the American system of education. As such, a simple measurement of years of attained education may have different connotations in these two cultures. Furthermore, greater social supports are in place for individuals in poverty in Germany, including supports around parenting. As such, low socioeconomic status may not have the same practical meaning or effect in terms of access to services that it does in the United States.

Fortunately, this study has many strengths that may outweigh its limitations. We utilized a large representative sample that followed respondents over a 20-year period. In addition, our study included data from well before the birth

of the first child, an aspect that is lacking in much of the past parent literature.

Conclusions and Implications

Within the context of our study's strengths and limitations, several conclusions can be drawn. First, multiple trajectories of SWB over time are needed to convincingly characterize the ways people respond to the birth of a first child. The most common response was no substantive change in terms of SWB from before to after the child's birth. Notably, and in contrast to the portrait that emerged from average data alone, only a small subset of people responded with a sustained substantive decline in SWB. Furthermore, we find that a significant proportion of people respond *positively* to the birth of their first child, and that this positive response is not a transient one. This population has been completely ignored in the literature, as their presence is likely washed out in analyses that examine central tendencies.

In addition, many variables may be responsible for the differing trajectories, including, but not limited to, educational attainment, marital status, and income. Surprisingly, no distinction was detected in responses to childbirth between men and women. This may indicate that men and women are both equally equipped to become parents. Future studies should examine more variables, particularly psychological variables, as well as a fuller definition of life satisfaction. With this knowledge, adults preparing to be parents who are also at higher risk for a future drop in life satisfaction can be targeted and provided with information regarding new parenting programs.

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