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Change in Motherhood Status and Fertility Problem Identification: Implications for Changes in Life Satisfaction

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Abstract

Objective: To determine whether the association between changes in life satisfaction and becoming a mother (or not) depends on fertility problem identification status.

Background: Evidence and symbolic interactionist theory suggest that, for women who initially perceive a fertility barrier, gaining the valued identity “mother”

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should be associated with increases and continuing to face a blocked goal (i.e., not becoming a mother) should be associated with decreases in life satisfaction.

Method: This study used the nationally representative two-wave National Survey of Fertility Barriers to conduct a change-score analysis with chained multiple imputation. The focal dependent variable was change in life satisfaction. Focal independent variables were Wave 1 life satisfaction, fertility problem identification status, and birth between waves, controlling for stability and change in relationship status, talking to a doctor about how to get pregnant, religiosity, social support, importance of parenthood, importance of leisure, importance of work success, and economic hardship.

Results: Among women who perceived a fertility problem at both waves, becoming a mother was associated with increased life satisfaction and not becoming a mother was associated with decreased life satisfaction. Women who gained or lost a fertility problem perception between waves but did not have a live birth experienced a gain in life satisfaction between waves, suggesting the relevance of the duration of fertility problem perception for change in life satisfaction.

Keywords: longitudinal research, parents, reproductive health, transitions, well-being, women.

Introduction

Symbolic interactionist theory as well as research on the effects of becoming a mother suggest that these effects vary depending on context and meaning (Umberson, Pudrovska, & Reczek, 2010). The effects of becoming a mother likely depend, in part, on whether that transition is viewed as a welcome change. One factor that might shape the meaning of motherhood is perceived fertility problems (Shreffler et al., 2016). Many U.S. women face fertility barriers that require extra efforts to conceive and that may result in not having children (Chandra, Copen, & Stephen, 2013). Among women for whom motherhood is a desired and valued social status, a fertility problem may be experienced as a barrier to achieving an important life goal. The necessity of overcoming fertility barriers might well strengthen the association between becoming a mother and life satisfaction. Only a few studies, however, have examined whether perceiving having a fertility problem moderates the effect of becoming a mother on life satisfaction (McCarthy & Chiu, 2011; McQuillan, Torres Stone, & Greil, 2007). We are not aware of any studies of life satisfaction and fertility problems that have compared the same women before and after they become mothers (or not).

Physicians define infertility as lack of conception after 12 months or more of recurrent, unprotected intercourse (Zegers-Hochschild et al., 2017). About 11% of U.S. women of childbearing age reported current symptoms that qualify as “impaired fecundity” in 2006 to 2010 (Chandra et al., 2013), and a study using the National Survey of Fertility Barriers (NSFB) revealed that about 47% of U.S. women met criteria for infertility at some point during their reproductive years (K. M. Johnson, Greil, Shreffler, & McQuillan, 2018). Having a fertility barrier represents a potential challenge to achieving a highly socially valued identity (i.e., motherhood; Loftus & Andriot, 2012). Studies comparing infertile women to non-infertile women have found that infertility has a negative impact on quality of life, subjective well-being, and global life satisfaction. For example, Wischmann, Stammer, Scherg, Gerhard, and Verres (2001) found that 275 German women attending an infertility clinic scored slightly lower than norms on a number of subscales of life satisfaction. In addition, McQuillan et al. (2007) reported that childless infertile women had lower life satisfaction scores than infertile women with children or women without infertility. Moura-Ramos, Gameiro, Soares, Santos, and Canavarro (2010), however, found no differences in psychological quality of life for women undergoing assisted reproductive technology when compared with infertile women in the early stage of treatment and presumably fertile women.

Some studies have examined whether becoming a mother moderates the relationship between infertility and life satisfaction. McQuillan et al. (2007) reported that life satisfaction was significantly higher for Midwestern women with infertility who perceived a problem and became mothers (by giving birth or adopting) than it was for those who did not become mothers. In a study of women in the early stages of treatment, Ben Shlomo, Pascal, Taubman Ben-Ari, Azuri, and Horowitz (2016) found no differences in scores on the Satisfaction With Life scale between women with primary infertility (no prior pregnancies) and women with secondary infertility (at least one prior pregnancy). The Ben Shlomo et al. (2016) study described the experience of infertility among women with and without children, but it did not address the consequences of becoming a mother for women with fertility barriers.

The studies just mentioned were all cross-sectional, as is the case for most studies that address the issue of childlessness (Umberson

et al., 2010). Any cross-sectional analysis is vulnerable to the possibility that some unmeasured variable is confounding apparent differences between groups. Although it is always problematic to draw causal conclusions from cross-sectional data, this is especially important for studies of the effects of having a live birth on life satisfaction because the effects of becoming a mother depend on goals, intentions, and meanings (Kravdal, 2014). Because the meanings of becoming a parent are likely to differ for those who elect to become parents and those who do not, a comparison between parents and nonparents may not account for all differences between groups. In addition, having a child can change the perceptions of intentions, thus rendering retrospective accounts suspect. It is therefore important to model changes in life satisfaction for individuals over time rather than simply compare differences in levels of life satisfaction between individuals (Pollmann-Schult, 2014).

A few studies have been longitudinal, following up with infertile patients a number of years after the baseline study to assess whether birth after treatment (i.e., “success”) resulted in changes in life satisfaction. Schanz et al. (2011) performed bivariate analysis using a single-item measure of life satisfaction and found that the successful treatment of infertility did not result in an increase in life satisfaction 5 years after baseline. In a 10-year follow-up study of German clinic patients, Wischmann, Korge, Scherg, Strowitzki, and Verres (2012) found no differences in life satisfaction between couples for whom treatment was successful and couples for whom treatment was not successful. These longitudinal studies benefit from more than one wave of data collection, but are limited to studying those who sought medical treatment for infertility. Thus, it is not possible to generalize to the large number of infertile women who do not receive treatment; neither is it possible to separate out the effects of infertility from the effects of infertility treatment.

Even with the power of longitudinal analyses to control for stable individual characteristics, it is important to control for time varying characteristics that can shape the meaning and context of becoming a mother or not and life satisfaction among women with fertility barriers. Evidence that the transition to parenthood leads to higher life satisfaction primarily for married women (Hansen, 2012) suggests that it is important to control for changes in relationship status. Because

fertility treatment itself can be arduous and distressing (Greil, McQuillan, Lowry, & Shreffler, 2011), it is also valuable to include measures of seeking medical help to conceive. We include a measure of the change in the importance of motherhood (McQuillan, Greil, Shreffler, & Tichenor, 2008) because, despite strong promaternal social norms, some women have low importance of motherhood scores. The effects of the transition to parenthood on life satisfaction also depends on economic circumstances (Beja, 2015; Pollmann-Schult, 2014), so it is important to control for changes in economic hardship.

The analyses for this study included 759 U.S. women who initially had no children. Data come from the two-wave National Survey of Fertility Barriers (NSFB; <https://www.icpsr.umich.edu/icpsrweb/DSDR/studies/36902#bibcite>). We assess the effects of becoming a mother or not and perceiving fertility problems or not on stability and change in life satisfaction. We created eight categories based on the motherhood status at the time of the second interview (had a live birth or not) and perceptions of a fertility problem at both times (never identified as having a fertility problem either Waves 1 or 2), identified as having a fertility problem at both waves, gained a perception of a fertility problem (Wave 2 only), and lost a perception of a fertility problem (Wave 1 only) and compared changes in life satisfaction between interviews using these categories. Because many factors can influence becoming a mother or not and perceiving a fertility problem or not with life satisfaction, we used change-score analysis to hold constant stable individual characteristics. The results have implications for understanding the moderating effects of context and meaning in shaping the relationship between becoming a parent and life satisfaction.

Methods

Data and Sample

The NSFB is representative of the continental United States and was conducted by telephone. The NSFB focuses on the fertility and infertility experiences of women and their partners. The current analyses was restricted to women who had not given birth to a child at Wave 1 (2004–2006) and included data from Wave 2 (2007–2010) to estimate

the change in life satisfaction among those who did and did not have children by the following four different fertility identity groups: those who gained a fertility problem, lost a fertility problem, persisted with a fertility problem, and never had a fertility problem.

The survey protocol used random digit dialing and screening questions to select women between the ages of 25 and 45 years old. The sample was restricted to this age group because the National Survey of Family Growth found that infertility for women aged younger than 25 only accounted for a small percentage of cases across the United States (only 3%). The investigators wanted a sample that was representative of women in the United States with a landline telephone. The survey also oversampled high minority census tracts to ensure a representative sample, but because the response rates in these areas was lower, the overall sample is representative of the population: more than 40% of the sample is non-White.

The NSFB used screening questions to select all women who were at risk for infertility or who previously had infertility, and one tenth of those with no issue or risk for comparison. The response rate to the eligibility screening questions was 54%. Women with a high school degree or less were slightly undersampled when compared with the National Survey of Family Growth, a large in-person survey with a response rate of 90%. The total NSFB sample consists of 4,812 women. The analytic sample for the current study includes women who had no children at the beginning of the study ($N = 1,032$). The sample was further limited to those women who participated in both waves of data collection ($N = 759$). **Table 1** provides sample descriptive statistics for the variables used in the analyses. We used chained multiple imputation to minimize bias from missing data and to retain as many cases as possible.

Measurement

Dependent Variable

The criterion variable in this study was life satisfaction. We used a modified version of a scale created by Diener and Diener (1995) that has been demonstrated to have strong validity across a variety of contexts (Lindert, Bain, Kubzansky, & Stein, 2015). The respondents were asked whether they strongly agreed, agreed, disagreed, or strongly

Table 1. Descriptive Statistics of Variables of Interest

<i>Variable</i>	<i>M</i>	<i>SD</i>	<i>Minimum</i>	<i>Maximum</i>
Dependent variable				
Life satisfaction at Wave 1	3.00	0.58	1.00	4.00
Change in life satisfaction between waves	-0.03	0.54	-1.67	2.00
Identification and live birth between waves				
Always identified, no live birth (<i>n</i> =189)	0.06	0.25	0.00	1.00
Never identified, no live birth (<i>n</i> =307)	0.40	0.49	0.00	1.00
Gained an ID, no live birth (<i>n</i> =79)	0.03	0.17	0.00	1.00
Lost an ID, no live birth (<i>n</i> =47)	0.02	0.15	0.00	1.00
Always identified, live birth (<i>n</i> =53)	0.22	0.42	0.00	1.00
Never identified, live birth (<i>n</i> =71)	0.40	0.49	0.00	1.00
Gained an ID, live birth (<i>n</i> =24)	0.10	0.31	0.00	1.00
Lost an ID, live birth (<i>n</i> =16)	0.06	0.24	0.00	1.00
Change in union status				
Never in a union (<i>n</i> =252)	0.33	0.47	0.00	1.00
Gained a union (<i>n</i> =71)	0.10	0.30	0.00	1.00
Lost a union (<i>n</i> =39)	0.06	0.23	0.00	1.00
Maintained a union, same partner (<i>n</i> = 394)	0.48	0.50	0.00	1.00
Maintained a union, different partner (<i>n</i> =32)	0.04	0.19	0.00	1.00
Infertility medical help-seeking status				
Never talked to a doctor (<i>n</i> =567)	0.74	0.44	0.00	1.00
Talked to a doctor at Wave 1 only (<i>n</i> =118)	0.12	0.33	0.00	1.00
Talked to a doctor at Wave 2 only (<i>n</i> =47)	0.07	0.25	0.00	1.00
Talked to a doctor at both waves (<i>n</i> =55)	0.07	0.25	0.00	1.00
Control variables				
Religiosity at Wave 1	0.23	2.14	-9.22	9.27
Change in religiosity between waves	0.23	2.14	-9.22	9.27
Social support at Wave 1	0.03	0.50	-2.00	3.00
Change in social support between waves	0.03	0.50	-2.00	3.00
Importance of parenthood at Wave 1	0.03	0.50	-2.00	3.00
Change in importance of parenthood between waves	-0.03	0.58	-2.00	2.00
Importance of leisure at Wave 1	-0.01	0.84	-3.00	3.00
Change in importance of leisure between waves	-0.01	0.84	-3.00	3.00
Importance of work success at Wave 1	-0.03	0.79	-3.00	3.00
Change in importance of work success between waves	-0.03	0.79	-3.00	3.00
Economic hardship at Wave 1	0.01	0.67	-3.00	2.67
Change in economic hardship between waves	0.01	0.67	-3.00	2.67

Data from the National Survey of Fertility Barriers. Zero parity at Wave 1 (*N* = 759). ID = identification.

disagreed with the following statements: “In most ways, my life is close to ideal; I am satisfied with my life; if I could live my life over, I would change almost nothing; so far, I have gotten the important things I want in life.” This unidimensional scale was created by taking the mean of these items ($\alpha = .75$). A fifth item (“My life is excellent”) was not included in the survey and was therefore not available for use. A change score for life satisfaction was created by subtracting Wave 1 values from Wave 2 values.

Independent Variables

One of the two focal independent variables, fertility problem identification, was measured by categorizing women who responded “yes” or “maybe” to either of the following questions: “Do you think of yourself as someone who has, has had or might have trouble getting pregnant?” and “Do you think of yourself as someone who has or has had fertility problems?” Those who responded “no” to either question were categorized as not self-identifying. These questions were asked in both waves. From these questions we used all possible combinations to create the following indicator variables: (a) persisted in having a fertility problem (always identified), (b) gained a fertility problem identification, (c) lost a fertility problem identification, or (d) never had a fertility problem (ever identified). The other focal independent variable was an indicator for becoming a mother between waves (i.e., had a live birth). It is important to include women who did not have a live birth between waves so that they can serve as a comparison group. We then combined the birth information with the four fertility problem identification measures to make the following eight indicator variables: (a) always identified, no live birth; (b) never identified, no live birth; (c) gained an identification, no live birth; (d) lost an identification, no live birth; (e) always identified, live birth; (f) gained an identification, live birth; (g) lost an identification, live birth; and (h) never identified, no live birth.

We included the “gained an identification (ID)” and “lost an ID” categories because prior evidence suggests that duration of infertility treatment is associated with distress (Greil et al., 2011). It is thus possible that duration of perceptions of fertility problems is associated with life satisfaction; women in the “gained an ID” and “lost an ID” categories have likely perceived a fertility problem for a shorter period of time than women who maintained an fertility problem identity.

Had we lumped all groups into an “ever perceived a problem” category, it would have been impossible to observe whether “maintainers” differed from “gainers” and “losers.” We used “always identified, no live birth” as the reference category to make clear the joint role of the identification variables and the live birth variable. The combined perception of a fertility problem/Wave 2 motherhood status variable in effect modeled the interaction of these two variables while providing coefficients that are straightforward to interpret.

Social surveys have taken various approaches to measuring self-reported fertility problems. Some surveys have employed a medical definition of infertility as 12 months of regular, unprotected intercourse without conception to determine whether women have ever experienced an infertility episode (e.g., Chandra et al., 2013; Mascarenhas, Cheung, Mathers, & Stevens, 2012). Other surveys have relied on self-reports in the form of perceptions about one’s own fertility, as distinct from medically defined infertility (Chandra et al., 2013; Gemmill, 2018). Whereas medical definitions rely on medical judgment imposed externally, subjective definitions express the meaning a person attaches to an experience (e.g., not conceiving) and, as such, reflects how the individual socially constructs infertility (Benyamini, 2011; Greil et al., 2011). Using perceived fertility problem rather than meeting medical criteria for infertility is consistent with the symbolic interactionist perspective for studying the association between changes in fertility and changes in life satisfaction; we therefore used a self-perception measure in this study.

Control Variables

Marital status was assessed in both waves by the following question: “What is your current marital status?” Indicators measured beginning a relationship, ending a relationship, persisting in a relationship, or not being in a relationship at either interview. The “never in a relationship category” is based on not being in a marriage or cohabitation relationship in either wave of data. Talking to a doctor is measured at Waves 1 and 2 and was assessed with the question, “Have you ever been to a doctor or clinic to talk about ways to help you have a baby?” The following four similar variables were created to capture stability and change: talked to a doctor only in Wave 1, talked to a doctor only in Wave 2, talked to a doctor at both waves, and never talked to a doctor.

Change-Score Control Variables

Because this study used change-score analyses (see the Analytic Strategy section), we created change-score versions of the variables that could change between waves (Wave 2 value – Wave 1 value). The dependent variable and several independent variables were change-score variables. The Religiosity scale ($\alpha = .73$) was developed by the investigators of the NSFB and includes the following four items: “How often do you attend religious services,” “How often do you pray,” “How close do you feel to God most of the time,” and “In general, how much would you say your religious beliefs influence your daily life?” The scale was coded so that a higher value indicates higher religiosity. The social support scale ($\alpha = .93$) was based on a scale developed for the Canadian Community Health Survey and included the following items: “How often is each of the following kinds of support available to you if you need it?” “someone to give you good advice about a crisis,” “someone to give you information to help you understand a situation,” “someone whose advice you really want,” and “someone to share your most private worries and fears with.” The possible response choices were: 1 (“often”), 2 (“occasionally”), 3 (“seldom”), and 4 (“never”). The higher values were coded to indicate higher levels of social support.

The Importance of Motherhood scale ($\alpha = .86$) was developed by the investigators of the NSFB and created by combining the following four items: “Having kids is important to my feeling complete as a woman,” “I always thought I’d be a parent,” “I think life will be or is more fulfilling with children,” and “it is important for me to have children.” The possible response choices were the following: 1 (“strongly agree”), 2 (“agree”), 3 (“disagree”), and 4 (“strongly disagree”). Another item included was “How important is raising children?” with the following possible response choices: 1 (“very important”), 2 (“important”), 3 (“somewhat important”), and 4 (“not important”). The scale was coded so that a higher value meant a greater value of motherhood. The change in importance of leisure and importance of work success items were based on the following question: “How important is each of the following to you in your life: having leisure time to enjoy my own interests; being successful in my line of work?” The possible response choices were “very important,” “important,” “somewhat important,” and “not important.” Finally, the Economic Hardship scale ($\alpha = .82$) was developed from the following three items: “During the

last 12 months, how often did it happen that you: had trouble paying the bills?” “Did not have enough money to buy food, clothes or other things in your household needed?” and “Did not have enough money to pay for medical care?” This set of items was developed by Mirowsky and Ross (1999) as a modified version of the Economic Strain Index developed by Pearlin, Lieberman, Menaghan, and Mullan (1981).

Analytic Strategy

The dependent variable life satisfaction was continuous; we therefore used ordinary least squares regression. This study used change-score analysis because it is an effective way to control for exogenous differences in those individuals who did and did not experience a change of life satisfaction (D. A. Johnson, 2005). Because certain variables are time invariant (i.e., race/ethnicity, education), they do not change, and it is not necessary to include them in the included in the models because change-score analysis controls for all these variables even if they are not measured (Allison, 1994; D. A. Johnson, 2005). It is, of course, possible to include time-invariant control variables in change-score models, and doing so may provide useful information. We ran a series of sensitivity tests in which we added a number of time-invariant variables to our model. Because none of the time-invariant variables were significantly related to change in life satisfaction, we followed the principle of parsimony and omitted them. Change-score analysis also decreases the chance of bias from measurement error, which can be problematic when using the lagged dependent variable technique (D. A. Johnson, 2005). Change-score methodology is the most effective analytical technique when examining the effects of an event, such as perceiving a fertility problem or having a baby, on a certain outcome (e.g., changes in life satisfaction; D. A. Johnson, 2005).

Results

Descriptive Findings

The average age of the women in the sample was 34 years; 70% had attended at least 4 years of college. The racial/ethnic distribution of the sample was 69% White, 16% Black, 9% Hispanic, and 3% Asian

(data not shown). The average life satisfaction for the sample at Wave 1 was well above the midpoint of the scale ($M = 3.0$; see Table 1). The average within-person change between waves was small and negative ($M = -0.03$), indicating that overall life satisfaction declined slightly. Slightly less than a quarter of the sample had a live birth between waves. Half of the sample (49%) never identified a fertility problem. A substantial portion of the women had a fertility problem identity at both waves (28%). A smaller group of women gained a fertility problem by not identifying at Wave 1 and identifying as having a fertility problem at Wave 2. A small percentage of women lost a fertility problem identity by the second interview (8%). Of the women, 22% always identified but did not have a live birth between waves, 40% never identified and did not have a live birth between waves, 10% gained a problem identity and did not have a live birth between waves, and 6% lost a problem and did not have a live birth. Of the respondents, 6% always identified and had a baby between waves, 9% never identified and had a live birth between waves, 3% gained a problem and had a live birth between waves, and 2% lost a problem and had a live birth.

Slightly more than half ($48+4\% = 52\%$) of the women were in a relationship at both waves, whereas 33% had never been in a relationship. Most of the women had not talked to a doctor about ways to get pregnant (74%). Of the women, 12% talked to a doctor at Wave 1 only, 7% talked to a doctor at Wave 2 only, and 7% talked to a doctor at both waves. Religiosity increased moderately. Social support and economic hardship increased slightly between waves. The importance of parenthood, leisure, and work success went down slightly between waves.

Multivariate Analysis

Table 2 displays the ordinary least squares regression model the association of life satisfaction with fertility problem identification, live birth status, and control variables. **Figure 1** presents a graphic image of changes in life satisfaction between waves separately for all eight identification and live birth combinations. A negative coefficient (-0.49) for life satisfaction at Wave 1 simply meant that women with higher life satisfaction at Wave 1 had smaller changes in life satisfaction over time. This was to be expected; the purpose of including

Table 2. Change in Life Satisfaction by Self-Identified Fertility Status, Live Birth Between Waves, and Control Variables

<i>Variable</i>	β	<i>SE</i>	<i>p</i>
Life satisfaction at W1	-.49	0.03	.00***
Fertility problem ID and live birth status W1 and W2			
Always identified (W1 & W2), no live birth (reference)			
Never identified, no live birth	.11	0.05	.04*
Gained an ID (W2 only), no live birth	.26	0.11	.02*
Lost an ID (W1 only), no live birth	.31	0.12	.01**
Always identified (W1 & W2), live birth	.28	0.07	.00***
Never identified, live birth	.15	0.09	.08
Gained an ID (W2 only), live birth	.10	0.07	.16
Lost an ID (W1 only), live birth	.03	0.08	.67
Control variable			
Stability and change in relationship status			
Not in a relationship at W1 or W2 (reference)			
Gained a relationship (W2 only)	.25	0.06	.00***
Lost a relationship (W1 only)	-.13	0.08	.09
Remained in relationship-same partner (W1 & W2)	.10	0.04	.03*
Remained in relationship-different partner (W1 & W2)	.10	0.09	.27
Infertility medical help-seeking status			
Never talked to doctor (reference)			
Talked to a doctor (W1 only)	.03	0.06	.63
Talked to a doctor (W2 only)	-.05	0.07	.52
Talked to a doctor W1 & W2	.13	0.08	.09
Continuous variables (W2-W1)			
Change in religiosity	.01	0.01	.23
Change in social support	.07	0.03	.05*
Change in importance of parenthood	-.02	0.03	.60
Change in importance of leisure	.00	0.02	.94
Change in importance of work success	-.01	0.02	.76
Change in economic hardship	-.06	0.03	.02*
Constant	-.22	0.05	.00***
R^2	.30		

Data from the National Survey of Fertility Barriers. Zero parity at Wave 1 ($N = 759$). ID = identification; W1 = Wave 1; W2 = Wave 2. * $p < .1$. ** $p < .05$. *** $p < .001$.

baseline life satisfaction in the model was to take into account that women had different starting points and that those with higher life satisfaction at Wave 1 had upper limits on how much their life satisfaction could rise between waves.

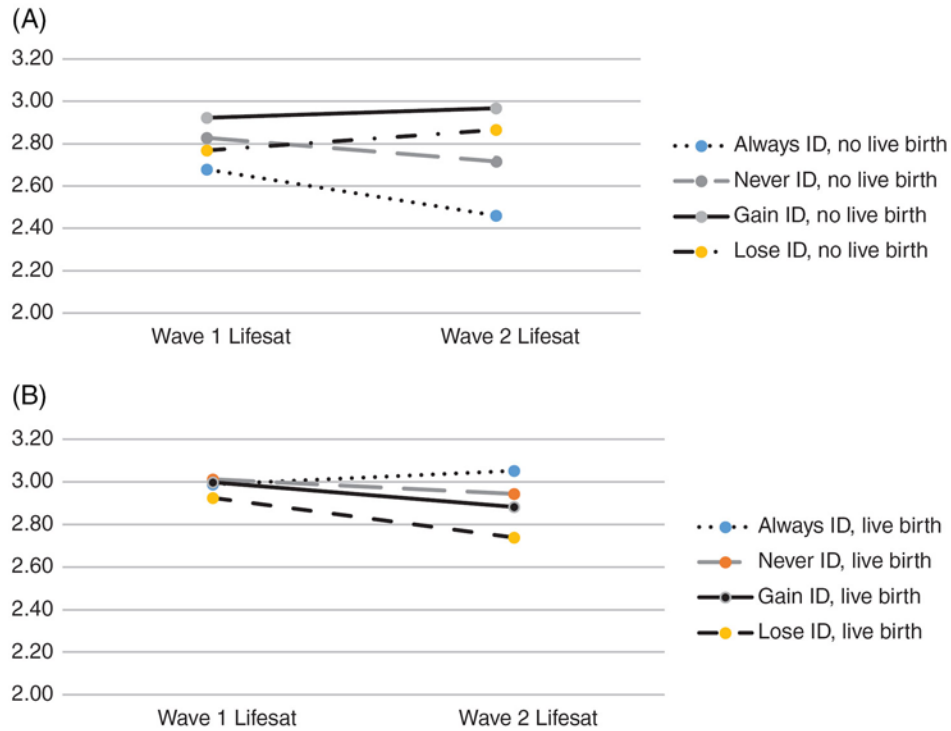


Figure 1. (a) Estimated Adjusted Life Satisfaction by Fertility Problem Status and Wave for Women Who Did Not Become Mothers. (b) Estimated Adjusted Life Satisfaction by Fertility Problem Status and Wave for Women Who Became Mothers. ID, identification.

As is clear from Figure 1A, those who did not have a baby and who never had, gained, or lost a fertility problem identity had small changes in life satisfaction. In contrast, the women who identified as having a fertility problem at both waves and who did not have a live birth had a 0.22 decline in life satisfaction, a change that was more than a third of a standard deviation in life satisfaction in this sample. Among the women who had a live birth between waves (Fig. 1B), only those in the “always ID” group differed from those who always identified as having a fertility problem but did not have a live birth. The women who continued to perceive a fertility problem (i.e., always ID) and had a live birth had an increase in life satisfaction. Figure 1 shows that those who always identified and who had a baby were the group with the largest gain in life satisfaction between waves. Note that very few women either gained a fertility problem perception ($n = 24$) or lost a fertility problem perception and had a live birth ($n = 16$).

Three control variables were also associated with changes in life satisfaction. When compared with the women who were not in a relationship at either wave, those who gained a relationship between waves or who remained in a relationship with the same partner experienced increases in life satisfaction. In addition, increases in social support were associated with increases in life satisfaction, and increases in economic hardship were associated with decreases in life satisfaction.

Conclusion

Using the nationally representative two-wave NSFB, we conducted a change-score analysis to estimate the association of becoming a mother or not with change in life satisfaction, modified by fertility problem perception status. We created eight indicator variables to reflect all the possible combinations of perceived fertility problems and having a child across two waves of data collected 3 years apart as part of the NSFB: always identified, no live birth; never identified, no live birth; gained a fertility problem identity, no live birth; lost a fertility problem identity, no live birth; never identified, live birth; always identified, live birth; gained an identification, live birth; and lost an identification, no live birth. We expected to find that becoming a mother was associated with the greatest increase in life satisfaction among women who perceive a fertility problem. We also expected to find that women who perceive a fertility problem and did not become mothers would show the greatest declines in life satisfaction.

We found partial support for these expectations. Becoming a mother was associated with an increase in life satisfaction that differed from not becoming a mother only for women who perceived a fertility problem at both waves. Women who gained, lost, or never had a fertility problem perception did not experience gains in life satisfaction when compared with women who never perceived a problem. It is well known that becoming a parent brings strains as well as satisfaction (Baetschmann, Staub, & Studer, 2016; Hansen, 2012), and it may be that the pluses outweigh the minuses primarily among those for whom achieving parenthood represented the achievement of a blocked goal. One might expect that women who had a live birth

after gaining or losing a fertility problem identity would also experience gains in life satisfaction, but there was no evidence for this expectation. We are not sure why this association emerged, but it might be due to the small size of these two groups. It may also be that the likely shorter duration of a perceived problem was a factor.

Women who maintained a fertility problem identity but did not have a live birth experienced the greatest declines in life satisfaction. Women who never identified as having a fertility problem also experienced decreased life satisfaction if they did not have a live birth, but this decline was not as sharp as it was for women who always identified as having a problem. Women who gained or lost a fertility problem perception between waves but did not have a live birth actually experienced a gain in life satisfaction between waves. It seems logical that losing a fertility problem perception should be associated with an increase in life satisfaction. It is more challenging to explain why gaining a fertility problem identity could have resulted in increased life satisfaction. It may be that these were women who just began treatment and are optimistic about their chances for success. Another possibility is that these women have come to accept their childlessness. Additional research, perhaps using qualitative methods, is warranted.

As expected, changes in religiosity, social support, relationship status, and economic hardship were associated with changes in life satisfaction. Although these variables were not the main focus of our study, these findings deserve exploration in future research. We did not find that talking to a doctor, change in importance of parenthood, change in importance of leisure, or change in importance of work success were associated with changes in life satisfaction. Given suspicions that medical help-seeking rather than fertility problems could be associated with lower life satisfaction, it was interesting to find no association between talking to a doctor for help to get pregnant and changes in life satisfaction.

As with all research, this study has limitations. First, there was limited change in life satisfaction during the 3-year period between waves. Also, the relatively small sample size in certain subgroups limits conclusions because of smaller standard errors that result in higher *p* values even with substantial coefficients. Thus, there is a need for replication with a larger sample of women who identify as having fertility problems. Nonetheless, the fact that we were able to detect

significant changes for several groups even with these limitations gives us some confidence in the results. More observations during a longer time period would also enhance insight regarding perceiving fertility problems, becoming a mother, and life satisfaction.

It is possible that the inclusion of “maybe” answers to the two questions concerning perceived infertility identification and the inclusion of “might have” language in the questions themselves might have resulted in falsely classifying some women as perceiving a fertility problem. Another limitation has to do with the order in which the questions on the survey were asked. For example, there may be social desirability bias because the life satisfaction items were asked after the fertility problem questions. The respondents may have been alerted to the aim of the questionnaire and may have answered the life satisfaction questions inaccurately to project a positive self-image. Because the question order was the same for both waves, the question order effect may be more impactful on the level of scores overall than on change in life satisfaction between waves.

Using longitudinal data limits the likelihood of incorrect interpretations of causality, but causal direction concerns remain an issue. It is possible that life satisfaction can influence whether women perceive fertility problems at Wave 1. On the other hand, because life satisfaction at Wave 1 was measured prior to change in life satisfaction between waves, it is unlikely that this could have a major effect on our basic findings. It is also challenging to know what time interval would be best for assessing the association of perceiving fertility problems, having a child, and life satisfaction. Having at least two waves of data provides more confidence in the results than cross-sectional data, but we remain cautious about drawing conclusions because we were not able to follow women across their entire reproductive years.

Even with limitations, the current study makes important contributions to scholarship on the transition to parenthood and life satisfaction. Our data confirm our expectation that the association between becoming a mother and life satisfaction depends on both the social context and the meaning of life events. We found that becoming a mother was associated with the greatest increases in life satisfaction among women who perceived a fertility problem at both waves and that not making the transition to parenthood was associated with the greatest decrease in life satisfaction among women who persist

in perceiving a fertility problem. Thus, achieving the desired goal of motherhood was associated with increased life satisfaction and failing to achieve this goal was associated with decreases in life satisfaction. The relationship between life satisfaction and becoming a mother depends, then, not only on objective circumstances but also on one's definition of the situation.

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