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## Changes in Relationship Satisfaction Across the Transition to Parenthood: A Meta-Analysis

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### Abstract

The U.S. government has recently spent several hundred million dollars to promote healthy relationships in new parents. The influx of money implies that relationships of new parents are at elevated risk for declining satisfaction and dissolution. This meta-analysis aggregates data from 37 studies that track couples from pregnancy to after the birth of the first child and 4 studies that track childless newlywed couples over time and compare couples who do and do not become parents. Results indicate significant, small declines in relationship satisfaction for both men and women from pregnancy to 11-months post-birth; five studies that followed couples for 12–14 months found moderate-sized declines. Seven variables moderated the decrease in relationship satisfaction from pregnancy to early parenthood. However, the decrease in satisfaction may not indicate anything unique about the transition to parenthood; the four studies following newlyweds indicated that those who do not become parents experience a similar decrease in relationship satisfaction as parents do across a comparable span of time. Implications for prevention and future directions are discussed.

### Keywords

Transition to Parenthood; Relationship Satisfaction; Meta-Analysis; Couples; longitudinal

The transition to parenthood (TtP) has received increasing attention over the last decade, with the U.S. government spending several hundred million dollars for interventions for new parents aimed at promoting healthy relationships (e.g., U.S. Department of Health and Human Services, 2008). The influx of money implies that parents with newborns are at elevated risk for relationship distress and dissolution. Although numerous studies have reported that relationship satisfaction significantly declines after the birth of the first child (e.g., Van Egeren, 2004), other studies have found no change or even an increase in relationship satisfaction (e.g., Wallace & Gotlib, 1990). This meta-analysis of the change in relationship satisfaction across the TtP will derive a composite estimate of the direction and magnitude of the effect. We hypothesized that there will be a decrease in relationship satisfaction from pregnancy to early parenthood.

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Nearly all TtP studies used a prospective cohort design, assessing relationship satisfaction in one or both expectant first-time parents prenatally and postnatally (ranging from 6 weeks to 1 year). This design — labeled Prospective Cohort Design study of the Transition to Parenthood (PCD<sub>TtP</sub>) — has two key strengths: (a) a targeted cohort can be easily obtained; and (b) the temporal relationship involving pre- and post-parenting satisfaction can be established. The PCD<sub>TtP</sub> design has two key weaknesses: (a) the lack of a contrast group makes it impossible to discern if declines in satisfaction during the TtP parallel naturally occurring reductions in non-parents (Huston & Holmes, 2004); and (b) beginning studies during pregnancy may result in inflated pre-parenting satisfaction due to positive expectations and conciliatory behaviors of partners during pregnancy (i.e., putative declines in satisfaction across the TtP may represent only a return to pre-pregnancy satisfaction for many couples; Huston & Holmes, 2004).

Another prospective cohort design begins with childless newlywed couples who are later reassessed when some of the couples have become parents. This design — labeled Prospective Cohort Design study of Newlywed Couples (PCD<sub>NC</sub>) — has two key strengths: (a) couples who did not become parents can provide a contrast group to those who do and (b) there can be no pregnancy-related inflation of satisfaction because all couples are assessed prior to pregnancy. The PCD<sub>NC</sub> design has two key weaknesses: (a) all couples must be married prior to childbearing and (b) couples who become parents may be different than those who do not.

There are a dozens of PCD<sub>TtP</sub> studies and few PCD<sub>NC</sub> studies, making the former more appropriate for meta-analysis. Thus, this meta-analysis will focus on PCD<sub>TtP</sub> studies but will use the results from the contrast-group-including PCD<sub>NC</sub> studies to put these results in context.

A number of potential moderators will be tested. Sample composition potential moderators include age and length of relationship, which were hypothesized to be positively associated with postnatal relationship satisfaction (suggested by findings that length of marriage prior to parenthood is positively association with relationship satisfaction after the birth of the child; Helms-Erikson, 2001). Samples with a higher percentage of white couples were hypothesized to show greater decreases in relationship satisfaction, as suggested by findings that African American couples report happier marriages after the birth of the child (Hobbs & Wimbish, 1977). In addition, education level, gender of the infant, region of the sample, and marital status were explored as potential moderators.

Study design potential moderators include type of outcome measure used. The majority of studies relied on “adjustment” measures (e.g., Dyadic Adjustment Scale, DAS; Spanier, 1976; Marital Adjustment Test, MAT; Locke & Wallace, 1959), the scores of which are influenced mostly by behavioral and cognitive items rather than by global satisfaction items (Eddy, Heyman, & Weiss, 1991). Huston and Holmes (2004) have questioned the interpretability PCD<sub>TtP</sub> findings based on adjustment measures, claiming that the declines over time might merely reflect behavioral changes that occur after the birth of the first child. Studies that used global measures of satisfaction (e.g., Quality of Marriage Index; QMI, Norton, 1983), compared with those that used adjustment measures, were hypothesized to show less decline in relationship satisfaction. Next, the length of time to postnatal assessment was hypothesized to be negatively associated with outcomes because relationship satisfaction declines over time (e.g., Schulz, Cowan & Cowan, 2006). Finally, although some potential moderators were not theoretically based (e.g., year of study, methods of recruitment and assessment), investigating empirical moderators via meta-analysis helps to mine, synthesize and interpret the extant research.

## Method

### Literature Search

PsycInfo (1887–2006) and PubMed (1966–2006) were searched. Studies published through January, 2007 were included. Keywords used were combinations of (a) *transition AND parenthood OR parenthood status OR first time parent* AND (b) *relationship satisfaction OR marital satisfaction OR marital relations*. PsycInfo yielded 291 potential articles and PubMed yielded 19 potential articles, 6 of which were unique findings. In addition, a number of key researchers in this area were emailed to uncover potential unpublished studies on the topic.

### Inclusion and Exclusion Criteria

To be included, the studies had to meet the following four criteria: (a) be published in English, Spanish, German, or Italian; (b) be a prospective cohort study of first-time parents beginning in pregnancy at the latest; (c) include a measure of relationship satisfaction administered prenatally and postnatally, and (d) for intervention studies only, include a randomly assigned control group which could be used in the analysis. The exclusion process yielded a total of 37 PCD<sub>TIP</sub> studies that met inclusion criteria and for which effect sizes could be obtained (see online Figure 1 for details). Four additional PCD<sub>NC</sub> studies were obtained.

### Effect Size Calculation

Standardized mean gain score effect sizes were derived from pre- and post-birth means and standard deviations in 29 studies and from *t*-scores or *F*-values in 8 studies. The effect sizes derived from means and standard deviations were calculated (see Lipsey and Wilson, 2001, p. 44, Formula 3.14). The effect sizes derived from *t*-scores or *F*-values were calculated using the DSTAT software (Johnson, 1989). Thirty-two studies yielded effect sizes for women, 30 for men, and 6 for couples (see online tables for further explanation). In a number of studies, the individuals were assessed at multiple post-birth time points; in those cases, separate effect sizes were calculated to indicate the change from pregnancy to each time point.

### Moderator Variables

Each study was coded for potential moderator variables: time of postnatal assessment, year of publication, method of recruitment (e.g., newspaper, clinic, prenatal class), method of assessment (e.g., in-home visit, mail-in packets, laboratory visit), assessment measure (e.g., DAS, MAT), inclusion criteria for the sample (e.g., married only vs. married/unmarried), age (average, low, high), mean length of relationship, average years of education, percentage of married couples, percentage of white participants, percentage of male infants, and region.

Total sample size ranged from 23 to 400 with  $M = 139.46$  ( $SD = 81.86$ ). Mean ages ranged from 16.40 to 31.00 with  $M = 27.55$  ( $SD = 2.56$ ) for wives and 18.30 to 33.30 with  $M = 29.41$  ( $SD = 2.70$ ) for husbands. Twenty-four of the studies were conducted in North America (20 in the United States and 4 in Canada); further descriptive information is in online Table 1.

## Results

### Prospective Cohort Design Studies of the Transition to Parenthood

**Aggregate effect sizes**—Unbiased, or adjusted for small sample size, standardized mean gain score effect sizes (*gs*) for men from prenatal to postnatal assessment ranged from  $-0.99$  to  $0.27$ , with negative effect sizes indicating a decrease in relationship satisfaction from prenatal to postnatal assessment. For women, the effect sizes ranged from  $-0.93$  to  $0.17$ , and for couples, the effect sizes ranged from  $-0.52$  to  $0.30$  (see online Table 2 for all effect sizes).

Because some studies assessed parents at a number of time points after the birth of the child, multiple effect sizes could be calculated for those studies. However, including multiple effect sizes from the same study would violate the independence assumption for aggregating effect sizes. Thus, the first postnatal assessment for those studies was used when aggregating the overall effect sizes. In addition, aggregate effect sizes were calculated for more specific time frames, in which all studies that assessed relationship satisfaction during that time frame were included (e.g., an aggregate effect size for studies that assessed at 0.5 to 2 months postnatally).

The overall effect sizes for men, women, and couples were all significantly heterogeneous ( $Q[28] = 319.55, p < 0.0001, Q[30] = 276.11, p < 0.0001$  and  $Q[5] = 252.33, p < 0.0001$ , respectively). Thus, a random-effects model is appropriate for reporting the aggregate effect sizes; inverse-variance-weighted mean effect sizes for men, women, and couples were  $g = -0.23$ , 95% Confidence Interval (CI) =  $-0.32 - -0.14, p < 0.0001$ ;  $g = -0.27$ , 95% CI =  $-0.35 - -0.19, p < 0.0001$ ; and  $g = -0.08$ , 95% CI =  $-0.39 - 0.23, p = 0.63$ , respectively. For aggregate effect sizes for specific time frames, see online Table 3.

**Moderator analyses**—Because the overall effect sizes were significantly heterogeneous, a series of moderator analyses using regression analogue for continuous variables and ANOVA analogue for categorical variables was conducted, the results of which are given in online Table 4. However, moderator analyses were not run for the effect sizes in specific time frames, because the missing data on moderator variables combined with the small number of studies per time frame did not easily accommodate moderator analyses.

When entered individually into separate fixed-effects models, 13 moderators for men, 18 for women, and 6 for couples accounted for a significant amount of heterogeneity in effect sizes (see online Table 4). However, all of the moderators left a significant amount of heterogeneity unexplained, indicating that the assumptions of a fixed-effects model were not met. When the moderators were entered separately into mixed-effects models, for men, three of the moderators (time of postnatal assessment, whether recruitment was done in a prenatal class, whether recruitment was done in an OB/GYN or clinic) were still significant, and one (whether the study was done in North America) approached significance. For women, four of the moderators (time of postnatal assessment, year of publication, percentage of married participants, assessment of relationship satisfaction) were still significant, and one (whether recruitment was done in a prenatal class) approached significance. For couples, time of the postnatal assessment was significant and length of marriage approached significance.

### Prospective Cohort Design Studies of the Newlywed Couples

**Aggregate effect sizes**—As shown in online Table 5, unbiased standardized mean difference effect sizes ( $g$ s) ranges comparing those who later became parents with those who did not at Time 1 were  $-0.76 - 0.39$  for men and  $-1.07 - 0.49$  for women; at Time 2, ranges were  $-0.22 - 0.18$  for men and  $-0.10 - 0.37$  for women (positive effect sizes indicate greater relationship satisfaction in parents). The standardized mean gain score (from Time 1 to Time 2) effect size ranges for parents were  $-0.34 - -0.15$  for men and  $-0.33$  to  $-0.03$  for women; for non-parents, ranges were  $-0.93 - -0.08$  for men and  $-0.99 - 0.01$  for women. The aggregate for each type of effect size is provided in online Table 3.

### Comparison of PCD<sub>TTP</sub> and PCD<sub>NC</sub> Studies

The results from the two designs create two very different portraits of the impact of a first child on marital satisfaction. PCD<sub>TTP</sub> studies indicated that marital satisfaction decreases from pregnancy to post-birth, whereas the PCD<sub>NC</sub> studies indicated that marital satisfaction decreases across time for *all couples*, regardless of whether they become parents. Note that

effect sizes for change in satisfaction for parents in the PCD<sub>NC</sub> studies ( $g = -0.22$ ) was almost identical to the overall effect sizes found for parents in the PCD<sub>TtP</sub> studies ( $g = -0.23$ ).

## Discussion

As hypothesized, PCD<sub>TtP</sub> studies reveal significant, small, declines in relationship satisfaction for both men and women from pregnancy to 11-months post-birth; the five studies that followed couples for 12–14 months found moderate-sized declines. The effects ranged from large declines to small increases for both men and women. Seven variables moderated the decrease in relationship satisfaction from pregnancy to early parenthood. Global satisfaction measures were more sensitive to the TtP and showed a greater decline than adjustment measures did. Given this, we recommend that future researchers use newly available global measures of satisfaction derived from Item Response Theory analyses (Funk & Rogge, 2007) that are far more reliable than older adjustment or global satisfaction measures (Rogge, Funk, & Lee, 2009).

The decrease in satisfaction from pregnancy to post-birth in PCD<sub>TtP</sub> studies may not indicate anything unique about the TtP; the four PCD<sub>NC</sub> studies indicated that those who do not become parents experience a similar decrease in relationship satisfaction as parents do across a comparable span of time. Although caution is necessary because of the paucity of PCD<sub>NC</sub> studies, it is possible that declines across the TtP reflect normative waning in satisfaction during the first few years of marriage (Huston et al., 1986).

Nevertheless, there may still be a negative impact of childbirth on relationships not detected by this meta-analysis. First, because of the nature of meta-analysis, findings are based solely on means of each study; thus, individual differences in the TtP are ignored. It seems possible that the TtP would act as a catalyst for change in couples, and that for some couples that change would be positive (e.g., Cowan and Cowan, 1995). Further, important subgroups may be thus far undetected; that is, creating a simple distinction between parents and non-parents might not be the most efficient and informative way of dividing the population. Future studies could apply growth mixture modeling (e.g., Donovan, Small, Andrykowski, Munster, & Jacobsen, 2007) to new parent and non-parent groups to better explain the decline and to reveal clusters or variations in trajectories among these individuals. Second, PCD<sub>NC</sub> studies do not provide perfect contrast groups because those who become parents and those who do not might differ in important ways other than simply their parenthood status.

## Strengths and Limitations

This meta-analysis synthesizes a great deal of research on the impact of parenthood on relationship satisfaction, using the data of nearly 6,000 participants, highlighting differences in findings of prospective studies with and with contrastable groups, and testing moderation effects of study-level variables that would be impossible or impractical to test in a single study.

However, there are several limitations. First, despite contacting researchers, no unpublished studies (other than 14 dissertations, 38% of studies PCD<sub>TtP</sub> analyzed) were located, leaving open the possibility of the “file-drawer problem” (i.e., published studies might have stronger effect sizes than unpublished studies; Lipsey & Wilson, 1993). Second, both types of studies examined the effect on satisfaction only up to approximately one year after childbirth; thus, this meta-analysis cannot address longer-term effects. It could be that, for many or most couples, having a child puts satisfaction on a downward trajectory; longer longitudinal studies find a continued decrease in parents’ relationship satisfaction (e.g., Schulz et al., 2006). Finally, the results can be generalized only to parents in intact relationships expecting their first child and, in PCD<sub>NC</sub> studies, to legally married couples.

## Implications

New parents report greater openness to intervention and learning new skills (e.g., Halford, et al., 2003), the TtP may be the perfect time to halt the downward trajectory of satisfaction via prevention programming (e.g., shared realistic expectations, mutual support, effective communication, shared responsibility for relationship health, attributions of unexpected changes; Cowan & Cowan, 1995).

However, given both individual differences and the interstudy variability of effects, it appears that the TtP may not be a universal stressor, or “crisis,” for couples, as early theories suggested (e.g., LeMasters, 1957). If resources are limited, selective and indicated prevention could be used. The moderator analyses suggest that parents who are young, non-white, or unmarried and those in relationships of shorter duration before pregnancy are at highest risk for declines in satisfaction. In addition, the results of the original studies used in this meta-analysis indicate that screening for prevention should also assess the following risk factors: poor family-of-origin parental relationship quality (Perren et al., 2005); unplanned pregnancy (e.g., Cox, Paley, Burchinal, & Payne, 1999); more autonomy, less impulse control, and greater work role centrality (Levy-Shiff, 1994); and newborns who are female (Cox et al., 1999) or with difficult temperaments (Wright, Henggeler, & Craig, 1986). Furthermore, prior (non TtP) longitudinal studies of newlyweds also have found high risk for later dissatisfaction in individuals with high neuroticism (e.g., Karney & Bradbury, 1997), an insecure attachment style (e.g., Davila & Bradbury, 2001), or a psychological disorder (e.g., Halford, Bouma, Kelly, & Young, 1999).

This meta-analysis also found that attending prenatal classes attenuates decreases in satisfaction. This could reflect a positive direct benefit of the prenatal classes (e.g., Markman & Kadushin, 1986) or a distinctive quality of couples who choose to attend such classes (e.g., couples who attend prenatal classes together might be predisposed to cooperative parenting, which is related to greater relationship satisfaction, Belsky & Hsieh, 1998). Future studies should test experimentally the effects of prenatal classes on later relationship satisfaction.

Finally, future research should also to investigate the mechanisms of change in couples who do and do not have children. If the pathways toward satisfaction deterioration are different for parents and non-parents, then interventions (many of which are expansions of non-parental early relationship prevention programs) should target these parent-specific mechanisms.

## Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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## References

Note: Studies in the meta-analysis not cited in the main text can be found in Online Appendix 1.

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