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Sense of Control Predicts Depressive and Anxious Symptoms Across the Transition to Parenthood

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Abstract

In this study, the authors examined the relationship between sense of control and depressive and anxious symptoms for mothers and fathers during the 1st year of parenthood. Participants were 153 dual-earner, working-class couples who were recruited during the 3rd trimester of pregnancy at prenatal education courses. Data were collected 1 month antenatally and 1, 4, 6, and 12 months postnatally. Sense of control was decomposed into 2 distinct parts: an enduring component and a malleable component that changes with context. Consistent with a cognitive theory of emotional problems, results demonstrated that a sense of control served a protective function for mental health outcomes. A higher sense of enduring control predicted lower levels of psychological distress for new parents, and increases in control over time predicted decreases in depression and anxiety. Findings hold implications for interventions with expectant parents, such as expanding prenatal education courses to include strategies for enhancing and maintaining a sense of personal control.

Keywords

transition to parenthood; sense of control; psychological adjustment; depression; anxiety

Becoming a parent is considered one of the most demanding and stressful life transitions an individual will face (Cowan & Cowan, 2000), often giving rise to symptoms of depression (Hock, Schirtzinger, Lutz, & Widaman, 1995; O'Hara & Swain, 1996; Paulson, Dauber, & Lieferman, 2006). The National Institute of Mental Health (National Institute of Mental Health, 2005) estimates that 50–80% of women experience postpartum blues, sadness, anger, or anxiety after giving birth that can last months. Less is known about postpartum anxiety, but research suggests that it may be more prevalent than postpartum depression (Wenzel, Haugen, Jackson, & Robinson, 2003) and that anxiety symptoms can be overlooked or subsumed in depression (Stuart, Couser, Schilder, O'Hara, & Gorman, 1998).

Psychological distress across the transition to parenthood has the potential to impair the individual while presenting additional risk to the individual's partner and their relationship (Matthey, Barnett, Ungerer, & Waters, 2000; Wenzel, Haugen, Jackson, & Brendle, 2005), the parent–infant relationship (Nylen, Moran, Franklin, & O'Hara, 2006), parenting behaviors (Paulson et al., 2006), and child outcomes (Beardslee, Versage, & Gladstone, 1998). Among

the risk factors for postpartum depressive symptoms are preexisting levels of distress (Perren, von Wyl, Bürgin, Simoni, & von Klitzing, 2005), a low level of social or spousal support (O'Hara & Swain, 1996; Simpson, Rholes, Campbell, Tran, & Wilson, 2003), relationship dissatisfaction (Hock et al., 1995), infant temperament (Maxted et al., 2005), stressful life events (O'Hara & Swain, 1996), and personality (i.e., neuroticism; Matthey et al., 2000).

Few researchers, however, have examined postpartum psychological well-being in the context of cognitive factors. Cognitive theories of emotional problems suggest that individuals with maladaptive underlying beliefs about themselves, the world, or the future are prone to depression or anxiety when faced with stressful or negative life circumstances (Abramson, Metalsky, & Alloy, 1989; Beck, 2002). An example of a cognitive style that has been linked to psychological outcomes is an individual's sense of control.

Sense of Control and Psychological Outcomes

The concept of perceived control is a cognitive attribute that is discussed within the social and behavioral sciences in a variety of forms, such as personal control, locus of control orientation, instrumentalism, self-efficacy, mastery, self-directedness, personal autonomy, helplessness, and sense of control (Ross & Sastry, 1999). These terms are often used interchangeably despite having distinct features (Skinner, 1996). We discuss control as a construct generally reflecting whether life outcomes are subjectively ascribed to a person versus something external to a person. On one end of a continuum, a sense of personal control is the learned, generalized belief that one can and does master, control, and shape one's own life. At the opposite end of the continuum is perceived powerlessness, the belief that one's life is shaped by external forces, such as luck, chance, fate, or powerful others (Mirowsky & Ross, 1991).

Having a high sense of control is related to proactive behavior and positive psychological outcomes. Control is linked to an ability to take preventative action and to feel healthy (Mirowsky & Ross, 1991). An impairment of control is associated with depression, stress, and anxiety-related disorders (Abramson et al., 1989; Chorpita & Barlow, 1998; Mirowsky & Ross, 1999; Shapiro, Schwartz, & Astin, 1996). Indeed, cognitive theorists and clinicians associate mental well-being with feeling in control of one's internal psychological environment, specifically cognitions, beliefs, thoughts, and emotions (Beck, 2002).

Some contend that personal control is a stable personality trait (Wolfle & List, 2004), although there is evidence of developmental changes in control, such as those changes that come with age (Ross & Mirowsky, 2002) or in response to natural life events like entering parenthood (Sirignano & Lachman, 1985). Outside of psychology, sociological theory indicates that variables external to the individual (e.g., education, marriage, race) shape one's sense of control (Ross & Sastry, 1999). We theorize that personal control is composed of two parts: an enduring characterological piece as well as a malleable component that shifts with context. Also, in the context of cognitive theory, we examine the sense of control as having two components that make unique contributions to psychological adjustment during the transition to parenthood.

Sense of Control, Psychological Adjustment, and Parenthood

Longitudinal research indicates that new fathers with external control beliefs report higher levels of postnatal anxiety than do their counterparts with internal beliefs but that control beliefs are unrelated to maternal anxiety (Terry, 1991). Examining a related construct, Nomaguchi and Milkie (2003) found that parents reported lower levels of self-efficacy than did nonparents, and others linked low parenting efficacy with impaired parenting behaviors and psychological distress (Haslam, Pakenham, & Smith, 2006; Levy-Shiff, Dimitrovsky, Shulman, & Har-Even, 1998). Clinton and Kelber (1993) noted that among parents, unplanned pregnancy is associated with perceptions of stress and powerlessness. Taken together, these studies suggest that a

difficult transition to parenthood could undermine adults' sense of power to achieve their goals or that high perceptions of self-efficacy protect against depression and anxiety; however, few explicit links are drawn between control and psychological adjustment during the transition to parenthood. Further, gender distinctions noted in some studies underscore the need to examine links between control, parenthood, and mental health for both mothers and fathers.

The Present Study

Our purpose in this investigation was to explore how individuals' sense of control relates to psychological adjustment, namely anxiety and depressive symptoms, during the transition to parenthood. Sociological theory proposes that an individual's sense of control is a cognitive construct shaped by social factors. From a more psychological perspective, cognitive theory suggests that negative thinking styles, such as the perception that one is powerless (i.e., low sense of control), put one at risk for psychological distress. Guided by both of these theoretical perspectives, we investigated whether the sense of control is vulnerable to change for individuals in dual-earner, working-class families who are making their first transition to parenthood. We also examined the relation between new parents' sense of control and changes in depressive and anxious symptoms. In particular, the present study addressed the following questions:

1. *Do mothers' and fathers' self-reports of sense of control, depressive symptoms, and anxious symptoms change during the transition to parenthood?* Sociological theory posits that one's social address (e.g., marriage, socioeconomic status, gender) influences perceptions of personal control. For example, individuals in lower socioeconomic positions (e.g., those in the working class) report lower levels of control (Mirowsky & Ross, 1999). We hypothesized that the transition to parenthood establishes a social position (i.e., parenthood) that has the potential to differentially influence one's sense of control. Thus, we expected new parents to report changes in their sense of control across the transition. Existing research is limited in terms of the sense of control during the transition to parenthood, and it provides mixed evidence regarding emotional outcomes during this critical life change. We anticipated a significant degree of variability regarding changes in individuals' sense of control as well as depressive and anxious symptoms.
2. *Does individuals' sense of control predict reports of depressive and anxious symptoms during the transition to parenthood?* According to cognitive theory, perceptions that one can not control life outcomes are a form of maladaptive thinking that puts one at risk for psychological distress. We hypothesized that a high sense of control protects new parents from experiencing anxiety and depressive symptoms and that a low sense of control predicts increased reports of anxiety and depression.
3. *Do changes in individuals' sense of control predict reports of depressive and anxious symptoms during the transition to parenthood?* Consistent with cognitive theory that a sense of control represents a cognitive resource, we hypothesized that increases in new parents' sense of control predict decreases in depressive and anxious symptoms, whereas decreases in control predict increases psychological distress.

In this investigation, we build on existing literature by supplementing what is known about both men's and women's psychological adjustment on entering parenthood; establishing a link between sense of control and mental health outcomes for new parents; (c) distinguishing between the enduring, characterological nature of control and a sense of control that is vulnerable to change due to social factors; and (d) examining how two distinct components of control explain variability in both new mothers' and new fathers' psychological adjustment. The aims of the study are explored with a unique sample of dual-earner, working-class couples who may be psychologically vulnerable during the transition to parenthood because of the

stress of coping with limited financial resources. Further, individuals in this demographic may feel like they have less control during the transition to parenthood because of the perceived and actual challenges of juggling multiple roles (Deutsch, 1999; Hochschild & Machung, 2003).

Method

Participants

Participants were 153 dual-earner, working-class, heterosexual couples recruited at hospital prenatal education classes in the western New England area. Married or cohabiting couples were chosen for inclusion if both partners (a) were expecting their first child, (b) worked full time least 35 hr per week) prior to the birth of their baby, planned to return to work full time within 6 months of the birth, and (d) were working class (defined by restricting educational level to an associate's degree or less). Data from local hospitals and clinics indicated that 75–85% of first-time parents attended prenatal classes. Of the 15–25% parents not attending classes, close to 80% were single mothers and did not fit inclusion criteria. Thus, we had access to a fairly representative sample of first-time, working-class new parents.

Men's average age at the time of their partner's pregnancy was 29.1 years. Women's average age of 27.8 years was equivalent to the average age of first-time mothers Massachusetts where the study was conducted but was greater than the national average age of 25.1 years (Massachusetts Department of Public Health, 2004). Median salaries were \$27,000 and \$22,000 for men and women, respectively, and the median family income was \$47,000. Mothers' weekly work hours ranged from 0 to 60, with mean of 40.5 hr. However, their distribution is negatively skewed, indicating that many mothers worked more hours than the mean. At the first assessment, only 8 mothers worked fewer than 30 hr per week, and only 1 mother was not working at all, because of complications with her pregnancy. Fathers' weekly work hours ranged from 13 to 70, with a mean of 47.8 hr per week. Only 1 father reported working fewer than 35 hr per week. In comparing our sample of first-time parents with the broader population of first-time parents in the prenatal classes, our sample, as expected given the selection criteria, was less educated, had a lower family income, and worked more hours. We lost 12 couples over the course of the study, an attrition rate of 9%. Seven couples split up over the course of the first year, and the remaining 5 simply declined to participate further.

Almost 80% of the couples ($n = 119$) were married, and the remaining 34 couples were cohabiting. One hundred (65.4%) couples indicated they planned their pregnancies, and the remaining couples (34.6%) indicated their pregnancy was unplanned. All babies were full term and healthy at birth.

There was a range in educational attainment levels. Although the highest degree held by 22.2% of women and 32.7% of men was a high school or general equivalency diploma, a majority of the sample (50.3% of women and 52.3% of men) had some type of additional schooling or vocational training after high school (e.g., beautician's school, refrigeration mechanic training, truck driving). However, only 27.5% of women and 15.0% of men held a 1- or 2-year associate's degree. The majority of participants were White (94.8% of women, 90.2% of men).

Procedures

Trained graduate students were given 5 min during prenatal classes to describe the study and address questions. Expectant parents then completed a demographic form with information on age, relationship status, income, type of job, work hours, and intent to return to work after the baby's birth. Interested families who provided contact information were phoned and scheduled for an interview. In accord with policies of the institutional review board,

participants gave consent prior to beginning the interview process. All families received \$150 for participation. The design of the study - included four in-home, face-to-face interviews and one mail interview, all conducted over a 1-year period at the following times (relative to the child's birth): third trimester (−0.96 months; Time 1), 1 month postpartum (1.3 months; Time 2), 4 weeks after the mothers' return to work (4.57 months; Time 3), 6 months postpartum (6.68 months; Time 4), and 1 year postpartum (12.81 months; Time 5). Data for the present study were drawn from a larger study focused on work and family transitions led by Maureen Perry-Jenkins.

Measures

Sense of control—The sense of control was measured by an index of responses to eight statements tapping control and lack of control over good and bad outcomes (Mirowsky & Ross, 1990). Positive scores indicate a tendency to agree with internal statements and to disagree with external ones (negative scores indicate the opposite). Sample items include “I am responsible for my own successes” and “I have little control over the bad things that happen to me.” Averaging across responses, a perceived-control index was created for each participant, coded from low perceived control (−2) to high perceived control (2). The scale designers reported that having equal numbers of statements tapping an internal and an external loci of control and having equal numbers of items about positive and negative outcomes are strengths of the measure. Alpha reliabilities for subscales of internal and external attributions ranged between .60 and .70. The average alpha reliability for the full scale across the five time points for this study was .52 for mothers and .60 for fathers, which are comparable to reliabilities of .57 and .66 for Mirowsky and Ross's statewide and student samples. It should be noted that reliabilities were higher after the baby was born, perhaps pointing to the increased salience of the sense of control construct after the baby has arrived. The scale authors noted also that the reliability of an index measure is lower than that of a measure containing agreement or defensiveness bias. Given the authors' argument for including one's sense of control over good and bad events in one measure, we chose to use the full measure to compare our findings with a number of studies in the field.

Each participant had a maximum of five sense of control scores (one per data collection point) that were averaged to represent an enduring component of control for that individual. This average score represents a time-invariant predictor variable. A malleable control component was computed by subtracting each person's score from their own mean score for each time point. These deflections from the person's mean represent the time-varying predictor variable.

Depression—Depression was assessed on five occasions using a 20-item scale devised by the Center for Epidemiologic Studies of the National Institute for Mental Health (CES-D; Radloff, 1975). Two items were deleted for the analyses because they could possibly be confounded with physical symptoms sometimes experienced by pregnant women (i.e., “I did not feel like eating; my appetite was poor” and “My sleep was restless”). Participants indicated how often during the previous 7 days they experienced different moods and thoughts. Using a 4-point scale ranging from 0 = *none of the time (less than once a day)* to 3 = *most or all of the time (5–7 days)*, respondents estimated the frequency of feelings corresponding to statements such as “I was happy” and “I felt that people disliked me.” A high score on this measure indicates greater symptomatology. In this sample, the scale reliability alpha averaged .89 for both mothers and fathers across the five time points.

CES-D scores were entered as continuous variables in all analyses; however, we note the percentages of participants at or above the clinical cutoff for depression to give a sense of symptom severity reported by this community sample. Across the five time points of data collection, the percentage of men scoring 16 or greater was 15% at Time 1, 12% at Time 2,

12% at Time 3, 13% at Time 4, and 11% at Time 5. For women, the percentages were significantly higher: 44% at Time 1, 26% at Time 2, 29% at Time 3, 26% at Time 4, and 25% at Time 5.

Anxiety—Spielberger's (1972) State Anxiety subscale of the State–Trait Anxiety Inventory also was administered at five time points. State anxiety is conceptualized as a transitory emotional state or condition of the human organism that is characterized by subjective, consciously perceived feelings of tension and apprehension and heightened autonomic nervous system activity. On a 4-point intensity scale, respondents rated the extent to which 20 statements (e.g., “I feel nervous and restless,” “I make decisions easily”) represented their current feelings. A high score on this measure indicates greater symptomatology. The average scale reliability alpha across the five phases was .90 for mothers and .89 for fathers.

Across the five time points of data collection, the percentage of men at or above the clinical cutoff for anxiety was 16% at Time 1, 12% at Time 2, 16% at Time 3, 18% at Time 4, and 14% at Time 5. For women, the percentages were significantly higher: 36% at Time 1, 19% at Time 2, 28% at Time 3, 31% at Time 4, and 24% at Time 5.

Contextual variables—Other variables included total family income, average weekly work hours, married versus cohabiting status, and planned versus unplanned pregnancy.

Analytic Overview

Hierarchical linear modeling techniques were used (HLM; Raudenbush & Bryk, 1992), which extend multiple regression approaches to the longitudinal case of time points nested within individuals (repeated-measures data) and provide a flexible framework for capturing patterns of linear or nonlinear change over time. It is also a useful technique for the present study because it incorporates the dependence in scores that arises because of the nesting of persons within couples. Finally, this technique accounts for missing outcome data and avoids an assumption that the spacing between occasions of measurement is consistent across individuals.

Results

Descriptive Statistics

Table 1 presents descriptive statistics for mothers' and fathers' sense of control, depression, and anxiety across the five time points of measurement. Histograms for parents' depression revealed positively skewed and kurtotic distributions. As multivariate normality is an assumption underlying the HLM model, we transformed participants' depression scores by taking the natural log of their scores; the transformed scores were used in the analyses. As suspected, correlations between participants' depression and anxiety scores were high: Mens' correlations ranged between .71 and .85 ($p < .01$) and womens' correlations ranged between .58 and .78 ($p < .01$) across five time points of data collection. Regardless, we chose to keep depression and anxiety as independent outcomes because they are distinct psychological constructs.

Baseline Model Results

We first describe results from baseline models for the three outcomes. The baseline model specifies the repeated measures as a polynomial function of time (either linear or curvilinear) and provides estimates of (a) the fixed effects, or the average growth trajectory, and (b) the variance components, or heterogeneity around the average trajectory. The growth function is characterized by three parameters: (a) an intercept that can be interpreted as the predicted value of the outcome when time is zero, (b) a linear term that can be interpreted as the linear rate of change per unit of time (in models that include a quadratic parameter, this is interpreted as the

linear rate of change at the point on the trajectory where time is zero), and (c) a quadratic term that can be interpreted as the rate of acceleration (or deceleration) in the trajectory over time. We created a zero point for time by subtracting the Time 4 value from each occasion of measurement. This permits us to interpret the intercept as the predicted value of the outcome at Time 4, when the baby was 6 months old. For each outcome, we conducted a multivariate comparison test to determine whether a linear or quadratic model fit the data most optimally.

Sense of control—A nonsignificant model comparison test, $\chi^2(2, N = 146) = 0.35, p > .500$, suggested that there was no difference between the linear and quadratic models and that the more parsimonious model best described change in sense of control. The average trajectory for women indicated that the intercept (Time 4 sense of control) was significantly different from zero ($\beta = .638, p < .001$) but the linear slope was flat. The average trajectory for men indicated that their intercept was higher ($\beta = .703, p < .001$) and that they increased in control over time ($\beta = .006, p < .05$). Significance tests of the variance components indicated that there was heterogeneity around the average trajectories for both mothers and fathers, suggesting that we could treat sense of control as a dynamic construct. We treat sense of control as both a time-invariant (enduring component) and a time-varying (changing component) predictor in the following Level 2 models that explore potential predictors of mental health change.

Depression—A significant model comparison test, $\chi^2(6, N = 140) = 13.76, p < .05$, suggested that the quadratic model was the best fit to the data. The average trajectory for women indicated that the intercept (Time 4 depression) was significantly different from zero ($\beta = .414, p < .001$), and there was significant positive curvature in the trajectory, with initial declines in depression followed by slight increases. The average trajectory for men indicated that their intercept was lower ($\beta = .331, p < .001$) and that depression remained stable over time. Significance tests of the variance components indicated that there was heterogeneity around the average intercept and linear slope parameters but no heterogeneity in the quadratic or curvature parameter for both mothers and fathers. Thus, in later analyses, for mothers and fathers, we included predictors of level and slope but not curvature.

Anxiety—The model comparison test for anxiety revealed that the quadratic model provided the best fit to the data, $\chi^2(1, N = 146) = 4.27, p < .05$. Analyses revealed that on average, Time 4 anxiety was significantly different from zero for both women and men ($\beta = 1.775, p < .001$; $\beta = 1.656, p < .001$, respectively). On average, there was no significant change in mothers' anxiety over time; however, there was significant quadratic change for fathers' anxiety. Specifically, analyses revealed an $\cap$ -shaped pattern such that fathers' anxiety, on average, increased during the transition but lowered over time ($\beta = -.001, p < .05$). Significance tests of the variance components indicated that for both mothers and fathers, there was heterogeneity around the average intercept and linear slope parameters but no variability in the curvature parameter. Thus, in later analyses, we included predictors of level and slope for mothers' and fathers' anxiety but no predictors of curvature.

Explanatory Model Results

In the next phase of analyses, we added predictor variables to the models to explain variation in mothers' and fathers' depression and anxiety trajectories, thereby answering our second and third research questions. We also controlled for covariates that change with time, including sense of control, by including them in the Level 1 model. By doing so, one can discern whether controlling for changes in sense of control partially or even fully accounts for changes in mental health during the first year of parenthood. Specifically, the strategy of separating the time-varying and time-invariant effects of sense of control on mental health outcomes provides insight into (a) the extent to which enduring control is related to depression and anxiety and (b) the extent to which changes in perceived control are associated with changes in depression

and anxiety. This strategy, first described in Horney, Osgood, and Marshall (1995), involves group-mean centering sense of control at Level 1 and adding the aggregate control variable at Level 2.

The time-invariant predictor variables in Step 1 of the model included enduring control, income, marital status, work hours, and planned or unplanned pregnancy. All demographic variables were included in initial models but were dropped from analyses if they were insignificant predictors of mental health outcomes. Inclusion of these demographic variables in the models with sense of control addresses the issue of how enduring control predicts mental health outcomes above and beyond the effects of other possible influential factors.

Three explanatory models were constructed for mothers' and fathers' depression. All models included significant demographic variables. The first model incorporated sense of control as a time-invariant covariate (representing the enduring characteristic of control), the second model included sense of control as a time-varying covariate (representing the malleable component that changes with context), and the final model incorporated both. This procedure was repeated next for anxiety, resulting in a total of six explanatory models.

Depression—Table 2 shows the results of the three models predicting mothers' and fathers' depression. Model 3, which includes the effects of both components of control, proved to be a significant improvement in fit over the first two models, $\chi^2(2, N = 140) = 7.63, p < .05$. For mothers, higher levels of depression 6 months into parenthood (Time 4) were predicted by having less family income, being married, and having unplanned pregnancies. For fathers, low family income and being unmarried predicted higher levels of Time 4 depression. With both control components included, the effect of enduring control was not significantly different from zero. Working a greater number of hours predicted increases in depression for fathers. Most important, increases in control significantly predicted declines in parents' depression over time. It is change in control rather than the enduring character trait of control that is most important for depressive symptom outcomes during the transition to parenthood.

Anxiety—Model 3 includes sense of control as both a time-variant and a time-invariant predictor of anxiety. It was an improved fit over existing models, $\chi^2(5, N = 146) = 18.14, p < .01$ (see Table 3). Having a planned pregnancy and higher levels of enduring control significantly predicted lower levels of maternal anxiety 6 months into parenthood, whereas having greater family income and being married were significantly related to less anxiety for fathers. Although being married also was a significant predictor of declines in anxiety over time for fathers, enduring control was unrelated to change in anxiety. For all parents, higher levels of enduring control significantly predicted lower levels of anxiety 6 months into parenthood, whereas increases in control over time significantly predicted decreases in anxiety.

Discussion

Consistent with cognitive theories of psychological distress, our study showed that individuals' sense of control was a significant predictor of mental health outcomes for mothers and fathers during the first year of parenthood. Specifically, having a sense of control predicted lower levels of self-reported depression and anxiety symptoms 6 months into parenthood. Also, increases in one's sense of control during the transition predicted decreases in anxiety and depressive symptoms over the course of 14 months. We demonstrated that sense of control is a cognitive construct that can be conceptualized into two components, namely, one component that is stable and another malleable component that shifts with context, with both parts contributing uniquely to reports of psychological distress. When both components are considered simultaneously, the malleable aspect of control is the most important predictor of depression over time. Overall, our results suggest that having a sense of control is a protective

cognitive factor for individuals in dual-earner, working-class households who are potentially at risk of depression and anxiety during a difficult life transition.

The finding that control can be composed of a stable, enduring component as well as a malleable component vulnerable to outside stressors is important because measures of control typically are based on one-time assessments that are then used to predict concurrent and later outcomes. Such an approach is problematic because it is difficult to interpret the meaning of a one-time assessment of control—is it an accurate measure of one's enduring control, or is it an uncharacteristic value for that person that, because of situational influences, deviates greatly from one's enduring control? Predictions of new parents' post-partum well-being from an enduring measure of control may be offset by the degree to which new parents experience gains or losses of control during the transition to parenthood. To illustrate, two expectant mothers who are equally high in their enduring sense of control might be expected to fare well psychologically during the months following childbirth; however, contextual circumstances may undermine one mother's control during the transition, causing a decline in well-being over time. Imagine that one mother has to unexpectedly alter her work shift to accommodate a hectic childcare schedule: She may subsequently experience a decline in her sense of control, leading her to cope less well than the mother she initially resembled in terms of control. Such an example may explain why enduring control became a less powerful predictor of depression for new parents once the changing components of control were taken into account.

Our finding that personal control changes, at least for some individuals, during the transition to parenthood and that such change holds implications for mental health are particularly compelling when considering potential interventions for new parents. Few efforts have been made to extend traditional prenatal education programs to include psychoeducational components, although a handful of studies show how such programs can be expanded to promote adult well-being (e.g., Matthey, Kavanagh, Howie, Barnett, & Charles, 2004). Incorporating cognitive restructuring techniques into prenatal courses would be a cost-efficient approach to increase perceptions of control for expectant parents that would likely benefit them in terms of mental health. Because having a sense of control increases one's tendency to take action, teaching working parents ways to enhance and maintain their personal control may also serve them well in other domains, such as the workplace or relationships.

Having access to interventions is also an obvious need given the high numbers of women and men scoring within the clinical range of depression and/or anxiety across the transition to parenthood. Our results show that the sense of control explains some of the variability in emotional outcomes for new parents; thus, those who are equipped with this cognitive resource may be the parents who score lower or within the nonclinical range on measures of depression and anxiety. Although it was beyond the scope of this investigation to classify parents as high or low on any of the identified variables of interest—this would require an alternate analytic approach such as group-based modeling—doing so would be a profitable next step. Being able to categorize individuals in terms of their perceptions of control would also provide important information as to whether there are limits to the benefits of control. For example, Shapiro et al. (1996) suggested that having control may not be helpful to someone who has little opportunity to exert control in the environment. However, Ross and Sastry (1999) reviewed several studies that contradict the possibility that too much control can be problematic. Thus, efforts to change or control an event may be moderated by its perceived or actual controllability, although as yet little empirical evidence supports this notion.

Although our main goal in this study was to understand the relation between individuals' sense of control and mental health outcomes, this was not done without accounting for other influential contextual variables. Variables were chosen that would theoretically influence one's perception of control and/or one's experience of depression or anxiety, namely family income,

marital status, weekly work hours, and whether the pregnancy was planned. Consistent with expectations, having a higher family income or a planned pregnancy was beneficial in some cases for new parents' levels of depression and anxiety, likely because these situations afford greater actual control. Although being married was associated with increased levels of depression for mothers, married fathers reported lower levels of postnatal depression and anxiety compared with unmarried fathers. There is ongoing controversy in the literature regarding the health benefits afforded to men and women by marriage, and our findings are consistent with the view that marriage is more advantageous to men's mental health than women's. The fact that marital status resulted in increased depression for our working mothers may reflect the effects of role strain: The literature suggests that work does not benefit women as much as it does men because of the strain of meeting work and family obligations (Steil, 1997). Work hours was the only structural variable that predicted the rate of change of depression for fathers: Specifically, as work hours increased, depression increased. Given the dual-earner, working-class sample of interest, it is not surprising that work-related variables negatively impact functioning.

The results of this study should not be interpreted without acknowledging the limitations. Although the implications of this research draw attention to the importance of bridging the gap between empirical research and applied clinical intervention, this goal can not be fulfilled adequately without extending these community-based findings to a clinical sample of at-risk individuals. It is possible that the associations between control and clinical levels of psychological dysfunction operate differently. This research should be extended to include alternate measures of control, including those that tap perceived control specific to parenting situations, as well as interview-based psychological diagnostic assessments.

Findings from this study are based on a heterosexual Caucasian sample within the United States and may not generalize to same-sex parents, ethnic minority individuals, or new parents in other countries. Although some work has emerged in the past 10 years, research on lesbian and gay couples transitioning to parenthood is largely unexplored (Goldberg & Sayer, 2006). In terms of race, African Americans, Mexicans, and Asians have been found to have lower levels of control compared with White individuals (Ross & Sastry, 1999), and there is evidence that for some ethnic minority groups, having a sense of control may not necessarily be linked to positive mental health outcomes (Sastry & Ross, 1998). Also, the experience of parenthood likely varies in other developed nations (e.g., Sweden, Canada), where family leave and related policies greatly differ. Finally, it is difficult to draw causal conclusions about the transition to parenthood without having a comparison group of individuals not experiencing this change. Although there are many advantages to studying within-group processes, the changes experienced by the adults in this study may not necessarily be attributable to their changing parental status.

There also are notable strengths of this study. First, the focus on a working-class sample is an entirely new effort in general and in terms of modeling change in mental health across the transition to parenthood, offering new contributions to the literature. Most important, working-class individuals have been understudied, yet they are the people whose time is absorbed between maintaining work and family but whose resources for maintaining personal well-being are often limited or depleted.

The longitudinal study design used in this study afforded the opportunity to capture and model change in important outcomes for individuals and to do so during a particularly salient life transition. With five data points over the course of 1 year, one can see fluctuations in outcomes that might otherwise be overlooked, permitting closer approximations to real-life patterns of change over time. For example, assessing a person's anxiety at one point and again 12 months later may yield the same score, leading to a deceiving conclusion that anxiety was stable during

the year and masking a significant dip between baseline and recovery. Not only are such potential peaks or drops important to capture, the timing of those changes can be accurately identified with five points of measurement during a brief, 1-year span of time.

Future intervention research should target expectant parents by offering strategies for enhancing perceptions of control during prenatal education classes or through other mechanisms. After such an intervention, new parents should exhibit higher levels of personal control, which may ultimately lead to improved mood and an ability to exert control. Despite the ability of individuals' perceived control to explain variance in depression and anxiety means and rates of change, the models did not account for all of the variance to be explained. Future research should reveal other mechanisms that explain interpersonal differences in means and rates of change in mental health for new parents. In addition, given the variability in parents' sense of control and changes in their control across the transition, another next step would involve identifying factors that explain variability in control. For example, child factors (e.g., health status, temperament) or other parenting-related variables (e.g., costs and availability of childcare, work shift) likely impact new parents' coping and adjustment during this transition time.

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Table 1

Descriptive Statistics for Mothers' and Fathers' Sense of Control, Depression, and Anxiety

Variable	Mothers ^a		Fathers ^b	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Control ^c				
Time 1	0.59	0.37	0.62	0.46
Time 2	0.65	0.41	0.71	0.44
Time 3	0.58	0.42	0.68	0.49
Time 4	0.65	0.44	0.73	0.50
Time 5	0.67	0.43	0.75	0.51
Depression ^d				
Time 1	16.05	9.07	9.16	7.54
Time 2	12.21	8.19	9.26	7.25
Time 3	12.41	9.45	9.10	8.28
Time 4	12.54	9.24	9.31	9.06
Time 5	12.34	9.71	8.49	7.75
Anxiety ^e				
Time 1	36.87	8.88	32.45	7.69
Time 2	33.81	8.71	31.58	7.60
Time 3	35.53	9.55	32.60	8.45
Time 4	36.51	9.67	33.18	10.03
Time 5	34.67	8.64	31.66	8.14

^a *N* ranges between 133 and 152 because of missing data at different time points.^b *N* ranges between 123 and 152 because of missing data at different time points.^c Measured on a 5-point, 8-item scale from low perceived control (−2) to high perceived control (2).^d Measured on a 4-point, 20-item scale from *none of the time* (0) to *most or all of the time* (3).^e Measured on a 4-point, 20-item scale from *not at all* (1) to *very much so* (4).

Table 2

Unstandardized Coefficients for Time-Invariant and Time-Variant Covariates for Mothers' and Fathers' Log Depression (N = 153 Couples)

Predictors	Model 1: Sense of control as time-invariant covariate		Model 2: Sense of control as time-varying covariate		Model 3: Sense of control as time-invariant and time-varying covariate	
	Mother coefficient	Father coefficient	Mother coefficient	Father coefficient	Mother coefficient	Father coefficient
Level of depression						
Intercept	-0.4014***	0.4019***	0.4082***	0.3992***	0.4092***	0.3970***
Income	-0.0000**	-0.0000**	-0.0000**	-0.0000**	-0.0000**	-0.0000**
Married	0.1135*	-0.0895**	0.1198*	-0.0914**	0.1154*	-0.0893***
Planned pregnancy	-0.1182**	<i>ns</i>	-0.1279**	<i>ns</i>	-0.1233**	<i>ns</i>
M sense of control	-0.1563***	-0.1063***			-0.1140 [†]	-0.0764 [†]
Rate of change in depression						
Intercept	-0.0035*	<i>ns</i>	-0.0032*	<i>ns</i>	-0.0033*	<i>ns</i>
Work hours	<i>ns</i>	0.0005**	<i>ns</i>	0.0005**	<i>ns</i>	0.0005**
M sense of control	<i>ns</i>	<i>ns</i>			<i>ns</i>	<i>ns</i>
Curvature in depression						
Intercept	0.0009**	<i>ns</i>	0.0009**	<i>ns</i>	0.0009**	<i>ns</i>
M sense of control	<i>ns</i>	<i>ns</i>			<i>ns</i>	<i>ns</i>
Sense of control time-varying intercept			-0.0841**	-0.0620**	-0.0717*	-0.0492*

[†] $p < .06$.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

Table 3

Unstandardized Coefficients for Time-Invariant and Time-Variant Covariates for Mothers' and Fathers' Anxiety (N = 153 Couples)

Predictors	Model 1: Sense of control as time-invariant covariate		Model 2: Sense of control as time-varying covariate		Model 3: Sense of control as time-invariant and time-varying covariate	
	Mother coefficient	Father coefficient	Mother coefficient	Father coefficient	Mother coefficient	Father coefficient
Level of anxiety						
Intercept	1.8546***	1.8577***	1.8809***	1.8411***	1.8766***	1.8335***
Income	<i>ns</i>	-0.0000*	-0.0000**	-0.0000**	<i>ns</i>	-0.0000**
Planned pregnancy	<i>ns</i>	<i>ns</i>	-0.1402*	<i>ns</i>	-0.1292*	<i>ns</i>
Married	<i>ns</i>	-0.2524**	<i>ns</i>	-0.2469**		-0.2415**
M sense of control	-0.3096**	-0.2774**			-0.2353*	-0.2276**
Rate of change in anxiety						
Intercept	<i>ns</i>	0.0153**	<i>ns</i>	0.0139**	<i>ns</i>	0.0143**
Married	<i>ns</i>	-0.0190**	<i>ns</i>	-0.0163**	<i>ns</i>	-0.0170**
M sense of control	<i>ns</i>	<i>ns</i>			<i>ns</i>	<i>ns</i>
Curvature in anxiety						
Intercept	<i>ns</i>	-0.0009*	<i>ns</i>	-0.0009**	<i>ns</i>	-0.0009**
M sense of control	<i>ns</i>	<i>ns</i>			<i>ns</i>	<i>ns</i>
Sense of control time-varying intercept			-0.1599***	-0.1085**	-0.1410***	-0.0829**

* $p < .05$.** $p < .01$.*** $p < .001$.