Breastfeeding, Marital Satisfaction, and Family Functioning in Primiparous Couples

By

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We accept this thesis as conforming to the required standard

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ABSTRACT

Little is known about the impact of infant-feeding practices on the marriage and on the functioning of the family. Research to date has focussed on the physiological, developmental, and psychological benefits of breastfeeding for the infant; the determinants of breastfeeding; and the sexual relations between the parents postpartum but has ignored the immediate and longer-term effects of infant-feeding practices on the family.

The objective of this study was to determine whether breastfeeding predicts marital satisfaction and family functioning for first-time parents. Secondary data from the National Longitudinal Survey of Children and Youth was analyzed for 1600 primiparous parents; 1444 of the persons most knowledgeable (PMK) were female while 156 were male. A review of the statistical findings reveals that there is evidence for the positive effect of breastfeeding on immediate marital satisfaction and family functioning. What is surprising, however, is that the proposed model is only relevant for fathers whose wives are currently breastfeeding. The relationship between breastfeeding and family functioning is mediated by marital satisfaction and moderated by social support for fathers. This study also includes an analysis of the breastfeeding practices (duration and reasons for cessation) of the families surveyed from across the provinces of Canada.
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INTRODUCTION

Research in the area of breastfeeding has been mostly guided by the "health belief" model that promotes breastfeeding as an infant health issue (Bulcroft, Forste, & White, 1993). In Canada, numerous initiatives supported by health care providers and advocated by public policy (Health Canada, 1993; Canadian Hospital Association, 1994; Canadian Pharmacist Association, 1995) are in place to encourage breastfeeding. The increasing social expectations for new parents to breastfeed are currently fuelled by health promotion efforts in support of the benefits for the child. However, little is known about the immediate benefits and costs for the parents, although emotional stability within the family is important for the health and development of children. The importance and impact of infant-feeding practices on the marital and familial relationships have been neglected. There have been no studies examining the impact of infant-feeding practices on family dynamics. There is no research, in particular, on the impact of infant-feeding practices on the marriage and on the functioning of the family in terms of communication, problem-solving, and decision-making. It is hypothesized that the choice to breastfeed or to bottlefeed and the adjustment during the transition to parenthood affect marital satisfaction and, in turn, family functioning. In an effort to encourage consideration of such variables by Canadian health professionals and practitioners, this study highlights the potential positive and negative outcomes of breastfeeding patterns on the psychological health and development of all family members. The purpose of this study is to examine the effects of breastfeeding on marital satisfaction and family functioning, thereby elucidating the implications of health behaviours on social interaction within the family.

The superiority of breastfeeding as a method of infant-feeding is touted in various medical resources (Lawrence & Lawrence, 1999; Riordan & Auerbach, 1999; Watters & Hodges, 1996). Indeed, the physiological and psychological benefits of breastfeeding for infants are well documented in the research literature (American Academy of Pediatrics [AAP], 1997). The potential immunological and nutritional benefits provided by breastmilk feedings (Lawrence, 1994; Lawrence & Lawrence, 1999) and in particular, colostrum (Filipp et al., 2001; Koceturk & Zetterstrom, 1999), are undisputed. Increased
intelligence and cognitive development have also been speculated to be associated with breastmilk (Horwood & Fergusson, 1998; Lucas, Morley, Cole, Lister, & Leeson-Payne, 1992), although there is only support for an association (as opposed to causation) between the variables and the findings have not been fully embraced by the medical community (Koren, 2000; Krugman & Law, 1999; Malloy & Berendes, 1998). Nonetheless, the identification of infant-feeding practices as a key variable in the later health and academic success of children (World Health Organization, 1996) further attests to the fact that breastfeeding is often viewed as an infant health issue. In fact, most mothers who choose to breastfeed their children base their decisions on these benefits to the baby (Cunningham, Jelliffe, & Jelliffe, 1991).

Despite this finding, however, irregularities among mothers in initiation of breastfeeding exist (Koçturk & Zetterström, 1999), and promotions have had a minimal impact on the high rates of breastfeeding cessation in the early weeks post-partum (Health and Welfare Canada, 1990, as cited in Watters & Hodges, 1996; see also Cooper, Murray, & Stein, 1993). To examine these trends in a more contemporary cohort, this study will be supplemented by analyses on the duration of breastfeeding and reasons for cessation of breastfeeding in Canadian families.

Numerous studies have been published on the factors predicting the onset and continuation of breastfeeding. The decision to breastfeed is affected by maternal employment (Lindberg, 1996), mother-infant interactions (Kuzela, Stifter, & Worobey, 1990; Vandiver, 1990), and demographic and psychosocial factors (Beaudry & Dufour, 1991; Cooper et al., 1993). Research suggests that breastfeeding is associated with higher father's level of education and approval (Littman, Medendorp, & Goldfarb, 1994), married and older mothers with higher socioeconomic status and education (Wagner, Wagner, & Hulsey, 2000), spousal support (Freed, Fraley, & Schanler, 1993), and social support (Richardson & Champion, 1992). Cessation of breastfeeding is associated with younger parents with lower social class, low educational attainment, and depression (Cooper et al., 1993).

Indeed, several factors related specifically to the transition to parenthood affect infant-feeding patterns. However, little is known about the reciprocal impact of infant-feeding practices on the adjustment to parenthood and later family functioning. It is generally assumed that breastfeeding is a positive experience with beneficial outcomes
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for both the child and others in the family. On the contrary, evidence suggests that breastfeeding may negatively affect husbands of breastfeeding mothers (Byrd, Hyde, DeLamater, & Plant, 1998; Jordan & Wall, 1990) and that care should be taken to support the father when infants are breastfed (Jordan & Wall, 1993). The difficulties that mothers face in balancing the responsibilities of employment with breastfeeding (Lindberg, 1996) are also a concern. Certainly, as breastfeeding represents an intimate exchange between parent and child, and as intimacy is important to individual identity, dyadic relationships, and family dynamics (Dignam, 1995), it is valuable to evaluate the effects of infant-feeding on marital satisfaction and family functioning. The purpose of this study is to examine the association of breastfeeding with marital satisfaction and family functioning during and beyond the transition to parenthood.
REVIEW OF LITERATURE

In the family development literature, one transition has proven especially difficult for married couples – the transition to parenthood (Belsky & Rovine, 1990; Cowan & Cowan, 1992, 1997). Not only does the transition to parenthood represent the addition of a new individual to the husband-wife relationship (see Figure 1), but also a redefinition of roles. Intimacy and communication within the marital dyad are disturbed, resulting in a decrease in marital quality or satisfaction (Belsky & Rovine, 1990). The adoption of infant-feeding behaviours, specifically, is a significant component of the complex adjustments required of primiparous couples. The difficulties that couples face in adapting to new roles are further compounded by increasing expectations of both parents regarding dual incomes and childcare provisions. Additional stressors, such as those emerging from the health promotion initiatives for breastfeeding, further compound the role strain faced by new parents.

![Couple Relationship Diagram](image)

**Figure 1.** How family roles and relationships increase with the addition of a child.

Role theory, as incorporated into the family development perspective, can be used to adequately explain the effects of breastfeeding on the transition to parenthood (Steffensmeier, 1982). The framework not only accounts for the change in the roles of the husband and wife, but can also be used to re-evaluate the reality of the breastfeeding
experience for the couple in relation to social and cultural contexts. The breastfeeding experience will be analyzed in light of the role strain perceived by the parents during the transition to parenthood.

Role strain is defined as the degree to which one experiences difficulty in fulfilling role obligations (Bulcroft et al., 1993; Burr, Leigh, Day, & Constantine, 1979). Decisions regarding infant-feeding practices present hurdles to achieving goals and expectations prescribed by the individual and by society. There are three ways in which breastfeeding affects the predictors of role strain.

Because of the increase in demands for both the mother and father during the transition to parenthood (Grossman, 1988), it can be expected that there will be increased role strain. According to Burr et al., (1979), the greater the amount of activity prescribed by a role, the greater the strain experienced in that role. The challenges of caring for a new individual and the changes in the roles of the husband and wife to father and mother are compounded by the challenges of breastfeeding.

A second predictor of role strain is the incompatibility of roles during the transition. The greater the incompatibility between a role and other roles in one's role set, the greater the role strain experienced in the incompatible role (Burr et al., 1979). Indeed, breastfeeding presents itself as a role that is incompatible with marital, sexual, and career roles for both the husband and wife. Although breastfeeding may have significant positive effects between mother and child (Lawrence, 1999), fathers may feel excluded, jealous, and resentful (Jordan & Wall, 1993). There has been some speculation that exclusive breastfeeding may disenfranchise the father's role and bonding with the infant (Jordan & Wall, 1990).

The incompatibility of breastfeeding with sexual activity between husband and wife can also be demonstrated by studies suggesting lower levels of physical affection, sexual activity, and sexual satisfaction for husbands of breastfeeding women (Byrd et al., 1998). Contrary to the findings of Masters and Johnson (1966), sexual responsiveness does not return sooner after childbirth for women who breastfeed (Alder, 1989). Alternatively, the needs of the mother for intimacy (Dignam, 1995) and erotic satisfaction (Masters & Johnson, 1966) may be derived from breastfeeding. The experience between mother and child represents an intimate exchange that includes mutuality, reciprocity, joy, harmony, trust, emotional closeness, and bodily contact – characteristics of intimacy
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(Dignam, 1995). In fact, there has been some speculation that the positive effect of the maternal-infant bond may extend to the child and may be responsible for the observed enhanced cognitive performance of breastfed children found in previous studies (Malloy & Berendes, 1998).

The incompatibilities of employment and breastfeeding are also well documented in studies regarding the discontinuation of breastfeeding and the difficulties in balancing the two roles. In a study of employed, breastfeeding women, most of the women reported that the two roles are incompatible (Chalmers, Ransome, & Herman, 1990). Significant role incompatibilities, or role conflicts, exist between employment and breastfeeding in both attitude and structure (Lindberg, 1996). As breastfeeding is both a health behaviour and a motherhood role, the decision to breastfeed represents a decision regarding how to engage in the maternal role. For women, attitudinal conflicts stemming from normative and social expectations, the acceptance of and increases in maternal employment, and the challenges of breastfeeding in the workplace are reflected in the decisions about postpartum behaviours. The structural conflicts between employment and breastfeeding are also evident in the time commitment, intensity, and milk expression required of breastfeeding. Indeed, according to Lindberg (1996), the risk of ceasing to breastfeed is greater in the transition to employment rather than in continued employment, and the number of conflicts increase with work intensity (full vs. part-time hours).

The third predictor of role strain is the diversification of roles. The greater the degree of diversification in roles, the less the consensus about expectations and the greater the role strain (Burr et al., 1979). In essence, this proposition coincides with the "role overload" minitheory (Klein & White, 1996), which states that an increase in roles is accompanied by greater role strain. The opposing "enhancement theory" (Marks, 1977), assumes that multiple roles enhance role performance and decrease role strain through the acquisition of transferable skills. However, it is hypothesized by this author that the latter theory may not be applicable in studying the transition to parenthood as the initial skills required of primiparous parents are likely to exceed and exhaust the resources that husband and wife have attained to that point in their life course. Consequently, the transition to parenthood would be fraught with potential strains.

According to the proposition regarding the diversification of roles (Burr et al., 1979), lack of consensus regarding expectations is a significant consequence and
contributor to role strain. Indeed, mothers are not able to accurately predict their spouses' attitudes towards breastfeeding despite previous discussions regarding infant-feeding plans (Freed et al., 1993). Misconceptions and lack of consensus regarding issues such as the desexualization of the female breasts and the acceptability, immunological benefits, and intimacy of breastfeeding undoubtedly influence the choice of infant-feeding. Approval by fathers is strongly correlated with the decision to breastfeed (Littman et al., 1994).

The maintenance of these multiple roles during the transition to parenthood not only refers to the number of roles but also to the attention required to meet the demands of the roles. As previously discussed, role incompatibilities emerge from the attitudinal and structural conflicts between breastfeeding and employment for mothers (Lindberg, 1996). Therefore, for women who have to balance the roles of motherhood with those of wife and career woman, the attention required for breastfeeding is likely to exacerbate the role overload.

Given these propositions relating role strain to the transition to parenthood, and specifically to breastfeeding, is there any way in which the concept of role strain can be measured and operationalized? Indeed, the effect of role strain associated with breastfeeding can be measured through deductive reasoning using marital satisfaction. Because breastfeeding increases role strain, as explained above, and role strain and stresses contribute to the decline in marital satisfaction (Bradbury, Fincham, & Beach, 2000), it can be deduced that breastfeeding may further add to the strain, resulting in a decrease in marital satisfaction.

In the research literature on the transition to parenthood, it is well-documented (Belsky & Rovine, 1990; Bradbury et al., 2000; Cowan & Cowan, 1992; Klein & White, 1996) that couples experience declines in marital role relationships. Marital satisfaction declines across the transition to parenthood (Moss, Bolland, Foxman, & Owen, 1986; Tomlinson, 1987), as do marital adjustment (Ahmad & Najam, 1998) and quality in accordance to dissatisfaction with spouses' role performance (Terry, McHugh, & Noller, 1991). It is hypothesized that the decision to breastfeed contributes to such changes on the marriage and the family.
**H1**: Breastfeeding a child is related to marital satisfaction in primiparous couples. (Two-tailed hypothesis.)

It is fathomable that role strain experienced in the marriage as a result of infant-feeding practices may have continued effects on the dynamics within the family. Because the decision to breastfeed is a difficult one, the decision itself and the ensuing responsibilities are likely to affect the mother-child relationship, the father-child relationship, and the husband-wife relationship. Changes in these relationships may then extend beyond the transition to parenthood and have consequences for later child development and family roles. Family functioning is thus an applicable concept in examining the impact of decisions and behaviours during the transition to parenthood.

According to McCubbin (1991), family functioning is defined as a set of basic attributes about the system that characterize and explain how a family system typically operates, appraises, and/or behaves. The concept emanates from systems, role, and communications theories and addresses issues that are particularly significant during the transition to parenthood. Incorporation of task and role performance, as well as communication, problem solving, and affective response make family functioning a well-suited conceptual approach to studying the impact of infant-feeding decisions on the primiparous couple. In light of the view that the family unit functions primarily as a "laboratory for the social, psychological, and biological development and maintenance of family members" (Epstein, Levin, & Bishop, 1976, p. 1411), the concept of family functioning is especially useful in examining the possible immediate and longer-term effects of breastfeeding.

By examining the repercussions in view of family functioning, the effects of breastfeeding and satisfaction can be further examined. The family functioning model is theoretically appropriate as it is based upon systems, role, and communication theories (Sawin & Harrigan, 1995) – all of which are relevant to the discussion of the transition to parenthood. Use of the family functioning concept provides an overall measure but also takes into account the changing dynamics and complexities of the new family.

Currently, there is a paucity of direct research on the effect of marital satisfaction on family functioning within nonclinical families. However, research on functioning in families with preadolescent boys (Feldman, Wentzel, Weinberger, & Munson, 1990),
maternal chronic illness (Yates, Bensley, Lalonde, Lewis, 1995), postpartum psychiatric disorders (Zelkowitz & Milet, 1996), and ethnic background (Shek, 1999) support a positive, concurrent relationship between marital satisfaction and family functioning. Dimensions of functioning that can be analyzed with respect to primiparous couples include problem solving, communications, roles, affective involvement, affective responsiveness, and behaviour control.

**H2:** Marital satisfaction is positively related to family functioning in primiparous couples. (One-tailed hypothesis.)

It can be further hypothesized that since breastfeeding affects marital satisfaction, and marital satisfaction affects family functioning, such infant-feeding practices also affect family functioning. (For model specification, please see Figure 2.)

**H3:** Breastfeeding is related to family functioning in primiparous couples. (Two-tailed hypothesis.)

The preceding hypothesis can then be expanded to postulate that breastfeeding affects family functioning by way of marital satisfaction, as marital dynamics have been found to predict marital functioning (Belsky & Hsieh, 1998).

**H4:** The effect of breastfeeding a first child on family functioning is mediated by marital satisfaction.

In operationalizing the concept of role strain, one must be careful not to oversimplify the complexity of the marriage and the many factors contributing to the changes during the transition to parenthood. For example, according to Menaghan and Parcel (1990), it is not solely whether a new mother works or not that is related to her feelings of well-being, but whether her decision to return to the labour force and her responsibility for household tasks are supported by her spouse. From this finding, one
can infer that role strain cannot be explained merely by the number or diversity of roles in one's role set, but by incorporating moderating variables that change the effects of certain responsibilities on role strain.

This reasoning applies in the case of breastfeeding mothers and fathers, as the approval of fathers plays a large part in the former's decision to breastfeed (Littman et al., 1994). A positive perception of the spousal relationship is also associated with a more positive approach to fatherhood (Freed et al., 1993; Jordan & Wall, 1993) for the latter. Clearly, one can see that spousal support moderates the parenting experience. In fact, coping resources, marital quality, and social support have main or direct beneficial effects, rather than buffering or protective effects, on adaptation and well-being during the transition to parenthood (Terry, 1989). Thus, for both parents, the decision regarding infant-feeding practices deserves attention in order for primiparous parents to meet the demands of multiple roles during the transition to parenthood. The effect of social support on breastfeeding is addressed in the next hypothesis.

**H5:** The effect of breastfeeding on family functioning is moderated by the social support perceived by the primiparous couple. (Two-tailed hypothesis.)

As gender differences in the experience of breastfeeding and family dynamics are expected, it is hypothesized that the model is different based on gender of the parent.

**H6:** The effects of breastfeeding on marital satisfaction and family functioning during the transition to parenthood are different for mothers and fathers.

Further, as it is indicated in the research that the study variables may be affected by other factors, several covariates were included. Demographic information such as the gender of the PMK, sex of the child, region of Canada, and age group of the PMK were incorporated into the hypothesized model. Education and labour force derived variables such as current school attendance status of the PMK, current working status of both the PMK and spouse, and socioeconomic status were also included. Additional covariates
that were taken into account were the use of childcare (daycare or babysitters), depression, and duration of breastfeeding (for respondents who had ever breastfed).

The sex of the child was a consideration as the birth of a female infant is associated with a decrease in marital satisfaction over the transition to parenthood (Cox et al., 1999), and, in terms of the duration of breastfeeding, boys are breastfed for a shorter time than girls (Pande, Unwin, & Haheim, 1997). With respect to geographical area of residence, breastfeeding practices vary across province and regions, with breastfeeding rates highest in the Western provinces, moderate in Ontario and Manitoba, and lowest in the Maritimes and Quebec (Watters & Hodges, 1996). Therefore, a regional classification of breastfeeding rates was incorporated. Depression was included as a control variable as depression has been found to affect marital satisfaction (Cox, Paley, Burchinal, & Payne, 1999) and lead to the cessation of breastfeeding (Cooper et al., 1993).

Figure 2. Hypothesized relationships between breastfeeding (independent variable), marital satisfaction (mediator), social support (moderator), and family functioning (dependent variable) for primiparous couples. Control variables are shown in the oval.
METHODS

Sample

The data source used for this study was the National Longitudinal Survey of Children and Youth (NLSCY, 1995). This data set sampled nearly 13,500 households and contains 23,000 cases with questionnaires relevant to the health, well-being, and life opportunities for children in Canada. The main component of households with children was selected from participants in Statistics Canada's Labour Force Survey (LFS), a monthly survey that collects demographic and labour market information. The NLSCY also contains an integrated component of respondents randomly selected from participants in the National Population Health Survey (NPHS) that was conducted by Statistics Canada at the same time as the NLSCY. Households with at least one child were selected; a maximum of four children per household was then selected randomly.

Households from each of the ten provinces, with children aged 0 to 11 years of age, were selected for inclusion in the NLSCY. The children were grouped into seven key age groupings or cohorts of 0 to 11 months, 1, 2 to 3, 4 to 5, 6 to 7, 8 to 9, and 10 to 11 years. Questionnaires were completed by the person most knowledgeable (PMK) about the child. The self-selected PMK was responsible for providing information about the child, him or herself, and his or her spouse (partner residing in the household, married and common-law). 91.3% of the PMKs for the NLSCY were female but a small percentage (8.2%) was male. (In 0.5% of the cases, the PMK was not a parent.)

In order to compare parents for whom breastfeeding was a relevant question at the time of the study, a subset of cases with yes/no responses to the question "Is the mother currently breastfeeding?" were analyzed. Of the respondents who were not currently breastfeeding at the time of the survey, the following question was asked: "Did the mother breastfeed the child even if only for a short time." Questions regarding breastfeeding and other pre- and post-partum behaviours were asked for children 0 to 23 months of age in the NLSCY. For the purposes of studying primiparous parents, cases with negative responses to the item concerning the presence of an older sibling in the household (indicating a first child for the couple) were selected. The sizes of these respective samples were 1942 and 1664 cases. Further, as rearing twins requires greater
demands on the parents, causes more stress, and puts families and infants at greater risk for physical and emotional disturbance than rearing single children (Chang, 1990; Malmstrom & Biale, 1990), 46 cases with multiple births were excluded. Finally, as this study examines the effects of breastfeeding on marital satisfaction and family functioning, only cases in which children were living with two parents (common-law or married) were included. The final sample sizes were 1600 for those who responded to the first question and 1351 for those who also responded to the second question.

Measures

**Independent Variable**

The independent variable of infant-feeding practice (breastfeeding or not) was measured using items assessing mother’s breastfeeding experiences. The items were administered to PMKs of children aged 0 to 2 years of age as part of the Medical/Biological section of the survey. Applicable nominal data from primiparous couples of single children responding to the question of "Is the mother currently breastfeeding?" were analyzed. The sampling frame was 1600 cases. Of the 1353 respondents who responded "no" to the above question, the following question was asked: "Did the mother breastfeed the child even if only for a short time." Respondents answering "yes" (995) to this second question were then surveyed regarding duration of breastfeeding and reasons for cessation. Differences between currently breastfeeding couples, those not breastfeeding, and those who breastfed for a short period of time were analyzed. Two hundred and forty-seven primiparous mothers (15.4% of the total sample) were currently breastfeeding at the time of the study, while 995 primiparous mothers (73.6%) had breastfed if even for a short time. The values for the sample sizes are summarized in Table 1.
Due to the nature of the questions posed, it is not possible to distinguish from the data whether mothers were practicing exclusive breastfeeding, breastfeeding with formula feeding, or other feeding combinations. The definition of breastfeeding used in this study is as interpreted by the survey respondent. Additional data on pre-natal lifestyle (drinking, complications, etc.), pregnancy, and delivery history were available from the data set but were not used, as some of the questions were only asked of mothers with children less than one year of age.

Table 1

Sample Examined by Breastfeeding Status (Independent Variable)

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Frequency</th>
<th>Valid Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is the mother currently breastfeeding?</td>
<td>1600</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td></td>
<td>247</td>
<td>15.4</td>
</tr>
<tr>
<td>No</td>
<td></td>
<td>1353</td>
<td>84.6</td>
</tr>
<tr>
<td>Did the mother breastfeed even if only for a short time?</td>
<td>1353</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td></td>
<td>995</td>
<td>73.6</td>
</tr>
<tr>
<td>No</td>
<td></td>
<td>356</td>
<td>26.4</td>
</tr>
</tbody>
</table>

a Responses such as not applicable, don't know, refusal, or not stated were considered missing data.

**Dependent Variable**

The dependent variable of global family dynamics was measured using the Family Functioning Scale, or general functioning scale (Epstein, Baldwin, & Bishop, 1983). The scale was developed by researchers at the Chedoke-McMaster Hospital of McMaster University, and has been widely used in Canada and abroad for studies on families with mental health problems, adolescents, and chronic illness, as previously mentioned. The family functioning model upon which the scale was built operationalizes family dynamics into six dimensions: family roles, communication, problem solving,
affective involvement, affective responsiveness, and behaviour control. The scale is also an indication of the quality of the relationship between the parents.

The twelve Likert-type items of this general functioning scale (see Appendix A for items), each with 4 possible responses, are part of a larger 60-item Family Assessment Device (Epstein et al., 1983), from which the McMaster scale was developed. Both instruments are scored with high scores indicating family dysfunction. However, for the purposes of this study, the scores were reversed so that low scores would indicate family dysfunction. The 12-item summative scale was used independently to provide a valid and reliable measure of overall family functioning.

Internal reliability for the Family Functioning Scale, as measured by Cronbach's alpha, was high (0.96). Item deletion was not required as the Cronbach alpha coefficient calculated by omitting 1 item was stable at about 0.96 for the 12 variables. Test-retest reliability as well as content, construct, concurrent, discriminant, and predictive validities are high and well-documented (Sawin et al., 1995). The unidimensionality of the scale was confirmed as the amount of variance explained by the one-factor solution of a factor analysis was 69.2% and the second factor failed to produce an eigenvalue greater than one.

**Mediating Variable**

The mediator of marital satisfaction was measured by one Likert-type item on overall relationship satisfaction included in the Parental Questionnaire. The acceptability and superiority of a single-item global evaluation for explaining the variance in marital happiness are supported by Donohue and Ryder (1982; see also Glenn, 1990). On a scale from 1 (completely dissatisfied) to 12 (completely satisfied), the mean was 9.62 (SD = 1.75). The median (10.00) and mode (11.00) are similar to the mean, suggesting a normal distribution. Skewness (-2.12) and kurtosis (6.09) are significant and expected, as couples who elect to remain together would be satisfied with their current arrangement. It is typical for marriage-satisfaction scores to be skewed, as they have been "consistently skewed for the last 40 years" (Donohue & Ryder, 1982).

For the purposes of the study and to reduce skewness and kurtosis, the data were recoded into 4 roughly equal-sized groups based on cumulative percentages. The four
Breastfeeding, Marital Satisfaction, and Family Functioning

scores from 1 to 4 were: neutral/dissatisfied (these 2 groups were grouped together to make a large enough sample size), satisfied, very satisfied, and completely satisfied (as reported by the respondents).

**Moderating Variable**

Social support was examined for significance as a moderator in the breastfeeding experience. A shorter version of the Social Provisions Scale (Cutrona & Russell, 1987) was used in this study to measure guidance, reliable alliances, and attachment – three of the six posited provisions gained from social relationships (Weiss, 1974; as cited in Cutrona, 1984). [The other three functions are social integration, reassurance of worth, and opportunity for nurturance.] The Social Provisions Scale has been used to measure perceived support among various adult populations (Wills & Shinar, 2000), including new mothers (Cutrona, 1984).

Scores from the Social Support Scale, as termed in the NLSCY, were examined in relation to the infant-feeding experience as spousal support is a moderating variable that may change the effects of mothers' decisions to breastfeed or return to work on perceived role strain (Klein & White, 1996). The scale determines the level of social support received from family, friends, and others.

Each of the 6 items had 4 possible responses ranging from 0 to 3, for a total highest score possible of 18, indicating very high social support. Data from the cases were recoded into 8 groups with a score range of 1 to 8, as outlying low scores (ranging from 0 to 11, or 8.7% of the respondents) were grouped together to form the lowest scoring group.

A Cronbach alpha of 0.91 was attained for the 6 items, indicating homogeneity of the items. Values for alpha with item deletion (ranging from 0.89 to 0.90) do not indicate much change in equivalence reliability; there was no need to eliminate any of the items. Unidimensionality of the measure was confirmed with a factor analysis; the second eigenvalue had a value less than 1 and the first dimension explained 70.6% of the variance.
Covariates

Measurement of covariates was incorporated into the theoretical model. Data on the gender of the PMK, sex of the child, region of Canada, age group of the PMK, current school attendance status of the PMK, current working status of both the PMK and spouse, socioeconomic status, the use of childcare (daycare or babysitters), depression, and duration of breastfeeding were analyzed. These covariates were selected because such factors have been explored in previous research and found to be of influence on the variables of this study.

Each of the ten provinces was represented among the selected cases. Province of residence was categorized into regions based on breastfeeding rate. The Western provinces were grouped together to represent a high rate of breastfeeding, Ontario and Manitoba represented a moderate rate, and the Maritimes and Quebec represented a low rate of breastfeeding. Breastfeeding rates by province, for mothers who had ever breastfed in this sample, are summarized in Figure 3.

![Breastfeeding rates by province](image)

**Figure 3.** Breastfeeding rates of mothers who had ever breastfed, by province. The percentage of breastfeeding increases from east to west, with the lowest rates in the Maritimes and Quebec, and the highest rates in the West. n = 994.
Socioeconomic status (SES) was a consideration and SES scores, as derived by statisticians for the NLSCY using years of schooling, occupation codes, and household income, were included as a covariate. Scores could range from −2.0 (both spouses unemployed, without highschool completion, and garnering a household income less than $10,000) to 1.75 (employed professionals with university degrees and a household income of $77,000). The sample was normally distributed.

Depression was also included as a control variable. The scale used was based on a 20-item scale developed at the National Institute of Mental Health in the United States, that was later reduced to 12 items by a researcher at the Chedoke-McMaster Hospital of McMaster University for the research purposes of the NLSCY. The internal consistency of the 12 items was high (Cronbach alpha of 0.96) and the unidimensionality of the scale was confirmed with a factor analysis (second eigenvalue had a value less than 1; 70.6% of the variance was explained by the first dimension). Postpartum depression in mothers was not included as a covariate because this item was only asked of parents with children less than one year old.

**Conceptual and Methodological Issues**

Several issues related to the concepts and methods employed in this study deserve attention. First, the semantic and conceptual independence of the two variables of marital satisfaction and family functioning will be addressed. As a significant component of family functioning involves affective response and involvement, one could liken the concept to the emotional gratification correlate of marital satisfaction. It was, therefore, important to ensure that there was no semantic overlap between family functioning and marital satisfaction. A factor analysis was performed on the entire sample of respondents (N = 16,181 with missing data removed) to confirm that the two measures were measuring different concepts. Indeed, the factor analysis indicated a two-factor solution where the second eigenvalue (1.01), corresponding to the marital satisfaction item, was larger than 1.0. All of the family functioning items were highly loaded, as the loadings were greater than 0.60 on the first factor and less than 0.40 (0.246) on the second factor of marital satisfaction.

Second, it should be noted here that in studying the effects of breastfeeding on the parent-infant, spousal, and familial relationships, several levels of analyses are traversed.
Certainly, at the infant-parent level, the experience of breastfeeding is a dyadic one between the parent who nurses the child and the infant who wields communicative power by way of temperament and feeding response (Richer, 1968). In exploring the relationship between husband and wife, the unit and level of analyses are also dyadic as the analysis is interpersonal and the conceptualization of the problem is at the level of the relationship (Thompson & Walker, 1982). Looking at the effects of breastfeeding on the family as a whole by way of family functioning changes the level of analysis to the familial, or group, level. The unit of analysis, or sampling frame of cases used in statistical analysis, is also the family, as households with children aged 0 to 2 were selected to respond to breastfeeding questions.

Consequently, according to Bulcroft and White (1997), projecting conclusions about interactional outcomes and family processes based on the reports of one individual is prone to individualistic fallacy, or making a generalization about marital (dyadic) satisfaction and family (group) functioning based on the PMK (individual unit of observation). However, because each of the following study hypotheses is approached at the same level and same unit of analysis, concordance between conceptual and methodological analysis is then satisfied, and the individualistic fallacy is not incurred (Bulcroft & White, 1997). Furthermore, using the individual PMK as the reporting unit of observation for each of the study questions is appropriate with respect to the unit of analysis (family) as (a) the breastfeeding experience, although dyadic at the parent-infant level, can only be reported by the parent, (b) marital satisfaction is regarded as an individual level property in the marital quality literature (Johnson, White, Edwards, & Booth, 1986), and (c) because rich information about marital satisfaction and relational processes can be gathered from one partner at the dyadic level (Thompson & Walker, 1982). Using the individual as the informant is also cost-effective, allows for a larger representative sample and greater generalizability, and provides an insider's perspective of the family, as the informant is included in daily interactions.

The third methodological issue concerns the use of unweighted data in this study. For all of the selected scales (family functioning, social support, and depression), weighted data could not be used because weights for the NLSCY were developed for children only, and not for families or parents. Moreover, unweighted data was utilized in this study as they are unbiased, consistent, and have smaller standard errors than
weighted estimates (Winship & Radbill, 1994). Using weighted data can lead to erroneous results when using statistical models, such as the regression analyses employed in this study, that are based on variance partitioning.
RESULTS

Sample Description

The final sample size for primiparous couples with children under two years of age was 1600. About ninety percent (90.2%) of the PMKs were female (birth mother or other related female) while 9.8% were male (birth father). The percentages for the gender of the infants sampled were roughly equal at 49.8% female and 50.2% for male.

As relationship dynamics were an integral part of this study, only cases where the child was living with two parents were selected. 1587 (99.2%) of the children lived with both biological parents while 13 (0.8%) resided with a biological mother and stepfather. The regions of Canada – Maritimes and Quebec (39.1%), Ontario and Manitoba (35.9%), and the Western provinces (25.0%) – as categorized by breastfeeding rates (low, medium, and high), were well-represented in this sample.

The majority (39.0%) of mothers was aged 25-29 while most (41.3%) fathers were slightly older in the range of 30-34 years. Few were currently attending work or school, but many were either currently employed or had held a job in the past year. The mean for socioeconomic status was \(-0.41 \pm 0.7\), indicating (as an example), that the typical case in this sample was a family in which both spouses had completed highschool, the spouse was employed while the PMK was not in the labour force, and the average household income was approximately $25,000. Generally, parents in this sample did not present symptoms of depression; the mean score was \(4.50 \pm 4.54\). Mothers \((4.59 \pm 4.56)\) scored statistically higher \((p = 0.014)\) than did fathers \((3.63 \pm 4.23)\). Nearly two-fifths (39.3%) of the parents utilized outside childcare in the form of daycare or babysitters.

Refer to Table 2 for demographic details.
Table 2

Sample Examined by Covariates (N = 1600 a)

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Female</td>
<td>Male</td>
</tr>
<tr>
<td>PMK Gender</td>
<td>1444</td>
<td>156</td>
</tr>
<tr>
<td>Sex of Child</td>
<td>798</td>
<td>802</td>
</tr>
<tr>
<td>Region of Canada</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maritimes / Quebec</td>
<td>560</td>
<td>65</td>
</tr>
<tr>
<td>Ontario / Manitoba</td>
<td>517</td>
<td>57</td>
</tr>
<tr>
<td>Western provinces</td>
<td>366</td>
<td>34</td>
</tr>
<tr>
<td>PMK Age Group b</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15-24</td>
<td>377</td>
<td>14</td>
</tr>
<tr>
<td>25-29</td>
<td>561</td>
<td>39</td>
</tr>
<tr>
<td>30-34</td>
<td>396</td>
<td>64</td>
</tr>
<tr>
<td>35-39</td>
<td>93</td>
<td>22</td>
</tr>
<tr>
<td>40 +</td>
<td>12</td>
<td>16</td>
</tr>
<tr>
<td>PMK Current School Attendance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>114</td>
<td>16</td>
</tr>
<tr>
<td>No</td>
<td>1326</td>
<td>139</td>
</tr>
<tr>
<td>PMK Current Work Status b</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Currently working</td>
<td>825</td>
<td>121</td>
</tr>
<tr>
<td>Job in past year</td>
<td>251</td>
<td>22</td>
</tr>
<tr>
<td>No job in past year</td>
<td>361</td>
<td>10</td>
</tr>
<tr>
<td>Spouse Current Work Status b</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Currently working</td>
<td>1218</td>
<td>105</td>
</tr>
<tr>
<td>Job in past year</td>
<td>140</td>
<td>13</td>
</tr>
<tr>
<td>No job in past year</td>
<td>56</td>
<td>34</td>
</tr>
<tr>
<td>Current Childcare Use b</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>555</td>
<td>73</td>
</tr>
<tr>
<td>No</td>
<td>888</td>
<td>82</td>
</tr>
</tbody>
</table>

a Responses such as not applicable, don't know, refusal, or not stated were considered missing data.
b Statistically significant difference (based on means) between female and male PMKs; p < 0.05.
Description of Variables

Independent Variable

Of 1600 parents with children aged 0 to 23 months, 247 (15.4%) were currently breastfeeding; 1353 (84.6%) were not. Of the 1353 mothers who were not breastfeeding at the time of the survey, 995 (73.6%) had breastfed their child even if only for a short time, while 356 (26.4%) had never done so. More than one-third (36.0%) of the respondents noted that the mother had breastfed for 3-6 months. (For a more detailed description on the duration of breastfeeding, refer to Figure 3.) The three most common reasons for cessation of breastfeeding were not enough milk (27.2%), return to work or school (18.8%), and infant-led weaning (14.5%). Other common reasons for discontinuing breastfeeding are summarized in Table 3.

Figure 4. Duration of breastfeeding. 36% of mothers who had ever breastfed, even if only for a short while, had breastfed for 3-6 months. n = 993.
Table 3
Reasons for Cessation of Breastfeeding (n = 994 a)

<table>
<thead>
<tr>
<th>Reason</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inadequate milk supply / hungry baby</td>
<td>270</td>
<td>27.2</td>
</tr>
<tr>
<td>Return to work / school</td>
<td>187</td>
<td>18.8</td>
</tr>
<tr>
<td>Baby weaned him/herself</td>
<td>144</td>
<td>14.5</td>
</tr>
<tr>
<td>Planned to stop at this time</td>
<td>117</td>
<td>11.8</td>
</tr>
<tr>
<td>Inconvenience / fatigue</td>
<td>109</td>
<td>11.0</td>
</tr>
<tr>
<td>Other</td>
<td>95</td>
<td>9.6</td>
</tr>
<tr>
<td>Difficulty with technique</td>
<td>77</td>
<td>7.7</td>
</tr>
<tr>
<td>Sore nipples / engorged breast</td>
<td>61</td>
<td>6.1</td>
</tr>
<tr>
<td>Illness of mother</td>
<td>36</td>
<td>3.6</td>
</tr>
<tr>
<td>Physician's advice</td>
<td>26</td>
<td>2.6</td>
</tr>
<tr>
<td>Baby preferred formula</td>
<td>25</td>
<td>2.5</td>
</tr>
<tr>
<td>Partner / father's wish</td>
<td>6</td>
<td>0.6</td>
</tr>
<tr>
<td>To drink alcohol</td>
<td>0</td>
<td>0.0</td>
</tr>
</tbody>
</table>

a Some respondents selected more than one main reason.

**Dependent Variable**

Family Functioning Scale scores of the respondents in the sample ranged from 1 to 31 (out of a possible 0 to 36), with higher scores indicating healthier family function. The distribution was approximately normal with a mean of 23.39 (SD = 4.88). Mothers (23.43 ± 4.90) and fathers (22.99 ± 4.71) scored similarly with respect to family functioning. Skewness was insignificant (1.24 with SE = 0.06), and kurtosis was slight (13.19 with SE = 0.12). The kurtosis was due to the fact that the mode was 19 and that more than one-quarter (25.7%) of the respondents scored in the top 90th percentile (indicating high family functioning).
**Mediating Variable**

As mentioned earlier, data from the marital satisfaction scores were recoded into four groups: neutral/dissatisfied (1), satisfied (2), very satisfied (3), and completely satisfied (4). The mean was 2.86 (SD = 1.13), indicating that on average, the couples were satisfied to very satisfied with their current relationship. By comparing mean values, fathers (3.00 ± 1.09) were generally more satisfied than their wives (2.84 ± 1.13), although not by much. Skewness and kurtosis were reduced to -0.46 (SE = 0.06) and -1.22 (SE = 0.12), respectively, but still significant.

**Moderating Variable**

As previously discussed, scores from the Social Support Scale were recoded into 8 groups with a score range of 1 to 8, with low scores indicating low levels of perceived social support. The mean was 4.78 (SD = 2.63) with insignificant skewness and significant kurtosis of -1.62 (SE = 0.123). The distribution was not continuous; the most common scores were 2 and 8. These modes are an artifact in the scale score due to the rescaled values and the fact that many respondents were consistent in their answering pattern by either answering all positive items with Agree and all negative items with Disagree (resulting in a rescaled score of 2), or Strongly Agree / Strongly Disagree (resulting in a rescaled score of 8).

Mothers received more social support (M = 4.84 ± 2.63) than fathers (M = 4.25 ± 2.50) during the transition to parenthood.
Hypothesis Testing

Currently Breastfeeding Status – Immediate Effects

Table 4
Measure Statistics and Correlations Among Variables (N = 1600)

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Currently Breastfeeding</td>
<td>1.15</td>
<td>0.36</td>
<td>(NA)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Marital Satisfaction</td>
<td>2.86</td>
<td>1.13</td>
<td>0.067*</td>
<td>(NA)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Family Functioning</td>
<td>23.39</td>
<td>4.88</td>
<td>0.025</td>
<td>0.325**</td>
<td>(0.96)</td>
<td></td>
</tr>
<tr>
<td>4. Social Support</td>
<td>4.78</td>
<td>2.63</td>
<td>-0.013</td>
<td>0.133**</td>
<td>0.528**</td>
<td>(0.91)</td>
</tr>
</tbody>
</table>

* Independent variable, scores of 1 = no, score of 2 = yes.
* Mediator, scores could range from 1 (neutral/dissatisfied) to 4 (completely satisfied).
* Dependent variable, scores could range from 0 (family dysfunction) to 31 (high family functioning).
* Moderator, score could range from 1 (low) to 8 (high).
* () Cronbach alpha internal consistency coefficients.
* Statistically significant at p = 0.04
** Statistically significant at p = 0.000

As can be seen from Table 4, a correlation matrix was constructed to examine the associations between the proposed independent (current breastfeeding status), mediating (marital satisfaction), moderating (social support), and dependent (family functioning) variables of the model. The correlations lend support for some of the hypothesized associations between the variables. Breastfeeding a child was positively related to marital satisfaction (1-tailed Pearson correlation coefficient r = 0.067, p = 0.004) albeit weakly. Marital satisfaction was also correlated with family functioning (r = 0.325, p = 0.000). Further, the moderator of social support was significantly correlated with both marital satisfaction (r = 0.133, p = 0.000) and family functioning (r = 0.528, p = 0.000). The hypothesized correlation between breastfeeding and family functioning (r = 0.025, p = 0.157) was not supported, however. The strength and directions of these associations are examined further in the following section.
Direct Effects between Breastfeeding, Marital Satisfaction, and Family Functioning

**Hypothesis 1.** The hypothesis that type of infant-feeding (breastfeeding or not) practiced by primiparous couples affects immediate marital satisfaction was supported by a bivariate correlation analysis as summarized in Table 4. In a subsequent regression analysis of this hypothesis, the positive correlation between the two variables revealed that breastfeeding is a significant predictor ($\beta = 0.067$, $p = 0.008$) of marital satisfaction and accounts for 0.4% of the variance in marital satisfaction.

In order to establish that the relationship between breastfeeding and marital satisfaction was not a spurious one, the regression was re-tested in a second model with the inclusion of significant control variables. The control variables of gender of the PMK, sex of the child, region of Canada, age group of the PMK, current school attendance status of the PMK, current working status of both the PMK and spouse, socioeconomic status, the use of childcare (daycare or babysitters), depression, and duration of breastfeeding were tested for significance. From a correlation matrix performed between the variable of marital satisfaction and all of the control variables (See Appendix B), three control variables were found to be significantly related to marital satisfaction. These were socioeconomic status ($r = 0.077$, $p = 0.002$), outside childcare use ($r = -0.088$, $p = 0.001$), and depression scores ($r = -0.253$, $p = 0.000$).

In the first step of this second model, the three significant control variables were entered into Block 1 of the regression equation and regressed onto the variable of marital satisfaction. The amount of variance in marital satisfaction explained by the three variables was 7.5% ($R^2 = 0.075$, $r = 0.275$).

The independent variable of breastfeeding was then entered into Block 2 and regressed onto marital satisfaction with the three significant control variables. Surprisingly, breastfeeding was no longer a significant predictor ($\beta = 0.030$, $p = 0.240$) of marital satisfaction. In fact, the proportion of variance explained by the independent variable of breastfeeding was only 0.1% more than the variability explained by the control variables. There is no support for the hypothesis that infant-feeding practice is related to marital satisfaction; the significance of the relationship in this study might well be spurious since the control variables explained the variance.
However, in previously identifying the significant control variables through a correlation matrix of control and dependent variables (Appendix B), a gender difference in the specific covariates significantly related to each variable was found. For female PMKs, the aforementioned variables of socioeconomic status, childcare use, and depression were significant covariates. On the contrary, none of the control variables tested were significantly correlated with marital satisfaction for male PMKs. This hidden effect due to the different sample sizes for each gender ($n_{\text{female}} = 1444$, $n_{\text{male}} = 156$) warranted further examination of this hypothesis.

To determine whether the relationship between breastfeeding and marital satisfaction was significant for females, a regression analysis with only female PMKs selected was performed without covariates entered into the equation. For mothers, the relationship was not significant; breastfeeding ($\beta = 0.051$, $p = 0.055$) was not a statistically significant predictor of marital satisfaction. Further regression analysis incorporating significant control variables within this line of questioning was not necessary.

In order to test whether breastfeeding was an additional role strain variable for mothers during the transition to parenthood, regression analyses were performed to determine whether work status of the mother predicts marital satisfaction within currently breastfeeding and currently not breastfeeding groups. Selecting for those mothers who were currently breastfeeding ($n = 222$), work status (currently working, not working but had worked in the last year, or did not work in the last year) was not predictive of marital satisfaction. Both the correlation ($r = 0.022$, $p = 0.372$) and regression ($\beta = 0.022$, $p = 0.745$) were not significant; work status explained none of the variance in marital satisfaction ($R^2 = 0.000$). Work status of mothers who were currently not breastfeeding ($n = 1222$) was also not predictive of marital satisfaction, as demonstrated by the insignificant correlation ($r = 0.040$, $p = 0.085$) and regression ($\beta = 0.040$, $p = 0.169$).

The effect of breastfeeding on marital satisfaction of fathers was also tested. As none of the control variables were significantly correlated with the variable of marital satisfaction for males, a straight regression of breastfeeding onto marital satisfaction was conducted. For fathers, whether the mother was currently breastfeeding or not was a significant predictor ($\beta = 0.212$, $p = 0.009$) of marital satisfaction; the two variables were strongly correlated with one another ($r = 0.212$, $p = 0.004$). In fact, the proportion of
variance in marital satisfaction explained by breastfeeding was 4.5%. The significant predictive relationship between breastfeeding and marital satisfaction was not spurious.

Through examination of the effect of infant-feeding practice on marital satisfaction by gender, it is revealed that this relationship is significant for fathers but not for mothers. The gender difference is captured in the following figure (Figure 5). Note the significant positive slope of the line for males.

![Figure 5](image)

**Figure 5.** Breastfeeding increases marital satisfaction for both mothers and fathers. The positive relationship is statistically significant for fathers. \( N = 1600 \).

**Hypothesis 2.** The strong correlation \((r = 0.325, p < 0.01)\) between marital satisfaction and family functioning supports the hypothesis that marital satisfaction is positively related to family functioning in primiparous couples. In a regression analysis of this relationship, marital satisfaction was a significant \((\beta = 0.325, p = 0.000)\) predictor of family functioning, accounting for 10.6% of the variance. The relationship is captured in the Figure 6.
In order to confirm that the statistically significant results of the regression of marital satisfaction onto family functioning were not spurious, the relationship was tested with control variables in a multiple regression analysis. The covariates that were identified as significant correlates of family functioning from a correlation matrix were work status of the spouse ($r = 0.070, p = 0.032$), age of the PMK ($r = 0.092, p = 0.005$), socioeconomic status ($r = 0.230, p = 0.000$), and depression ($r = -0.339, p = 0.000$). [Note that the duration of breastfeeding ($r = 0.075, p = 0.021$) was not included in the regression model as this would have limited the regressed sample to those who had responded to "Did you (ever) breastfeed" rather than included those who had responded to "Are you currently breastfeeding" – the sample of interest in investigating the immediate effects of breastfeeding.] The covariates that were not correlated with the dependent variable were excluded from subsequent statistical analyses.

Together, the significant covariates explained 12.1% of the variance in family functioning. When marital satisfaction was entered into Block 2 of the regression equation with the significant control variables, marital satisfaction remained a significant
predictor ($\beta = 0.262, p = 0.000$), explaining an additional 6.4% of the total 18.5% of variance in family functioning explained by the model. In other words, marital satisfaction was not spuriously related to family functioning.

Again, analysis by gender was performed to confirm the significance of the value of marital satisfaction in predicting family functioning for both females and males. For mothers, the predictive relationship between marital satisfaction and family functioning was significant ($\beta = 0.313, p = 0.000$), explaining 9.8% of the variance in the latter variable. When tested in a multiple regression after the inclusion of the significant control variables affecting family functioning (PMK age ($r = 0.085, p = 0.001$), socioeconomic status ($r = 0.234, p = 0.000$), depression ($r = -0.320, p = 0.000$), and the work status of the spouse ($r = 0.064, p = 0.000$)), marital satisfaction remained a significant predictor of family functioning. In other words, even though the controls variables had a significant impact on family functioning, the variable of marital satisfaction remained significant ($\beta = 0.243, p = 0.000$) when entered into the regression equation. In fact, marital satisfaction increased the proportion of variance in family functioning explained by the covariates alone ($R^2 = 0.139$) by 5.5% to 19.3%. This clearly supports the hypothesis that marital satisfaction is not spuriously related to family functioning for mothers.

For males, none of the control variables tested were significant in the correlation matrix for family functioning. Thus, a straight regression of marital satisfaction on family functioning was executed. Indeed, the relationship was significant ($\beta = 0.466, p = 0.000$) and not due to spuriousness, with marital satisfaction accounting for 21.8% of the variance in family functioning.

By comparing the sizes of the Betas, one can see that the positive predictive value of the relationship is stronger for fathers than for mothers. Indeed, marital satisfaction is significantly related to both mother's and father's family functioning. See Figure 7.
Hypothesis 3. The hypothesis that type of infant-feeding (breastfeeding or not) practiced by primiparous couples affects immediate family functioning was not supported by a bivariate correlation analysis as summarized in Table 4. This lack of association was confirmed with a subsequent regression analysis where breastfeeding did not predict family functioning ($R^2 = 0.001$, $\beta = 0.025$, $p = 0.313$). Hypothesis 3 is not supported.

However, due to the differences in the breastfeeding experience for mothers and fathers, and as seen in the predictive value of breastfeeding on marital satisfaction for females and males, there was reason to test this hypothesis by gender.

Again, the relationship failed to be significant when tested with only female respondents (and no controls). Breastfeeding was not a significant predictor of family functioning ($R^2 = 0.000$, $\beta = 0.008$, $p = 0.761$) and indeed, explained zero of the variance in the dependent variable of family functioning. With regards to whether work status was related to family functioning, the relationship was found to be spurious after the inclusion of the significant control variables for both currently breastfeeding ($R^2_{\text{change}} = 0.013$, $\beta = 1.784$, $p = 0.076$) and currently non-breastfeeding mothers ($R^2_{\text{change}} = 0.001$, $p = 0.761$).
Breastfeeding, Marital Satisfaction, and Family Functioning

\[ \beta = -0.033, p = 0.256 \).

For males, as there were again no significant control variables correlated with family functioning, as identified from the correlation matrix, the relationship between breastfeeding and immediate family functioning was significant and shown not to be spurious. Breastfeeding \( (\beta = 0.194, p = 0.017) \) explained 3.7\% of the variance in family functioning and as such, supports Hypothesis 3 when applied to the male sample. The gender difference in the effect of breastfeeding on family functioning can be viewed in Figure 8.

\[ \text{Figure 8.} \quad \text{Relationship between breastfeeding and family functioning by gender. The positive relationship is statistically significant for fathers.} \quad N = 1600. \]

The prominent findings of the regression analyses examining the direct effects between breastfeeding, marital satisfaction, and family functioning are summarized in Table 5.
Table 5

Regression Analyses of Direct Effects (N = 1600)

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Independent Variables</th>
<th>Coefficient $\beta$</th>
<th>$p$-value</th>
<th>$R^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypothesis 1: Marital Satisfaction</td>
<td>Currently Breastfeeding</td>
<td>0.067</td>
<td>0.008</td>
<td>0.004</td>
</tr>
<tr>
<td></td>
<td>Currently Breastfeeding $^a$</td>
<td>0.030</td>
<td>0.240</td>
<td>0.076</td>
</tr>
<tr>
<td>Hypothesis 2: Family Functioning</td>
<td>Marital Satisfaction</td>
<td>0.325</td>
<td>0.000</td>
<td>0.106</td>
</tr>
<tr>
<td></td>
<td>Marital Satisfaction $^b$</td>
<td>0.262</td>
<td>0.000</td>
<td>0.185</td>
</tr>
<tr>
<td>Hypothesis 3: Family Functioning</td>
<td>Currently Breastfeeding</td>
<td>0.025</td>
<td>0.313</td>
<td>0.001</td>
</tr>
</tbody>
</table>

Note. Analyses were executed on total sample including female and male PMKs.

$^a$ Significant control variables of socioeconomic status, outside childcare use, and depression were entered.

$^b$ Significant control variables of work status of spouse, PMK age, SES, and depression were entered.

Mediating Effect of Marital Satisfaction

Hypothesis 4. As the previous hypotheses relating breastfeeding to marital satisfaction (H1) and family functioning (H3) were significant only for males, Hypothesis 4 was tested only for the sample of males that had responded to the question, "Is the mother currently breastfeeding" (n = 151). As no control variables were significantly correlated with either marital satisfaction or family functioning, covariates were not included in the following regression models.

Three separate regression equations, as suggested by Baron and Kenny (1986), were used to test for mediation by marital satisfaction: 1) the effect of breastfeeding on the mediator, 2) the effect of breastfeeding on family functioning, and 3) the effect of breastfeeding and the mediator on family functioning. Mediation is confirmed if the standardized regression coefficients for breastfeeding (independent variable) in the first two equations and the coefficient for marital satisfaction in the third regression are significant and if the effect of breastfeeding on family functioning is weaker in the third equation than in the second. The results of the regression models are presented in Table 6.
Table 6
Test of the Mediating Effect of Marital Satisfaction for Fathers (n = 156)

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Independent Variables</th>
<th>Coefficient β</th>
<th>p-value</th>
<th>R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression 1: Marital Satisfaction</td>
<td>Currently Breastfeeding</td>
<td>0.212</td>
<td>0.009</td>
<td>0.045</td>
</tr>
<tr>
<td>Regression 2: Family Functioning</td>
<td>Currently Breastfeeding</td>
<td>0.194</td>
<td>0.017</td>
<td>0.037</td>
</tr>
<tr>
<td>Regression 3: Family Functioning</td>
<td>Marital Satisfaction</td>
<td>0.446</td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Currently Breastfeeding</td>
<td>0.093</td>
<td>0.211</td>
<td>0.226</td>
</tr>
</tbody>
</table>

Note. For regression 1, F = 7.097, p = 0.009. For regression 2, F = 5.842, p = 0.017. For regression 3, F = 21.580, p = 0.000.

As outlined in Table 6, the test for the mediating effect of marital satisfaction on the relationship between breastfeeding and family functioning (Hypothesis 4) satisfies all of these conditions, indicating that marital satisfaction (β = 0.446, p = 0.000) mediates the relationship between breastfeeding and family functioning for fathers.

Moderating Effect of Social Support

Hypothesis 5. Due to the statistical significance of the regression of breastfeeding on family functioning (Hypothesis 3) for fathers, Hypothesis 5 was tested to examine the moderating effect of social support on the relationship for males. Hierarchical regression analysis (Cohen & Cohen, 1983, as cited in Baron & Kenny, 1986) was employed to test the moderating effect as it is the most appropriate test for examining a continuous moderator variable (degree of perceived social support) and a dichotomous independent variable (breastfeeding). Is it ideal for the moderator to be uncorrelated with both the predictor and dependent variables; in this case, social support was uncorrelated with breastfeeding (r = 0.017, p = 0.420), but correlated with family functioning (r = 0.406, p = 0.000).
Table 7

Test of the Moderating Effect of Social Support for Fathers (n = 156)

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Independent Variables</th>
<th>Coefficient β</th>
<th>p-value</th>
<th>R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family Functioning</td>
<td>Currently Breastfeeding</td>
<td>-0.318</td>
<td>0.004</td>
<td>0.036</td>
</tr>
<tr>
<td></td>
<td>Social Support</td>
<td>0.361</td>
<td>0.000</td>
<td>0.198</td>
</tr>
<tr>
<td></td>
<td>Currently Breastfeeding</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>x Social Support</td>
<td>0.633</td>
<td>0.000</td>
<td>0.347</td>
</tr>
</tbody>
</table>

Note. For regression 1, F = 5.470, p = 0.021. For regression 2, F = 18.142, p = 0.000. For regression 3, F = 25.812, p = 0.000.

The individual predictor variables of breastfeeding and social support were entered into the hierarchical regression followed by the interaction (product) term. The results of the regression indicate a significant moderating effect (β = 0.633, p = 0.000) on the relationship between breastfeeding and family functioning as there is a significant two-way interaction. (Refer to Table 7.) Therefore, Hypothesis 5 for males is supported.

**Ever Breastfed Status – Longer-term Effects**

In order to examine the longer-term effects of breastfeeding on marital satisfaction and family functioning within two years of the delivery of the child, the four hypotheses were tested utilizing the sample of respondents that were not breastfeeding at the time of the data collection. These respondents indicated whether the mother had ever breastfed her child even if only for a short time.

Using a correlation matrix, as presented in Table 8, the associations between the variables were tested for significance. The number of significant relationships between the independent variable of breastfeeding and the mediating and dependent variables was fewer for this sample than for the sample used to determine the immediate effects of breastfeeding. Findings for this group also differed in that breastfeeding was not
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significantly related to marital satisfaction ($r = -0.444$, $p = 0.055$). However, similar results indicating robust correlations between marital satisfaction and family functioning ($r = 0.328$, $p = 0.000$), social support and marital satisfaction ($r = 0.139$, $p = 0.000$), and social support and family functioning ($r = 0.533$, $p = 0.000$) were found. Again, breastfeeding was not significantly related to family functioning ($r = 0.024$, $p = 0.194$).

Table 8
Measure Statistics and Correlations Among Variables (n = 1353)

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Ever Breastfed</td>
<td>1.73</td>
<td>0.44</td>
<td>(NA)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Marital Satisfaction</td>
<td>2.82</td>
<td>1.13</td>
<td>-0.044</td>
<td>(NA)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Family Functioning</td>
<td>23.38</td>
<td>4.91</td>
<td>0.024</td>
<td>0.328**</td>
<td>(0.95)</td>
<td></td>
</tr>
<tr>
<td>4. Social Support</td>
<td>4.82</td>
<td>2.62</td>
<td>0.045</td>
<td>0.139**</td>
<td>0.533**</td>
<td>(0.90)</td>
</tr>
</tbody>
</table>

a Independent variable, scores of 1 = no, score of 2 = yes.
b Mediator, scores could range from 1 (neutral/dissatisfied) to 4 (completely satisfied).
c Dependent variable, scores could range from 0 (family dysfunction) to 31 (high family functioning).
d Moderator, score could range from 1 (low) to 8 (high).
() Cronbach alpha internal consistency coefficients.
** Statistically significant at $p = 0.000$

Direct Effects between Breastfeeding, Marital Satisfaction, and Family Functioning

Hypotheses 1 and 3. Each of the proposed hypotheses that examine the direct (as opposed to mediating and moderating) effects of breastfeeding was tested using regression analysis. Hypothesis 1, which postulates that breastfeeding affects marital satisfaction, was not supported ($\beta = -0.044$, $p = 0.111$). Nor was Hypothesis 3, which proposes that breastfeeding affects family functioning ($\beta = 0.024$, $p = 0.388$). Both of these hypotheses were also tested by gender, as in the previous section examining the immediate effects of breastfeeding, but failed to show any significance in the relationships.
**Hypothesis 2.** A linear regression that tested the relationship between marital satisfaction and family functioning was then performed. Hypothesis 2 was supported, indicating that marital satisfaction ($\beta = 0.328$, $p = 0.000$) is a significant predictor of family functioning in families with a first child less than two years old. In a subsequent regression analysis, significant control variables (work status of the spouse ($r = 0.070$, $p = 0.032$), age of the PMK ($r = 0.092$, $p = 0.005$), socioeconomic status ($r = 0.230$, $p = 0.000$), depression ($r = -0.339$, $p = 0.000$), and duration of breastfeeding ($r = 0.075$, $p = 0.021$), were entered into the equation. Marital satisfaction ($\beta = 0.288$, $p = 0.000$) remained a significant predictor of family functioning. Indeed, the significance of the relationship was not due to spuriousness. Marital satisfaction increased the proportion of variance in the dependent variable explained by the controls alone, accounting for an additional 7.6% of the variance to explain a total of 22.0% of the variance in family functioning as tested in this regression model.

When Hypothesis 2 was re-tested by gender in regression models incorporating significant controls variables (if any), further support for the value of marital satisfaction as a predictor of family functioning was obtained. The relationship was significant for both mothers ($\beta = 0.261$, $p = 0.000$; $R^2{\text{controls}} = 0.169$, $R^2{\text{controls + MS}} = 0.231$) and fathers ($\beta = 0.466$, $p = 0.000$; $R^2 = 0.217$), and was not spurious.

The prominent findings from the regression analyses examining the direct effects between previous breastfeeding, marital satisfaction, and family functioning are summarized below in Table 9.

**Table 9**

Regression Analyses of Direct Effects (n = 1353)

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Independent Variables</th>
<th>Coefficient $\beta$</th>
<th>$p$-value</th>
<th>$R^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypothesis 1: Marital Satisfaction</td>
<td>Ever Breastfed</td>
<td>-0.044</td>
<td>0.111</td>
<td>0.002</td>
</tr>
<tr>
<td>Hypothesis 2: Family Functioning</td>
<td>Marital Satisfaction</td>
<td>0.328</td>
<td>0.000</td>
<td>0.107</td>
</tr>
<tr>
<td></td>
<td>Marital Satisfaction $^b$</td>
<td>0.288</td>
<td>0.000</td>
<td>0.220</td>
</tr>
<tr>
<td>Hypothesis 3: Family Functioning</td>
<td>Ever Breastfed</td>
<td>0.024</td>
<td>0.388</td>
<td>0.001</td>
</tr>
</tbody>
</table>

*Note. Analyses were executed on sample including female and male PMKs.*

$^a$ Significant control variables of work status of spouse, duration of breastfeeding, PMK age, SES, and depression were entered.
Mediating Effect of Marital Satisfaction

**Hypothesis 4.**

Due to the failure of the tests on the direct effects of breastfeeding on marital satisfaction (H1) and family functioning (H3), regression analysis of the mediating effect of marital satisfaction on the relationship between breastfeeding and family functioning could not be executed.

Moderating Effect of Social Support

**Hypothesis 5.**

Due to the finding that whether a primiparous couple had ever breastfed their child did not significantly predict family functioning within two years of the child's birth, the moderating effect of social support on the relationship between breastfeeding and family functioning was not tested.
DISCUSSION

The purpose of this study was to determine whether breastfeeding a first child predicts marital satisfaction and family functioning for the parents at the time of breastfeeding and within two years of the delivery of the infant. A review of the statistical findings reveals that there is supportive evidence for the effect of breastfeeding on immediate marital satisfaction and family functioning. The relationship between breastfeeding and family functioning is mediated by marital satisfaction and moderated by social support. What is surprising, however, is that the proposed model is only relevant for fathers whose wives are currently breastfeeding. This finding strongly suggests a gender difference in the way in which men and women experience the transition to parenthood. From the study also emerges considerable evidence that marital satisfaction, within two years postpartum, predicts family functioning. These findings are discussed below in further detail.

Hypothesis 1

From correlation analyses of the relationship between breastfeeding and marital satisfaction, it was inconclusive whether the two variables were significantly related. In examining whether marital satisfaction was affected by current or previous breastfeeding of a first child, the relationship was found to be spurious or insignificant.

However, on closer inspection by gender, a difference emerged between mothers and fathers. For mothers, higher marital satisfaction was not related to whether she was currently breastfeeding or had ever breastfed in the past two years. Furthermore, whether the mother was working, had worked in the past year, or had not worked in the past year did not affect marital satisfaction. This finding was not different between mothers who were currently breastfeeding a child or those who were not.

For fathers, on the other hand, current breastfeeding of a first child was positively related to marital satisfaction. In other words, marital satisfaction was higher for those fathers whose wives were currently breastfeeding compared to those who were not. These direct relationships seem contrary to the inferences that can be made from the limited literature that is available on breastfeeding and the marital relationship.
Of the literature that exists on breastfeeding with regards to men, two main issues are of relevancy to the breastfeeding-marital satisfaction hypothesis. The first is sexual satisfaction and the second is the precipitation of negative feelings such as exclusion and jealousy as a result of the intimate relationship between mother and child during breastfeeding.

From studies evaluating sexual satisfaction during the postpartum period, it is clear that breastfeeding is a concern for men moreso than for women (Avery, Duckett, & Frantzich, 2000; Byrd et al., 1998). In addition, the growing literature on the concerns and initiatives for including men in the breastfeeding experience (Jordan & Wall, 1990, 1993) suggests that men may develop feelings of jealousy, separation, resentment, and exclusion otherwise. Therefore, from this study, the increase in marital satisfaction derived from wives' breastfeeding of the infant leads us to believe that more is gained than lost from the breastfeeding experience for men.

It may be that, for fathers, marital satisfaction is not derived solely from the mother alone, but from the newly-formed mother and infant dyad. It seems reasonable that the positive regard expressed during the transition to parenthood and the emotional gratification derived from both the wife and the breastfed infant may contribute more strongly to the overall satisfaction in the relationship than does the (sexual) interaction component.

According to Lewis and Spanier (1979), marital satisfaction, or quality, is shaped by the interpersonal and dyadic factors of positive regard, emotional gratification, communication, interaction, and role fit. Indeed, returning to our conceptual framework, the greater degree of role fit (need and role complementarity, congruence of role expectations and performance, personality similarity, role sharing, and sexual compatibility), the greater the marital satisfaction. In the literature review, breastfeeding was analyzed in relation to role strain with respect to the three predictors of role strain: increased demands, incompatibility of roles, and diversification of roles. Because the increase in the demands of time, energy, and physical and emotional expenditure are mostly expected and necessary of mothers, the first predictor of role strain applies more to mothers than to fathers.

The single role strain measure of concurrent work status and breastfeeding that was tested yielded interesting results in relation to the role strain hypothesis. Work status
was not found to be explanatory or predictive of marital satisfaction for either breastfeeding or non-breastfeeding mothers. There was no relationship between breastfeeding and marital satisfaction for either group of mothers. In other words, work status may not have been an appropriate role strain measure, as it did not predict marital satisfaction for the entire sample of mothers. Indeed, there are many contributors to marital satisfaction, and careful consideration of role strain indicators is needed. For example, role arrangements such as the division of labour are primary contributors to marital satisfaction (Cowan & Cowan, 1988).

The second predictor – the incompatibility of roles – applies more to fathers than to mothers. This is due to the fact that intimacy derived from breastfeeding contributes to the woman's identity as a mother (Dignam, 1995) – strengthening the role of mother. For men, the role of father may become usurped due to exclusion from the intimate breastfeeding mother-infant dyad and the role of husband may be diminished due to the decrease in sexual relations.

With regards to the third predictor of role strain, the diversification of roles, breastfeeding contributes to the recognition of the new infant as an extension of herself by the mother (Dignam, 1995). For fathers, the attainment of an additional role is a proud achievement for him (Watson, Watson, Wetzel, Bader, & Talbot, 1995).

In light of these explanations of role strain as related to breastfeeding and the transition to parenthood, one can speculate that the demands of breastfeeding may be compensated by the gratification of the intimate bonding experience for mothers resulting in no effect on overall marital satisfaction, while the rewards outweigh the costs for fathers. Thus, breastfeeding is an insignificant or nearly negligent predictor of marital satisfaction for women. Breastfeeding a child is an important contributor to marital satisfaction at the time of transition to parenthood for first-time fathers.

**Hypothesis 2**

As opposed to the findings for breastfeeding and marital satisfaction, there is considerable evidence that marital satisfaction is positively related to family functioning. This finding was attained for primiparous couples, breastfeeding or not, using cross-
sectional data. Certainly, increased marital satisfaction is related to increased family functioning. Furthermore, the relationship is predictive and true for both genders.

Intuitively, overall satisfaction with one's partner affects each spouse in his or her evaluation of group problem solving, communication, roles, affective involvement, affective responsiveness, and behaviour control. However, there has been no previous research performed on nonclinical families, nor on breastfeeding families, to demonstrate the positive relationship. The strength of this direct relationship between marital satisfaction and family functioning concurs with previous findings of a positive, concurrent relationship in the few clinical studies that are published on marital satisfaction and family functioning, as mentioned in the literature review. The finding from this study that the positive predictive value of the relationship is stronger for fathers also concurs with prior conclusions that the quality of marriage is a stronger predictor of parental functioning for men than for women (Feldman & Nash, 1984; cited in Fedele, Golding, Grossman, & Pollack, 1988).

**Hypothesis 3**

Similar to the results for Hypothesis 1, no effect was found for the relationship between breastfeeding and family functioning. However, when tested by gender, a statistically significant relationship emerged which provides supportive evidence that breastfeeding affects immediate family functioning for first-time fathers. The decision to breastfeed is in itself one that is often influenced by fathers (Freed et al., 1993; Littman et al., 1994). The higher rating of family functioning among fathers in the breastfeeding group could be due to the influence that their strong beliefs have on mothers' decisions to breastfeed. Beliefs held by fathers regarding the superiority of breastfeeding as the best form of infant nutrition (Freed et al., 1993; Jordan & Wall, 1990), for example, thus contribute to the father's decision-making in the family. Indeed, current breastfeeding of a first child increases the fathers' perceptions of family functioning, indicating better role performance, communication, problem-solving, and affective expression.

Breastfeeding mothers, however, did not register the same increase in family functioning nor register a change toward family dysfunction. Possible explanations for these findings could be that the positive affective changes in the family dynamic and the
exhaustive increased demands in role tasks balance out so that breastfeeding is a negligent predictor of family functioning for females, as was the case for marital satisfaction. Also, the opportunity to make decisions on behalf of the infant regarding feeding times and feeding regimen could empower mothers, resulting in increased self-esteem (Dermer, 1998; Kuzela et al., 1990; Labbok, 2001), offsetting the stresses of the accompanying responsibilities. Indeed, there must be a variable not identified nor measured in this study that contributes to the perception of family functioning by mothers as work status in both breastfeeding and non-breastfeeding mothers also did not predict family functioning.

Returning again to the determinants of family functioning, the lack of effect of breastfeeding on family functioning could be due to the complex factors affecting a woman's evaluation of the transition to parenthood. According to Kalmuss, Davidson, and Cushman (1992), and detailed by Belsky and Kelly (1994), disappointments for mothers stem from discordance between expectation and reality in the areas of relationship and emotional support, physical well-being, maternal competence, maternal satisfaction, shared child care, and support from family and friends. Indeed, the list is long and thus, illustrates the complexity in relating the variables affecting family functioning to those manifesting an observed effect on family functioning.

**Hypothesis 4**

The finding from this study reveals that there is support for the mediating effect of marital satisfaction on the relationship between breastfeeding and family functioning for fathers whose wives are currently breastfeeding. As the Beta (β) for the predictive effect of breastfeeding on marital satisfaction is larger than the Beta for the effect of breastfeeding on family functioning, it comes as no surprise that the process by which breastfeeding affects family functioning is through marital satisfaction.

**Hypothesis 5**

The conclusive finding that social support moderates the impact of breastfeeding upon family functioning for fathers is consistent with the findings of Freed et al. (1993)
and Jordan and Wall (1990), that spousal support is associated with a more positive approach to fatherhood. Certainly, social support can buffer the negative effects of life stress events such as the transition to parenthood (Cowan & Cowan, 1988). Further, the general association of breastfeeding with higher levels of family functioning is stronger in families with higher levels of social support. This finding contributes to the importance of support for new fathers, who often do express the desire to be in contact with expectant, new, and experienced fathers (Jordan & Wall, 1993). However, because the level of social support received by fathers was not correlated with breastfeeding in this study, we cannot conclude that fathers involved in the breastfeeding process received more social support. Nonetheless, social support strengthens the relationship between the predictor variable of breastfeeding and fathers' perception of family functioning.

A Note on Role Strain

Due to the limitations of the data set, there was difficulty in incorporating appropriate role strain indicators and measures into the hypothesized model on the effects of breastfeeding. The area of transition to parenthood in the literature is generally atheoretical and largely descriptive. Furthermore, there is no empirical research on the effects of breastfeeding on any areas of marital and family dynamics. In applying theory to the testing of the hypotheses, theoretical discussions of the findings are only speculative and based on conjecture. Ideally, employing stress scales as a measure of role strain would better account for the theoretical effects of infant-feeding on marital satisfaction and family functioning. Creating specific items on the perceptions of changes in parenting style, attitudes, and communication during the transition to parenthood would also better indicate and elucidate the effects of breastfeeding on family functioning.
CONCLUSIONS AND IMPLICATIONS

From the results of this study, several conclusions can be drawn. 1) Satisfaction with the marital relationship predicts concurrent family functioning for mothers and fathers, breastfeeding or non-breastfeeding within two years postpartum. 2) There is a gender difference in the effects of breastfeeding on both marital satisfaction and family functioning. 3) There is no effect of breastfeeding on marital satisfaction and family functioning for mothers both during breastfeeding and within two years postpartum. 4) Fathers whose wives are currently breastfeeding experience increased marital satisfaction, which in turn, increases family functioning. 5) The positive effect of breastfeeding on family functioning for fathers is moderated by perceived social support. The findings are summarized by gender in the following model (Figure 9).

Figure 9. Resultant relationships between breastfeeding (independent variable), marital satisfaction (mediator), social support (moderator), and family functioning (dependent variable) by gender. Significant control variables for marital satisfaction and family functioning are shown in the oval. Signs in [ ] indicate direction of relationship for mothers; ( ) indicate direction of for fathers. {+} denotes a positive relationship; {Ø} denotes no relationship.
Limitations

In making such conclusions, one must be aware of the limitations of the study, of which there are a few. First, due to the nature of the questions posed in the NLSCY, it is not possible to distinguish between full (exclusive or almost exclusive), partial, or token breastfeeding (Labbok & Krasovek, 1990). This criticism, which has been noted by many authors on the subject of breastfeeding (Labbok, 2001; Lawrence & Lawrence, 1999), points out the fact that there is a lack of consistency in describing the infant-feeding patterns practiced by couples. In this study, breastfeeding refers to the definition as perceived by the respondents of the NLSCY.

A second limitation of the study is the relative size of the male (father as the person most knowledgeable) sample. As compared to the size of the female sample (n = 1444), the size of the male sample (n = 156) is quite small, making up 9.8% of the relevant breastfeeding sample size. However, seeing as how mothers would be more involved and more knowledgeable about the breastfeeding experience, it is sensible to utilize such sizes for analysis. When put into perspective, the size of the male sample is adequate as only 8.2% of the respondents / PMKs for the entire NLSCY (N = 22,831) was male. Further, the subject-to-variable ratio (156/5 = 31.2) is greater than the accepted standard of 5.

Another concern stemming from the male sample is the oddity of fathers self-selecting as the person most knowledgeable about the household. Are these fathers comparable to men who are not the person most knowledgeable? Are they atypical of the average father? An exploration of the values for the mean socioeconomic status and the results in Table 2 reveal the socio-demographics of this sample of fathers. There are no socioeconomic differences between the fathers who are the PMK and the fathers whose wives are the PMK. However, there are differences between the two groups of fathers in terms of work status and childcare use. A large percentage (77.6%) of the fathers claiming to be the PMK were working at the time of data collection; but in comparison to the husbands of women who were the PMK (86.1%), fewer were working. In addition, the wives of the male PMKs were more likely to be working (69.1%) than the female PMKs (57.1%). With respect to the use of outside childcare, more families among the
male PMK group (47.1%) compared to those among the female PMK group (38.5%) utilized daycare or babysitters.

The differences found between the male PMKs and spouses of female PMKs indicate that the sample of families with fathers as the PMK may be characterized as being more likely to be dual-earner families utilizing external childcare, or included a larger sample of stay-at-home fathers. As it is difficult to ascertain the exact profile of the fathers who were the PMK, one is not able to confidently generalize the findings of this study to all fathers. Nonetheless, one can confidently conclude that the positive effects of breastfeeding on marital satisfaction and family functioning are applicable to more knowledgeable and involved fathers.

A third limitation, which is applicable to survey data in general, is that there is a possibility for selection, response, and sampling bias. As previously discussed, unweighted data was used and the rationale for doing so was provided. Further, due to the confidentiality constraints of the NLSCY and the financial constraints of this research project, detailed knowledge of the survey design was withheld from users of the data by Statistics Canada. Thus, the specific details of the multiple stages of selection, unequal probabilities of selection of respondents, stratification, and clustering of the sample's design could not be fully accounted for in the statistical analyses, thereby affecting variance estimates. The use of cross-sectional (rather than longitudinal) data also does not allow analyses of families across the duration of the transition to parenthood. These considerations limit the scope of the generalizations that can be made from this study to the specific sample examined, rather than to all provinces across Canada.

A final limitation arises from the use of the individual PMK as the unit of observation. It would have been ideal for both the mother and father to report on marital satisfaction and family functioning, so that individual response and perception biases could have been minimized. Such a survey design would also have facilitated comparison of families (PMKs and their respective spouses). Nonetheless, consideration was taken in the selection of appropriate controls and the inclusion of both breastfeeding and non-breastfeeding groups in the regression analyses.
Agenda for Future Research

Several questions for further research arise from the findings of this study. For example, given the positive effect of breastfeeding on marital satisfaction and family functioning for fathers, exploration into the specific factors of the breastfeeding experience that improve family functioning is warranted. This study prompts additional research on the effects of breastfeeding on communication, problem-solving, and decision-making relating to marital discussions about regimen, feeding schedules, and responsibility. It would be of interest to perform similar studies using larger samples, such as those recruited from hospitals, to examine the effects of breastfeeding on overall family functioning at the time of breastfeeding and in future.

Likewise, the results of this study prompt further research into the effects of breastfeeding on fathers. Have the breastfeeding initiatives translated into increased involvement of fathers? Are fathers now more involved in the infant-feeding process? Unfortunately, there was no data on how involved fathers were with breastfeeding their infants in this sample. But, research in this area could elucidate whether it is the increased involvement in infant-feeding that contributes to the increase in marital satisfaction or whether there are other factors to be considered. More interest and research should be generated on the positive and negative experiences of breastfeeding for fathers, so that there is support for breastfeeding that applies to all members of the family.

For mothers, there is a need to explore the rewards and demands of breastfeeding. Given the personal rewards of breastfeeding, such as the stress-reduction effects, the tactile stimulation, and the emotional bonding between mother and infant (Dermer, 1998), why does marital satisfaction not increase? What are the predictive factors of marital satisfaction and family functioning in breastfeeding mothers? Perhaps the interactions between husband and wife regarding the individual roles and responsibilities of infant care are more costly than the rewards. Or perhaps the common frustrations experienced by mothers regarding the latching on of the baby, soreness, and inconvenience (Newman & Pitman, 2000) play a role in negatively affecting the otherwise positive experience of breastfeeding. Recognition for the maternal demands and sacrifices is warranted.
Contributions to the Field of Breastfeeding

The results of this study lend further support for the on-going breastfeeding initiatives in Canada (see Appendix C). Previous to this study, no research was done on the effects of breastfeeding on marital satisfaction and family functioning. Encouragement for breastfeeding by the medical community was health-based. As marital satisfaction and family functioning for mothers are not negatively affected by breastfeeding, and are actually improved for fathers, there is further evidence to support breastfeeding in relation to the effects on family dynamics.

Promotion of breastfeeding by health practitioners and interventions should continue for several reasons: (a) the undisputed nutritional benefits and protective effects against childhood disease for the infant (AAP, 1997); (b) the consistent positive effects of breastfeeding for women (Lawrence, 2000) in protecting against breast and ovarian cancers (Labbok, 2001), improving bone remineralization (AAP, 1997), and reducing postpartum hemorrhage and stress due to the physiologic effects of breastfeeding-induced oxytocin (Dermer, 1998); (c) the cost-effectiveness of breastmilk versus formula (AAP, 1997); and perhaps now, (d) for the increased marital satisfaction and family functioning related to breastfeeding experienced by more knowledgeable fathers.

However, it is hoped that from this research also emerges solace for those mothers who face psychological or physical barriers to breastfeeding. As breastfeeding does not improve marital satisfaction or family functioning for mothers, mothers who are not able to meet personal or societal expectations of breastfeeding need not experience negative feelings such as guilt, shame, or blame. For those mothers contemplating the decision to breastfeed, perhaps this piece of research may further encourage breastfeeding in light of the various benefits for the infant, mother, and father.

It is anticipated that this research on the effects of breastfeeding on individuals and relationships will be of practical significance to Canadian health professionals, practitioners, and families. Breastfeeding is not an isolated health behaviour that can be increased or diminished by way of health promotion efforts. A broader perspective on the decision to breastfeed and its impact on family interaction can be gained by understanding the role of infant-feeding practices on future relationships and development. Moreover, it is anticipated that the conclusions from this study will have
Breastfeeding, Marital Satisfaction, and Family Functioning

implications on Canadian public policy. Clearly, evidence in support of recommendations for the involvement of fathers in the postpartum period and in breastfeeding emerges from this research. Understanding the impact of infant-feeding behaviours on the marital relationship and the family will give medical practitioners, health promoters, and individual families more confidence to support or reject breastfeeding on an individual basis.

Finally, this study has implications to theoretical development on multi-level models for examining the interaction between health behaviours and social relationships such as in the marriage and the family. The influences of cultural norms, structural contingencies, interactional dynamics, and psychosocial dispositions need to be incorporated in further study on health practices. The interdisciplinary approach of this study, which assesses the impact of infant-feeding practices on family dynamics during and beyond the transition to parenthood, facilitates further inquiry to generate a more comprehensive picture of the benefits, costs, and appropriateness of breastfeeding in relation to marital satisfaction and family functioning.
REFERENCES


APPENDIX A

Measures Used in the NLSCY

Breastfeeding

Are/Is you/her/his mother currently breast-feeding? (If yes, go to next section.)

1. Yes
2. No
3. Not Applicable
4. Don't Know
5. Refusal
6. Not Stated

Did you/her/his mother breastfeed him/her even if only for a short time? (If no, go to next section.)

1. Yes
2. No
3. Not Applicable
4. Don't Know
5. Refusal
6. Not Stated

For how long?

1. Less than 1 week
2. 1-4 weeks
3. 5-8 weeks
4. 9-12 weeks
5. 3-6 months
6. 7-9 months
7. 10-12 months
8. 13-16 months
9. More than 16 months

What was the main reason you/her/his mother stopped breast-feeding him/her?

1. Not enough milk/hungry baby
2. Inconvenienced/fatigue
3. Difficulty with BF techniques
4. Sore nipples/engorged breast
5. Mother's illness
6. Planned to stop at this time
7. Baby weaned himself/herself
8. Physician told me/her to stop
9. Returned to work/school
10. Partner/father wanted me/her to stop
11. Formula feeding preferable
12. Wanted to drink alcohol
13. Other

Marital Satisfaction

All things considered, how satisfied or dissatisfied are you with your marriage or relationship with your partner? Which number comes the closest to how you feel, where 1 is completely dissatisfied and 11 is completely satisfied? (6 = neutral)

Family Functioning Scale

12 items, each with 4 response categories: strongly agree, agree, disagree, strongly disagree.

A. Family misunderstands each other.
B. We can turn to each other for support.
C. We cannot talk to each other about sadness.
D. Family members are accepted as who they are.
E. We avoid discussing fears or concerns.
F. We express feelings to each other.
G. There are lots of bad feelings in our family.
H. We feel accepted for what we are.
I. Making decisions is a problem for our family.
J. We are able to make decisions about how to solve problems.
K. We don't get along well together.
L. We confide in each other.

Social Support Scale

6 items, each with 4 response categories: strongly agree, agree, disagree, strongly disagree.

A. If something went wrong, no one would help me.
B. I have family and friends who help me feel safe, secure, and happy.
C. There is someone I trust whom I would turn to for advice if I were having problems.
D. There is no one I feel comfortable talking about problems with.
E. I lack a feeling of closeness with another person.
F. There are people I can count on in an emergency.

Depression Scale

12 items, each with 4 response categories: strongly agree, agree, disagree, strongly disagree.
How often you have felt or behaved this way during the past week:

A. I felt that I could not shake off the blues even with help from my family or friends.
B. I did not feel like eating; my appetite was poor.
C. I had trouble keeping my mind on what I was doing.
D. I felt depressed.
E. I felt that everything I did was an effort.
F. I felt hopeful about the future.
G. My sleep was restless.
H. I was happy.
I. I felt lonely.
J. I enjoyed life.
K. I had crying spells.
L. I felt that people disliked me.
**APPENDIX B**

**Correlation Matrices of Control Variables**

**Table B1. Correlation Matrix of Control Variables related to Marital Satisfaction**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Pearson Correlation</th>
<th>Sig. (2-tailed)</th>
<th>Marital Satisfaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marital Satisfaction</td>
<td></td>
<td></td>
<td>1.000</td>
</tr>
<tr>
<td>Family Functioning</td>
<td>.326**</td>
<td>.000</td>
<td>.326**</td>
</tr>
<tr>
<td>Depression</td>
<td>-.253**</td>
<td>.000</td>
<td>-.253**</td>
</tr>
<tr>
<td>Gender of PMK</td>
<td>-.046</td>
<td>.073</td>
<td>-.046</td>
</tr>
<tr>
<td>Gender of Child</td>
<td>-.043</td>
<td>.092</td>
<td>-.043</td>
</tr>
<tr>
<td>Region of Canada</td>
<td>-.026</td>
<td>.306</td>
<td>-.026</td>
</tr>
<tr>
<td>PMK Age group</td>
<td>.005</td>
<td>.845</td>
<td>.005</td>
</tr>
<tr>
<td>PMK School Attendance</td>
<td>-.045</td>
<td>.081</td>
<td>-.045</td>
</tr>
<tr>
<td>PMK Current working status</td>
<td>.034</td>
<td>.185</td>
<td>.034</td>
</tr>
<tr>
<td>SPOUSE current work status</td>
<td>-.001</td>
<td>.969</td>
<td>-.001</td>
</tr>
<tr>
<td>SES</td>
<td>.077**</td>
<td>.002</td>
<td>.077**</td>
</tr>
<tr>
<td>Use of Childcare</td>
<td>-.088**</td>
<td>.001</td>
<td>-.088**</td>
</tr>
</tbody>
</table>

**• Correlation is significant at the 0.01 level (2-tailed).**

**• Correlation is significant at the 0.05 level (2-tailed).**

**a. Listwise N=1523**
Table B2. Correlation Matrix of Control Variables related to Marital Satisfaction, Female PMKs

<table>
<thead>
<tr>
<th>Variable</th>
<th>Pearson Correlation</th>
<th>Sig. (2-tailed)</th>
<th>Marital Satisfaction</th>
</tr>
</thead>
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<tr>
<td>Marital Satisfaction</td>
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</tr>
<tr>
<td>Family Functioning</td>
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<td>.000</td>
<td></td>
</tr>
<tr>
<td>Depression</td>
<td>-.259**</td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td>Gender of PMK</td>
<td>a</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender of Child</td>
<td>-.046</td>
<td>.087</td>
<td></td>
</tr>
<tr>
<td>Region of Canada</td>
<td>-.027</td>
<td>.322</td>
<td></td>
</tr>
<tr>
<td>PMK Age group</td>
<td>-.013</td>
<td>.631</td>
<td></td>
</tr>
<tr>
<td>PMK School Attendance</td>
<td>-.037</td>
<td>.172</td>
<td></td>
</tr>
<tr>
<td>PMK Current working status</td>
<td>.038</td>
<td>.160</td>
<td></td>
</tr>
<tr>
<td>SPOUSE current work status</td>
<td>.030</td>
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<td></td>
</tr>
<tr>
<td>SES</td>
<td>.082**</td>
<td>.002</td>
<td></td>
</tr>
<tr>
<td>Use of Childcare</td>
<td>-.087**</td>
<td>.001</td>
<td></td>
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** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).
a. Cannot be computed because the variable is constant.
b. Listwise N=1383
Table B3. Correlation Matrix of Control Variables related to Marital Satisfaction, Male PMKs

<table>
<thead>
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<th>Variable</th>
<th>Pearson Correlation</th>
<th>Sig. (2-tailed)</th>
<th>Marital Satisfaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marital Satisfaction</td>
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<td></td>
<td>1.000</td>
</tr>
<tr>
<td>Family Functioning</td>
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<td>.462**</td>
</tr>
<tr>
<td>Depression</td>
<td></td>
<td></td>
<td>-.156</td>
</tr>
<tr>
<td>Gender of PMK</td>
<td></td>
<td></td>
<td>.a</td>
</tr>
<tr>
<td>Gender of Child</td>
<td></td>
<td></td>
<td>-.021</td>
</tr>
<tr>
<td>Region of Canada</td>
<td></td>
<td></td>
<td>-.023</td>
</tr>
<tr>
<td>PMK Age group</td>
<td></td>
<td></td>
<td>.056</td>
</tr>
<tr>
<td>PMK School Attendance</td>
<td></td>
<td></td>
<td>.515</td>
</tr>
<tr>
<td>PMK Current working status</td>
<td></td>
<td></td>
<td>-.134</td>
</tr>
<tr>
<td>SPOUSE current work status</td>
<td></td>
<td></td>
<td>-.127</td>
</tr>
<tr>
<td>SES</td>
<td></td>
<td></td>
<td>.023</td>
</tr>
<tr>
<td>Use of Childcare</td>
<td></td>
<td></td>
<td>-.126</td>
</tr>
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**Correlation is significant at the 0.01 level (2-tailed).
*Correlation is significant at the 0.05 level (2-tailed).
a. Cannot be computed because the variable is constant.
b. Listwise N=140
**Table B4. Correlation Matrix of Control Variables related to Family Functioning**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Pearson Correlation</th>
<th>Sig. (2-tailed)</th>
</tr>
</thead>
<tbody>
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<td>Marital Satisfaction</td>
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<td>.000</td>
</tr>
<tr>
<td>Family Functioning</td>
<td>1.000</td>
<td></td>
</tr>
<tr>
<td>Depression</td>
<td>-.339**</td>
<td></td>
</tr>
<tr>
<td>Gender of PMK</td>
<td>.043</td>
<td>.183</td>
</tr>
<tr>
<td>Gender of Child</td>
<td>-.015</td>
<td>.646</td>
</tr>
<tr>
<td>Region of Canada</td>
<td>-.044</td>
<td>.173</td>
</tr>
<tr>
<td>PMK Age group</td>
<td>.092**</td>
<td>.005</td>
</tr>
<tr>
<td>PMK School Attendance</td>
<td>-.020</td>
<td>.536</td>
</tr>
<tr>
<td>PMK Current working status</td>
<td>.029</td>
<td>.368</td>
</tr>
<tr>
<td>SPOUSE current work status</td>
<td>.070*</td>
<td>.032</td>
</tr>
<tr>
<td>SES</td>
<td>.230**</td>
<td>.000</td>
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<tr>
<td>Use of Childcare</td>
<td>-.012</td>
<td>.714</td>
</tr>
<tr>
<td>Duration of Breastfeeding</td>
<td>.075*</td>
<td>.021</td>
</tr>
</tbody>
</table>

**• Correlation is significant at the 0.01 level (2-tailed).**

*• Correlation is significant at the 0.05 level (2-tailed).*

a. Listwise N=943
Table B5. Correlation Matrix of Control Variables related to Family Functioning, Female PMKs

<table>
<thead>
<tr>
<th>Control Variable</th>
<th>Pearson Correlation</th>
<th>Sig. (2-tailed)</th>
</tr>
</thead>
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<td>Marital Satisfaction</td>
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<td>.000</td>
</tr>
<tr>
<td>Family Functioning</td>
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<tr>
<td>Depression</td>
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<tr>
<td>Gender of PMK</td>
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<tr>
<td>Gender of Child</td>
<td>-.018</td>
<td>.600</td>
</tr>
<tr>
<td>Region of Canada</td>
<td>-.044</td>
<td>.199</td>
</tr>
<tr>
<td>PMK Age group</td>
<td>.110**</td>
<td>.001</td>
</tr>
<tr>
<td>PMK School Attendance</td>
<td>-.020</td>
<td>.567</td>
</tr>
<tr>
<td>PMK Current working status</td>
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<td>.208</td>
</tr>
<tr>
<td>SPOUSE current work status</td>
<td>.046</td>
<td>.180</td>
</tr>
<tr>
<td>SES</td>
<td>.257**</td>
<td>.000</td>
</tr>
<tr>
<td>Use of Childcare</td>
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<td>.616</td>
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<tr>
<td>Duration of Breastfeeding</td>
<td>.088**</td>
<td>.010</td>
</tr>
</tbody>
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**. Correlation is significant at the 0.01 level (2-tailed).
* . Correlation is significant at the 0.05 level (2-tailed).
a. Cannot be computed because the variable is constant.
b. Listwise N=864
Table B6. Correlation Matrix of Control Variables related to Family Functioning, Males PMKs

<table>
<thead>
<tr>
<th>Variable</th>
<th>Pearson Correlation</th>
<th>Sig. (2-tailed)</th>
<th>Family Functioning</th>
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</thead>
<tbody>
<tr>
<td>Marital Satisfaction</td>
<td></td>
<td></td>
<td>.542**</td>
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<td>Family Functioning</td>
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</tr>
<tr>
<td>Depression</td>
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<td></td>
<td>-.124</td>
</tr>
<tr>
<td>Gender of PMK</td>
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<td>.a</td>
<td></td>
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<tr>
<td>Gender of Child</td>
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<td>.042</td>
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<tr>
<td>Region of Canada</td>
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<td></td>
<td>-.037</td>
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<tr>
<td>PMK Age group</td>
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<td>.623</td>
</tr>
<tr>
<td>PMK School Attendance</td>
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<td></td>
<td>-.004</td>
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<tr>
<td>PMK Current working status</td>
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</tr>
<tr>
<td>SPOUSE current work status</td>
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<td></td>
<td>.202</td>
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<tr>
<td>SES</td>
<td></td>
<td></td>
<td>.022</td>
</tr>
<tr>
<td>Use of Childcare</td>
<td></td>
<td></td>
<td>.076</td>
</tr>
<tr>
<td>Duration of Breastfeeding</td>
<td></td>
<td></td>
<td>-.089</td>
</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).
a. Cannot be computed because the variable is constant.
b. Listwise N=79