Quality of Life of New Parents Participating in a Community-based, Professionally-facilitated New Parent Support Group

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ABSTRACT

Background: Each year, millions of people become parents, an event ranked by many as one of the most impactful experiences in their lives. Previous studies have documented the effect of this event on new parents' quality of life (QOL). The present study seeks to assess the recovery of QOL over the first 6 months postpartum among participants in a support group for new parents.

Methods: 41 parents in a Seattle-based, professionally-facilitated, new parent support group completed a validated, 26-question quality-of-life survey (World Health Organization Quality of Life-Brief, WHOQOL-BREF) at three- and/or at six months post-partum, and also completed a brief questionnaire about their peri-partum experiences. An overall QOL score and scores in four domains (physical health; psychological health; social relationships; environment) were compared at each time point. The directionality of the changes in QOL scores over time was also compared to that of a historical cohort who completed the WHOQOL-BREF one month before and two months after childbirth.

Results: Of the 41 participants enrolled, 34 participants completed both the three- and the six-month postpartum questionnaires. Among these 34 participants, the only statistically significant change occurred in the QOL domain of physical health, for which the QOL score at three months was 51.0 (SD=10.9) and at six months was 55.7 (SD=10) for a mean increase of 5.4 units (95% CI 1.7, 9.2; p=0.006). Scores in all domains except social relationships increased from three to six months postpartum, but none of the remaining changes were statistically significant. The directionality of all QOL score changes in the current cohort is mirrored in the directionality of score changes in the historical cohort.

Conclusions: New parent QOL changes differentially across four QOL domains in the postpartum period. This study points to areas in which further research could better elucidate both the changes themselves and the potential influence of interventions such as new parent support groups on these QOL changes.

INTRODUCTION:

Each year in the United States, approximately 4 million live births occur, creating several million new parents. [1] Though each parent has a unique experience of new parenthood, many common themes permeate this experience. The challenges facing new parents range from dramatic shifts in sleep patterns to changes in a parent's sense of personal identity and professional purpose. New parents are asked to assume full responsibility for another dependent person, with little or no training on how to do so. [2-4] Not surprisingly, new parents report a significant impact on their lives in the initial postpartum period, including on physical, psychological, social, and economic aspects of their lives. For example, up to 40% of new mothers report significant postpartum pelvic girdle (musculoskeletal) pain; nearly 15% of new mothers endorse symptoms consistent with depression and another few percent endorse symptoms of anxiety or other mental illness; new parents report a significantly altered social life, with less time with their partners and with friends; and the economic significance of parenthood is profound: the cost of raising a child to 18 years old approaches half a million dollars. These are just some of the many influences on new parents' quality of life. [5-11]

Defining Quality of Life

The authors of the Healthy People 2020 Initiative [12] report define quality of life as follows:

> Health-related quality of life (HRQOL) is a multi-dimensional concept that includes domains related to physical, mental, emotional, and social functioning. It goes beyond direct measures of population health, life expectancy, and causes of death, and focuses on the impact health status has on quality of life.

> A related concept of HRQOL is well-being, which assesses the positive aspects of a person's life, such as positive emotions and life satisfaction. Well-being is a relative state where one maximizes his or her physical, mental, and social functioning in the context of supportive environments to live a full, satisfying, and productive life.

The World Health Organization (WHO) defines quality of life as "individuals' perceptions of their position in life in the context of the culture and value systems in which they live, and in relation to their goals, expectations, standards, and concerns." [13, 14].

Notably, both definitions point to the role of individuals' environments or contexts in their quality of life. The Healthy People 2020 Initiative defines this intersection of "supportive environments" and quality of life as well-being. The WHO definition of quality of life directly integrates elements of what the Healthy people 2020 Initiative calls well-being in the WHO's reference to the "context of the culture and value systems" in which an individual lives. In fact, the terms "well being" and "quality of life," are closely linked in the literature; and the *context* in which individuals live is recognized as an important contributor to how their quality of life or sense of well-being changes over time [15, 16].

World Health Organization Quality of Life Model & Assessment

In 2005, the WHO explicitly emphasized the importance of evaluating and improving people's quality of life [16]. The WHO also outlined their own framework or model for such evaluations, a model that was utilized in the work reported in this paper. [13]

In the WHO model, quality of life is divided into several distinct components or domains: (1) physical health; (2) psychological health; (3) social relationships; and (4) economic security and other aspects of

the external environment. As explored in the introduction, each of the domains of quality of life in the WHO model is altered significantly in new parenthood.

One WHO quality of life assessment instrument that explores this quality of life model is the "WHOQOL," an abridged version of which is utilized in the present study, the WHOQOL-BREF. In a validation of this instrument that was performed in women of childbearing age (who serve as a historical cohort in the present study's analysis), quality of life at one month before childbirth was found to be demonstrably different than quality of life two months after childbirth. [13, 31] Other studies have also noted an impact of childbirth on postpartum quality of life; some of these studies examined specific factors associated with childbirth, including mode of delivery, mental health, economic and other factors. [17-21]

Change in Quality of Life Over Time: A Framework

These changes in quality of life between pre- and post-childbirth time points are not surprising. However, no previous study has examined the change in quality of life over time in the postpartum period, exclusively, including how overall quality of life—and its individual components or domains of physical and psychological health, social relationships, and economic security—may recover over time, as parenthood becomes less new and adjustments to it are made. That postpartum quality of life does, in fact, recover over time is suggested by one popular model of the process of becoming a mother, authored by Ramona Mercer, RN, PhD, who describes four interdependent stages of new parenthood, three of which occur postpartum. These stages include: (1) commitment, attachment, and preparation for an infant during pregnancy; (2) acquaintance with and increasing attachment to the infant, learning how to care for the infant, and "physical restoration" during the early postpartum weeks; (3) moving

toward a “new normal” during the first four postpartum months; and (4) achievement of a maternal identity at around 4 months postpartum. [3]

Mercer and Walker examined the role of nurses in facilitating the recovery of quality of life—in the physical and psychological realms, in particular—for new mothers. They found that interactive, therapeutic relationships were more effective than formal teaching to help new parents navigate this time of change. [22] An intriguing randomized trial published in The Lancet in 2002 revealed that provision of care that was “flexible, and tailored to needs,” including additional post-partum visits with nurses or other medical providers, extended over a longer postpartum period of time, could significantly enhance new parent quality of life and reduce psychological concerns. [23] However, several other trials have shown variable results from interventions with similar objectives, most commonly demonstrating no significant improvements in psychological well-being. These trials are typically smaller and/or characterized by highly variable study subject compliance and limited interventions—such as a single added opportunity for postpartum debriefing—compared to the Lancet trial. [24-29]

A letter to the editor of Lancet that was published in response to the 2002 randomized trial noted that “Key life events (such as birth…) are known to create stress and require behavioral adaptation within a short time. Social support has been shown to modify an individual’s response to these events and can enhance the ability to cope with necessary change.” [8] Mercer notes that “engaging mothers in verbal exchanges that express care, support, and interest can enable a mother to use stressful experiences to gain confidence in her ability to mother, and foster her confidence, sense of control, and feelings of connection to her infant.” [3].

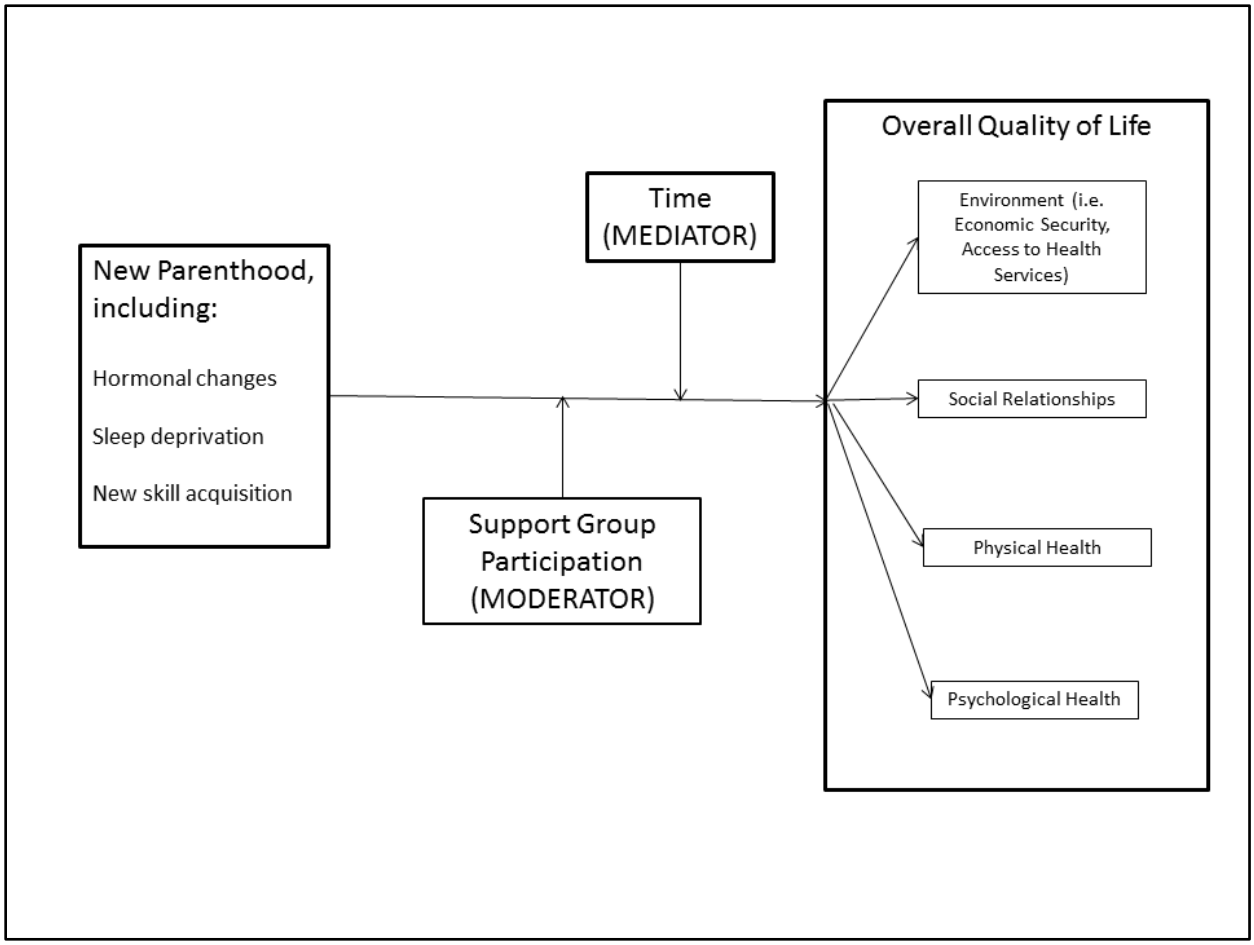
The Present Study: Cohort Choice & Conceptual Model

Noting these data, the present study was conducted among a cohort of new parents participating regularly in a community-based, nurse-facilitated new parent support group, to assess the change in quality of life from three to six months postpartum, as reflected in a validated quality of life instrument. The choice of this purposeful sample was driven by the hypothesis, not formally examined in the present study but supported by the literature referenced above, that parents participating in a new parent support group are more likely than individuals without such support to demonstrate a significant change in QOL domains (ostensibly due to the contribution of the groups, consistent with Mercer's and the Lancet study's findings). Indeed, both the WHO's and the Healthy People 2020 Initiative's definitions of quality of life suggest that a "context of supportive environments" contributes to maximizing quality of life; and for new parents, this context may include a new parent support group. Furthermore, the support group environment is distinct and identifiable, lending itself to study. Thus, it was considered that this population could provide the greatest possible opportunity, particularly in a relatively small cohort, to study potential postpartum change in quality of life over time.

A July 2007 qualitative survey of the Seattle-based, nurse-facilitated new parent support group in which the present study's subjects participated revealed that the five most important topics covered for new parents attending the groups were, in order of frequency of responses: (1) baby's sleep; (2) breastfeeding; (3) adjustment to parenting; (4) healthcare for baby; and (5) emotional adaptation. In fact, this survey revealed that while 60% of group participants attended primarily for peer and psychosocial support, 40% attended primarily for parental skill-building, including facilitating a family's and a baby's sleep, nutrition, and overall health and development. [30] Infant- and self-care, as well as the more overarching issues of psychological and behavioral tasks, were all addressed in these groups.

While it is clear that a Seattle-based group of this kind does address many new parent concerns not well-addressed in other venues, it is not clear whether participants in this group would demonstrate measurable changes in their quality of life over time in the initial postpartum period. The conceptual model in Figure 1 reflects the posited connections that the present study sought to explore (i.e. elements of new parenthood, the mediator of time, overall QOL, and individual domains of QOL), as well as the moderator of support group participation that, while not formally evaluated here, informed the cohort choice in this study.

Figure 1: *Conceptual model of the relationship between new parenthood and quality of life (overall and within each of 4 domains), including select moderator and mediator considered in the present study's design and evaluation.*



METHODS:

Study Design:

This trial was reviewed and approved by the University of Washington Institutional Review Board. Participant recruitment was conducted via purposive sampling whereby, between January 2011 and June 2011, forty-one participants from a Seattle-based, nurse-facilitated peer support group called "First Weeks" were enrolled into the present study. Of those 41 participants, 34 completed the entire study and contributed to the bulk of the analysis. Eligible participants were 18-45 year old female biological or adoptive English-speaking parents of children ages 0-6 months old. Participants attended the study support group for an average of at least two visits per month, for three months prior to each questionnaire completion. Those who had experienced a death or incapacitating illness of a parent, infant, grandparent, or other critical support person (as defined by the study participant), were excluded, as the influence of these events on quality of life are known to be profound, and would be expected to override any other impacts on new parent quality of life.

Participants were recruited from approximately fifteen First Weeks support group meetings. Informed consent was obtained and questionnaires were distributed to group participants at each of these support group meetings. Questionnaires administered included the 26-item WHOQOL-BREF questionnaire, plus a survey with nine questions designed to obtain data about the cohort's demographic and other characteristics, including age, gender, pregnancy and childbirth healthcare provider, delivery location (i.e. hospital vs. home), delivery mode (i.e. vaginal delivery vs. Caesarean section), and other characteristics (see Supplementary Appendix Tables S1 and S2). Time was available for questionnaire completion at the conclusion of a participant's group visits with their 3- or 6-month old infants (+/- approximately 4 weeks from the child's 3-month and 6-month birthdays); and self-addressed stamped envelopes (SASEs) were provided for participants who wished to complete the

questionnaire at a later time. Upon distribution of the first questionnaires, contact information was obtained. Participants were mailed the second questionnaires and a SASE within 2 weeks of their child's 6-month birthday. Parents were contacted by email with two reminders and by postal mail with one reminder, as needed, requesting completion of the second questionnaires.

World Health Organization Quality Of Life Instrument: Design and Scoring

The World Health Organization Quality of Life (QOL) Instrument, WHOQOL-BREF, was utilized for assessment of study participants' quality of life. This questionnaire is based upon a 100-question instrument (WHOQOL-100) that has been abridged to leave it suitably brief (26 questions) for busy and exhausted new parents. Questions are written in the present tense and response choices utilize a 5-point Likert scale. Twenty-four items in this self-administered questionnaire are categorized in one of the four QOL domains defined by the instrument's authors, with each domain posited to reflect distinct aspects of quality of life: (1) physical health; (2) psychological health; (3) social relationships; and (4) environment. Two of the 26 questionnaire items are categorized as reflective of "overall QOL" rather than reflective of a particular QOL domain (see Supplementary Appendix Table S2). The WHOQOL has been specifically validated in childbearing women in Seattle who completed the WHOQOL-100 during 1994-1996, at time points one month before and 2 months after childbirth. This cohort of childbearing women in whom the instrument was validated serve as a "historical cohort" comparator for the present cohort. [13, 31]

The WHOQOL-BREF questionnaire was scored according to the user's manual and interpretation guide [13]; some key elements of the scoring are reflected in Supplementary Appendix Table 2. Most responses are scored in a positive direction, though scores for three questions are reversed. High scores on any domain indicate a higher quality of life with respect to that domain.

Analysis

Descriptive statistics as well as simple means and standard deviations were calculated to analyze cohort characteristics. Means and standard deviations were also calculated for overall QOL scores and for individual QOL domain scores among women completing the three-month post-partum questionnaire only, and among those completing both three- and six-month questionnaires. Two-sample t-tests were performed to compare the change in domain and overall QOL scores among women completing both the three- and the six-month post-partum questionnaires (Table 2). The cohort was also categorized according to certain characteristics (Table 1) and t-tests were performed to compare overall and QOL scores at three-months post-partum among women with differing characteristics (see Supplementary Appendix Table S3).

RESULTS:

Baseline Characteristics of Study Subjects

Forty-one participants consented and completed the three-month post-partum questionnaire. The mean age of the cohort at enrollment was 32.9 years (SD=4.2, range 24-40). All participants attended the Seattle-based First Weeks support group (from which the study participants were recruited) and many also attended another support group, most commonly a neighborhood-based group called the Program for Early Parent Support (PEPS). Most (54%) attended a support group once a week. An approximately equal number of participants were attended by an obstetrician or a midwife during pregnancy and labor; most (85%) delivered at a hospital and some (15%) delivered by Cesarean section. All had graduated from college and most (68%) had graduate-level education (Table 1).

Table 1: Baseline characteristics of study participants at enrollment (n=41)

Four participants had multiple providers during pregnancy; 3 participants had multiple providers during labor

Characteristic	n	%
Support Group Frequency		
Less than once/month	3	7%
Once/month	1	2%
Twice/month	9	22%
Once/week	22	54%
Twice/week	6	15%
More than Twice/week	0	0%
Primary care provider during pregnancy*		
Obstetrician	18	44%
Licensed Midwife	7	17%
Nurse Midwife	16	39%
Family Practitioner	3	7%
Other	1	2%
Primary care provider during labor*		
Obstetrician	19	46%
Licensed Midwife	5	12%
Nurse Midwife	15	37%
Family Practitioner	3	7%
Other	2	5%
Childbirth location		
At home	4	10%
At a birth center	2	5%
At a hospital	35	85%
Childbirth mode		
Vaginal	35	85%
Cesarean section	6	15%
Education		
Graduated from college	13	32%
Completed some graduate school	3	7%
Obtained a graduate degree	25	61%
Depression or anxiety within prior 10 years	13	32%
Breastfeeding primarily	36	88%

QOL scores were compared among members of the cohort with varying baseline characteristics. Though statistical power was low in this small cohort for such comparisons, QOL scores at three-months postpartum were not found to differ significantly depending on any baseline characteristics, including: support group frequency; primary care provider during pregnancy or labor; childbirth location or mode; education; history of recent depression or anxiety diagnosis; or breastfeeding (see Supplementary Appendix Table S3).

QOL at 3 months postpartum varies from QOL at 6 months postpartum

34 of 41 enrolled women (83% retention) completed both three- and six-month postpartum questionnaires and contribute to the bulk of the present study's analysis. Among these 34 women, scores in all domains except one increased. The score in the social QOL domain decreased (mean change -0.7 units, 95% CI -5.9, 4.4; p=0.775). The only statistically significant change, however, was in the physical health domain of QOL, where scores increased by a mean of 5.4 units (95% CI 1.7, 9.2; p=0.006) (Table 2).

Table 2: Change in WHOQOL-BREF scores (0-100) from 3 to 6 months post-partum (n=34)

WHOQOL-BREF Domain	3 month postpartum Mean (SD)	6 month postpartum Mean (SD)	Mean change (95%CI)	p-value
Physical Health	50.3 (11.2)	55.7 (10.0)	5.4 (1.7,9.2)	0.006*
Psychological Health	65.2 (8.9)	66.4 (7.9)	1.2 (-1.1, 3.5)	0.282
Social Relationships	66.2 (17.8)	65.4 (13.3)	-0.7 (-5.9, 4.4)	0.775
Environment	80.1 (9.9)	83.0 (8.9)	2.9 (-0.2, 6.1)	0.066
Overall Health & Quality-of-life	79.4 (14.1)	79.4 (13.7)	0 (-4.2, 4.2)	1

Directionality of QOL changes over time: a comparison of the current cohort and a historical cohort

The directionality of the QOL changes in the current study's cohort of the 34 women who completed the study was compared with the directionality of QOL changes in a historical cohort consisting of women surveyed between 1994-1996 at two time points, one month prior to and two months after childbirth. The historical cohort was from Seattle, highly educated, predominantly Caucasian, and had a mean age of 29.8 years (SD=2.6). Only the mean scores and standard deviations from the first, pre-childbirth time point were available from this historical cohort; scores and standard deviations from the second, two-month-post-childbirth time point were not available. However, the directionality of QOL score changes for this historical cohort from the first to the second time point was available in each domain surveyed with the WHOQOL 100-question instrument. Interestingly, the directionality of the changes from the

pre- to the post-childbirth time points in this historical cohort—increases in all parameters except social—mirrors the directionality of the changes in scores for the current cohort of women surveyed with the WHOQOL-BREF at three months and at six months postpartum (data not shown).

DISCUSSION:

New parent QOL: role of baseline factors

This study failed to demonstrate any differences in QOL by baseline characteristics. Several factors that have been proven in other studies to influence new parent QOL (e.g., childbirth mode, history of recent depression) or factors that one might reasonably expect to influence new parent QOL (e.g., support group frequency) were not significantly associated with new parent QOL in this cohort. It is likely that this lack of demonstrable differences is largely attributable to the low numbers of study participants contributing baseline data, particularly when those low numbers were distributed among sub-groups (i.e. 41 participants, only 6 of whom underwent Caesarean section vs. 34 who had a vaginal birth). In some cases, the lack of differences in QOL by baseline factors may have other explanations. For example, the lack of demonstrable impact of support group frequency on QOL may also be explained by the possibility that participants attending support groups more frequently felt that they 'needed' to do so in order to bolster their QOL, while those who attended support groups less frequently did so because their did not feel that achieving an acceptable QOL necessitated more frequent support group participation. The hypothesis that there may be an acceptable level of QOL among new parent support group attendees, to which parents may 'tirate' their group attendance, could be interesting to explore in future, larger trials.

New parent QOL: change in QOL over time

Among the small study cohort of the 34 participants who completed the WHOQOL-BREF at both study time points, there was no discernable change in *overall* QOL from three to six months postpartum. However, from three to six months postpartum, QOL in the domain of physical health did appear to improve significantly in this cohort. QOL in the domain of social relationships declined, though not significantly; and QOL in the domains of psychological health and environment improved, though not significantly. The improvement in QOL in the environment domain did approach, though did not reach, statistical significance; and the true impact of new parenthood on the environmental domain of QOL may be better elucidated in a larger study that explores in greater detail the multitude of factors that contribute to this broad "environmental" domain of QOL.

The phenomena of improved physical, psychological, and "environmental" (i.e. economic) quality of life, and of a somewhat more protracted negative effect on social relationships, are reflected both qualitatively and quantitatively in an extensive literature regarding new parent experiences. [3, 4, 6-11, 18-29] The postpartum improvement in the physical domain of QOL, the only statistically significant change noted in the present study, is particularly consistently and well-supported in the literature, as new mothers recover from the physically demanding experience of pregnancy and childbirth. [3-6, 8-11, 18-24]

It is, perhaps, interesting that in the potential social context of a new parent support group, a negative directionality in the change in the QOL domain of social relationships was noted—the only decline noted in any QOL domain. An earlier (2007) survey of participants in this same support group (though not the same participants in this study) revealed that 60% were attending the group primarily for peer and psychosocial support. Were group participants not finding that support? To best answer this question one would need to compare group participants to new parents who did not participate in a support

group—a comparison not available with this study's design. Furthermore, it is notable that the magnitude of the decrease in the social relationships domain (-0.7) was quite small. Perhaps new parent support group participants were finding the greater peer and psychosocial support they sought, when compared to new parents 'going it alone,' while also acknowledging that the impact of new parenthood on pre-parenthood social relationships can be profound and incompletely mitigated by a support group. A future trial that compared new parents who did not participate regularly in a support group, as well as those who did, could assess this.

Interestingly, the directionality of the QOL changes observed in this study mirrored the directionality of the QOL changes seen in a historical cohort. Of course, though available data suggests that the cohorts are demographically comparable, the surveys of these cohorts were conducted at different time points (at 3 and 6 months postpartum in the current cohort; and at one month pre-childbirth and two months postpartum in the historical cohort) and a lot can change in these QOL domains in the short timespan between being a parent-to-be and being a fully-fledged new parent. Furthermore, the two cohorts completed their WHOQOL surveys 15 years apart; while some aspects of new parenthood have surely remained the same over a decade and a half, others have surely evolved. Nonetheless, the similar directionality of QOL changes at a similar peri-childbirth time frame and in these two cohorts separated by a generation suggests that perhaps the trends in QOL change over time demonstrated in the present study are, while largely not significant in magnitude, consistent with "real" directional phenomena.

Limitations & Strengths

As noted above, perhaps the most significant limitation to this trial was its size. Only 41 new parents were recruited over a period of six months; and while retention was fairly high (83%), there were too few participants, particularly when distributed among sub-groups of interest for comparison, to

sufficiently power the study's planned analyses. Initial statistical calculations suggested that an adequately powered study would require nearly three times this number of participants. This could likely have been achieved with more time and with recruitment from more than one new parent support group. However, even in the study's current, underpowered design, some interesting findings were noted. Moreover, the non-significant trends noted in this study were largely consistent with reports in the literature from larger trials.

Another limitation of the study was the absence of participants who did not attend a new parent support group. It is likely that new parent support group participants and non-participants differ from each other. These differences may allow for more—and better-powered—comparisons between certain sub-groups. For example, non-group participants may have a higher Caesarean section rate and, as such, including non-group participants in a trial evaluating new parent QOL may allow for an assessment of the relationship between QOL and childbirth mode.

The current study did characterize the QOL over time in a small group of new parent support group participants. Trial retention among this busy and exhausted new parent cohort was high, which supports the appropriateness of this design and the WHOQOL-BREF instrument for the assessment of QOL in this population. Furthermore, several hypotheses were generated in this trial that may inform future work.

Future Directions

Several trends were noted and hypotheses generated that may merit further exploration in future studies, including the negative directionality of change in the social relationships QOL domain over time

and the increase in the “environment” domain of QOL over time—the latter approaching but not reaching statistical significance in this small study.

Specifically, this work in conjunction with other research may inform future trials examining the social fabric of new parenthood, as well as efforts to improve upon the social isolation experienced by many new parents. The opportunities to explore the impact of a range of factors on the environmental domain of QOL are numerous. This domain encompasses economic factors, physical safety, access to health care and transportation, and multiple other elements. As such, multiple areas of policy, practice, and research may be informed by further exploration of the experience of this cohort with respect to the environmental domain of QOL.

Answering many of the questions generated by this study would require enrolling a “control” group of new parents who did not regularly attend a new parent support group, as well as enrolling a larger number of support group participants. Those are the first steps I would recommend toward extending the findings of this study. I do believe there is merit in extending the findings revealed here, for truly the WHO was wise to advocate that quality of life be evaluated, and improved upon. And undoubtedly this particular population, new parents, and all of us who benefit from their work to raise healthy, contributive children can benefit from a better understanding of, and thus a better ability to modify, the factors that influence new parent quality of life.

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SUPPLEMENTARY APPENDIX

Table S1: Cohort Characteristics & Breastfeeding Questions*

Questions	Answer Choices Provided
1. Have you participated in any support group(s) for new parents	Yes; No
1a. If yes, which group(s)? Please mark all that apply.	First Weeks; Next Months; PEPS; Listening Mothers; Becoming A Parent; Other, specify
1b. If yes, how often on average over the last three months? Please mark one.	Less than once/month; Once/month; Twice/month; Once/week; Twice/week; More than twice/week
2. Who was your prenatal care provider during pregnancy? Please mark all that apply.	Obstetrician (MD); Licensed Midwife (LM); Nurse Midwife (CNM); Family Practitioner (MD); Other, specify
3. Who was your primary care provider during labor? Please mark all that apply.	Obstetrician (MD); Licensed Midwife (LM); Nurse Midwife (CNM); Family Practitioner (MD); Other, specify
4. Where was your baby delivered? Please mark one.	At home; At a birth center; At a hospital; Other, specify
5. Was your baby delivered vaginally or by C-section (Cesarean section)? Please mark one.	Vaginally; Cesarean section
6. What is the highest level of education you have completed? Please mark one.	Have not completed high school; Graduated from high school or GED; Completed some college courses; Graduated from college; Completed some graduate school; Obtained a graduate degree
7. What is your gender? Please mark one.	Male; Female; Transgender; Other, specify
8. Have you been diagnosed with or treated for depression or anxiety in the last 10 years?	Yes; No
9. Do you estimate that in the last week your baby received on average 50% or more of their liquid nutrition from your breastmilk (either from the breast or in a bottle or other container)?	Yes; No

*Note: Participants were also asked to identify their age, their child's age, and their race/ethnicity on this survey.

Table S2: WHOQOL-BREFDomains, Questions, & Scoring

Domains	Questions	Direction of Scaling	Raw Domain Score	Raw Item Score
Overall Quality of Life & General Health			2-10	
	How would you rate your quality of life?	+		1-5
	How satisfied are you with your health?	+		1-5
Physical Capacity			7-35	
	To what extent do you feel that physical pain prevents you from doing what you need to do?	-(reverse)		1-5
	How much do you need any medical treatment to function in your daily life?	-(reverse)		1-5
	Do you have enough energy for everyday life?	+		1-5
	How well are you able to get around?	+		1-5
	How satisfied are you with your sleep?	+		1-5
	How satisfied are you with your ability to perform your daily living activities?	+		1-5
	How satisfied are you with your capacity for work?	+		1-5
Psychological			6-30	
	How much do you enjoy life?	+		1-5
	To what extent do you feel your life to be meaningful?	+		1-5
	How well are you able to concentrate?	+		1-5
	Are you able to accept your bodily appearance?	+		1-5
	How satisfied are you with yourself?	+		1-5
	How often do you have negative feelings such as blue mood, despair, anxiety, depression?	-(reverse)		1-5
Social relationships			3-15	
	How satisfied are you with your personal relationships?	+		1-5

	How satisfied are you with your sex life?	+		1-5
	How satisfied are you with the support you get from your friends?	+		1-5
Environment			8-40	
	How safe do you feel in your daily life?	+		1-5
	How healthy is your physical environment?	+		1-5
	Have you enough money to meet your needs?	+		1-5
	How available to you is the information that you need in your daily life?	+		1-5
	To what extent do you have the opportunity for leisure activities?	+		1-5
	How satisfied are you with the condition of your living place?	+		1-5
	How satisfied are you with your access to health services?	+		1-5
	How satisfied are you with your transport?	+		1-5

Table S4: Comparison of QOL scores at three-months post partum across demographic categories

Support Group Frequency									
QOL Domain	**>=Once/week**			**<Once/Week**					
	N	Mean	SD	N	Mean	SD	Difference	SE	p-value
Physical Health	27	50.7	9.3	13	51.6	13.9	-1.0	4.2	0.819
Psychological Health	28	66.2	8.0	13	65.7	10.9	0.5	3.4	0.881
Social Relationships	28	69.3	17.3	13	60.9	19.7	8.4	6.4	0.198
Environment	28	81.4	8.6	13	79.6	12.0	1.8	3.7	0.634
Overall Health & QOL	28	80.4	14.6	13	78.8	13.9	1.5	4.7	0.752
Primary Care Provider During Pregnancy									
QOL Domain	**Licensed/Nurse Midwife**			**Obstetrician/Family Practitioner**					
	N	Mean	SD	N	Mean	SD	Difference	SE	p-value
Physical Health	21	49.0	11.0	19	53.2	10.5	-4.2	3.4	0.223
Psychological Health	22	66.1	6.3	19	66.0	11.4	0.1	2.9	0.976
Social Relationships	22	69.3	17.7	19	63.6	18.9	5.7	5.7	0.326
Environment	22	80.0	11.1	19	81.7	8.0	-1.8	3.0	0.557
Overall Health & QOL	22	81.8	14.8	19	77.6	13.6	4.2	4.4	0.351
Primary Care Provider During Labor									
QOL Domain	**Licensed/Nurse Midwife**			**Obstetrician/Family Practitioner**					
	N	Mean	SD	N	Mean	SD	Difference	SE	p-value
Physical Health	19	49.4	11.4	21	52.4	10.4	-2.9	3.5	0.401
Psychological Health	20	66.3	6.6	21	65.9	10.8	0.4	2.8	0.893
Social Relationships	20	70.4	18.0	21	63.1	18.2	7.3	5.7	0.203
Environment	20	79.5	11.4	21	82.0	7.9	-2.5	3.1	0.428
Overall Health & QOL	20	83.1	13.6	21	76.8	14.4	6.3	4.4	0.156
Childbirth Location									
QOL Domain	**At a Hospital**			**At home/birth center**					
	N	Mean	SD	N	Mean	SD	Difference	SE	p-value
Physical Health	35	51.9	11.0	5	44.3	7.0	7.7	3.6	0.071
Psychological Health	35	65.7	9.4	6	68.1	5.0	-2.3	2.6	0.386
Social Relationships	35	67.4	19.1	6	62.5	12.6	4.9	6.1	0.442
Environment	35	81.5	9.9	6	76.6	7.6	5.0	3.5	0.196
Overall Health & QOL	35	80.4	14.0	6	77.1	16.6	3.3	7.2	0.664
Childbirth mode									
QOL Domain	**Cesarean section**			**Vaginal**					
	N	Mean	SD	N	Mean	SD	Difference	SE	p-value
Physical Health	6	47.6	14.2	34	51.6	10.3	-4.0	6.1	0.539
Psychological Health	6	61.8	11.0	35	66.8	8.5	-5.0	4.7	0.331

Social Relationships	6	58.3	17.5	35	68.1	18.2	-9.8	7.8	0.249
Environment	6	82.8	7.1	35	80.4	10.1	2.4	3.4	0.498
Overall Health & QOL	6	70.8	20.4	35	81.4	12.6	-10.6	8.6	0.267
Education									
QOL Domain	**Graduate degree**			**<Graduate degree**			Difference	SE	p-value
	N	Mean	SD	N	Mean	SD			
Physical Health	24	51.8	11.7	16	49.8	9.6	2.0	3.4	0.558
Psychological Health	25	66.0	7.9	16	66.1	10.6	-0.1	3.1	0.963
Social Relationships	25	68.3	17.7	16	64.1	19.4	4.3	6.0	0.482
Environment	25	80.8	10.3	16	80.9	9.0	-0.1	3.0	0.972
Overall Health & QOL	25	79.0	14.8	16	81.3	13.7	-2.3	4.5	0.622
Depression or Anxiety Within the Prior 10 years									
QOL Domain	**Yes**			**No**			Difference	SE	p-value
	N	Mean	SD	N	Mean	SD			
Physical Health	13	51.6	11.4	27	50.7	10.8	1.0	3.8	0.796
Psychological Health	13	64.7	10.7	28	66.7	8.1	-1.9	3.3	0.572
Social Relationships	13	66.7	15.6	28	66.7	19.6	0.0	5.7	1.000
Environment	13	80.8	7.1	28	80.8	10.8	0.0	2.8	0.990
Overall Health & QOL	13	74.0	16.5	28	82.6	12.4	-8.6	5.1	0.113