

EXAMINATION OF NEW PARENTS' EVALUATION OF POSTNATAL
EDUCATIONAL MATERIALS

by

©Donna Gillard

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Abstract

Many new parents require information and education to provide optimum care of their newborn infant. In Newfoundland and Labrador, postnatal education is provided to new parents during the postnatal period through a variety of sources. However, no assessment or evaluation of postnatal educational materials has been done to determine the extent to which parents find available materials helpful. There is little empirical support for written and online postnatal materials, despite the fact that there is ample evidence for the need for postnatal education. The purpose of this practicum project was to obtain new parents' perspectives and evaluation of postpartum educational materials. To achieve this purpose, I first conducted an integrative literature review of learning needs of new parents, and the value of postnatal educational materials. I then constructed a questionnaire following consultation with public health nursing leaders to elicit their expert advice regarding current postnatal educational materials, questions for parents and the appropriate target population. The questionnaire was pilot tested on a sample of first-time parents in the Eastern Regional Health Authority. Pilot test results revealed that new parents prefer to receive postnatal materials before they leave the hospital; find the materials distributed by public health nurses helpful; and, are comfortable using a computer at home to access information. Also, from the pilot test, it is apparent that the Postpartum Support Program is not being utilized within the Eastern Regional Health Authority. Based on pilot test results, I strongly recommend a province-wide survey to determine changes to how postnatal educational materials are distributed.

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I experienced personal upheaval during my courses and the sudden loss of my dad during my practicum. For a while I was lost in grief, but he would never want me to give up. Thank you to my friends who listened to me, and encouraged me to keep going. Also, I wish to thank Dr. Donna Moralejo for granting me an extension.

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“Does the road wind up-hill all the way? Yes, to the very end.” *Christina Rossetti*

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Background

In the early postnatal period, from birth to six weeks, parenting brings many challenges, and new parents have several questions regarding childcare issues during this time. Many new parents require information and education to provide optimum care to their newborn infant. Through my public health nursing experience, and in consultation with provincial leaders, managers, coordinators, and clients, I am aware that information is provided by childbirth education classes, Healthy Baby Clubs (Brighter Futures, 2015), obstetrical units, internet sites, families, and through public health nursing services. Some parents will state that information was already received, which may result in redundancy and a waste of resources.

The Postpartum Support Program is an educational resource based on a program that was developed by St. Joseph's Hospital in Hamilton, Ontario. The program was successfully implemented throughout Canada (Newfoundland and Labrador, 2009). The Program consists of a Checklist of Questions booklet, reference manual, Record of Parent Learning, and a series of pamphlets. The Checklist of Questions booklet, which is intended to be provided to new parents by obstetrical nurses following the birth of the infant, covers a variety of topics. Nurses provide education based on the questions checked off in the booklet. The Record of Parent Learning is completed by obstetrical nurses, and is included in the postnatal referral to public health nurses. The record and the reference manual, also referred to as a resource book, are intended to encourage dialogue between health care professionals in hospitals and the community, and to ensure accuracy and consistency of information in answering parents' questions (Newfoundland and Labrador, 2009). Further, there is a series of pamphlets as an additional postnatal

educational resource, which hospital and public health nurses provide to parents as needed.

The postnatal package “You and Your New Baby” is a provincial resource distributed by public health nurses (Government of Newfoundland and Labrador, 2014). The package contains postnatal written materials to provide accurate, up-to-date and comprehensive information on an array of topics. Those parents who only require a telephone visit receive the package in the mail. During home visits public health nurses use the materials to emphasize key points, to help guide discussion, and, answer questions and concerns. The remainder of the package is left for parents to read at their convenience.

Online postnatal education offers breastfeeding support services, and is produced by Baby-Friendly NL (Breastfeeding Newfoundland and Labrador, 2014). The website provides breastfeeding information, fast facts, answers to frequently asked questions, and information on available supports and services.

Further, the Eastern Regional Health Authority has recently created the website, “URaParent” (Eastern Health, 2014). The guiding principles are: Love, Listen, Learn and Lead. The website provides parenting information on a variety of topics, including child development, brain development, attachment, temperament, breastfeeding, and positive parenting techniques, to name a few.

However, despite the variety of written materials available to parents there remain many questions surrounding how this information is received and applied in meeting parental learning needs. An integrative literature review was undertaken to explore the learning needs of new parents. What was discovered was that new parents often lack self-

efficacy in parenting (Bandura, 1997; Salonen et al., 2010) and have key learning needs during the postnatal period (Sink, 2009). Many new parents seek postnatal education regarding common issues (Bowman, 2005; Gazmararian, Dalmida, Merino, Blake, Thompson, & Gaydos, 2014), and it is important to identify and meet their specific needs (Barnes, Pratt, Finlayson, Courtney, Pitt & Knight, 2008; Fahey & Shennasa, 2015; Gazmararian et al.; George, 2005; Sink). Further, these issues may be impacted by socio-economic factors such as low education, and low income (Brage Hudson, Campbell-Grossman, & Hertzog, 2012; Gazmararian et al., 2014).

The review process identified that there is limited research on the use of written materials in the postnatal period. However, written materials alone do not meet early parental learning needs (Gazmararian, et. al., 2014; Pannu, Giglia, Binns, Scott & Oddy, 2011; Wilson, Brown & Stephens-Ferris, 2006). The review revealed that there are advantages to using online postnatal information including flexibility, convenience and increased access in remote areas (Brage Hudson et al., 2012; Salonen et al., 2010). However, challenges experienced by parents in the use of online postnatal education include computer hardware, some accessibility issues, cost, time, and knowledge of technology (Bultjen, Robinson, & Milgrom, 2012; Wen, Rissel, Baur, Lee, E., & Simpson, 2010). The lack of evidence of the value and usefulness of written and online postnatal educational materials in meeting parental learning needs led me to pursue this practicum project.

Purpose

During my longstanding career as a public health nurse in Newfoundland and Labrador (NL), I have questioned whether the postnatal educational materials that are

provided to new parents following the birth of their infant are meeting their learning needs. In consultation with the provincial consultant for prenatal and early child development, no assessment or evaluation of postnatal educational materials has been done to determine their effectiveness. It is unknown if the educational materials are meeting parental learning needs; and moreover, if there is duplication of information. I was asked by the provincial consultant to seek new parents' perspectives and evaluation of existing educational materials and thus this became the purpose of my practicum project.

Conceptual Framework: Bandura's Self-Efficacy Theory

I chose Bandura's Self-Efficacy Theory (1997) as an appropriate framework to guide my examination of new parents' evaluation of postnatal educational materials. Self-efficacy is a person's belief in his or her own ability to successfully complete a task (Bandura, 1997). Pertaining to new parents, Bandura stated that the transformation to parenthood could be difficult for those who are not prepared, and may be complicated by parental disbelief in their own capabilities. Evidence of perceived parenting efficacy plays a key role in adaptation to parenthood and maternal role attainment. It results in increased parental well-being, secure infant attachment, and increased adjustment to parenthood (Bandura, 1997). Self-efficacy enables parents to perform infant care and promote healthy child development (Fahey & Shenassa, 2014; Leahy-Warren & McCarthy, 2011).

Bandura's Self-Efficacy Theory (1997) has been used as the framework to guide research into the effectiveness of postnatal educational materials (Albarran & Reich, 2014; Fahey & Shenassa, 2014; Leahy-Warren & McCarthy, 2011; Salonen, Kaunonen, Astadt-Karki, Jervenpaa, Isoaho, & Tarkka, 2010). Underlying the distribution of, and

access to, information during the postnatal period is Bandura's theoretical principle that feelings of self-efficacy are influenced by knowledge about parenting (Albarran & Reich, 2014). Anticipatory guidance through educational information typically about children's development, and ways to promote health and prevent injuries, is a mechanism for gaining confidence as a parent (Albarran & Reich, 2014).

Further, the main source of parenting self-efficacy is experience with parenting tasks (Bandura, 1997; Salonen et al., 2010). Providing postnatal educational materials that enhance parental knowledge to perform skills successfully will strengthen parents' beliefs in their own capabilities (Bandura, 1997), thus promoting feelings of self-efficacy in their ability to care for their infants. In addition to distribution of education materials, if new parents engage in help seeking behaviours through the internet to obtain information, support, and to establish social networks, they also enhance their self-efficacy (Buultjen, Robinson, & Milgrom, 2012).

Practicum Objectives

1. To determine what postnatal information new parents need to know.
2. To determine how new parents prefer to receive information.
3. To determine what are the current postnatal educational materials in NL.
4. To design a questionnaire to survey new parents.
5. To pilot test a new questionnaire for feasibility, usefulness, and possible modifications.
6. To share pilot test results with public health nursing leaders.

Methods

In this section I will provide an overview of the strategies used in my practicum project. To achieve the objectives of the project, I began with an integrative literature review. Other objectives were met through consultations, questionnaire construction, pilot testing of a new questionnaire, and providing recommendations to public health nursing leaders based on pilot test results.

Integrative Literature Review

Three topics of interest were covered during an integrative literature review: postnatal learning needs of new parents, written postnatal education materials, and the use of online postnatal education. Of special interest was the emerging literature of the benefits and challenges of online postnatal education. The integrative literature review informed the subsequent consultations and questionnaire construction. See Appendix A for full Integrative Literature Review.

Consultations

Drawing on the integrative literature review findings, I conducted consultation meetings with the provincial consultant for prenatal and early child development, clinical nurse specialists, and parent and child health coordinators for the Eastern Regional Health Authority to elicit their expert advice regarding parental learning needs, and types of questions that they recommend should be posed to parents. The consultants were interested in new parents' perspectives of written materials received in the hospital and by public health nurses, and of information from online websites (Baby Friendly NL, and URaParent). For the full consultation report, please see Appendix B.

Questionnaire Construction

Then, following consultations, I began constructing the questionnaire (see Appendix C) to pose questions to new parents to determine what parents need to know, and how well existing postnatal educational materials are meeting their learning needs. I constructed the questionnaire between January and February 2015. I focused on five subject areas including:

- postnatal educational materials obtained from the hospital;
- the postnatal package provided by public health nursing;
- online postnatal information;
- what parents have learned and feel is most important to them; and,
- demographics.

As guided by Gillis and Jackson (2002), I also provided an introduction to parents at the beginning of the questionnaire with the purpose and instructions how to answer the questions. All questions were ordered and formatted in accordance with Gillis and Jackson (2002).

Questions relating to postnatal educational materials obtained in the hospital focused on the Postpartum Support Program, what topics were covered in the hospital, and if materials were helpful. Several questions focused on the public health nursing visit and use of the postnatal package. Other questions pertained to: online postnatal materials, parental comfort level using computers, information they look for, and awareness of the URaParent website. Parents were asked what they had learned, and what was most important to them. Questions regarding demographics included parental year of birth,

level of education, total yearly family income, and whether they lived in rural or urban areas of the Eastern Regional Health Authority. Questions regarding demographics were placed at the end in accordance with Gillis and Jackson (2002); that is, it is best not to start with questions that may seem too personal.

Questions requiring a yes/no response included those pertaining to the Postpartum Support Program; if parents opened the postnatal package provided by public health nurses, and if they owned a computer. Likert-type response questions asked parents to indicate the strength of their agreement or disagreement with statements relating to information they found helpful from various sources, such as the hospital, public health nurses, or online.

Questions with possible multiple responses were posed where more than one answer may apply. These questions were asked to obtain information regarding where parents received information, and which particular postnatal topics were covered. Parents were asked to rank the importance of topics found in the postnatal package. Simple, pre-coded questions were used to obtain demographic information. Parents were asked to indicate the categories of level of education, and family income level that applied to them.

Open-ended questions are generally used when responses may be numerous (Gillis & Jackson, 2002). I used open-ended questions to ask what materials parents saw before; what they looked for; what they found most helpful; and, what information was missing. Further, opened-ended questions asked parents what they had learned, and, what information was most important to them.

Questionnaire Pilot Test

The questionnaire was distributed to a small sample of new parents for pilot testing between May 21, 2015 and June 30, 2015. I collected 36 completed questionnaires with 29 from new parents in urban areas and 7 from parents in rural areas.

Ethics approval I applied for ethics approval from the Health Research Ethics Board (HREB) to conduct the pilot test of the questionnaire. I received ethics approval from HREB on March 26, 2015 (Appendix D). I submitted an application to request approval from the Research Proposals Approval Committee (RPAC), Eastern Regional Health Authority. I received a letter of approval from RPAC on April 23, 2015 (Appendix E).

Recruitment In consultation with the parent and child health coordinators, clinical nurse specialists, and Eastern Regional Health Authority; six public health clinics were identified as appropriate sites to conduct a survey to pilot test the questionnaire. The urban sites included Mount Pearl Square, Major's Path and Charles R. Bell. The rural sites included Holyrood, Bay Roberts' and Clarenville.

I chose a convenience sample of 30 new mothers and, or fathers of two month old infants who would present to public health clinics for their first immunization appointment. Inclusion criteria were: first-time parents, over the age of 19 years, parent of an infant 2 months of age. Exclusion criteria were: parents with infants older than 2 months of age; had one or more older child(ren); or, were under the age of 19 years.

Information posters (see Appendix F) were displayed in the clinic waiting areas, inviting new parents of 2-month-old infants to answer questions regarding the

information they received after the birth of their newborn. Interested parents were invited to ask the clerical support staff for the questionnaire.

Consent In the Letter to Parents (see Appendix G) I requested that parents not sign their names anywhere on the questionnaire, so that participants could not be identified. Parents were not asked for written consent to participate in the pilot testing of the questionnaire. By agreeing to complete and return the questionnaire, parents were giving their consent. Parents were also informed that questions were completely voluntary; they were not required to answer all questions; and they may stop answering the questions at any time.

Procedures Prior to the pilot test, on April 15, 2015, I contacted public health nursing leaders to inform them of the purpose of my pilot test, and the selected clinic sites. I also requested that public health nurses and clerical support staff at each clinic site be informed of the specific dates that I would distribute the questionnaire packages and information posters.

Between May 19 and May 22, 2015, I distributed 75 envelope packages to clerical support staff at selected sites, to public health nurses and to the parent and child health coordinator in a rural area. The envelopes contained the Letter to Parents; the questionnaire, indicating Urban or Rural at the top; and, a pen, for parents to use to complete the questionnaire as a small token of appreciation. At each site I requested that the pilot test begin on May 25, 2015.

Parents were asked to answer the questions during the 15-minute waiting period following immunization. Further, I provided my name and telephone contact information asking parents to telephone me if they had any questions. Parents were asked to seal the

envelope after completing the questionnaire and return it to the clerical support staff. Completed questionnaires were secured in locked cabinets by clerical support staff or public health nurses until I retrieved them. I have kept the questionnaires in a locked filing cabinet.

Data analysis I used the Statistics Package for Social Sciences 18 (SPSS) to analyze non-parametric descriptive data. Before I entered data into the SPSS program, I randomly numbered the questionnaires marked *Urban*, and those marked *Rural*. Numbering the questionnaires helped to ensure accurate data entry. I rechecked the data entry from each questionnaire before moving to the next one.

Participant responses to questions were entered into SPSS. Frequency and percentage distribution of responses and mean response scores to yes/no questions, Likert-type and pre-coded questions were tabulated. Opened-ended questions were analyzed qualitatively, using content analysis; for example, data resulting from the open-ended questions about topics parents looked for in the postnatal package and what information was most important to them.

Questionnaire Pilot Test Results

Parental age ranged from age 19 to 38 with a mean age of 28 years (n=35). Table 1 depicts the frequency and percentage distribution of family income and level of education. The results indicate that 53% of parents reported yearly family incomes of \$50,000 or higher, with 9% of parents reporting income level between \$40,000 and \$49,999. There was an even distribution of other levels of income. Most parents either had a high school diploma (29%), college diploma (31%), or university degree (34%),

with only 6% not completing high school. The results reveal that the majority of parents had high levels of education.

Table 1. Frequency and Percentage Distribution of Participant Demographics

Variables	Frequencies	Percentage
<i>Yearly Family Income</i>		
Less than \$19,999	5	15%
\$20,000 to \$29,999	4	12%
\$30,000 to \$39,999	4	12%
\$40,000 to \$49,999	3	9%
More than \$50,000	18	53%
<i>Education Level</i>		
No High School Diploma	2	6%
High School Diploma	10	29%
College Diploma	11	31%
University Degree	12	34%

Where Parents Receive Postnatal Education Materials

Table 2 illustrates receipt and awareness of postnatal educational materials, including the origin of information, topics covered in the hospital, and preferred time to receive information. The majority of postnatal educational materials was received through public health nursing visits (86%), followed by hospital (81%), and online sources (33%). Only 17% of first-time parents reported that they received materials that were mailed to them. This information is consistent with the public health nursing policy that all first-time parents are offered a home visit.

Pertaining to information obtained in the hospital, 65% of respondents replied that they did not recall seeing “You and Your New Baby” booklet of questions (part of the Post Partum Support Program) in the hospital, indicating that this resource is not being utilized as it is intended. However, regarding information they received in hospital that helped in caring for their babies after they went home, 72% agreed and strongly agreed that the information was helpful. The majority of parents responded that “baby care” (76%) and “my baby feeding” (62%) were topics that they obtained in the hospital and 21% indicated that they received information on cesarean birth. There were low responses

Table. 2. Receipt and Awareness of Postnatal Educational Materials

Information	Number of Participants	Impact
<i>Origin of Information</i>		
Online	12	33%
Mailed to home	6	17%
Visit by Public Health Nurse	31	86%
Hospital	29	81%
<i>Topics Obtained in Hospital</i>		
My Body	6	18%
Caesarean Birth	7	21%
Parenthood	9	26%
My Baby-Feeding	21	62%
Baby Care	26	76%
<i>Preferred Time to Receive Information</i>		
In hospital	25	76%
1-2 days after returning home	7	21%
1 week after returning home	1	3%

to “my body” (18%), and “parenting” (26%), indicating that parents are leaving hospital missing key information. When asked the question; the preferred time to receive postnatal education materials, 76% of 33 parents stated that they preferred to receive information in the hospital; only 19% responded that one to two days after getting home was the best time. These results have implications for giving the postnatal package to parents, as presently, this package is part of the public health nursing postnatal visit, one to two days after parents are discharged from hospital.

Public Health Nursing Visits and Use of the Postnatal Package

Of the responses to questions regarding visits by a public health nurse, 87% received a home visit and 78% of those respondents agreed or strongly agreed that the visit was very helpful. Regarding the postnatal package, 94% of respondents replied that they opened the package. However, when asked the open-ended question about what information they looked for in the package, 8 out of 36 parents did not respond. Of the 28 respondents, 17 answered that they looked for information on breastfeeding. Other information topics included baby care, bathing, cord care, safe sleep, crying baby, and immunization. Only two parents reported that they read everything.

Other open-ended questions had low responses. When asked if they recalled having seen any of the information topics listed, before, 22 out of 37 respondents did not answer. Four parents responded that they had seen all the information before. When asked about information topics that were missing, 20 out of 37 respondents did not answer the question. Nine parents responded that there was no missing information. Table 3 illustrates perceived importance of educational materials covered in “You and Your New Baby” postnatal package. Parents were asked to rank from 1 to 7 the importance of the

following topics covered in postnatal package: breastfeeding, infant safety, care of the baby, cord care, tummy time, back to sleep and vaccination. Twelve respondents answered incorrectly, and these answers were discarded.

As shown in Table 3, 12 parents ranked care of the baby as most important and 8 parents ranked infant safety as most important. Breastfeeding was ranked third by 6 parents, while cord care and tummy time ranked fourth by 7 parents. Vaccinations ranked fifth with 10 responses, and back to sleep ranked sixth with 9 responses. As cord care, back to sleep and tummy time are core elements for discussion in the public health nursing home visit, results raise concern given parents are ranking these same topics so low. Also, given information on vaccinations was ranked fifth, then it is questioned whether the early postnatal period is the best time for parents to receive this information.

Table 3. Perceived Importance of Educational Materials

Topic	<i>Most Important</i>				<i>Least Important</i>		
	1st	2nd	3rd	4th	5th	6th	7th
Care of Baby	12	7	4	0	1	0	0
Infant Safety	7	8	5	2	1	0	1
Breastfeeding	4	5	6	2	1	1	5
Cord Care	0	3	5	7	1	3	5
Tummy Time	0	0	1	7	6	7	3
Vaccinations	0	0	0	2	10	5	6
Back to Sleep	1	2	2	3	3	9	4

n=24

Use of the Internet to Obtain Postnatal Information

Regarding online use, 97% of 35 respondents indicated they had a computer in their home. Parents indicated a high comfort level with accessing online postnatal material (76%) and identified various topics that they searched for, but 84% replied they

had not heard of the URaParent website, suggesting that more education and awareness are required.

Parental Evaluation of Most Important Information

Two open-ended questions asked parents what had they learned that changed their parenting (only 11 respondents answered this question), and what information was most important to know after their baby was born. Responses to the former question were: on-demand feedings; community supports; care for baby in general; that every baby is different; better care of the baby; increased awareness of things to look for; and, the benefits of breastfeeding support. Twenty-five parents responded to the question regarding the most important information. Responses included: infant feeding, sleeping, bathing, infant care, safety, and cord care. Less common responses included jaundice, weight gain; and, knowing how much the baby is consuming, infant stools; knowing about resources that are there to help; and, birth control. One parent stated. “Less technical information, more practical information. There is ‘SO MUCH GUILT’ that seems to follow every choice you make. Emphasize that every baby is different.”

Discussion

I achieved the purpose and objectives of my practicum project through a number of strategies including an integrative literature review, followed by consultations with public health nursing leaders which lead to construction of a questionnaire and the pilot testing of a new questionnaire. The questionnaire with 26 questions focused on demographics and postnatal educational materials; specifically, hospital, public health nursing, and online sources. I posed questions to a small sample of new parents to determine if materials were meeting their learning needs; which topics were most

important; if there was duplication; and, if information topics were missing that parents needed, but were not receiving.

Pilot testing of the questionnaire was conducted on a sample of 36 first-time mothers or fathers of 2 month old infants attending public health clinics in urban and rural areas of the Eastern Regional Health Authority. Both urban and rural sites were chosen to represent a wide cross section of the population of new parents. However, a limitation of the pilot test was that the sample obtained from the rural area was small. This was expected, due to the lower birth rate per annum. Despite this limitation, pilot test results from both urban and rural areas were consistent. There was no difference in the demographic information between rural and urban areas. Results revealed that parents prefer to receive postnatal educational materials before they leave hospital; moreover, resources from the Postpartum Support Program are not being utilized.

Most parents agreed that they found the public health nursing visit helpful, and had opened the “You and Your New Baby” postnatal package. Further, few parents were familiar with the online postnatal educational web-sites, but the majority of parents owned a computer, and replied that they were comfortable accessing information. More education and promotion of these websites is indicated, so parents may receive the current information which has been removed from the postnatal package of written materials.

Pilot testing of the questionnaire revealed that there are open-ended questions requiring modification. For example, there was a low response to open-ended questions about what information parents had seen before. Modification to this question such as several choice responses may elicit data to ascertain where there is duplication, and the possible waste of resources. Further, the majority of parents indicated that they had

opened the postnatal package, but the response rate was lower when asked what they looked for. Modification of this open-ended question would help determine which of the written resources are most important to parents in the early postnatal period. Further, there was a low response to the question regarding what they had learned that changed their parenting. It is important to pose this question with indicators to new parents to include all sources of postnatal information. Responses to this question will help determine what they need to know to develop self-efficacy in their parenting skills.

The question pertaining to asking parents to rank the importance of topics from 1 to 7, received a less than optimum response rate. Out of 36 responses, 11 were discarded, because the topics were ranked incorrectly. I determined that some parents did not understand this question, and clearer, simpler instructions are required. For example, where 1 is most important and 7 is the least, requires clearer instruction. However, care of the baby, and infant safety, ranked highest. Parents ranked back to sleep as sixth. This result was unexpected, given that there has been promotion of this research-based practice for the prevention of sudden infant death syndrome for many years. Thus, the results warrant further study to determine parental perception of the practice of back to sleep. In addition, parents ranked the topic of vaccination, as fifth. Another question needs to be posed to determine if parents actually see this topic as less important, or if the early postnatal period is the most appropriate time to receive this information.

Despite issues with the open-ended questions, the pilot test of the questionnaire raises some important points. Design of a questionnaire for a province-wide survey of new parents is warranted to determine if the pilot test results are consistent throughout

NL. Ongoing evaluation of a program is essential to determine its value, effectiveness, and quality (Fink, 2015).

Recommendations to Public Health Nursing Leaders

To address possible wastage of resources given postnatal materials are not being fully utilized; optimum timing for receipt of information; and, the need for increased public awareness of postnatal information websites, I recommend:

1. Develop a province-wide survey to determine new parents' evaluation of postnatal educational materials.

1.1 Pose questions about the Postpartum Support Program because resources are not being utilized in the Eastern Regional Health Authority according to my pilot test results.

1.2 Pose questions to determine if parents in other regions want the postnatal educational materials in the hospital before discharge.

1.3 Rephrase questions to simplify instructions. For example, when asking parents to rank the importance of topics, instruct them to circle topics most helpful in the early postpartum period.

1.4 Avoid open-ended questions; for example, use choice responses to ask parents where they received information before.

2. Implement public education and awareness campaigns to promote URaParent, and other postnatal websites.

Advanced Nursing Practice Competencies

Core advanced nursing competencies (ANP) are based on appropriate breadth, depth, and, range of nursing knowledge, theory and research (Canadian Nurses

Association (CNA), 2008). During my practicum project, I demonstrated clinical, research, leadership, and collaboration and consultation competencies. Clinical competencies are defined as a holistic and integrated approach, where the nurse works in collaboration with other members of the health care team and clients to provide comprehensive care (CNA, 2008). Under clinical competencies, I anticipated client responses to postnatal educational materials using evidence found in the literature review. By conducting a pilot test of a new questionnaire, I engaged parents in identifying and assessing postnatal learning needs, and preference for educational materials, thus generating further knowledge. I used this knowledge to make recommendations to public health nursing leaders regarding improvements needed in postnatal educational materials.

Research competencies include research generation, synthesis, and utilization (CNA, 2008). I demonstrated research competencies by conducting a synthesis of the literature pertaining to postnatal educational material. Further, when I conducted the pilot test, I collected data from parents, analyzed and interpreted data, and offered recommendations regarding further survey research to public health nursing leaders.

Leadership competencies include agents for change who seek new ways to practice and improve delivery of care; identify gaps and issues; and, work to find solutions (CNA, 2008). I acted as an agent for change by seeking ways to improve postnatal educational materials, identified where there are gaps in the materials provided, and advocated for change where needed.

Finally, ANP competencies include collaboration and consultation across sectors including local, regional, and national organizations (CNA, 2008). I demonstrated these competencies through collaboration and consultation with the provincial consultant, the

clinical nurse specialists, and parent and child health coordinators from the Eastern Regional Health Authority, who are the content specialists in postnatal care, and educational needs of parents.

Conclusions

There is an abundance of empirical evidence that new parents need and seek out postnatal information in caring for their new infant. Many parents feel ill-prepared to care for their newborns. Bandura (1997) purports that giving parents' knowledge and skills increases their self-efficacy, and helps them gain confidence in their new role. Although in NL, new parents receive information from a variety of sources, no examination of how parents evaluate this information has been conducted.

Based on the results of my practicum project that involved an integrative literature review, consultations, and, the design and pilot testing of a new questionnaire, I strongly recommend a province-wide survey be conducted to ascertain if parents across NL want and prefer postnatal information before they leave the hospital. Also, to determine to what extent are postnatal educational materials in the Postpartum Support Program being utilized provincially. Recommendations to public health nursing leaders also include incorporating tips and guidelines for developing the province-wide survey questions so that all new parents can provide input and so that they will ultimately receive an optimum level and quality of postnatal education to promote their parental self-efficacy, and, improve child health outcomes.

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Appendix A

Integrative Literature Review

Preface

To fulfill requirements of the Master of Nursing program, Memorial University, I am proposing a practicum project to design, construct and pilot test a questionnaire to examine new parents' evaluation of postnatal educational materials. To meet postnatal educational needs of parents in Newfoundland and Labrador, parents receive information from a variety of sources. Through my public health nursing experience, and in consultation with provincial leaders, managers, coordinators, and clients, I am aware that information is provided by childbirth education classes, Healthy Baby Clubs, obstetrical units, internet sites, families, and through public health nursing services. Some parents will state that information was already received, which may result in a waste of resources.

In consultation with the provincial consultant for prenatal and early child development, no assessment or examination of postnatal written or online materials parents has been done. It is unknown if the education materials provided to parents are meeting their learning needs, or if there is duplication of information. I conducted an integrative literature review to explore the learning needs of new parents, and evidence of the value and usefulness of written and online postnatal educational materials in meeting those needs. Further, empirical literature was reviewed to guide consultations and ultimately inform the design of the questionnaire.

I discovered that the literature verifies many educational needs of new parents, including care of the infant, infant feeding (including breastfeeding), infant sleeping, and physical and emotional changes. Included were research articles on breastfeeding education, shaken baby syndrome, and immunization information. The literature review revealed that new parents often lack self-efficacy in parenting and have key learning needs during the postnatal period. Many new parents seek postnatal education. From my experience, nurses question whether written and online postnatal information is meeting these learning needs. There is limited research on the use of written materials in the postnatal period. However from the studies found, written materials alone do not meet early parental learning needs. Further, the review reveals that there are opportunities and challenges experienced by parents in the use of online postnatal educational materials. Recent research focuses on the benefits and challenges of online postnatal educational materials

Literature Review Criteria

Critical appraisal of quantitative research articles found in the literature search was guided by the Critical Appraisal Toolkit-Analytic Study (Public Health Agency of Canada (PHAC), 2014). The tool was developed to guide critical appraisal of research studies to ensure consistency of appraisals, for providing recommendations, and in

grading for strength (PHAC, 2014). Studies are deemed strong if the purpose was clearly stated, the sample and design were described, ethics approval was documented, and consent was obtained. Other criteria includes descriptions of what was measured, how it was measured, indicators for internal and external validity, and if the results were generalizable to a larger population. Studies are considered weak, for example, when ethics approval and consent were not discussed, there was only a brief description of theoretical application, data analysis, and results or when the results were not generalizable. See below for appraisal of studies of quantitative research articles.

Appraisal of relevant qualitative research articles is based on criteria outlined by Cohen and Crabtree (2008). The criteria include significance of the research topic and sufficient background. Other criteria include ethical requirements met and described, identification of appropriate and rigorous methods including inclusion of theoretical approaches, appropriate data analysis and clarity of findings. And, strengths and limitations of the research articles were identified. Appraisals of qualitative research articles are also contained in the summaries below.

Articles were selected from CINAHL, PubMed, and Google Scholar, in searches limited to selected terms. Key terms include, “postnatal” and, or “postpartum”, “printed material”, “written material”, “written literature”, “education” and “pamphlets”. Other search terms included “online”, “internet” and “web-based resources”, “education for new parents”, or “parental education”. More specific searches included “breastfeeding”, “SIDS”, “shaken baby syndrome”, “child safety” and “immunizations”.

Key points and themes uncovered from the literature regarding educational needs of new mothers, and uses of written and online postnatal materials are presented below, based on quantitative and qualitative research studies.

Educational Needs of New Mothers

The postnatal period is defined as the six to eight week period following birth of the newborn and placenta to the time when there is uterine involution, and return to the non-pregnant state of the mother. During the early postnatal period, parenting brings many challenges (Sink, 2009). Barnes, Pratt, Finlayson, Courtney, Pitt, and Knight (2008) discovered that few mothers felt well prepared for essential child care issues and common infant problems during the postnatal period. Although this is a weak study, findings are congruent with other evidence found in the literature that new mothers lack preparedness (Bowman, 2005; Gazmararian, Dalmida, Merino, Blake, Thompson, & Gaydos, 2014; George, 2005).

The postnatal period is a time of recovery from the birth process and transition to the parenting role during which many new parents seek postnatal information (Sink, 2009). It is important to identify and meet their specific learning needs (Barnes et al, 2008; Fahey & Shennasa, 2015; Gazmararian et al., 2014; George, 2005; Sink). Many maternal concerns include infant feeding, sleeping, and general infant care, physical and

emotional changes, and family and lifestyle changes (Barnes et al.; Gazmararian et al.; Sink). In addition, Gazmararian et al. identified that mothers also seek resources about nutrition and breastfeeding, sleep safety, sudden infant death syndrome (SIDS), infant nurturing and development, and social support.

Further, there are psychosocial changes in the postnatal period. It may take up to a year for new parents to adapt to change (Fahey & Shenassa, 2013). Adaptations may include changes to family relationships, including those of partners, adoption of the parenting role, and meeting the needs of the infant of physical and mental illnesses, including anxiety and postpartum depression (Fahey & Shenassa, 2013).

Stressors in the postnatal time may lead to maternal fatigue, decreased self-care, and increased risk for negative mother and infant outcomes. When unresolved, these stressors can lead to decreased breastfeeding endurance rates, and impaired mother infant attachment (Fahey & Shenassa, 2013). When parents lack skills, resources, and self-efficacy, other negative outcomes may occur, including shaken baby syndrome, or sudden infant death syndrome (SIDS). These issues may be further impacted by socio-economic factors such as low education, and low income (Brage Hudson, Campbell-Grossman, & Hertzog, 2012; Gazmararian et al., 2014). However, Gazmararian et al. claim that education meets the learning needs of first-time mothers, and improves health outcomes. Stressors can be mitigated by information support for parents, because this improves parental self-confidence. Self-efficacy during the postnatal period is Bandura's theoretical principle that feelings of self-efficacy are influenced by knowledge about parenting (Albarran & Reich, 2014). Anticipatory guidance through educational information typically about children's development and ways to promote health and prevent injuries is a mechanism for gaining confidence as a parent (Albarran & Reich, 2014).

Written Postnatal Education Materials

There has been an abundance of research conducted on the specific needs of mothers in the postnatal period. Further, many studies have demonstrated the role of the health care provider as a critical source of information, during the postnatal period including breastfeeding initiation, and continuation, and promoting parenting behaviours (Gazmararian et al., 2014). However, there has been limited research on the use of written materials to promote education to parents in the postnatal period.

Hoffman and Worrell (2004) discuss the many advantages of using written materials to promote health education in the general population. Hoffman and Worrell stated that written information is frequently needed to supplement and reinforce other sources. For example, information that is communicated verbally may be forgotten and needs to be reinforced. Other advantages identified include message consistency; portability, cost effectiveness and whether written materials are economical to produce (Hoffman & Worrell, 2004).

Recommendations regarding written materials were identified (Hoffman & Worrell, 2004). It was recommended to involve stakeholders, including clients in the design of materials. This would include organization, content, language, layout, and illustration. Further attention to details, which attract and engage the reader, should be considered (Hoffman & Worrell, 2004)

Evaluation of written materials, used in providing client information, is essential (Garner, Ning, & Francis, 2011; Hoffman & Worrell, 2004). Hoffman and Worrell recommended that pilot projects involving clients in the design would enable evaluation of the effect of materials on health outcomes. Further, in a discussion article by Garner et al. (2011), a framework was proposed to evaluate written materials that impact health care. The proposed framework contains three elements; they are: readability of the text, effectiveness of the information being communicated, and the comprehensibility of the information provided (Garner et al., 2011). Garner et al. contended that the proposed framework would enable researchers to evaluate any written material, explain why some information is more effective than others, make comparisons, and develop guidelines for writing, and the use of literature. These articles provide valid arguments for the use and evaluation of written materials for clients overall. A disadvantage is that there was no discussion of the advantages or recommendations for postnatal educational materials.

In a descriptive study using focus groups and telephone surveys, Barnes et al. (2008) found that young mothers increasingly use printed materials and internet resources to access information about postnatal learning needs. However, Barnes et al. recommended that to meet maternal learning needs, mothers need to be provided with an environment that considers their experience, and provide information based on need in a supportive environment, rather than provide information that is content driven, and generic.

Sink (2009) provided information regarding from whom, and from where, mothers obtain postnatal information. Sink reported that mothers identify several sources of information including non-professionals. Forty one percent of mothers receive information from fathers, parents, other relatives and friends, while 59% accessed professional sources. Further, 90% of mothers had used reading material that they had received. Sink stated that the internet is becoming a major source but often the information may be erroneous, or outdated. Recommendations from this study included the need for research into appropriate timing of information, and for nursing support using a variety of educational methods.

Gazmararian et al. (2014) examined different aspects of maternal learning needs with ample focus on the use of written materials. Study results from interviews with focus groups participants, consisting of new mothers and health care providers, indicated that most mothers reported that written materials and pamphlets were not helpful. Gazmararian et al. stated that mother reported difficulty understanding the information, which may be related to health literacy. Mothers expressed the need for materials based on culture. Further, younger mothers preferred other sources including websites, DVDs,

phone applications, as well as in-person access to those who can answer their questions. Older mothers preferred printed materials, and verbal communication (Gazmararian et al). Gazmararian et al. concluded that parenting education should move away from the use of written material to face-to-face programming that will effectively provide education to improve maternal and infant health outcomes.

Shaken Baby Syndrome

Shaken baby syndrome is a serious form of inflicted child abuse, and a major focus for new parents. Thus, it is important to explore different educational modalities. Shaken baby syndrome is caused by violent shaking, resulting in head injury. The child's head is rotated, extended and flexed, with trauma resulting in brain injury, resulting in death, or life-long disability. Crying is a common stimulus (Barr et al., 2009; Lewin, 2008). Barr et al. conducted a moderately strong, randomized control study, to test the effectiveness of written educational materials (the Period of Purple Crying program) in preventing the incidence of shaken baby syndrome. Barr et al. found that use of the materials increased knowledge regarding the issue. However, limitations of the study were that men were not included, and the study was not large enough to determine if materials reduced the incidence of shaken baby syndrome, and more research was recommended.

Breastfeeding Education

There is a multitude of research on the effectiveness of supporting breastfeeding mothers in the literature. I found only one study about the extent to which written materials improve breastfeeding rates. Pannu, Giglia, Binns, Scott and Oddy (2011) stated that encouragement, support, and promotion of breastfeeding are a primary goal around the world.

Breastfeeding is well documented in terms of the health benefits to both infant and mother (Pannu et al., 2011). Pannu et al. stated that previous research has demonstrated that non-instructive methods such as breastfeeding literature have no effect on breastfeeding initiation. Pannu et al. recommended personalized and interactive antenatal breastfeeding promotion, which includes education and encouragement.

Immunization Information

As with breastfeeding, there is limited recent research on the use of written materials to provide parents with education on immunization. In a study by Wilson, Brown and Stephens-Ferris (2006), the researchers examined the use of an easy to read pamphlet designed to increase parental understanding of immunizations, for low-income mothers. Limitations of this study include lack of generalizations to other populations of parents that require information on immunization. However, Wilson et al. (2006) concluded that written materials that are easier to read, may help parental learning needs

regarding immunization, but should not take the place of face-to-face instruction and communication with the health professional.

Online Postnatal Materials

The literature review revealed that there are several recent studies examining online postnatal material. The internet provides social support, peer communication, and access to expert advice on health information and health care services via internet data bases (Brage Hudson et al., 2012; Salonen et al., 2010). It has the potential to reach large numbers of postnatal clients, including those from diverse backgrounds (Brage Hudson et al.; Salonen et al.). Brage Hudson et al. added that there is faster access and more frequent contact with nurses, leading to positive postnatal influences. Challenges with internet use were also identified, including accessibility for some parents, and knowledge of technology (Bultjen et al., 2012; Wen et al., 2010). The researchers did not examine the use of the internet for specific postnatal topics.

Benefits of Online Postnatal Information

In a quasi-experimental study, Salonen et al. (2010) evaluated the effectiveness of information technology that supports postnatal parents in Finland. The objective of the study was to determine how online resources promote parental satisfaction and self-efficacy. The intervention group, from middle pregnancy, was offered online information on parenting, breastfeeding, and infant development, while the control group received regular postnatal follow-up. Results from the study revealed that parental self-efficacy is weakest following childbirth (Salonen et al.); however, parental satisfaction and self-efficacy increased for both the intervention and control groups. Salonen et al. explained that the questionnaire used might have prompted both groups to search for more information and support.

Bultjen et al. (2012) conducted a quantitative study in Victoria, Australia to examine the effects of the Google search engine, and the opportunities and challenges for perinatal health professionals. The study used a convenience sample of 18 new mothers. Thirteen search phrases were tested. Only 4 search phrases, provided results for fifty percent of postnatal websites available. Google provided limited results for social networks, and mother infant activities. Bultjen et al. found the benefits of internet access to be providing mothers with information, support, flexibility, convenience and access to remote areas.

In a study which determined the effects of internet intervention on psychological, parenting, and health utilization outcomes, Brage Hudson et al. (2012) discovered that thirty-seven percent of mothers, who were in the intervention group with access to internet support and information, visited hospital emergency rooms with their infants, compared to seventy one percent with no access. However, mothers with internet access had lower self-esteem. Brage Hudson et al. did not provide explanation as to why this occurred.

Challenges of Online Postnatal Information

Despite benefits of online postnatal information, challenges are being found. Bultjen et al. (2012) reported that there might be technological barriers including challenges with hardware, accessibility, cost, time, and knowledge of technology. There is a need from more coordination of websites, and assistance for parents to navigate confusing information.

Wen, Rissel, Baur, Lee and Simpson (2010) conducted a cross-sectional study to explore inequities in access to postnatal online information, and information development of internet resources. The study included young, first-time mothers with lower education, lower income, and no computer at home. The intervention group was provided with computer access. Results from the study revealed that those with internet access, and higher education, were more likely to access postnatal information. The findings of the study have important implications. Wen et al. raised a critical point, that not all young mothers have access to computers, especially those of lower socio-economic status. This should be considered when developing online resources that may not be available in printed form. Wen et al. recommend websites that offer active communication, discussion groups, and access to expert advice. Further, appropriate readability, improved access through facilities such as libraries, and opportunities for mothers to develop computer skills are required (Wen et al, 2010).

Review Conclusions

Bandura (1997) purported that perceived parenting efficacy plays a key role in adaptation to parenthood and maternal role attainment and that these are achieved through knowledge and experience with parenting tasks. There is strong evidence in the literature that there are many educational needs of parents during the postnatal period. The literature review revealed limited research into the use of written materials. However, there is strong evidence that written materials increase maternal knowledge regarding shaken baby syndrome, but more research is needed into whether written materials reduce the incidence. Although not as strong, research reveals that when written material is used, it may be used as a supplement, and should not replace face-to-face communication, and interaction with the nurse who can provide education based on specific learning needs.

Researchers have also found that there are benefits and challenges with online postnatal education and support. A strong study revealed that mothers with access to online postnatal information visited hospital emergency rooms less often. However, weaker studies revealed that computer access did not improve maternal self-efficacy. Further, it is revealed that not all postnatal families have accessibility to online information.

The literature contains little empirical support for the value and usefulness of both written and online postnatal educational materials in providing important information to new parents. Thus a questionnaire will be designed and constructed to determine if

current postnatal educational materials are meeting parental learning needs. Design and construction will be informed by the integrative literature review, and subsequent consultations with public health nursing leaders. The new questionnaire will be pilot tested by surveying a sample of 30 mothers or fathers recruited from selected public health nursing child health clinics throughout Eastern Regional Health Authority, Newfoundland and Labrador.

Review Summary of Key Studies

Parental Learning Needs - Qualitative Barnes et al. (2008)

Learning about baby: What new mothers would like to know.

- **Purpose:** to identify the preparation and learning needs of first-time mothers in Brisbane, Australia. Part of a larger research project.
- **Sample and Design:** A qualitative, descriptive study. Mothers invited to participate convenience sample (N= 151) participants aged 23- 40yrs. Well-educated, married or living in stable relationships and employed. Exclusion criteria well defined. Ethical approval is briefly described in terms of from where it was obtained. No consent obtained.
- **What was Measured and How:** Data collected via telephone survey, using validated instrument. Focus group interviews conducted 7-9 months after entry into study (to expand on telephone interview). Data analysis: Open comments were analyzed using content analysis. Focus group: data collected by data recorder and transcribed. Process of thematic analysis briefly described.
- **Key Findings:** Current approaches to care and education not meeting needs of mothers. Need for preparation for the role.
- **Internal validity:** Validated survey instrument.
- **External Validity:** Participants: Well-educated, employed, in stable relationships. Results not generalizable.
- **Limitations:** No control for recall bias (focus group 7-9 months later). No consent from participants. Results not generalizable. Only brief description of theoretical approaches, data analysis, and results of study.
- **Strengths:** This is a weak study, but findings are congruent with other studies. Clearly stated the purpose of the study.

Parental Learning Needs - Qualitative Gazmararian et al. (2014)

What new mothers need to know: Perspectives from women and providers in Georgia.

- **Purpose:** to explore the perceptions of first-time mothers in meeting educational and resource needs.
- **Sample and Design:** Qualitative – 2 part methodology. Sample (11 focus groups conducted in 11 diverse clinic locations) with recruitment by posting fliers.

Convenience sample of 92 new mothers, and 20 health care providers contacted. Study coordinator. Inclusion criteria: Mothers 18 years or older, English or Spanish speaking; infants less than 6 months of age, to reduce recall bias. No discussion of ethical approval. Consent obtained.

- **What was Measured and How:** Focus groups (mothers and health care providers) conducted in 11 diverse clinic locations. Separate interview guides with specific questions for each of the 2 groups. Data audio-recorded and transcribed. Data analysis used grounded theory, including data collection, coding and triangulation.
- **Key Findings:** Written materials not very useful or helpful. In person is best. Timing of information should be soon after baby is born, but not in hospital.
- **Internal validity:** Used sampling strategy for providers – Chi-square analysis did not demonstrate significant demographic differences between providers. Each interview guide was piloted. Controlled for recall bias. Trained co-facilitators to ensure consistency.
- **External validity:** Minority, low income mothers in Georgia – results not generalizable.
- **Limitations:** No ethical approval for study. Small sample of low income; low education mothers. Select few of participants may have spoken more than others, skewing results.
- **Strengths:** Clear research questions; validated. Clearly identified methodology, and sampling. Data analysis congruent with grounded theory. Provided literature review with background discussed. Results agree with results of other studies found in the literature.

Parental Learning Needs - Qualitative George (2005)

Lack of preparedness: Experience of first-time mothers.

- **Purpose:** to examine experiences of first-time mothers following hospital discharge.
- **Sample and Design:** Qualitative grounded theory. Inclusion criteria defined (primiparous, English speaking, urban, 18-44 years of age). Participants recruited prior to discharge (convenience sample).
- **What was Measured and How:** In-depth interviews using open-ended semi-structured questions in participants' homes, 4 weeks postnatal, to examine maternal experiences. Simultaneous data collection and analysis, as per grounded theory well described. Open coding and selective coding used in data analysis.
- **Key Findings:** lack of preparedness of first-time mothers. Themes identified including unclear role expectations, and knowledge deficit.
- **Internal Validity:** Convenience sample may create bias, affecting internal validity.
- **External Validity:** The study is not generalizable to the general population, affecting external validity.
- **Limitations:** Convenience sample. Identified where knowledge is lacking, but little discussion on nursing interventions including use of written materials.

- **Strengths:** Data collection and analysis, as per grounded theory well described. Results are consistent with other research findings; new mothers need education.

Parental Learning Needs - Quantitative Sink (2009)

Seeking newborn information as a resource for maternal support.

- **Purpose:** determine the topics and sources of information that are sought by mothers. Significance of study well described to make information readily available.
- **Sample and Design:** Descriptive, longitudinal study with pre-post design. Identified theoretical framework (King's Theory of Goal Attainment) to guide study. Non-randomized convenience sample: (n= 89) 92% first-time mothers recruited within one month of due date. Inclusion criteria defined. Obtained ethics approval, informed consent.
- **What was Measured and How:** Prenatal mothers were provided with questionnaire regarding topic and sources of information that mothers require, one month before due date. Contacted by telephone 14-16 days following birth.
- **Key Findings:** Results were revealed using percentages. Identified 8 categories of postnatal information that mothers sought.
- **Internal Validity:** t-tests analysis conducted to check for demographic variables between those who dropped from study. Convenience sample, may create bias, and threat to internal validity.
- **External Validity:** Results not generalizable.
- **Limitations:** Only 89 participants in convenience sample; homogenous group.
- **Strengths:** Clear focused research question. Study has moderate strength, due to threats to internal and external validity.

Written Postnatal Educational Materials - Quantitative Barr et al. (2009)

Do educational materials change knowledge and behavior about crying and shaken baby syndrome?

- **Purpose:** To determine if educational materials from Purple Crying program results in higher maternal knowledge of crying and behaviours important in the prevention of shaking.
- **Sample and Design:** Quantitative, randomized, blinded, control study. Sample n = 1279 mothers recruited from hospitals by telephone or face to face in the Greater Vancouver area. Demographics gathered on mothers-various levels of age education, social status, income, and marriage status described. Inclusion criteria described. Ethics approval granted (little explanation). Consent obtained.
- **What was Measured and How:** Maternal knowledge and behavior regarding infant crying measured. Experimental and control groups provided with resources. Use of diary. Mothers contacted by blinded, independent research team 5 weeks following

birth of baby, one day before and after completing diary. Completed 20 minute questionnaire. Clear description of questions.

- **Key Findings:** Statistical results using percentages and confidence levels (appropriate for method). Extensive discussion of statistical results obtained. Written materials led to higher maternal scores for knowledge about infant crying and behaviours considered important to prevent shaking.
- **Internal Validity:** Large randomized sample ensures rigor. Nurses participating in study were blinded to Purple Crying materials. Bias due to probability of chance. Parallel sensitivity analyses using multiple imputation to account for missing data (Barr et al., 2009).
- **External Validity:** Urban population may not be generalizable.
- **Limitations:** No theoretical framework to guide study. Men were not included in the study. Did not adjust for multiple outcomes; increased probability of chance.
- **Strengths:** Large sample. Contents of questionnaire described. Clear description of package of resources for the experimental and control groups. Strong study Strong randomized design; extensive description of results. Results were consistent with a previous study.

Written Postnatal Educational Materials - Quantitative Pannu et al. (2011)

The effectiveness of health promotion materials and activities on breastfeeding outcomes.

- **Purpose:** To determine the effectiveness of health promotion materials and activities on breastfeeding outcomes.
- **Sample and Design:** Quantitative non-randomized pre-post design 12 month longitudinal. Sample of women recruited from maternity wards within 3 days following birth. Consecutive, convenience sample n=587. Ethics approval and consent obtained. Insufficient details provided.
- **What was Measured and How:** No description of how data was collected in post study.
- **Key Findings:** Provision of any health promotion material, group, one to one education intervention- not significant predictor of breastfeeding initiation. Mothers who participated in one to one consultation with health professional: 55% less likely to cease breastfeeding before 6 months (0.44; 95% CI 0.24-0.80), remained consistent to 12 months.
- **Internal Validity:** Univariate logistic regression analysis to screen for confounding variables; to determine if alternative explanations. Convenience sample: selection bias.
- **External Validity:** Generalizable to general population of breastfeeding mothers.
- **Limitations:** No literature review. Little background information provided. No conceptual framework to guide study. No description of baseline questionnaire. No description of how data collected in the post phase of study. No assessment of the written materials that were provided. Study is determined to be weak due to little discussion of ethical approval. Methods and tools for data collection were omitted.

Insufficient information regarding statistical testing. Insufficient details to draw conclusions.

- **Strengths:** Large sample. One to one intervention statistically significant. Study is generalizable to larger population of breastfeeding mothers.

Written Postnatal Educational Materials - Quantitative Wilson et al. (2006)

Can easy to read immunization information increase knowledge in urban, low income mothers?

- **Purpose:** to assess mother's reading level, comprehension, and effect of pamphlets on immunization knowledge. Well-defined research questions.
- **Sample and Design:** Quantitative, randomized, 2 groups, experimental study. Pre/post design. Purposive sample recruited from 4 urban clinics, US Midwest. n= 37 participants (identified by nursing staff). Random assignment following pre-test. Used conceptual framework to guide study: Orem's self-care deficit theory. Obtained consent. No discussion of ethics review process.
- **What was Measured and How:** All participants were administered pretest to determine knowledge; reading level. Post-tests to experimental group who were given revised pamphlets, Control group received unrevised pamphlets. Use of 4 validated tests to gather data. Data analyzed using repeated ANOVA to determine if knowledge increased over time. T-tests to determine differences between pre/posttest knowledge.
- **Key Findings:** Statistics reported in means, SDs, and p-values: appropriate for tests. Both groups showed improvement in knowledge regarding DTaP, and MMR; mean increase in knowledge. Experimental group was not significantly higher than control group.
- **Internal Validity:** Randomized control study, controls for bias. Revised pamphlets reviewed for content validity. Affected by small sample size: may compromise statistical significance
- **External Validity:** Results not generalizable.
- **Limitations:** Small sample size. No discussion of ethics approval. Urban mothers: results not generalizable to general population of mothers.
- **Strengths:** Clear purpose. Research questions defined. Random sampling. Consent obtained. Use of conceptual framework. Tools to gather data clearly described. Revised pamphlets reviewed for content validity. Used appropriate statistics. Although study strong in design, methods, and statistical testing, I classify strength as medium, due to lack of ethics approval.

Online Postnatal Educational Materials - Quantitative Brage Hudson, et al. (2012)

Effects of an internet intervention on mothers' psychological, parenting & health utilization outcomes.

- **Purpose:** To determine the effects of an internet intervention on mothers' psychological, parenting & health utilization outcomes.
- **Sample and Design:** Quantitative, longitudinal experimental design. Pilot study. Convenience sample; recruited during 9th month of pregnancy. 42 single, low income adolescent, African American mothers; demographic described. Random assignment to intervention or control groups. Inclusion & exclusion criteria defined. Used social support theory. Ethics approval described, Consent obtained.
- **What was Measured and How:** Technology installed in intervention group's homes. Measured outcomes of psychological parenting & health utilization, with validated instruments. Outcome data collection at 1 week, 6 weeks, and 3 & 6 months. SPSS for data analysis. $\alpha = .10$ to determine significance. Continuous outcomes analyzed using linear mixed model. Health utilization: counts were computed, and summarized. Evaluation of skewness & kurtosis.
- **Key Findings:** 70.6% of mothers (control) took infants to ER, compared to 35.7% of those in intervention. Self-esteem in intervention group remained at same level to 6 weeks, before decreasing at 3 & 6 months. Control group: decreased 1-6 weeks, baseline at 3 months, and increased by 6 months.
- **Internal Validity:** Random assignment, ensuring rigor. Reliable & validated data collection instrument.
- **External Validity:** Not generalizable.
- **Limitations:** Results not generalizable. Variability in timing of visits for data collection. Insufficient reasons given for ER visits.
- **Strengths:** Random assignment; ethics approval; validated tool ensures rigor.

**Online Postnatal Educational Materials - Quantitative
Buultjen et al. (2012)**

Online resources for mothers: Opportunities and challenges for perinatal health professionals.

- **Purpose:** to examine online resources for new mothers: Opportunities and challenges for perinatal health professionals.
- **Sample and Design:** Quantitative study. Convenience sample $n = 18$. No ethics approval was required as it was a desktop exercise. Study guided by theoretical framework.
- **What was Measured and How:** Using Google search engine, top 10 search phrases for postnatal information were identified. Google was selected by participants. Data was generated by frequency counts, ranked and categorized.
- **Key Findings:** 4/13 phrases used found 50% of postnatal websites. No access to mother/infant activities using Google. There are barriers to technology: hardware, accessibility, cost and time.
- **Internal Validity:** Convenience sampling: selection bias.
- **External Validity:** Not generalizable to parents using other search engines.

- **Limitations:** Restricted to one search engine – Google. Need to evaluate usefulness of other search engines. Small convenience sample. Content of websites were not examined for accuracy. Variation of wording affected the quality of the information.
- **Strengths:** Moderate strength. No need for ethics approval. Study showed that search terms can result in hit or miss results (Buultjen et al., 2012), which may affect the quality of information that parents access.

Online Postnatal Educational Materials - Quantitative Salonen et al. (2010)

Effectiveness of an internet based intervention enhancing parenting satisfaction and parenting self-efficacy during the postpartum period.

- **Purpose:** to Determining the effectiveness of an internet based intervention of Finnish parents' satisfaction and self-efficacy in the postpartum period.
- **Sample and Design:** Quantitative, quasi-experimental design; non-equivalent control group. Repeated measures. Convenience sample; n = 1300 families identified in 2 maternity hospitals in Finland. Inclusion & exclusion criteria specified. No ethics approval described. Consent was obtained.
- **What was Measured and How:** Intervention was offered online during middle pregnancy to experimental group. *Intervention:* peer discussion; expert advice. *Control group:* regular postpartum education & support. Questionnaire completed at 6-8 weeks postpartum. SPSS, descriptive stats, frequencies, percentages, means and SDs used for data analysis.
- **Key Findings:** No intervention effects found. All parents reported lowest self-efficacy after childbirth. All groups demonstrated increased satisfaction and parental self-efficacy in the postpartum period.
- **Internal Validity:** Used validated instrument for measurement. Compromised by lack of randomization; selection bias. Gender bias: mothers used online more often.
- **External Validity:** Results generalizable to larger population of postnatal parents.
- **Limitations:** Lack of randomization. High attrition rate. No ethics approval.
- **Strengths:** Power analysis to determine sample size. Study grounded in conceptual models. Agreement with previous research. Based on tacit professional knowledge. However, weak study due to lack of ethics approval.

Online Postnatal Educational Materials - Qualitative Wen et al. (2010)

Who is not likely to access the Internet for health information? Findings from first-time mothers in Southwest Sydney, Australia.

- **Purpose:** To explore inequities in access to online health information; inform development of use of the internet.
- **Sample and Design:** Qualitative study .Convenience sample: n = 2700 pregnant women approached at antenatal clinics .Cross-sectional baseline survey data for 664

first-time mothers, recruited: young, lower education, low income, no computer at home. No discussion of ethics approval. Consent obtained.

- **What was Measured and How:** Data collected using face to face interviews. Data: demographics; sources of info including internet; self-rated health. Measured using Stats Analysis Strata 10; Pearson Chi square tests; variables entered in logistic regression.
- **Key Findings:** Income level and having a computer at home were significant factors associated with the use of the internet. Mothers: school certificate or lower were 1.5 times more likely not to use the internet for health [adjusted risk ratio (ARR) 1.50, 95% CI 1.06-2.12, p=0.03]. Mothers with a household income of less than \$40,000 per year were 1.7 times more likely not to use the internet.
- **Internal Validity:** May be affected by the convenience sample.
- **External Validity:** Results limited to low income, young, single mothers.
- **Limitations:** Cross sectional decreased generalizability. No relationship between health status, and health seekers examined.
- **Strengths:** Study weak due to lack of ethics approval. Added to knowledge that not every low-income mother has access to internet information. More equitable access is needed.

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Appendix B

Consultation Report

In order to design the survey tool in terms of what questions to pose to obtain new parents' evaluation of postnatal educational materials, I conducted consultation meetings either face to face or through conference calls, between December 1, 2014 and Dec 18, 2014. During these consultations, I met with Cathie Royle, Program Consultant, Prenatal and Early Child Development, Government of Newfoundland and Labrador. In the Eastern Regional Health Authority (urban) I met with Moira O'Regan Hogan, and Debbie Ryan, clinical nurse specialists. In the rural area of the health authority, I met with Colleen Kearley, and Rhonda O'Driscoll, parent and child health coordinators; and Natalie Morgan, clinical nurse specialist.

The consultants were asked about their roles. The provincial consultant, prenatal and early child development, and parent and child health coordinators act as content experts, consultants, and policy makers, in the selection and distribution of postnatal educational materials. Clinical nurse specialists act as content specialists for postnatal care. They informed me that they do not make decisions regarding postnatal materials, but provide orientation, education, support and expert advice to public health nurses who provide postnatal follow up to parents and infants.

The objectives of the consultations were to elicit their expert advice about what they deemed important resources to include in future postnatal educational materials. The consultants were asked about which postnatal materials are crucial to examine, and I asked them for recommendations into the types of questions they would like to ask parents in a survey.

During the consultations, I discovered that some of the written contents of the postnatal package were being removed, and will be available online. I asked each consultant about changes to the content of postnatal packages, and inquired about the content of online resources. This information impacted the construction of the questionnaire to include use of online postnatal educational materials.

During the consultation meetings, several themes arose. Consultants thought that questions on the survey should fall under parents' knowledge needs, resources that are most beneficial, and their perspectives regarding written, and online information.

Based on the consultations, below is the list of potential questions:

- What did you need to know?
- How did you get the information?
- Do you recall seeing the package "You and Your New Baby"?

- Did you get the package directly from the public health nurse?
- Did you read the contents of the package, or open it? (what did you look for?)
- What resources did you find most helpful, useful or valuable?
- Do you prefer written or print materials? (Is there one you like over the other?)
- Are you aware of URaParent?
- Did you learn anything new that changed your parenting?
- Was there any information missing?
- Do you feel you are receiving too much information at once?
- Is it a good time to read information; when you are first at home?
- When do you want to receive information?
- Do you remember what you received in hospital?

In addition, I asked about potential pilot-test sites within the Eastern Regional Health Authority. I suggested that the questionnaires be distributed to first-time parents of 2 month old infants, who attend public health nursing, child health clinics. The coordinators agreed that urban and rural sites should be selected. Urban sites were to be determined. The coordinators in the urban area suggested arrangements could be made to store the completed questionnaires in locked cabinet of secure reception areas, until I retrieved them at designated times. The three coordinators for the rural areas suggested clinic sites including, Bay Roberts, Holyrood, Harbour Grace, Clarenville, and Burin. For the rural areas, I suggested delivering the surveys to the coordinators. Two coordinators offered to gather completed questionnaires, and store in a locked cabinet, until I retrieved them at a designated time. Contact would be made with the coordinators, and public health nursing program managers when ethics approval had been granted. Program managers would be asked to inform public health nurses, and clerical support staff of the pilot test. Specific arrangements for distribution and security of the questionnaire would be made, prior to the pilot test.

Appendix C

Questionnaire



Urban/Rural

Donna Gillard RN BN
Student, Master of Nursing Program
School of Nursing
300 Prince Philip Drive, St. John's NL Canada A1B 3V6 Tel: (709) 777-7493
www.mun.ca/nursing

Examination of New Parents' Evaluation of Postnatal Educational Materials

Survey Questions to Parents

I hope you will be willing to complete the questions in this survey about what you think about the information that you received after your baby was born. Your answers are very important. It should only take 15 minutes to answer the questions.. Please answer the questions in order. You may skip questions that you do not wish to answer. There are no right or wrong answers. Please do not put your name on this survey. If there is a question that you do not understand, please write beside the question, that the question is not clear.

1. How did you get information after your baby was born? (Please circle all that apply).
 - a. Hospital
 - b. Home visit by a public health nurse who brought package of information.
 - c. Information was mailed to my home
 - d. Online

I have included a copy of the front page of the booklet "**You and Your New Baby**" at the back of the survey.

2. Do you recall seeing "**You and Your New Baby**" in hospital?
(Please circle one).
 - a. Yes
 - b. No
3. If you read, "**You and Your New Baby**" in hospital, did you tick any questions that you wanted the nurse to answer? (Please circle one).

- a. Yes
 - b. No
4. Please circle any topic that you got while in the hospital:
- a. My Body
 - b. Caesarean Birth
 - c. Parenthood
 - d. My Baby-Feeding
 - e. Baby Care
5. Please list any other information that you remember getting while in hospital:

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In the following, please circle a number which shows how you agree or disagree with the statement:

6. I think that the information I got in hospital helped me in caring for my baby and me, after I went home:
1. Strongly disagree, 2. Disagree, 3. Not sure, 4. Agree, 5. Strongly agree.
7. When is the best time to get information about caring for your baby and yourself? (Please circle one).
- a. In hospital
 - b. 1 to 2 days after getting home with your baby
 - c. 1 week after getting home with your baby
 - d. Using the internet when needed
8. After you were home, were you: (Please circle one).
- a. Visited by a public health nurse who answered your questions?
 - b. Telephoned by the nurse, and received the information package in the mail?

In the following, please circle a number which shows how you agree or disagree with the statement:

9. I found that the home visit from the public health nurse very helpful in answering my questions.

1. Strongly disagree, 2. Disagree, 3. Not sure, 4. Agree, 5. Strongly agree.

10. Did you open the information package? (Please circle one).

- a. Yes
- b. No

11. What information do you recall looking for?

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12. What information do you recall seeing before?

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In the following, please circle a number which shows how you agree or disagree with the statement

13. The information in the package helped to answer my questions about caring for me and my baby.

1. Strongly disagree, 2. Disagree, 3. Not sure, 4. Agree, 5. Strongly agree.

14. What information did you find most helpful?

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15. What information was missing that you needed to know?

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16. Please rank from 1 to 7 the importance of the following topics

- a. Breastfeeding.....
- b. Infant safety.....
- c. Care of the baby.....
- d. Cord care.....
- e. Tummy time.....
- f. Back to Sleep.....
- g. Vaccination.....

The following questions are about using computers to look for information on caring for your baby.

17. Do you have a computer in your home? (Please circle one).

- a. Yes
- b. No

In the following, please circle a number which shows how you agree or disagree with the statement

18. I am very comfortable with using a computer to look for information about caring for me my baby.

1. Strongly disagree, 2. Disagree, 3. Not sure, 4. Agree, 5. Strongly agree.

19. What information do you look for on the internet?

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- 20. Have you used the Eastern Health’s website, **URa Parent** to look for information?
(Please circle one).

 - a. Yes
 - b. No

In the following, please circle a number which shows how you agree or disagree with the statement

- 21. I am very satisfied with information that I find on the **URa Parent** website:

- 1. Strongly disagree, 2. Disagree, 3. Not sure, 4. Agree, 5. Strongly agree.

Questions 22 and 23 are about what you have learned, and to tell me which information is most important to you.

- 22. What have you learned from the information that changed your parenting?

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- 23. What information do you think is most important to know after your baby is born?

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24. What is your year of birth?

25. What is your yearly family income? (Please circle one).

- a. \$10,00.00 – 19,999.00
- b. 20,000.00 – 29,999.00
- c. 30, 000.00 – 39,999.00
- d. 40,000.00 – 49,000.00
- e. 50,000.00 or higher

26. What is your highest education? (Please circle one).

- a. Did not graduate high school
- b. High School
- c. College Diploma
- d. University Degree

Thank you for completing this survey.

Appendix D

Copy of Approval Letter HREB



**Ethics Office
95 Bonaventure Avenue
St. John's, NL
A1B 2X5**

March 26, 2015

Ms. Donna Gillard
P.O. Box 67
South River, NL
A0A 2W0

Dear Ms Chowdhury.

Reference #15.064

Re: Examination of New Parents Evaluation of Postnatal Education Materials

Your application received an expedited review by a Sub-Committee of the Health Research Ethics Board and **full approval** was granted effective **March 26, 2015**.

This approval will lapse on March 26, 2016. **It is your responsibility to ensure that the Ethics Renewal form is forwarded to the HREB office prior to the renewal date; you may not receive a reminder, therefore the ultimate responsibility is with you as the Principle Investigator.** *The information provided in this form must be current to the time of submission and submitted to the HREB not less than 30 nor more than 45 days of the anniversary of your approval date.* The Ethics Renewal form can be downloaded from the HREB website <http://www.hrea.ca>.

This is to confirm that the following documents have been reviewed and approved or acknowledged (as indicated):

- Application, approved
- Survey, approved
- Poster, approved
- Letter to parents, approved

The Health Research Ethics Board advises THAT IF YOU DO NOT return the completed Ethics Renewal form prior to date of renewal:

- Your ethics approval will lapse*
- You will be required to stop research activity immediately*

Ms. D Gillard Reference #15.064 Page 2 March 26, 2015

- You may not be permitted to restart the study until you reapply for and receive approval to undertake the study again*

Lapse in ethics approval may result in interruption or termination of funding

“This is your ethics approval. Organizational approval may also be required. It is your responsibility to seek the necessary organizational approval from the Regional Health Authority or other organization as appropriate. You can refer to the HREA website for further guidance on organizational approvals.”

You are also solely responsible for providing a copy of this letter, along with your application form, to the Office of Research Services should your research depend on funding administered through that office.

Modifications of the protocol/consent are not permitted without prior approval from the Health Research Ethics Board. Implementing changes in the protocol/consent without HREB approval may result in the approval of your research study being revoked, necessitating cessation of all related research activity. Request for modification to the protocol/consent must be outlined on an amendment form (available on the HREB website) and submitted to the HREB for review.

This research ethics board (the HREB) has reviewed and approved the research protocol and documentation as noted above for the study which is to be conducted by you as the qualified investigator named above at the specified site. This approval and the views of this Research Ethics Board have been documented in writing. In addition, please be advised that the Health Research Ethics Board currently operates according to *Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans*; *ICH Guidance E6: Good Clinical Practice* and applicable laws and regulations. The membership of this research ethics board is constituted in

compliance with the membership requirements for research ethics boards as defined by *Health Canada Food and Drug Regulations Division 5; Part C*

Notwithstanding the approval of the HREB, the primary responsibility for the ethical conduct of the investigation remains with you.

We wish you every success with your study.

Sincerely,

Dr Fern Brunger, PhD (Chair Non-Clinical Trials)

Ms. Patricia Grainger, (Vice-Chair Non-Clinical Trials)

cc. Dr. Caroline Porr

Appendix E

Letter of Approval RPAC



*Department of Research
5th Floor Janeway Hostel
Health Sciences Centre
300 Prince Philip Drive
St. John's, NL A1B 3V6
Tel: (709) 752-4636
Fax: (709) 752-3591*

April 23, 2015

Ms. Donna Gillard
P.O Box 67
South River, NL
AOA 2WO

Dear Ms. Gillard:

Your research proposal *HREA Reference #15.064: Examination of New Parents Evaluations of Postnatal Education Materials* was reviewed by the Research Proposals Approval Committee (RPAC) of Eastern Health at a meeting dated April 14, 2015 and we are pleased to inform you that the proposal has been granted full approval.

The approval of this project is subject to the following conditions:

- The project is conducted as outlined in the HIC approved protocol;
- Adequate funding is secured to support the project;
- In the case of Health Records, efforts will be made to accommodate requests based upon available resources. If you require access to records that cannot be accommodated, then additional fees may be levied to cover the cost;
- A progress report being provided upon request.

If you have any questions or comments, please contact Sharon Newman, Manager of the Patient Research Centre at 777-7283 or by email at sharon.newman@easternhealth.ca.

Sincerely,

for 
Mike Doyle, PhD
Director of Research
Chair, RPAC

MD/lw

Appendix F

Information Poster to Parents

Examination of New Parents' Evaluation of Postnatal Educational Materials



Are you a first-time mom or dad of a 2 month old baby?

Are you older than 19?

Are you interested in answering questions about the information you got after your baby was born?

If yes, please talk to the secretary at the front desk.

Appendix G

Letter to Parents



Donna Gillard RN BN
Student, Master of Nursing Program
School of Nursing, Memorial University
300 Prince Philip Drive, St. John's NL Canada A1B 3V6
Tel: (709) 777-7493
www.mun.ca/nursing

Dear Parents:

My name is Donna Gillard. As part of my Master of Nursing program at Memorial University, School of Nursing, I am doing a survey. Because this is your first baby, I am inviting you to answer questions for me that are on this survey.

After your baby was born, you got information about how to look after you, and your baby. What did you need to know? Did the information help you after your baby was born?

You will find the survey of questions in this envelope. You do not have to answer them. You may stop answering the questions at any time. I will keep all of your answers confidential. Please do not sign your name on any of the papers.

The questions will take about 15 minutes to answer. Please answer the questions when you are waiting after your baby's needles. Please put the survey of questions back in the envelope, and seal the envelope, and give it to the receptionist.

Your answers are important to me. I look forward to reading them.

If you have any questions, you may telephone me at (709) 752-4812.

Sincerely,

Donna Gillard RN BN