Online Resources for New Mothers: Opportunities and Challenges for Perinatal Health Professionals

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ABSTRACT

Studies have shown increasing Internet use for health information and service facilities. After consulting a convenience sample of new mothers, this study applied select terms and phrases to a widely accepted search engine and investigated its potential for providing resources for new mothers. Results of this quantitative content analysis showed that only four of the 13 phrases used in the search generated 50% or more websites containing content relevant to new mothers. Findings indicate that informational support by way of electronic fact sheets is available using the Google search engine. However, functional support (e.g., social networks, consultation phone details, and mother–infant activities) configured limited data resources using the Google search engine. In addition, because websites can be difficult to navigate, users' technical proficiency needs to be taken into consideration as well as the sites' up-to-date information. With Internet technology rapidly expanding, perinatal educators and other perinatal health-care professionals need to be informed about current online resources to help direct consumers to useful online resources and mitigate the often overwhelming and confusing information.

The Journal of Perinatal Education, 21(2), 99–111, <http://dx.doi.org/10.1891/1058-1243.21.2.99>

Keywords: Internet, transition to parenthood, new mothers, perinatal health professionals, childbirth education

The subjective experience of parenthood can throw lives into temporary confusion with the transition involving considerable physical, psychological, and sociological changes for women and their families (Brown & Lumley, 1998). There is a societal expectation that parenthood will be a blissful experience, and most individuals often have optimistic expectations about parenthood (Harwood, McLean, & Durkin, 2007). However, as new parents, many

women and men are establishing a new identity amid their changing priorities (Smith, 1999). This challenging period is further characterized by a strong sense of loss, isolation, and fatigue (Rogan, Shmied, Barclay, Everitt, & Wyllie, 1997). Indeed, uncertainty and self-doubt may affect a woman's ability to cope with the unrelenting demands of baby care, threatening self-confidence (Pridham, Lyntton, Chang, & Rutledge, 1991).

Australian researchers have suggested that the focus of professional health care on physical recovery in the postpartum period neglects to take into consideration the psychosocial context in which women become mothers (Barclay, Everitt, Rogan, Schmied, & Wyllie, 1997). These researchers therefore conducted a qualitative study into women's experiences of parenthood. They found that although the act of giving birth establishes motherhood in a biological sense, becoming a mother in the emotional sense takes some time. In this grounded theory analysis, becoming a mother involved six categories: drained, unready, loss, realizing, alone, and working it out. Likewise, Mercer (2006) concurred that several maternal, infant, family, and environmental variables, along with significant psychological, social, and physical changes, influence the process of becoming a mother.

In numerous studies, despite much preparatory effort, women reported feeling overwhelmed and unprepared following childbirth (Barlow & Cairns, 1997; Smith-Pierce, 1994). Nelson (2003) conducted a meta-synthesis of studies that were identified in literature searches using the keywords "transition," "adaption," "motherhood," or "mother," which revealed five thematic categories signifying areas of disruption present in maternal transition, as well as 13 underlying themes. The five thematic categories were commitment, daily life, relationships, work, and self. These findings reveal how the transition to parenthood is influenced by many subjective and contextual components.

When individuals attempt to deal with the everyday stress and strain of life, they access and mobilize interpersonal resources (Leatham & Duck, 1990). One such interpersonal resource is social support. Social support has been found to buffer the experience of moving into the parental role and has been proposed as an essential variable to successful maternal role adaptation (Barclay et al., 1997). Likewise, literature suggests that functional status influences the transition. Tulman, Fawcett, Groblewski, and Silverman (1990) classified functional status after childbirth as being achieved when women assume their motherhood role responsibilities and also reorganize their lives around their infant. Furthermore, full functional status is considered to take longer than physiological recovery (McVeigh, 1998).

According to McVeigh (2000), "Social support can take on many forms including emotional support; esteem support; instrumental or tangible assistance; and informational or network support" (p. 26). In an investigation into the relationship between satisfaction with social support and functional status after childbirth, McVeigh found that satisfaction with

support from one's partner was significantly correlated with infant care at 6 weeks, with self-care at 3 months, and with social and community activities at 6 months. In addition, McVeigh found that total support satisfaction was significantly related to social and community activities at 3 months and 6 months postpartum. As noted, much literature refers to social support as a contributing factor in the successful transition to parenthood. In many cases, it can be the difference between a successful transition and individuals who experience emotional disturbances (Brugha et al., 1998). As demonstrated, several dimensions of social support are relevant to the transition to parenthood and mother-infant interactions.

Another tangible way of gaining support is through active help-seeking. Eckenrode and Wethington (1990) defined help-seeking as an activity of mothers of young infants to mobilize support. Help-seeking can be a way of establishing networks, obtaining information, and sourcing mother-infant activities in the postnatal period. Studies into help-seeking vary from examining barriers to seeking help (Dennis & Chung-Lee, 2006), to help-seeking patterns among parents with a newborn child (Jansson, Isacson, & Nyberg, 1998). May and Hu (2000) examined help-seeking by mothers of low birth weight infants and mothers of normal birth weight infants. In their study, the researchers defined help-seeking as the process of initiating an interaction with a potential help-provider to obtain support, information, advice, assistance, or treatment relevant to caregiving for infants. Their study results produced categories that included lay, professional, media, and self. These outcomes illustrate the contribution that media outlets such as the Internet can provide for mothers seeking information in the perinatal period.

The extension of information and communication technologies over the past decade, their widespread use at a reasonable price, the relative success of user-friendly computers, and the increase of the Internet's range to rural areas have resulted in more consumers seeking help and resources through use of the Internet (Barak, 1999; Mickelson, 1997; Pereira & Bruera, 1998; Stern & Adams, 2010). In view of therapeutics, the environment in which patients consume medical and health information has altered significantly (Hesse et al., 2005), as has health promotion and communication (Chou, Hunt, Beckjord, Moser, & Hesse, 2009) because individuals rely not only on interpersonal sources for health information but also on mediated sources such as the Internet (Rains, 2007). Evidence indicates that pregnant women and mothers of young children are active consumers of health

information, including the World Wide Web as a popular destination for women seeking information, support, and resources (Bernhardt & Felter, 2004).

In examining the changing practices toward seeking help, information, and support, Arendell (2000) showed that many childrearing women no longer stay at home. This trend has resulted in a decrease in networks and time spent with other mothers raising young children, leading to a loss in much of the mothering informal support, advice, and interaction women have traditionally shared (Litt, 2000). Although many aspects of parenthood are rewarding, at the same time, the sudden role changes and time-intensive and repetitive routine can be overwhelming, often leading to anxiety and isolation. As illustrated by Drentea and Moren-Cross (2005), one method of uniting mothers is on the Internet, allowing geographically diverse women to come together and create a community of caring and information sharing. In addition, it is thought that, on the Internet, women may be more open to discuss troubles or intimate details in childbearing and childrearing matters that they may not otherwise share in their own circle of family and friends.

International literature further supports the notion that women are consumers of the Internet during the perinatal period. In a large national survey of U.S. women, entitled *Listening to Mothers II*, 200 mothers were interviewed by telephone and 1,373 mothers completed an online version of the survey (Declercq, Sakala, Corry, & Applebaum, 2006). According to the survey's results, more than three quarters of childbearing women turn to the Internet for information about pregnancy and birth, and 16% of first-time mothers and 13% of experienced mothers rated the Internet as their most important information source. Similarly, in a descriptive study of the use of the Internet by women seeking pregnancy-related information, 84% of women in the survey sought pregnancy information online, and most participants considered the information to be trustworthy and reliable (Larsson, 2009). However, results of research that assessed the reliability of health-care information on the World Wide Web suggest an urgent need to check public-oriented health-care information on the Internet for accuracy, completeness, and consistency (Impicciatore, Pandolfini, Casella, & Bonati, 1997). These findings are consistent with results from other studies (Kunst, Groot, Latthe, Latthe, & Khan, 2002; Weiss & Moore, 2003).

In 2006, a study was published regarding technologically proficient, socially advantaged, White, heterosexual, new mothers (Madge & O'Connor,

2006). The researchers found that, among their study participants, the Internet was effective in providing new mothers access to alternative information sources, which increased their real sense of empowerment and helped to ameliorate some of the potentially alienating aspects of life as a new mother. In a similar study, the Internet played a central role in providing virtual social support, which increased the women's ability to cope with their new experiences in the transition to becoming a parent (Bailey, 1999). In this sense, the Internet has created a global village where people can seek help, resources, and information while communicating and interacting with ease.

With today's technological advances, the Internet is potentially pivotal to aiding the transition to parenthood. Therefore, we conducted this study to explore the resourcefulness of the Internet via a well-known search engine. Search terms and phrases relevant to mothers seeking support, help, and resources were devised, and the online outcomes from these terms and phrases were critically examined.

METHOD

The theoretical framework underlying our research was twofold. First, we posited that the Internet can facilitate access to perinatal resources for new mothers. Second, we posited that interpersonal sources (health professionals) can complement Internet-mediated communication and resources during the perinatal period. To test these concepts, we conducted a desktop quantitative content analysis of websites.

Research Design

The development of our study comprised three components: (a) to develop a strategy to identify the search terms and phrases used by new mothers seeking information and support on the Internet, (b) to determine the preference for which search engine to use to examine the terms and phrases, and (c) to analyze the outputs from the search engines among postnatal women in Victoria, Australia.

Recent literature has identified the topics of information most often sought by new mothers in the postnatal period (Sink, 2009). Using these topics, we designed 20 phrases that new mothers could use for Internet searches, taking into account situations of a new mother who might be seeking not only

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information but also support, resources, and activities to support her new maternal role. These search phrases were further developed to take into consideration health professionals who might also be seeking services and support for the families in their care.

Sample

The 20 phrases were circulated among a convenience sample of 18 women who were asked to identify the terms and phrases they would use to search for postnatal information on websites accessible to new mothers in Victoria, Australia. The women were our colleagues who had recently given birth to their first child. All of the women had diverse parenting experiences and educational attainment (ranging from year 12 to postgraduate degree). Although one woman was in a de facto relationship, the remaining women were married. After 15 women selected the same search terms and phrases, no new phrases were offered. We believed we reached saturation at 18 women, when we no longer obtained any new information.

In addition to choosing search phrases, study participants were asked to select their preferred search engine: Yahoo, Google, or AltaVista. The women expressed a universal preference for Google.

Data Collection

Using the Google search engine, we entered each of the top 10 search phrases chosen by the study's convenience sample of first-time mothers. From the resulting index of each phrase, we recorded the first 10 websites for our analysis. Three search phrases were added—slightly reworded from, but not dissimilar to, each other—to examine whether the displayed sites varied and, if so, to what degree. For example, two of the added phrases were “healthy start for mother and baby” and “healthy start mother and baby mental health, Victoria.” The list of the 13 phrases used in the online search is presented in Table 1.

Data Analyses

The data were analyzed by generating frequency counts, which were then ranked. In order to analyze our data, we drew on the first 10 websites that were indexed for each search term entered in the Google search engine. The websites were then grouped into 10 categories (“a” through “j”), according to their informational content. The categories were descriptive summaries used to review and analyze the content of each website (see Table 2). Categories “a” through “g” (e.g., “Programs/activities for mother and baby,” “Information/fact sheets for mothers,” and “Maternal

TABLE 1
Terms and Phrases Used in Internet Search Strategy

Search Terms and Phrases Selected by Convenience Sample of New Mothers

Council programs/activities for new mothers, Victoria^a
Council programs/activities for mother and baby, Victoria
Postnatal groups for mother and baby, Victoria
Interventions to help cope with motherhood, Victoria
Community programs for new mothers, Victoria
Help and support for new mothers, Victoria
Organizations for new mothers
Education for new mothers
Social groups for new mothers, Victoria
Postnatal support for new mothers, Victoria

Search Terms and Phrases Added (Variations of Similar Wording)

Healthy start for mother and baby
Maternal and child health support and activities, Victoria
Healthy start mother and baby mental health, Victoria

^aVictoria denotes Victoria, Australia.

and child health information”) were considered of benefit to new mothers. Categories “h” through “j” consisted of newspaper articles, academic literature, and miscellaneous information, which were considered of little to no relevance for new mothers. In addition to categorizing the websites, we reviewed each website for ease of navigation and use.

Ethics Approval

We did not require ethics approval for our study because it was a desktop exercise. The convenience sample of women who reviewed the search phrases were colleagues who volunteered their time and

TABLE 2
Categories Used to Describe Each website's Informational Content

Categories	Descriptive Summaries
Relevant to new mothers	
a	Programs/activities for mother and baby
b	Support services/groups for mothers
c	Information/fact sheets for mothers
d	Maternal and child health information/links
e	Opening Web page lists contact details/help lines
f	Opening Web page has links to providers/help lines
g	Postnatal emotional disorders information/links
Of little or no relevance for new mothers	
h	Newspaper article/media release regarding mothers
i	Academic/health professional literature
j	Miscellaneous/no relevance at all

expertise to screen the phrases and offer alternatives; they were not involved in subsequent aspects of our research.

RESULTS

Based on the data collected from our convenience sample of new mothers, we used the Google search engine to input 13 terms and phrases representing topics of information that new mothers most often seek in the postnatal period. After recording the top 10 websites indexed on Google for each of the search phrases, we classified the content and relevance of each website, according to 10 descriptive categories (“a” through “j”). Our findings are summarized in Table 3.

Only four of the 13 terms and phrases used in the search generated websites that contained 50% of content that was relevant to new mothers (categories “a” through “g”). These four phrases were the following: “postnatal groups for mother and baby, Victoria”; “help and support for new mothers, Victoria”; “postnatal support for new mothers, Victoria”; and “maternal and child health support and activities, Victoria.” Upon closer examination of the material featured in the websites, only two phrases (“council programs/activities for new mothers, Victoria” and “council programs/activities for mother and baby, Victoria”) each generated a website that included data from all categories relevant to new mothers (categories “a” through “g”).

TABLE 3

Summary of the First 10 websites and Informational Categories (a–j) for Each of the Search Terms and Phrases

Search Terms/Phrases and First 10 websites	Categories of Informational Content									
	a	b	c	d	e	f	g	h	i	j
Council programs/activities for new mothers, Victoria										
1. VicHealth										X
2. Bass Coast Shire Council						X				X
3. News release: “Hard Work Behind the Fire-Lines Brings Rewards”										X
4. Media release: “Grants Help Victorian Women Take the Lead”										X
5. Human Services News								X		
6. Neighborhood Renewal: Werribee (Heathdale)		X								
7. Petnet—International Association of Human Animal Interaction Organization										X
8. Hobson’s Bay City Council									X	
9. Moonee Valley City Council		X			X					
10. Baw Baw Shire Council—Maternal and Child Health	X	X	X	X	X	X	X			
Council programs/activities for mother and baby, Victoria	a	b	c	d	e	f	g	h	i	j
1. Joint Consultative Committee on Obstetrics									X	
2. Family and Reproduction Rights Education Program									X	
3. Having a Baby in Victoria—Ongoing Care After You Have Your Baby		X	X	X	X	X	X		X	
4. Post Excursion Activities										X
5. Indigenous Parenting and Family Well Being Services Directory		X			X					
6. Queensland Government—Active and Healthy GC Regular Citywide Program										X
7. Mental Illness Fellowship of Australia							X			
8. Baw Baw Shire Council—Maternal Child and Family Health	X	X	X	X	X	X	X			
9. Babes’n’Books: A Program for Parents of Babies 1–12 Months										X
10. Minutes of the Ordinary Meeting of the Eastern Regional Libraries Corporation										X
Postnatal groups for mother and baby, Victoria	a	b	c	d	e	f	g	h	i	j
1. Panda—What’s New?					X	X			X	
2. Australian Breastfeeding Association					X		X			
3. Australian Breastfeeding Association										X
4. Pregnancy and Postnatal Depression Resource List		X			X		X			
5. The Bub Hub		X	X		X	X				
6. Staff – RWH – School of Nursing and Midwifery – La Trobe University									X	
7. Mental Health Association							X			
8. Better Health Channel				X	X		X			
9. Postnatal Depression: Not Just the Baby Blues			X						X	
10. wMJA: Lumley, Evaluating Policy and Practice									X	

(continued)

TABLE 3

Summary of the First 10 websites and Informational Categories (a–j) for Each of the Search Terms and Phrases (Cont.)

Search Terms/Phrases and First 10 websites	Categories of Informational Content									
	a	b	c	d	e	f	g	h	i	j
Interventions to help cope with motherhood, Victoria										
1. MHCA website: Not for Service										X
2. Not for Service Report										X
3. depressionNet—VIC What's On		X			X		X			
4. Office for Children										X
5. The Bouverie Centre										X
6. Beyondblue: The National Depression Initiative					X		X			
7. Australian Breastfeeding Association		X	X		X					
8. Autism Victoria										X
9. Schizophrenia and Psychotic Disorders										X
10. Does my Child Need a Shrink? The Age										X
Community programs for new mothers, Victoria	a	b	c	d	e	f	g	h	i	j
1. Women's Health West		X								
2. FaCS Annual Report 2003–2004										X
3. Foundation for Rural and Regional Renewal										X
4. Parenting Xchange										X
5. Human Services News								X		
6. Human Services News								X		
7. Parks Victoria—Annual Report										X
8. Prism—Background Development									X	
9. Beyondblue: The National Depression Initiative									X	
10. Moreland Community Action on Greenhouse										X
Help and support for new mothers, Victoria	a	b	c	d	e	f	g	h	i	j
1. Family and Home Network										X
2. Reach Out										X
3. Childcare and Parenting Support Services						X				
4. Human Services News								X		
5. Human Services News								X		
6. Panda—What's New?						X	X		X	
7. Australian Breastfeeding Association			X		X		X			
8. Media release								X		
9. Better Health Channel—Maternity Services			X	X	X					
10. Better Health Channel—Parenting Centres		X			X					
Organizations for new mothers	a	b	c	d	e	f	g	h	i	j
1. Parks Victoria—Annual Report										X
2. Parents Victoria										X
3. Childcare Services—Live in Victoria	X					X				
4. Human Services News								X		
5. Housewives Association of Victoria										X
6. Mothers Direct										X
7. Published by the State Government of Victoria										X
8. Australian Lactation Consultants Association										X
9. Single Parenting						X				
10. Stateline Victoria								X		
Education for new mothers	a	b	c	d	e	f	g	h	i	j
1. Parents Victoria										X
2. TASA—The Australian Sociology Association								X		
3. Having a Baby in Victoria—Your Care During Pregnancy			X			X				
4. Having a Baby in Victoria—Pregnancy and Birth Care Options			X							
5. Social Spending Increases										X
6. Beyondblue: The National Depression Initiative					X				X	
7. ABC—Plumpton High Babies										X
8. HREOC website										X
9. Bright Sparcs Biographical Entry										X
10. Educating on the Inside										X
Social groups for new mothers, Victoria	a	b	c	d	e	f	g	h	i	j
1. New Mothers Group – Club Mom – Online		X								
2. VicHealth Letter								X		

(continued)

TABLE 3

Summary of the First 10 websites and Informational Categories (a–j) for Each of the Search Terms and Phrases (Cont.)

Search Terms/Phrases and First 10 websites	Categories of Informational Content									
3. Parks Victoria									X	
4. Connect (Social) Program Overview										X
5. Melbourne University Research Office—Social Work									X	
6. CSMC: History										X
7. Connect Victoria										X
8. Autism Victoria										X
9. Making Time for Motherhood								X		
10. Conference—Building Communities That Strengthen Families									X	X
Postnatal support for new mothers, Victoria	a	b	c	d	e	f	g	h	i	j
1. Pregnancy and Postnatal Depression Resource List					X					
2. Blackdog Institute—Depression Information			X							
3. Panda—What's New?						X	X		X	
4. Prism—Background Development									X	
5. Australian Breastfeeding Association			X		X		X			
6. Beyondblue: The National Depression Initiative					X				X	
7. New Mothers Unhappy at Care								X		
8. eMJA: Lumley, Evaluating Policy and Practice									X	
9. Better Health Channel—Postnatal Depression Q & A			X		X					
10. Media releases—St. John of God Hospital, Geelong								X		
Healthy start for mother and baby	a	b	c	d	e	f	g	h	i	j
1. Better Health Channel—Breastfeeding			X	X	X					
2. Nutritional Information										X
3. Quit Victoria—Myths About Smoking and Pregnancy			X		X					
4. Diabetes in Pregnancy Society			X		X					
5. Royal Women's Hospital, Department of Perinatal Medicine									X	
6. Perinatal Medicine									X	X
7. Human Services News								X		
8. Fresh Science—New Targets for Infertility Treatment										X
9. Community Bubs: A Model for Healthy Families, Healthy Infants									X	
10. Omep Australia										X
Maternal and child health support and activities, Victoria	a	b	c	d	e	f	g	h	i	j
1. Maternal and Child Health Services			X	X	X					
2. Maternal and Child Health Services in Victoria (DHS)			X		X				X	
3. Fruit and Vegetables for Health Newsletter										X
4. Raising Children Network—Australian Parenting website	X	X	X	X	X	X				
5. City of Melbourne—Maternal and Child Health Centres				X	X					
6. Koori Maternal and Child Health Services Victoria (report)									X	
7. Department of Human Services—Health			X	X						
8. Having a Baby in Victoria—Your Care During Pregnancy			X			X				
9. Housing Primary and Complex Care (DHS)										X
10. Community.gov.au—Information and Services for Australians		X		X		X				
Healthy start mother and baby mental health, Victoria	a	b	c	d	e	f	g	h	i	j
1. Human Services News								X		
2. Review of Australian and International Literature About Early Intervention									X	
3. Better Health Channel – Postnatal Depression – Q & A			X		X					
4. Royal Children's Hospital, Melbourne—Parenting A – Z			X			X				
5. PANDA—Written submission to the Parliament of South Australia			X						X	
6. Department of Health and Aged Care—A Healthy Start for 0–5 Year Olds									X	
7. The Perinatal Period—Early Interventions for Mental Health									X	
8. The University of Adelaide—Child and Adolescent Mental Health										X
9. 2007 news stories about Murdoch Children's Research Institute										X
10. National Action Plan on Mental Health 2006–2011										X

Note. a = programs/activities for mother and baby; b = support services/groups for mothers; c = information/fact sheets for mothers; d = maternal and child health information/links; e = opening Web page lists contact details/help lines; f = opening Web page has links to providers/help lines; g = postnatal emotional disorders information/links; h = newspaper article/media release regarding mothers; i = academic/health professional literature; j = miscellaneous/no relevance at all.

Of the 13 phrases entered in the Google search, three phrases did not generate any websites that contained contact details or help lines for new mothers on the opening page. These three phrases were the following: “community programs for new mothers, Victoria”; “organizations for new mothers”; and “social groups for new mothers.” Furthermore, out of all the websites generated by all of the 13 search phrases, only the following three websites comprised information in relation to programs or activities for new mothers: “Baw Baw Shire Council—Maternal and Child Health”; “Child-care Services—Live in Victoria”; and “Raising Children Network—Australian Parenting website.” However, the information from these three websites could not be generalized to every new mother in Victoria, Australia, which indicated a lack of all-purpose information.

The number of websites containing information classified in categories “a” through “g,” which were the categories deemed relevant to new mothers, ranged from one to seven among the 13 search terms and phrases (see Table 4). The following two search phrases appeared to generate excellent outcomes, with seven out of the first 10 websites that were generated from each phrase being related to the search topics: “postnatal groups for mother and baby, Victoria” and “maternal and child health support and activities, Victoria.” However, on closer inspection, the websites provided insufficient details. For example, the phrase “postnatal groups for mother and baby” was identified in order to seek groups for mother and baby to participate in. Of the top 10 websites listed, however,

only two sites displayed relevant support services and/or groups for new mothers and included contact details: “Pregnancy and Postnatal Depression Resource List” and “The Bub Hub.”

When reviewing the search phrases, three were added because they were worded slightly different, but not dissimilarly, to examine if the displayed sites varied and to what degree. For example, two phrases included “healthy start for mother and baby” and “healthy start mother and baby mental health, Victoria.” The results of these searches identified only one overlapping site; moreover, out of the top 20 Web pages generated by these two phrases, all but three were informative and of interest to mothers.

Results identified several unconstructive features of websites relating to accessibility and usability. A key concept identified in this analysis concerned the design features of each website because the displayed information on the Web pages was often difficult to navigate. The design features varied widely, making some sites more or less facilitative when seeking information. For example, one site offered the opportunity to seek resources in a particular suburb or region; however, instead of simply listing resources, the site showed a map.

Although many sites displayed were not relevant to the search, other sites were complex and required further navigation to seek relevant information or contact details. For example, the ninth website generated by the search phrase “council programs/activities for new mothers, Victoria” was “Moonee Valley City

TABLE 4
Number of websites From Each of the Search Terms and Phrases That Contained Fundamentals From Categories “a” Through “g” (Information Relevant to New Mothers)

Terms and Phrases Entered Into Google Search Engine	Number of websites (Out of 10) Containing Information From Categories a–g
Council programs/activities for new mothers, Victoria	<i>n</i> = 4
Council programs/activities for mother and baby, Victoria	<i>n</i> = 4
Postnatal groups for mother and baby, Victoria	<i>n</i> = 7
Interventions to help cope with motherhood, Victoria	<i>n</i> = 3
Community programs for new mothers, Victoria	<i>n</i> = 1
Help and support for new mothers, Victoria	<i>n</i> = 5
Organizations for new mothers	<i>n</i> = 2
Education for new mothers	<i>n</i> = 3
Social groups for new mothers, Victoria	<i>n</i> = 1
Postnatal support for new mothers, Victoria	<i>n</i> = 6
Healthy start for mother and baby	<i>n</i> = 3
Maternal and child health support and activities, Victoria	<i>n</i> = 7
Healthy start mother and baby mental health, Victoria	<i>n</i> = 3

Note. a = programs/activities for mother and baby; b = support services/groups for mothers; c = information/fact sheets for mothers; d = maternal and child health information/links; e = opening web page lists contact details/help lines; f = opening web page has links to providers/help lines; g = postnatal emotional disorders information/links; “Victoria” denotes Victoria, Australia.

Council,” which detailed up-and-coming events in the City of Moonee Valley (located in the metropolitan area of Melbourne in Victoria, Australia). Preliminary examination of the website presented nothing directed toward new mothers; however, after navigating away from the initial Web page, details of a playgroup and kinder gym set up in two community centers in the Moonee Valley region were found. As another example, the “contact us” option on a menu bar typically provides access to an e-mail address to request further information about the site. For people who are used to navigating websites, having to delve deeper into a site to retrieve relevant information is satisfactory; otherwise, the lack of easy accessibility and usability may limit the usefulness of a website.

DISCUSSION

The transition to motherhood is a major life event and, in some cases, creates conditions of risk in which new challenges can exceed existing resources, trigger new problems, or amplify preexisting vulnerabilities in new mothers’ lives. These challenges exemplify new mothers’ need for prompt access to informational resources (formal and informal) and for social support, which have been identified as essential components for successful maternal role transition and development of confidence. Although new mothers rely on interpersonal sources (such as perinatal health professionals) for information and support, the current advancement of technology has led to an increasing number of new mothers turning to the Internet for resources and support. The aim of this study was to examine a widely accepted search engine (Google) and investigate its potential for providing resources for new mothers. In general, our findings indicate that useful information and identification of support services for new mothers in Victoria, Australia, via the Internet is likely to be limited.

Overall, with limited functional websites generated from our search, it is apparent that using the Internet within our study’s parameters produces minimal results for new mothers seeking online information and support. In view of our findings, we identified few websites that displayed information in relation to our search terms and phrases. For example, when trying to identify programs and activities for new mothers in Victoria, Australia, our search only produced two relevant websites out of 10. However, only one of the two websites could be considered universal because the other was confined to one region.

The ways in which individual women construe, negotiate, and experience social norms of motherhood

can depend in part on their interpersonal relationships with other mothers (Dennis & Chung-Lee, 2006). However, following childbirth, many women often find themselves housebound more than usual. In this instance, the Internet has the potential to facilitate connections with other mothers and to help new mothers network with practical activities. Women in the post-natal period have limited consolidated time to perform day-to-day activities and are unable to leave the house; moreover, new mothers may experience mild to severe emotional disturbances, which is further accentuated by becoming withdrawn, feeling overwhelmed, and lacking confidence (Ugarriza, 2002). These challenges further highlight the need for easy access and navigation of Internet resources for new mothers, yet our study’s findings suggest that ease of accessibility and usability are not frequently the case on websites. Results from a study conducted by Cline and Haynes (2001) correspond with our findings. The authors reported that although the Internet offers widespread access to health information and the advantages of interactivity, information tailoring, and anonymity, website access is often inequitable and use is hindered by navigational challenges because of numerous design features such as “disorganization, technical language, and lack of performance” (Cline & Haynes, p. 671).

The need for easy retrieval of information on websites is again reinforced, given that fatigue following childbirth is a common concern (Taylor & Johnson, 2010), and new mothers often have a decreased capacity to perform at their usual level. However, we found that many of the websites accessed in our study do not initially display contact details, and it is not until a user navigates away from the opening page that she may find relevant information. For example, the website “Having a Baby in Victoria—Ongoing Care after You Have Your Baby” appears very informative; however, no direct details are available on the opening page advising of phone contacts or help lines. The navigability of websites in order to identify further information is likely to be a problem for some fatigued new mothers with limited computer skills and time. If a woman has limited experiences or knowledge of Internet use or is emotionally unwell, she may miss vital information or give up on navigating a website because of the lengthy process to learn more about how to acquire help, support, or resources.

McVeigh (2000) reported that positive social support is a key facet in the successful transition to parenthood. In a qualitative study concerning depressed women, Ugarriza (2002) found that mothers longed

for “relief through pleasant activities and felt that outside activities would have helped them greatly” (p. 230). However, in view of the limited resources and outcomes from all Internet searches in our study, if women wish to seek activities in the postnatal phase, they will likely not be well supported by the limited online resources that are currently available.

In a study of postnatal reflections, analysis revealed that the focus of new mothers is on being better informed of services and having access to experienced and knowledgeable peers (Barnes et al., 2008). The Internet has the capacity to provide education and accurate information, but website designers need to be aware of the complexities faced by individuals using Internet-based technologies. For example, confusion in retrieved information can be heightened by merely indicating the general direction of services and neglecting to detail addresses or contact information. Showing a map but not labeling services can be perplexing. websites should “facilitate navigation, while maintaining simplicity of technology, operation, and format” (Cline & Haynes, 2001 p. 684). Ease of website navigation is particularly vital for new mothers who have limited time to access online resources, and it is essential that a website page is organized logically in order to locate information quickly (Adelhard & Obst, 1999; Wyatt, 1997).

In our study, we found that redrafted and reorganized key search phrases can result in different outputs of websites, which suggests that the amount of relevant and quality information for new mothers seeking online resources can be “hit or miss.” It appears that in addition to telecommunication barriers such as hardware, accessibility, and cost, or to contextual factors such as availability of time, or even to human factors such as comfort with technology, the configuration and structure of search engine outputs affect the quality, and relevance of online information for new mothers. The findings from our study demonstrate that variations in the wording of search phrases can considerably alter the computed output of website results. This discrepancy not only can influence the quality and availability of relevant websites to a new mother but may also affect timely access to services and support.

As indicated in study findings reported in the literature, the immediate availability of and ability to obtain information privately is ideal for women and families alike during the perinatal period. For example, in view of maternal health concerns such as being homebound or experiencing depression, seeking online resources substantiates the need to

develop Internet technology that helps new mothers overcome barriers to obtaining help, which include practical difficulties with coordinating childcare (Dennis & Chung-Lee, 2006) and feeling embarrassed about the need to seek help (Bennett, Boon, Romans, & Grootendorst, 2007). However, again, as our study findings suggest, the navigability of websites in order to identify further information is likely to be a problem for some fatigued new mothers with limited computer skills and time.

Reports in the literature widely recognize that women are consumers of the Internet during the perinatal period, and studies have shown the benefits of Web-based education (Huang et al., 2007), which can complement existing services for new mothers and their babies. In view of perinatal educators’ awareness of new mothers’ informational needs, research was conducted regarding antenatal mentors’ perceptions of the concerns and interests of expectant and new parents. The antenatal mentors’ perceptions were summed up and divided into three interrelated categories: expectant and new parents (a) “need to know . . . what’s happening”; (b) “won’t listen”; and (c) need “balanced information” (Svensson, Barclay, & Cooke, 2007, p. 11). Internet resources can potentially address all these themes while also providing consistency of information for new mothers. Findings reported in the literature also illustrate women’s retrospective views during the perinatal period and identify unmet needs for support (Darvill, Skirton, & Farrand, 2010). In collaboration with health professionals, Web-based initiatives and resources have the potential to connect women and decrease social isolation.

As a relatively new technology, the Internet can potentially play a supportive role in reaching, assisting, and informing new mothers who have various health and parenting concerns. Internet technology is an alternative information source that, with a more systematic structure, has the potential to assist women and their families by providing parent discussion boards, informal support, and resources during the transition to parenthood. The Internet has the potential to positively provide pathways and information for new mothers and new parents because, as a source of help and information, the Internet is easy to access, nonintrusive, and reduces the stigma and embarrassment of seeking help.

As demonstrated with other health-oriented telecommunications, the Internet is useful for patients in remote rural areas who might otherwise

have to travel a long distance to obtain information (McNamara, 1994). Balas et al. (1997) evaluated 80 clinical trials through systematic electronic database and manual searches. In their evaluation of controlled trials of studies that included electronic distance technology, Balas et al. found that distance medical technology allows better access to clinicians, continuity of care, and improved communication.

According to Larsson (2009), nursing and midwifery researchers have not actively studied the use of the Internet by women seeking pregnancy-related information across the perinatal period. In addition, to date, researchers have not thoroughly investigated the experience of using the Internet as a resource tool for seeking information and support during the transition to parenthood. Supportive and educational care is pivotal for new mothers. Just as the characteristics and duration of care vary across maternity services, so too does the way online information and resources are accessed by new mothers. In helping women feel more empowered and less isolated, Internet support and online access to resources must be considered in ways that relate to the social context and practical constraints of new mothers' everyday lives. For example, new mothers who are geographically confined or housebound may benefit from advances in online technology that can positively alter interactions between health-care providers and postnatal women, as well as enhance opportunities for perinatal health professionals to provide ongoing education and support.

CONCLUSION

In the past decade, researchers have identified the transition to parenthood as a central concern among new mothers (Nelson, 2003). Western societies are currently characterized by vast complexities in which women must often restructure a work-family medium and realign existing relationships while trying to maintain a harmonious and secure environment for their infant. The challenge for women to reorganize and reconstruct their lives around their new role as mothers require social support, which has been documented as being a key factor in the successful transition to parenthood (Bailey, 1999; Börjesson, Paperin, & Lindell, 2003; Cudmore, 1997).

Given the advances of information and communication technologies across various health fields, women are provided with greater opportunities to seek information, support, and resources (Kennedy, 2000), particularly by means of the World Wide Web.

Internet technology provides new mothers with innovative opportunities to create contact and social support during their transition to parenthood and has the potential to decrease help-seeking barriers by reducing stigma and judgment. From a practical stance, accessing and benefiting from Web-based information allows flexibility and reduced travel time and wait times that new mothers often experience with health-care office appointments.

Research indicates a changing landscape of how information, support, and resources are accessed. Findings from our study illustrate the need for more structure and coordination of website content in order to correct the current limitations of present search engine displays (e.g., the Google search engine, which produced limited results in our study). We recommend that midwives, maternal and child health nurses, childbirth educators, and other perinatal health-care professionals become more familiar with the type of information presented on the Web and help expectant and new parents to navigate and understand the often overwhelming and confusing information presented online.

STUDY LIMITATIONS

Findings from this study are limited because research was restricted to one search engine (Google) and content of websites was not examined for accuracy. To further develop and enhance Web-based technology, more knowledge is required about the types of websites used by women in the perinatal period in order to increase understanding of the types of information sought and the involvement of Internet use in women's decision making. In addition, policies regarding the quality of information could be adopted to ensure current, reliable, and consistent information. No study of Internet use has examined its impact on perinatal clinical outcomes. We recommend that future research evaluate if women and/or perinatal health-care professionals perceive potential clinical benefits for Internet use.

IMPLICATIONS FOR PRACTICE

Understanding that a new mother will seek information from Internet resources may assist perinatal educators and postnatal midwifery staff in anticipating potential problems and direct mothers to appropriate and timely information sources that disseminate accurate information online. Additionally, in making use of information technology that addresses the transition to parenthood, Web-based education allows women to

remain autonomous and learn without the constraints of location and time. We recommend that nursing and midwifery practice embrace the use of learning technologies to include Web-based education in order to increase women-centered care, support, and maternal satisfaction in combination and collaboration with current health-care service delivery and education.

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