



The Development and piloting of an eHealth breastfeeding resource targeting fathers and partners as co-parents



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ABSTRACT

Objective: Traditionally breastfeeding education programs target mothers solely. The objective of this study was to design and pilot test an interactive eHealth breastfeeding co-parenting resource developed to target both mothers and fathers. eHealth resources provide an accessible and engaging format on which to educate parents and assist them in meeting their breastfeeding goals. Best practices to design such resources are not currently known.

Design: A three phase pilot study was conducted. The three phases included conducting a needs assessment, creating the resource and pilot testing the resource with mother, father and health care professionals to determine their perspectives regarding the usability and design of the prototype resource. The interactive prototype resource was designed to provide information to parents on breastfeeding and co-parenting, which included suggestions on how fathers can be involved and support breastfeeding and how the couples can work as a team to meet their breastfeeding goals. Setting: Recruitment took place in a health region in Southern Ontario, Canada between June 2014 and March 2015. Online questionnaires were completed by participants in all phases of the study. Participants: Participants (n=149) were pregnant or new mothers and their partners in the health region who read and speak English and had access to the internet and health care professionals who work with breastfeeding families in Ontario, Canada.

Intervention: A prototype eHealth breastfeeding co-parenting resource was developed based on maternal and paternal feedback from Phase I and utilized an interactive interface which included games and multimodal information delivery. The prototype eHealth resource was provided to the parents in Phase II and health care professionals in Phase III. The final resource was created based on feedback from these participants.

Measurements and Findings: The resource was pilot tested with new and expectant parents using pre- and post-test questionnaires which included measures for breastfeeding self-efficacy (Breastfeeding Self-Efficacy Short Form), infant feeding attitude (Iowa Infant Feeding Attitude Scale), breastfeeding knowledge (Breastfeeding Knowledge Questionnaire) and co-parenting relationship (Co-parenting Relationship Scale). Maternal and paternal breastfeeding self-efficacy and knowledge and infant feeding attitude scores all increased from pre-test to post-test. However, there was no difference in the co-parenting relationship scores from pretest to post-test.

Key Conclusions: This study has used feedback from parents and health professionals to develop a prototype resource which appears to be effective in increasing parents' breastfeeding knowledge, attitude and self-efficacy. The prototype resource was rated positively by parents and health care providers.

Implications for Practice: An eHealth breastfeeding co-parenting resource designed with input from the target

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population is an effective way of providing information to mothers and fathers. Further research with a randomized controlled design and more diverse populations is needed to determine effectiveness of the resource on breastfeeding duration and exclusivity.

Introduction

Due to the health promoting effects of breastfeeding for infants and mothers (Bartick and Reinhold, 2010) leading health authorities recommend infants be exclusively breastfed for the first six months of life with the continuation up to and beyond 2 years of age (World Health Organization & UNICEF, 2003; Eidelman et al., 2012; Health Canada, 2014). Breastfeeding rates remain suboptimal despite this recommendation, suggesting the need for innovative strategies to address this longstanding clinical issue. In our health region located in Southern Ontario, Canada, exclusive breastfeeding rates are lower than the provincial (25%) and national rates (26%) (Gionet, 2015) and 36% of mothers in this region have weaned by 6 months (Durham Region Health Department, 2016). In Canada, many breastfeeding supports are government funded, for example support from health care providers (midwives and physicians), breastfeeding clinics, some breastfeeding support groups and Canadian Prenatal Nutrition Program mothers' groups. Additional supports such as prenatal breastfeeding education and lactation consultant private practice services are commonly available for a fee. Regardless of these services, this health region's rates remain low and the region's public health department determined that providing online breastfeeding content in addition to the currently available supports may increase women's and their families' access to breastfeeding education and provide information on where they can receive breastfeeding support in their community.

Another priority of the health department, which is consistent with the Canadian Ten Steps to Successful Breastfeeding, Step 3, 'Inform pregnant women and their families about the importance and process of breastfeeding,' is to include fathers in breastfeeding education and support programs (Breastfeeding Committee for Canada, 2012). The purpose of this three-phase study was to design a prototype breastfeeding co-parenting eHealth resource with input from the target population and to explore the resource's effectiveness, usability, content and design with fathers, mothers and health professionals who provide care to breastfeeding families.

Partner support is a modifiable risk factor known to positively influence breastfeeding. Fathers as well as mothers should be targeted in eHealth breastfeeding interventions as fathers, when present, can play an important role in breastfeeding success and studies have found including fathers in breastfeeding educational interventions increases their breastfeeding knowledge (Susin et al., 1999; Bich and Cuong, 2017) and their partners' breastfeeding exclusivity and duration rates (Mitchell-Box and Braun, 2013). Mitchell-Box and Braun (2013) conducted a systematic review which included 4 studies which provided breastfeeding interventions to fathers and found that in all studies at least one breastfeeding outcome was significantly increased in the treatment group. Additional studies conducted since this publication have found similar results. (Bich et al., 2014; Abbass-Dick et al., 2015). Including fathers in the design of such eHealth interventions would ensure the interventions are meeting the needs of both mothers and their partners and provide information in their preferred learning formats.

Web based resources have been found in the literature to be well received by women, a preferred way of receiving breastfeeding information by fathers (Tohotoa et al. 2011), and a medium frequently utilised in health teaching by professionals who work with new parents to provide breastfeeding education (White et al., 2016). Advantages of using e-technologies include: accessibility to a broad audience; information can be obtained and tailored according to the users' needs and

preferences; information can be accessed at any time and in a variety of locations; users can return to the online resource as often as they would like; and once they are developed the delivery cost is low compared to face to face education provided by health care providers ; (Lau et al., 2015; Cheng et al., 2003).

Web-based technologies have been found to improve exclusive breastfeeding initiation and duration, attitudes and knowledge in perinatal women (Pate, 2009; Lau et al. 2016). The majority of this research has involved e-interventions which have targeted solely mothers; only a small number of studies have included fathers. Salonen et al. (2008) evaluated a parenting website in Finland which included information on breastfeeding with mothers and fathers and found the intervention increased mothers' breastfeeding in hospital and satisfaction with the support they received from their partners (Salonen et al., 2008). Fletcher et al. (2008) evaluated a web-based parenting information program designed specifically for fathers (Fletcher et al., 2008) and found this sample of Australian fathers ($n=67$) were satisfied with the information provided and reported it helped them learn to parent. Cheng et al. designed breastfeeding websites and found mothers and fathers in the U.S. rated the breastfeeding information highly (Cheng et al., 2003). White et al. (2016) have designed a gamified mobile app for men about breastfeeding which is currently being evaluated in an Australian randomised controlled trial (White et al., 2016). These studies provide evidence of the growing field of research internationally on the design and evaluation of eHealth breastfeeding interventions designed to target fathers as well as mothers.

Co-parenting is an ideal framework to use in designing breastfeeding interventions for both mothers and fathers as it provides information for parents on how to work as a team towards meeting their child health outcomes such as breastfeeding goals. Providing breastfeeding education to both parents may be advantageous as some literature has found that educating fathers without the mother or co-parenting information can be counter-productive, causing decreased breastfeeding outcomes (Susin and Giugliani, 2008), and parental disagreement (Sahip and Turan, 2007). The Breastfeeding Co-parenting Framework consists of five components (joint breastfeeding goal setting, shared breastfeeding responsibility, proactive breastfeeding support, fathers/partners parental-child interaction, and productive communication and problem solving) which should be included in breastfeeding education to assist parents in working together as an effective team towards meeting their breastfeeding goals (Abbass-Dick and Dennis, 2017). This framework evolved out of a co-parenting framework previously used to design a breastfeeding intervention that included a website for parents (Abbass-Dick et al., 2015). Results from this randomised controlled trial ($n=214$ couples) found the co-parenting breastfeeding intervention significantly increased breastfeeding duration, paternal breastfeeding self-efficacy, and maternal satisfaction with fathers' involvement (Abbass-Dick et al., 2015).

On the basis of the literature suggesting: (1) fathers support is important to breastfeeding success, (2) including fathers in educational interventions can increase breastfeeding outcomes, (3) the advantages and acceptability of eHealth resources, and (4) co-parenting can assist parents in working towards parenting goals, the purpose of this study was to create a breastfeeding co-parenting eHealth resource to add to the programming at the region's health department. Although the resource was designed for local use, as per the funder's request, it was to be made freely available to be used by all families and health care providers in Ontario.

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