# Telling stories about breastfeeding through Facebook: The impact of user-generated content (UGC) on pro-breastfeeding attitudes

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## ABSTRACT

Through two experiments, this study examined the impact of user-generated content (UGC) and online page popularity (e.g., number of "likes") of a pro-breastfeeding community Facebook page on female college students' breastfeeding-related attitudes and behaviors. Experiment 1 focused on effects of message style (testimonial versus informational) and online page popularity (high versus low), while Experiment 2 focused on effects of message valence (success versus failure) and online page popularity (high versus low). Experiment 1 found that popular pages and informational messages resulted in significantly higher perceived source credibility and pro-breastfeeding attitudes. Message style and online page popularity interacted to influence wishful identification, future breastfeeding intention, and intention to demonstrate online social support. Experiment 2 found that success stories elicited significantly higher source credibility, wishful identification, social identification, interpersonal attraction, willingness to build online friendship, and role model perception, while failure stories elicited significantly higher empathy. Popular pages also elicited significantly higher breastfeeding intention, altruism, attitude toward breastfeeding, and breastfeeding self-efficacy. The interplay between message style, message valence, and online page popularity on pro-breastfeeding attitudes strongly demonstrate the potential of social media as a novel vehicle for health campaigns.

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## 1. Introduction

The exponential growth of user-generated content (UGC) embedded in a variety of social media platforms including social networking sites (SNSs) like Facebook, microblogging sites like Twitter, and video/photo-sharing websites like YouTube, Tumblr, and Pinterest necessitates studying new communication dynamics between message producers and receivers. SNSs are "web-based services that allow individuals to construct a public or semi-public profile within a bounded system, articulate a list of other users with whom they share a connection, and view and traverse their list of connections and those made by others within the system" (Boyd & Ellison, 2007, p. 211). An eMarketer report from June 2013 indicates that over 1.73 billion people worldwide are SNS users, with over 181.2 million originating from the North American continent (eMarketer, 2013). In the United States alone,

approximately 73% of online adults are SNS users, with 42% having multiple SNS memberships and Facebook being the most popular SNS platform (Duggan & Smith, 2013).

Social media has become indispensable for people dealing with health issues, including seeking social support from like-minded others and finding information about particular health conditions. The use of SNSs for spreading targeted public health messages is highly feasible due to low delivery costs, and wide reach among young adults (Strecher, 2007; Vance, Howe, & Dellavalle, 2009). On SNSs like Facebook, users can "like" or become fans of public health organization pages and join groups catering to specific health issues, allowing them not only to receive news and information regarding treatments, medications, and updates from healthcare professionals, but also interact with other peer SNS users with the same health issue. In particular, SNSs are especially helpful for disseminating messages about health problems affecting young adults, such as tobacco cessation, human papillomavirus vaccination, and sun safety awareness (Moreno et al., 2009; Vance et al., 2009). One of the main advantages of SNSs is that they enable widespread collaboration and interactivity, with users playing a role simultaneously as both receivers and providers of information and

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knowledge (Bennett & Glasgow, 2009; Boulos & Wheelert, 2007). SNSs enrich the communication process by empowering users to share information with multiple others through their wall feeds, status updates, and comments on others' posts (Hawn, 2009). At the same time, they also engage users by offering social incentives in exchange for sharing and collaboration (Eysenbach, 2008). In previous research, intensity of SNS usage has been significantly associated with positive social and health outcomes, including social well-being (Valkenburg, Peter, & Schouten, 2006), social capital (Phua & Jin, 2011; Steinfield, Ellison, & Lampe, 2008), health literacy (Park, Rodgers, & Stemmle, 2013), and civic participation (Valenzuela, Park, & Kee, 2009). For health patients who follow the SNS pages of specific health organizations or groups, SNSs allow them to quickly access up-to-date news that can help them better mitigate their chronic health problems (Bottles, 2009). Many of these patients also begin disseminating their experiences and knowledge through the sites (Scanfeld, Scanfeld, & Larson, 2010). Additionally, patients utilize the interactive features of SNSs to give and receive social support (Greene, Choudhry, Kilabuk, & Shrank, 2010; Moreno et al., 2009) and health information (Scanfeld et al., 2010). Health patients who used SNSs regularly reported significantly higher self-described overall health (Chou, Hunt, Beckjord, Moser, & Hesse, 2009), while simultaneously enhancing the doctor–patient relationship online (Bottles, 2009) and helping peer patients to mitigate chronic health issues (Kral, 2006).

Through two between-subjects, full factorial experiments, the present study examined the use of a pro-breastfeeding community Facebook page for disseminating information about breastfeeding among young female adults, testing the effects of message styles (testimonial comments from mothers' perspectives versus informational comments from professionals' perspectives versus mixed comments from both perspectives), message valences (success stories versus failure stories versus mixed stories), and quantitative indicators of online page popularity (high versus low number of Facebook "Friends," "Likes," and "Share," etc.) on pro-breastfeeding attitudes and behaviors. Specifically, Experiment 1 used a 3 [message style: testimonial versus informational versus mixed] × 2 [online page popularity: high versus low] design, while Experiment 2 used a 3 [message valence: positive versus negative versus mixed] × 2 [online page popularity: high versus low] design to examine effects on key dependent measures, including perceived source credibility, information value, wishful and social identification, interpersonal attraction, willingness to develop an online friendship, future breastfeeding intentions, breastfeeding behavioral beliefs, empathy with breastfeeding mothers, role model perception, altruism, attitude toward breastfeeding, and breastfeeding self-efficacy.

## 2. Theoretical frameworks

Breastfeeding is a type of health activity that can be promoted effectively through SNSs, due to the interactive and collaborative nature of these sites. Through joining groups and communities devoted to breastfeeding and sharing stories about breastfeeding experiences on the sites, common questions, fears and challenges associated with this activity can be discussed and dispelled. In recent years, there has been increasing interest in the use of the Internet to provide information, reassurance, encouragement, and reinforcement of breastfeeding among expectant and new mothers (Dornan & Oermann, 2006; Riordan, 2000; Thomas & Shaikh, 2007), although there is wide variability in the accuracy, credibility and extent of information about breastfeeding online (Shaikh & Scott, 2005). Previous studies have found that breastfeeding promotion programs delivered via the Internet significantly improved knowledge, positive beliefs, and breastfeeding intentions than offline,

healthcare provider-based interventions (O'Connor, Brown, & Lewin, 2011; Pate, 2009). Despite the increasing interest in Internet-based breastfeeding promotion, education, and programs, the most recent literature review on strategies to support breastfeeding (see: Demirtas, 2012) heavily focuses on face-to-face communication between mothers and family members or health professionals. Relatively little is known about communication centered on pro-breastfeeding women and their UGC via social media channels. To address this gap, the current research leveraged SNS as an arena for generation and dissemination of UGC regarding breastfeeding. Furthermore, although increasing research has explored the potential of SNS as an effective tool for health communication (Gibbons et al., 2011; Kontos, Emmons, Puleo, & Viswanath, 2010; Levine et al., 2011; Park et al., 2013; Wright et al., 2013), there is a dearth of lab experimental research on the causal effects of Web 2.0 features and UGC in SNSs on the dynamics of persuasion. The present experimental study attempted to address these gaps by testing the persuasive effects of the interaction between UGC message styles and quantitative indicators of online popularity.

Breastfeeding initiation and discontinuation can often be attributed to a mother's knowledge and confidence level, as well as the social support of others around her with breastfeeding experience. SNSs can be particularly efficacious for encouraging this activity due to the sharing of breastfeeding stories and other UGC about breastfeeding on the sites. Moreover, in line with Theory of Planned Behavior (TOPB) (Ajzen, 1991), the social normative influences wrought by positive or negative breastfeeding experiences of other young or experienced mothers can have a significant effect on one's future intentions to breastfeed. Swanson and Power (2005) found that greater knowledge, positive beliefs about breastfeeding, and supportive subjective norms among adolescents predicted significantly greater future intentions to breastfeed, thus supporting the basic assumptions of TOPB in the context of health communication about breastfeeding. Huang et al. (2007) evaluated a web-based breastfeeding education program for pregnant women in Taiwan and determined that it contributed significantly to increasing knowledge and positive attitudes toward breastfeeding, compared to its offline counterpart. Salonen, Kaunonen, Astedt-Kurki, Jarvenpaa, and Tarkka (2008) examined an Internet-based breastfeeding intervention for parents of newborn infants and found that participants scored significantly higher in positive attitude and behavioral intention toward breastfeeding. Similarly, Laborde et al. (2007) discovered that young French mothers of newborn babies with access to e-technologies reported significantly higher breastfeeding duration than those without access. As such, in order to increase future breastfeeding intention, it is important to first increase knowledge and positive beliefs about the subject.

Koerber, Brice, and Tombs (2012) emphasized that there is more work to be done in designing and delivering messages that help first-time mothers overcome possible obstacles (e.g., lack of social support, physical problems, cultural biases against breastfeeding) that cause them to stop breastfeeding. To address this gap, the present study leveraged Facebook in designing, delivering, and exchanging persuasive messages about breastfeeding. The Pro-Breastfeeding Facebook page contains multiple sources of information: (1) comments posted by the profile owner (*self*-generated content); (2) comments posted by members, random visitors, or peer subscribers of the online community (*other*-generated content); and; (3) system-aggregated indicators of UGC (e.g., the number of people who like/talk about/share this Facebook page, the number of comments for each posted message, etc.) (*system*-generated content). Different from traditional top-down, one-way health campaigns, multiple sources of information and multiple perspectives coexist in social media-based health message production. To shed some light on the dynamics of persuasion in the domain of