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**Breastfeeding in Public and the Impact of Mass Media on Breastfeeding:**

**An Expanded Literature Review**

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December 9, 2021

### Abstract

The choice a mother makes to breastfeed or to formula feed is a hotly debated topic in the United States today. The benefits of breastfeeding for both mother and baby are undeniable, but breastfeeding is difficult for some due to a plethora of barriers, notably a lack of social support. This literature review evaluates attitudes towards breastfeeding in public and how varying mass media formats can impact perceptions of breastfeeding and potentially breastfeeding implementation. Twenty articles with both qualitative and quantitative data were obtained from Medline Complete EBSCO Host and PubMed for a comprehensive analysis. Among 283 total articles retrieved, 20 met the inclusion criteria for analysis. The results of this analysis indicate that there is lack of support towards breastfeeding in public, which can make mothers less inclined to do so; however, exposure to breastfeeding is associated with greater acceptability, and imagery of breastfeeding presents a way to expose the public to breastfeeding and therefore, make women more comfortable to breastfeed their child. In addition, online breastfeeding support groups can address barriers women face to breastfeeding by providing emotional and educational support. On the other hand, other forms of media (television news, Twitter, newspapers, targeted social media campaigns, and smartphone apps) are not yet utilized effectively for improving attitudes towards breastfeeding and providing support. There is potential for mass media to be influential on improving attitudes towards breastfeeding and providing support, although this area is not yet well-studied. This gap in the literature indicates significant need for more data, specifically on the impact of social media on a mother's choice to initiate and continue breastfeeding.

**Breastfeeding in Public and the Impact of Mass Media on Breastfeeding:  
An Expanded Literature Review**

**Importance**

Breastfeeding is a polarizing topic among healthcare providers and the general population alike – contradictory messages of “breast is best” and “fed is best” are echoed among parenting communities today. With that being said, breastfeeding is an important aspect of public health initiatives because the benefits of breastfeeding are undeniable, and breastfeeding offers those benefits free of cost since it is a natural endeavor. The benefits of breastfeeding for babies include “protection against morbidity and mortality, fewer dental malocclusions, higher intelligence, and probable reduction in obesity and diabetes” (Lebron et al., 2019, pp. 1-2). As for breastfeeding moms, benefits include reduced risk of breast cancer and ovarian cancer, facilitated postpartum weight loss, reduced risk of diabetes, and improved spacing between births (Lebron et al., 2019). For the public health sector as a whole, improving exclusive breastfeeding at six months to 90% in the United States as recommended by the World Health Organization (WHO), would result in the United States (U.S.) government saving 13 billion dollars, along with the lives of 20,000 mothers and 800,000 children annually (Hitt et al., 2017; Moukarzel, Rehm, del Fresno, et al., 2020). However, breastfeeding rates in the United States remain low; 81.3% of women attempt to breastfeed, but only 44.4% exclusively breastfeed at three months, and only 22.3% of women exclusively breastfeed at six months, which is well below the WHO goal of having 90% of postpartum moms breastfeed exclusively until six months (Foss & Blake, 2018). Moreover, there is a disparity within the United States among differing races; only 74% of African American babies are ever breastfed, compared to 86.6% of White babies and 82.9% of Hispanic babies (Dauphin et al., 2020). These low rates of breastfeeding may be due to barriers

to breastfeeding in modern-day society. The most commonly reported barriers to breastfeeding include work environments that aren't conducive to pumping or maternity leave, unsupportive breastfeeding culture, lack of educational resources, confusing recommendations from healthcare providers, lack of support from family and friends, perceived judgment to breastfeeding in public, cultural beliefs around breastfeeding, pain and discomfort, and shame or embarrassment (Dauphin et al., 2020; Chan & Whitfield, 2020; Coughlin, 2016). Additionally, the mass advertising for infant formula that occurs in the United States presents formula as a recommended option; in 2003, more than fifty million dollars were spent on 10,000 advertisements for infant formula (Bylaska-Davies, 2015). The current culture around breastfeeding in the United States reflects a disconnect in that breastfeeding is legally protected, and many in the scientific community claim that "breast is best," but doing so in public is unacceptable. This places great pressure on mothers to not only make the best choice for themselves and their babies, but to take society's view into consideration as well.

Mass media has an opportunity to impact people's beliefs about breastfeeding and breastfeeding practices, particularly social media. According to Statista Research Department, as of October 2021, Facebook has approximately 2.895 billion users, Instagram has 1.393 billion users, and Twitter has 463 million users worldwide (Statista, 2021). Therefore, the mass media presents multiple options to make an impact on breastfeeding attitudes and behaviors amongst the billions of users, from targeted social media campaigns on Twitter, to support groups on Facebook, to sharing photos of breastfeeding on Instagram.

### **Gap in literature**

As stated in multiple of the articles reviewed, the attitudes held towards breastfeeding in public and the impact of mass media on breastfeeding attitudes and behaviors have not been

well-studied. This is likely due to the fact that it is difficult to conduct surveys far-reaching and definitive enough to reflect the attitudes of the general population, and because social media has not primarily been used for educational purposes. This literature review seeks to close some gaps in literature by closely analyzing attitudes towards breastfeeding, and looking for potential in existing data regarding impact of mass media on breastfeeding to determine how social media can be used to help women overcome barriers to breastfeeding in order to increase breastfeeding rates worldwide. There is limited data on how social media *directly* affects breastfeeding rates of initiation, duration, and exclusivity, but this literature review seeks to find correlations in how varying approaches to breastfeeding exposure and education among differing mass media formats can potentially impact breastfeeding practices.

### **Purpose**

The purpose of this literature review is to synthesize evidence and data from relevant journal articles to demonstrate the attitudes towards breastfeeding in public and how mass media can impact breastfeeding practices. My research question was: What are the current attitudes towards breastfeeding, specifically in public among both caregivers and the general population, and how can mass media impact perceptions of breastfeeding along with implementation of breastfeeding? I hypothesize that current attitudes towards breastfeeding are negative regarding doing so in public, but that mass media can be utilized to increase breastfeeding rates worldwide and improve attitudes towards breastfeeding in public.

### **Methods**

#### ***Information Sources***

Medline Complete EBSCO Host and PubMed were the databases used to search for literature for the purpose of this review.

### ***Search Strategy***

The Boolean phrases used to conduct this search on Medline Complete EBSCO Host and for literature describing the attitudes towards breastfeeding and the impact of social media on breastfeeding were “breastfeeding” and “breastfeeding in public.” Additionally, I limited the search of literature to full text and English language only. I also applied the expanders of “apply related words,” “also search within the full text of the articles,” and “apply equivalent subjects.” This resulted in a total of 173 articles. For PubMed, the Boolean phrases used to search for literature were initially “breastfeeding” and “breastfeeding in public,” but this resulted in 4,711 articles, so the phrase “media” was added to the search terms in order to narrow down the list of literature. I also applied the limiters of full text and English language only, but there were no expanders available on the PubMed database. Once “media” was included, the search resulted in 132 articles.

### ***Inclusion/Exclusion Criteria***

Inclusion of literature for my literature review was initially based on my PICO question – in mothers of newborn children, does social media portrayal of breastfeeding compared to general attitudes towards breastfeeding impact their choice to breastfeed their child? However, as I began reading the literature and discovered that there is limited data on how social media portrayal of breastfeeding can impact a mother’s choice to breastfeed her child, and that the attitudes of others have a significant impact on if mothers choose to breastfeed, I decided to expand my inclusion criteria and re-develop my research question. I then included all articles that mentioned the impact of any form of media on breastfeeding – be it social media, television, or print media – as well as articles that mentioned attitudes towards breastfeeding among mothers and non-caregivers alike. Articles were excluded if they merely expressed opinion, if the

focus was among specific breastfeeding populations (e.g. teen mothers, overweight women, and first-time mothers), if it examined physiological effects of breastfeeding on the mother, or if the research was published prior to 2015. I used the time constraint of 2015-2021 for the gathering of my articles to allow for accurate, pertinent data; allowing my search criteria to go one year beyond the past 2016 allowed me to analyze more data regarding opinions towards breastfeeding, as there is limited data overall. The research published by Asiodu (2015) was included in my literature review because it is the only article I found that is a primary source with data evaluating educational information about breastfeeding in smartphone apps. Data reported by Bylaska-Davis (2015) was included because it is the only article found that mentions limitations of the potential impact of mass media on breastfeeding, and I felt it important to include negative feedback in addition to the positive feedback found in other articles. A total of 161 articles from Medline Complete EBSCO Host were excluded, resulting in twelve being included in my literature review. For PubMed, 122 articles were not chosen, and eight articles were included. See Appendix 1 for details on the search process.

## **Results**

### ***Summary of Identified Studies***

My search for literature resulted in a total of twenty articles pertaining to my research question. The articles reflect a variety of study designs, including case reports, case studies, cross-sectional studies, randomized controlled trials, systematic literature reviews, and longitudinal studies. Data obtained from these articles represent a multitude of countries, including the United States, Canada, the United Kingdom, and Ghana, which indicates diversity in not only attitudes towards breastfeeding, but approaches to improve breastfeeding rates. The

twenty articles can be broken down into six categories for effective analysis and comparison of the attitudes towards breastfeeding and how the media can impact breastfeeding.

**Attitudes Towards Breastfeeding.** Three journal articles were found to be relevant for giving insight on attitudes towards breastfeeding. The first article by Chan & Whitfield (2020) is a cross-sectional descriptive study surveying the attitudes towards breastfeeding in public versus private areas among various non-caregiver groups, including adolescents, university students, non-caregiver men, and adults of the general public. While the results of the survey vary from subgroup to subgroup, generally speaking, people held a positive attitude towards breastfeeding, but had reservations about women breastfeeding in public. Interestingly, men were more likely than women to support public displays of breastfeeding (Chan & Whitfield, 2020). Jamie et al. (2020) explores interview data of twenty-seven adolescent mothers' view of breastfeeding in public in Northeast England, United Kingdom and why it may be deemed "deviant," which can hinder a mother from choosing to breastfeed her baby. One interview notably described the "rules" of breastfeeding, which includes that breasts are sexual, as ordained by the media, and that breasts are considered sexual in the interest of men (Jamie et al., 2020). This reinforces the idea that breastfeeding in public can be considered deviant due to the ambiguity of a mother's role as both a maternal being and a sexual being, and breastfeeding in public displays both roles. The third article is an evaluation by Sheehan et al. (2019) of fifteen family conversations in Australia regarding the attitudes and perceptions of breastfeeding, particularly breastfeeding in public, among first time expectant mothers and their families. The interviews revealed that both men and women believed that breastfeeding should not be done in public because it is "a private and personal matter" and that women should be "considerate," "discreet," and "safe" (Sheehan

et al., 2019, p. 4). Many women reported breastfeeding in private to be sensitive to men's feelings, and avoid unwanted looks from men, with regards to breasts as sexual objects.

**Impact of Imagery on Breastfeeding.** Five articles were found in my search of literature that analyzed the impact of various forms of imagery – be it in published photos, on television, or on social media – on perception of breastfeeding and breastfeeding practices. The first article is an extensive case study conducted by Tugwell (2019) of a single mother of two children, who interacts in a closed Facebook group for breastfeeding moms, and is known to frequently post breastfeeding selfies, also known as “brelfies.” The case study aimed to explore what motivates her to post brelfies and how doing so can help eliminate the stigma around breastfeeding in public. In the interview, the mom shared how posting brelfies along with the positive feedback it receives helps her feel confident in her ability to breastfeed, and gives her a sense of pride and evokes a call for the “social recognition of the physical and emotional labor of breastfeeding” (Tugwell, 2019, p. 9). The second article by Giles (2018) looks into how various forms of breastfeeding portraits can impact the portrayal, and therefore, perception of breastfeeding. The study describes brelfies and commercial breastfeeding portraiture. In summary, while some images merely depict a mother breastfeeding her child such as in brelfies and photos by Ivette Ivens, other images go further to suggest breastfeeding as a public or social activity by depicting mothers breastfeeding while in work uniform (photos by Tara Ruby), and mothers breastfeeding in groups with other mothers, as in photos by Yvette Michelle (Giles, 2018). The individual photo evaluations vary, but they all invite the viewer in and give permission for others to view them breastfeeding. The third article utilizes a randomized controlled trial conducted by Foss & Blake (2018) to determine the impact of television media on attitudes towards breastfeeding by showing a clip from *ER* including a mother breastfeeding in private, and a clip from *Charmed*

that includes a mother breastfeeding in public. Overall, 40% of those who viewed the clip from *Charmed* agreed that breastfeeding in public is appropriate, compared to only 16.5% agreeing among those who viewed the clip from *ER* (Foss & Blake, 2018). Next, Gearhart & Dinkel (2016) analyze the transcripts of news coverage of breastfeeding on major networks such as ABC, NBC, and CBC to assess how breastfeeding is portrayed in television media. This data is relevant because agenda-setting theory dictates that what the media emphasizes or frequently covers can impact what the viewers believe is important, so how breastfeeding is portrayed can subconsciously impact their perceptions of it. The study found that while the number of stories on breastfeeding increased over the fifteen-year study period, coverage shifted from providing education to covering controversies (21.9% of stories), and celebrities breastfeeding (69.3% of stories) (Gearhart & Dinkel, 2016). The fifth article by Marcon et al (2018) explores how breastfeeding is promoted and supported on the social media app Instagram by evaluating the photos and comments posted under the most common breastfeeding hashtags. The study found that 14% of images shared were of breastfeeding in public, 33% of images were breelfies, and 19% of images were graphics or memes (Marcon et al., 2018). Notably, 77% of images depicted White mothers. With regards to discussions in comment sections, 92% contained praise, 20% of discussions included personal reflections on the challenges related to breastfeeding, and 31% of discussions included at least one instance of a user asking a breastfeeding-related question (Marcon et al., 2018).

**Impact of Online Support Groups on Breastfeeding.** Three articles were relevant to describing the impact of online support groups on attitudes towards breastfeeding and breastfeeding practices. First, Regan & Brown (2019) describe qualitative data from interviews with fourteen mothers that were part of online forums and Facebook groups related to

breastfeeding in the United Kingdom and evaluated the benefits and drawbacks of said groups for their members. The study found that most women were motivated to use online support groups due to lack of professional support, isolation, difficulty accessing face-to-face support, and the advantage of around-the-clock availability that comes with online groups (Regan & Brown, 2019). Additionally, women described how the groups were helpful in that most other members were reassuring, empathetic, and supportive of the entire community. On the other hand, drawbacks associated with the groups included judgment for occasionally using formula, polarized debate on which type of feeding is best, and a lack of regulation, which can lead to incorrect information being posted on the website (Regan & Brown, 2019). The second article by Lebron et al. (2019) contains data extracted from posts and comments on the *Babycenter.com* breastfeeding support forum to evaluate how mothers use online forums to seek support. The content of the posts indicates that mothers mainly used the forum to seek knowledge, resources, and encouragement regarding “feeding challenges, supply issues, feeding schedule and duration, pumping, physical health, excretion issues, storing milk, nipple issues, and general breastfeeding questions” (Lebron et al., 2019, p. 1). This indicates that online forums are mainly a source of additional education and information regarding breastfeeding rather than emotional support. Lastly, the third article by Bridges et al. (2018) looks into the content of posts within the Australian Breastfeeding Association’s closed Facebook groups to evaluate what type of information mothers are seeking, and what they are discussing. An analysis of the posts found that 21% of posts were asking questions, and 76% of questions were related to breastfeeding management, breastfeeding related to health, and breastfeeding related to work, all of which research indicates are important in a mother’s decision to stop or continue breastfeeding (Bridges et al., 2018). Additionally, some moms posted guilt about their baby becoming ill despite being

exclusively breastfed, and another mom posted doubting her ability to breastfeed her baby while being sick. Both posts were responded to with both helpful information from trained peer breastfeeding counselors along with emotional support and reassurance (Bridges et al., 2018).

**Impact of Miscellaneous Media Sources on Breastfeeding.** Four articles describing the impact of miscellaneous media sources on breastfeeding were reviewed. It is important to note that while these articles do not fit into a more specific category, they are still pertinent to the evaluation of the impact of media on breastfeeding attitudes and implementation. The first article is a qualitative descriptive case study by Bylaska-Davis (2015) exploring women's views of how the mass media has impacted their opinion of infant feeding options. One opinion women offered is that many believed that instances of infant feeding portrayal in the media do not have a significant impact on their choice to breastfeed or not, instead favoring the influence of their partner, family, and healthcare provider (Bylaska-Davies, 2015). The implications of media portrayal of breastfeeding that women did report was sexualization of breasts, which they described as the reasoning behind lack of support for public breastfeeding. Lastly, many women stated that they wished mass media acted to portray breastfeeding more, and possibly include Public Service Announcements (PSAs) regarding breastfeeding to promote normalization (Bylaska-Davies, 2015). Next, Hitt et al. (2017) describe how newspapers and print media covers breastfeeding and breastfeeding in public. Data from the case study reports that positive beliefs about breastfeeding were mentioned significantly more than negative beliefs, and that health benefits for the baby (37% of articles) and mother (12% of articles) were the most common positive beliefs expressed (Hitt et al., 2017). On the other hand, articles mentioned barriers to breastfeeding significantly more than facilitators, and the most common barrier cited, in 13.7% of articles, was difficulty breastfeeding in public places (Hitt et al., 2017). The last two articles

evaluate the quality of breastfeeding information being shared on Twitter, along with the effectiveness of the app to spread that information. Moukarzel, Rehm, & Daly (2020) analyzed 3,798 users and 3,972 tweets within an online breastfeeding community under commonly used breastfeeding hashtags. Notably, 34% of users within the community shared pornographic depictions of breastfeeding, so those tweets were discarded in the analyzation of data (Moukarzel, Rehm, & Daly, 2020). The conducted analysis found that among the users, 31.1% were health professionals, 54.6% were interested citizens, and 14.3% were for-profit company representatives. Additionally, the study found that 35.3% of content was for commercial advertising, 19.1% was for professional communications, 8% advocated for public breastfeeding, 7% encouraged the community to join parent support groups, and 5% raised awareness about breastfeeding-friendly policies and laws (Moukarzel, Rehm, & Daly, 2020). In the latter of the two articles describing diffusion metrics, Moukarzel, Rehm, del Fresno, et al. (2020) discovered that scientific community users were the least efficient at disseminating information, with 498 tweets per month reaching about 91 individuals, compared to individual consumers as the most efficient, with a mere 95 tweets per month reaching 92 individuals (Moukarzel, Rehm, del Fresno, et al., 2020). Moreover, the study found that the scientific community was utilizing their platform most for commercial use (41.6% of tweets) and professional communication (23.5% of tweets), whereas individual consumers were mainly sharing evidence-based information (34.7% of tweets) and breastfeeding advocacy (16.8% of tweets) (Moukarzel, Rehm, del Fresno, et al., 2020).

**Impact of Social Media Campaigns on Breastfeeding.** My literature review yielded three articles outlining the impact of social media campaigns on breastfeeding. Dauphin et al. (2020) employed a randomized controlled trial placing African American women, a population

that disproportionately is less likely to breastfeed their children, in one of two Facebook groups – one of which only providing information regarding the benefits of breastfeeding, and the other providing that information plus the added benefit of risk reduction of breast cancer in moms who breastfeed. Interviews were conducted with ten of the women, and they mentioned that educational materials provided regarding the reduced risk of breast cancer were “impactful” and that they wanted to be able to share that information with family and friends outside the private Facebook group (Dauphin et al., 2020). They also reported that they had not seen information specific to breastfeeding in Black women, but stated that they would be interested to see how that could possibly increase the rates of breastfeeding. Sixty of the moms also requested to be able to communicate with one another in the Facebook group after the study was over and their babies were born, so a new Facebook group was created for that purpose (Dauphin et al., 2020). The second and third articles describe the social media campaign *Breastfeed4Ghana*, which was created by the University of Ghana in attempt to educate the public on breastfeeding in effort to combat the decreasing rate of breastfeeding in Ghana. More specifically, Harding et al. (2020) delves into a cross-sectional survey conducted among 451 Ghanaians to assess exposure to the campaign, prior breastfeeding knowledge, and success of the campaign on educating the public (Harding et al., 2020). The results of the survey explain that the campaign was successful in growth over time, having gone from 3,061 followers to 4,832 followers by the end of the campaign. However, 61% of participants reported that they could not remember what the campaign was about, and 57% of participants reported that campaign materials were not posted frequently enough (Harding et al., 2020). On a positive note, 92% of participants who reported exposure to the campaign and knowledge of what it was about explained that the campaign was “informative, practical or useful, educational, or interesting” (Harding et al., 2020, p. 7). With

that being said, the third article by Aryeetey (2020) explores how campaign materials for *Breastfeed4Ghana* were developed and tested with various focus groups and clinical experts to ensure they were appropriate and educational. Campaign materials consisted of an image with a message designed to increase breastfeeding knowledge and promote a positive attitude towards it. The case study demonstrated that 78.4% of input from focus groups emphasized changes in images to make them more aesthetically pleasing, 76.3% of suggested changes from technical expert groups were regarding cultural appropriateness, and 75% of input from the FDA was regarding the message (Aryeetey et al., 2020). For example, one change made to a material was to take an image of a mother breastfeeding her baby and surround the image with icons of various public places to emphasize the idea that breastfeeding is acceptable in public and can be done anywhere. Secondly, another change made was to alter a message of breastfeeding is good for mothers for accelerating postpartum weight loss to helping to protect the mother against breastfeeding instead (Aryeetey et al., 2020).

**Impact of Smartphone Apps on Breastfeeding.** Two articles explored the need for and impact of smartphone apps for breastfeeding education. As stated previously, lack of education can be a barrier for moms to breastfeed, and apps offer “visually engaging design, video and audio capabilities, unrestricted text capabilities, access with or without cellular or Internet connection, content shareable via social media, and tracking progress anywhere and anytime” (Coughlin, 2016, p. 2). Coughlin (2016) presents a systematic review of existing data regarding the use of smartphone apps for breastfeeding education. The review found that of 46 breastfeeding apps on the iOS App Store and Google Play for Android, 78% percent were rated poor, and 47% had a readability over an 8<sup>th</sup> grade reading level, which is above the recommended level of 6<sup>th</sup> grade (Coughlin, 2016). Secondly, Asiodu et al. (2015) explores the

use of social media and smartphone apps among African Americans mothers in both the antepartum and postpartum period to determine the potential for smartphone apps to provide breastfeeding education to a population that desperately needs it. The study found that 91% of the women reported using a smartphone app related to pregnancy and childbirth daily or weekly, but the majority of the content was regarding development of the fetus and infant or anticipatory parenting guidance; the participants could not recall finding information regarding breastfeeding (Asiodu et al., 2015).

### ***Data Extraction***

As displayed below, information on article authors, publication year, study design, sample size (if applicable), country of origin, specific characteristics of participants or articles (if referring to a literature review article), analysis of the studies' findings, and implications of the studies' findings were extracted for each of the twenty articles.

**Table 1 – Characteristics of article findings**

<b><i>Author/Date</i></b>	<b><i>Conceptual Framework and Research Questions</i></b>	<b><i>Methodology</i></b>	<b><i>Analysis, Results, &amp; Limitations</i></b>	<b><i>Conclusions &amp; Implications</i></b>
Aryeetey, R; Lasisi, O; Hromi-Fiedler, A; Carroll, G; Perez-Escamilla, R; Harding, K. 2020.	What feedback do various health experts and focus groups have for the improvement of Breastfeed4Ghana campaign materials, and how can future health education social media campaigns ensure success in the future?	This article outlines a qualitative study and case report conducted with interview information from 132 inputs from four sources – focus group discussions, Breastfeed4Ghana advisory group, Becoming Breastfeeding Friendly committee, and the FDA. This study notes the sources of input and response to inputs.	Notably, 78.4% of input from focus groups was to improve the aesthetic appearance of campaign materials, and 76.3% of content and technical expert groups advocated for change to reflect proper breastfeeding technique and cultural relevance. This study is limited in that feedback was only	When designing a social media campaign to address health issues, it is important to consider message validity, acceptability, and clarity. It is also crucial to ensure that images do not cause viewers to misinterpret the key message of the campaign.

			requested from mothers and breastfeeding experts in Ghana, therefore not considering the opinions of non-caregivers.	
Asiodu, IV; Waters, CM; Dailey, DE; Lee, KA; Lyndon, A. 2015.	How do antepartum and postpartum African American mothers and their support persons use social media, and how can social media and apps be utilized to provide education regarding breastfeeding?	14 pregnant women and 8 support persons (N = 22) were recruited via social media and various community groups in order to perform an ethnographic case study with semi-structured interviews, community participant observations, and field notes.	91% of participants reported using a smartphone app on a daily or weekly basis to receive pregnancy education, however, most apps focused on information regarding developmental milestones for the developing fetus and infant rather than breastfeeding education. Participants also reported that they were unaware of any African American infant feeding Internet resources, but that they believe such resources would be beneficial. This study is limited in that the sample size is small, and only reflective of the perspectives of African American women, so results cannot be generalized for a larger population. Moreover, data was not collected on the impact of social media itself on breastfeeding practices.	Smartphone apps provide a convenient, easily accessible way to obtain pregnancy-related information, but apps regarding breastfeeding are difficult to find, indicating a need for a new app.
Bridges, N; Howell, G; Schmied, V. 2018.	Australian moms have stated that lack of support is one of the main	778 wall posts and 2,998 comments over the course of ten days in the fifteen most active	Notably, 21% of posts were questions asked to the group, and	Moms interacting in the private Facebook groups found both

	<p>reasons for early cessation of breastfeeding. Can forms of social media, such as Facebook groups, help provide support for breastfeeding moms, and how can this impact their breastfeeding practices?</p>	<p>closed Facebook groups started by the Australian Breastfeeding Association were surveyed via ethnographical case study to evaluate the content of posts and comments (n = 3,776).</p>	<p>44% of such questions were regarding breastfeeding management. Additionally, 76% of questions were categorized into three top areas – breastfeeding management, breastfeeding and health, and breastfeeding and work. This study is limited in that it took place in a forum dedicated to breastfeeding with a code of ethics, so the data could be skewed to include more positive reflections about the group. Additionally, data was not collected on the impact of the group itself on breastfeeding practices.</p>	<p>answers to their questions from peers and experts, but also emotional support. Having a group to ask questions to regarding top factors impacting early cessation of breastfeeding may help moms breastfeed for longer or more successfully.</p>
<p>Bylaska-Davies, P. 2015.</p>	<p>There are a multitude of factors that impact a woman’s choice to breast or formula feed; one of which is influence from cultural norms and society. How does mass media influence a woman’s decision to breastfeed?</p>	<p>This study employs qualitative descriptive design, using evaluation of 20 interviews with women and 12 text/visual representations from social media (n = 32).</p>	<p>Overall, interviews with women revealed that portrayals of infant feeding in the media does not have a significant role in impacting their decision to breastfeed or not, but they did suggest that public service announcements made via mass media could be beneficial. They also reported that public breastfeeding is likely less acceptable due to sexualization of breasts in Western pop culture. This</p>	<p>This study indicates that mass media may not have a significant impact on a woman’s choice of food for her baby, but that there is potential for mass media to improve their portrayal of breastfeeding in order to normalize it.</p>

			<p>study is limited by the fact that data was self-reported, so the study may be more comprehensive if a standard set of questions was asked, with a “yes” or “no” answer in addition to taking note of opinions the participants volunteered. Additionally, the data cannot be generalized to a large population because the participants were mainly White, educated, married women living in the suburbs of Massachusetts.</p>	
<p>Chan, K; Whitfield, KC. 2020.</p>	<p>The opinions regarding breastfeeding of family and friends close to new mothers can have an impact on their choice to breastfeed or not. What does recent research indicate are the attitudes of noncaregivers towards breastfeeding?</p>	<p>This article utilizes a cross-sectional, descriptive study of existing research regarding the attitudes towards breastfeeding among adolescents in various countries (n = 5,420), university students in various countries (n = 3,562), men in the United States and Scotland (n = 2,756), and the general public (adults) in the United States and Canada (n = 9,028).</p>	<p>Adolescents tend to have a positive attitude towards breastfeeding but believe it should be done in private. However, exposure to breastfeeding education was associated with more positive attitudes overall. In college students, women had more knowledge than men regarding breastfeeding, but men had more positive attitudes. Noncaregiver men perceived breastfeeding in public positively but had embarrassment about it happening in public. Lastly, in the general public, the amount of people who</p>	<p>Attitudes towards breastfeeding are mixed among different parts of the population, but generally speaking, most people view breastfeeding in a positive light, but may feel uncomfortable seeing it in public. Moreover, education deficits persist across populations, indicating a need for further breastfeeding education beyond just pregnant women.</p>

			<p>believe women should have the right to breastfeed in public has increased from 43 to 64% from 2001 to 2015. While this study does evaluate the attitudes towards breastfeeding amongst a wide variety of population subgroups, the study group size is relatively small to be representative of the entire population. Therefore, the data would be more conclusive if more subgroups (e.g. North versus South United States) with a greater sample size were studied.</p>	
<p>Coughlin, SS. 2016.</p>	<p>Social media and smartphone applications have the potential to efficiently provide education to caregivers and the general population regarding breastfeeding. Are there apps that currently exist to provide breastfeeding education, and are they effective? Moreover, could smartphone apps be an effective way of educating African American mothers, who disproportionately breastfeed their babies less than other ethnicities?</p>	<p>The author uses a systematic review of journal articles (n = 10) to evaluate existing data regarding the use of smartphone apps to provide breastfeeding education.</p>	<p>An assessment of apps available in the iOS App Store and Google Play for Android revealed only 46 apps that provided infant feeding education, and of the 46 apps, 78% were rated “poor” and 47% were above the 8<sup>th</sup> grade reading level, which would be difficult for someone with low health literacy to understand. This article is limited in that it is not primary research, but merely a summary of prior findings. It is also an analysis only formulated by one author, so multiple</p>	<p>The data indicates that there is a need for smartphone apps that provide accurate, easy-to-understand information about infant feeding. Additionally, 70% of African Americans owned a phone in 2015, so creating an app to address the knowledge gap could be an efficient and effective way to educate this high-risk population.</p>

			perspectives were not considered.	
Dauphin, C; Clark, N; Cadzow, R; Saad-Harfouche, F; Rodriguez, E; Glaser, K; Kiviniemi, M; Keller, M; Erwin, D. 2020.	African American mothers breastfeed their babies at lower rates than mothers of other ethnicities in the U.S; will education regarding the reduced risk of breast cancer in moms who breastfeed, provided through social media, increase breastfeeding rates in African American mothers?	Eligible participants were enrolled into one of two private Facebook groups via randomized controlled trial– one receiving breastfeeding-only messages, or the other, receiving breastfeeding and breast cancer risk reduction messages. Participants were then recruited for focus groups or semi structured interviews. N = 288.	Communicating educational information is convenient and effective, as 60 of the participants requested to stay in the Facebook group after the study was over for continued support. Criticisms included that the participants wanted more videos and to be able to share information from the private group to their friends via social media. This study was limited by the fact that the women could not share information on the Facebook group with other Facebook “friends,” which could limit discussions on the topics posted. Moreover, Facebook has restrictions on monitoring activity and frequency of participation within the group, making it more challenging to obtain data.	The use of social media and smartphone apps in order to educate moms on breastfeeding and other health-related topics can be successful, especially due to convenience.
Foss, KA; Blake, K. 2018.	Negative messages in media and society have been attributed to reasoning why some moms choose not to breastfeeding or to stop breastfeeding early. However, with how prevalent television is in daily lives, it	This study uses a randomized, controlled trial to expose 375 students in Tennessee to television scenes with breastfeeding, one of which depicts breastfeeding in public, and the other depicts breastfeeding in private.	Participants generally viewed breastfeeding in a positive light; 46.3% states they would feel comfortable seeing a woman breastfeed her child without a cover, but 46% also said they	Attitudes towards breastfeeding and breastfeeding in public have room for improvement, and television shows provide a unique opportunity to influence how the general population views

	<p>has the ability to improve attitudes towards breastfeeding in the general public. How can the media, specifically television, impact people's perceptions of breastfeeding?</p>		<p>would feel embarrassed if someone saw them or their partner breastfeed in public. Moreover, students who viewed the TV clip depicting breastfeeding in public had a more positive attitude towards breastfeeding than those who viewed the clip depicting breastfeeding in private. Limitations of this study include the fact that breastfeeding rates in Tennessee are lower than the national average, which inherently results in less exposure to breastfeeding, and therefore could lead to less favorable views of breastfeeding. It would be interesting to compare these findings to another state where breastfeeding rates are higher than the national average. Additionally, none of the images depicted a child latched onto a breast, so the images are not fully representative of the entire experience of breastfeeding.</p>	<p>breastfeeding, which can in turn make a woman feel more comfortable breastfeeding in general and in public.</p>
<p>Gearhart, S; Dinkel, D. 2016.</p>	<p>Agenda-setting theory explains that messages the media emphasizes and/or frequently discusses</p>	<p>The Lexis-Nexis database was used to obtain 475 news stories from ABC, NBC, and CBC from 1999-2013 in</p>	<p>Overall, the number of reports on breastfeeding increased over time, and</p>	<p>While it is good that the number of stories about breastfeeding increased, the</p>

	<p>can impact what the general population views as important, implicating that media messages regarding breastfeeding can impact people’s knowledge of and attitudes towards breastfeeding. How does the news media present breastfeeding, and how can impact perceptions of breastfeeding?</p>	<p>order to produce a case report on how news media stories report on breastfeeding (n = 475).</p>	<p>discussion of controversies regarding breastfeeding and celebrities breastfeeding increased. Most news stories aired in the morning and utilized an episodic framing technique rather than thematic. This study is limited by the fact that it only analyzes coverage in national news, not local news stations. Moreover, the analysis only included visual imagery, and not verbal data from scripts, which can also have an impact on viewers’ opinion of breastfeeding.</p>	<p>stories became less informative and more about reporting novel ideas to catch the public’s eye. This could depict breastfeeding as a polarizing subject for moms and discourage them from breastfeeding. Therefore, news media could be utilized more effectively to provide actual information about breastfeeding.</p>
<p>Giles, F. 2018.</p>	<p>The number of breastfeeding images has increased and diversified in Western culture over the past 10 years, and imagery has the ability to impact how society views breastfeeding. How can images of breastfeeding women impact breastfeeding practices, and what types of images are most helpful?</p>	<p>The author uses a case report style of evaluation to explore how various imagery depicting breastfeeding moms can impact breastfeeding practices.</p>	<p>This study finds that most images depict a woman alone with her baby breastfeeding, be it in a formal portrait or “brelfie.” However, one photographer, Tara Ruby, depicts women breastfeeding together or in their work uniform, which works to reinforce the idea that mothers balance maternity duties with work. This study is limited in that it is an author-generated analysis of the impact of breastfeeding images, and there is not concrete data</p>	<p>While most images depicting breastfeeding show a woman and child alone, the act of sharing the photo brings in an audience and gives permission for others to look and view it as acceptable. Sharing images of moms breastfeeding could help reduce the stigma around breastfeeding in public and make it more socially acceptable.</p>

			from a population sample reacting to said images. Therefore, the analysis findings cannot be generalized to a larger population size.	
Harding, K; Aryettey, R; Carroll, G; Lasisi, O; Perez-Escamilla, R; Young, M. 2020.	The breastfeeding rate in Ghana has decreased from 63% in 2008 to 52% in 2014. Social media usage is highly utilized among Ghanaians, so can a social media campaign, <i>Breastfeed4Ghana</i> , be utilized to increase breastfeeding knowledge among the general population?	This study uses an online cross-sectional survey of 451 Ghanaians over a 24-week period to assess breastfeeding knowledge, exposure to the social media campaign, and acceptability of the <i>Breastfeed4Ghana</i> campaign (n = 451). Study participants were recruited via Facebook, Twitter, WhatsApp, advertisements through the University of Ghana, and local radio stations.	While the campaign gained followers over the 24-week period (increase from 3,061 to 4,832), 61% of survey participants reported that they could not remember what the campaign was about. Moreover, 57% of participants stated that the frequency of campaign material was not enough. However, 90% reported that the campaign was informative, practical or useful, educational, and interesting. This study is limited in that there is no data on the feasibility and impact of a similar campaign in Ghana for comparison, so there is a need for more data on the effectiveness of social media campaigns in Ghana as a whole. Additionally, the sample size is too small to reach true conclusions on the relationship between exposure to educational materials and	This study indicates that a social media campaign may be more effective with entertaining materials, frequent posting, and precise targeting of the desired population. While the campaign was accepted, best practices regarding most effective social media campaigns need to be determined.

			<p>alterations in attitudes towards breastfeeding. Lastly, the data could be skewed by the fact that most social media users in Ghana are young, educated, and not necessarily in the child-rearing stage of life, so they may not be as responsive to a social media campaign on breastfeeding.</p>	
<p>Hitt, R; Zhuang, J; Anderson, J. 2017.</p>	<p>Data indicates that many consumers turn to newspapers for medical or health information. How does print media typically cover breastfeeding in public, and breastfeeding past 1 year?</p>	<p>The Lexis-Nexis System was utilized to search for newspaper articles mentioning breastfeeding from 2008-2013, and 318 articles were found to analyze in a case study (n = 318).</p>	<p>News articles about breastfeeding mentioned positive behavioral beliefs more than negative beliefs, most often discussing the health benefits for both the mother and baby. The articles also mentioned common barriers to breastfeeding; the barrier most mentioned (13.7%) was difficulty breastfeeding in public. This study is limited by the sample size, in that more newspapers should be analyzed for coverage of breastfeeding. Additionally, it is important to consider that many of the articles covered the same major event (the death of the La Leche League founder), which can skew the results in favor of breastfeeding only being represented</p>	<p>This case study reveals that while most newspaper articles depict breastfeeding in a positive light, there is still room for improvement. Instead of merely mentioning barriers to breastfeeding, which can cause anxiety for moms who may choose to breastfeed, articles could make a more conscious effort to include solutions to common obstacles.</p>

			in a sensationalized way in the media.	
Jamie, K; McGeagh, L; Bows, H; O’Neill, R. 2020.	One factor that may discourage mothers from breastfeeding is the belief that society views breastfeeding as “deviant.” How is breastfeeding deviant, and how do adolescent mothers view breastfeeding?	This study uses focus group and individual interviews of 27 socioeconomically challenged adolescent mothers from the United Kingdom and 5 early years professionals working at a children’s center in northeast England (n = 32) to evaluate their perspective on breastfeeding and what makes it deviant.	Interview data suggests that many adolescent mothers view breastfeeding as “deviant” because breasts are mainly understood in a context of sexuality as determined by media and pop culture, and that there is an unspoken rule about not breastfeeding in public because of men. Limitations of this study include that the data was retrospectively reported, which can skew the participants’ account of events and opinions. While it would be difficult to obtain data in the moment, it is important to acknowledge that such findings could be altered by the passage of time.	This study indicates that while most women understand the message of “breast is best,” they may be less likely to breastfeed due to the taboo of breastfeeding in public. Sexualization of breasts in Western culture can make breastfeeding in public seem “deviant,” and therefore change people’s perspective on what should be a maternal duty, not a sexual one.
Lebron, CN; St. George, SM, Eckembrecher, DG; Alvarez, LM. 2019.	Online forums provide people with the opportunity to seek knowledge and support from others who may not be able to attend an in-person group. How do moms on Babycenter.com online forums utilize that space to share information?	258 posts and 1,445 comments from a 10-day period on Babycenter.com’s online breastfeeding forum were extracted from data, and 45 conversation threads were randomly selected for further evaluation via case study (n = 45).	Evaluation of the 45 conversation threads revealed that most moms ask questions to troubleshoot issues with breastfeeding, and clarify information presented rather than for emotional support. This study is limited in that demographic data was not evaluated in the study	This study indicates that online forums can be a great resource for filling a knowledge gap for breastfeeding moms, which can be a barrier to their initiation and duration of breastfeeding.

			<p>sample, so findings cannot necessarily be generalized to a broader population. Additionally, data was not collected evaluating the impact of online forums on implementation of breastfeeding practices. Therefore, further research is necessary.</p>	
<p>Marcon, AR; Bieber, M; Azad, MB. 2018.</p>	<p>Instagram is a popular social media app with over 700 million users, one which can offer another platform for educational content. How is Instagram currently being used to depict breastfeeding, and what information are people sharing within that context?</p>	<p>This article utilizes a case study of 4,089 images and 8,331 comments posted with the four most popular breastfeeding hashtags (#breastfeeding, #breastmilk, #breastisbest, and #normalize breastfeeding). N = 12,420.</p>	<p>Notably, this case study found that 14% of images depicted breastfeeding in public, while 33% were “brelfies.” 19% of images were graphics or memes. With regards to comments, 92% of comments offered praise, and 20% of discussions included personal reflections about breastfeeding. Lastly, advertising from major infant formula companies did not appear in the search under common breastfeeding hashtags. The findings of this study are limited in that only the top four hashtags referencing breastfeeding were analyzed, which limits the variety of coverage. Additionally, the data collection system could not analyze comments containing emojis,</p>	<p>The data indicates that while the majority of images posted are “brelfies,” the act of posting a photo breastfeeding is a form of publicizing it. Therefore, posting photos of breastfeeding on Instagram can work to reinforce the idea that breastfeeding in public should be normalized. The comments under photos indicate that Instagram can not only be used to share images, but also to create a safe space for support, like online support groups.</p>

			<p>so the analysis was not necessarily reflective of all content on Instagram relating to breastfeeding.</p>	
<p>Moukarzel, S; Rehm, M; Daly, AJ. 2020.</p>	<p>Twitter is a major social media app used to share information and news. How does communication within the breastfeeding community within Twitter function, and what content is being shared?</p>	<p>The study looked into the common breastfeeding hashtags of #breastfeed, #breastfeeding, #normalizebreastfeeding, #breastmilk, #breastfeedingmoms and #breastfeedingsupport to establish an online breastfeeding community of 3,798 users with 3,972 tweets. This is a case study evaluating the content and impact of tweets.</p>	<p>This study found that 31.1% of users within the community were health professionals, 54.6% were invested citizens, and 14.3% were for-profit company representatives. 34% of users shared pornographic content in relation to breastfeeding, so that section of data was removed. 35.3% of content was commercial advertising, 19.1% was professional communication, 8% was advocating for public breastfeeding, 7% for encouraging parents to join support groups, and 5% for raising awareness about breastfeeding-friendly policies. This study is limited by the fact that data was only collected over 1 month, so collecting data over a larger period of time could introduce more perspectives and also give a more accurate picture of Twitter activity relating to breastfeeding.</p>	<p>Analysis of this data indicates that while there is potential on Twitter to share educational information regarding breastfeeding, it often is not used for that context, instead being used for advertising, which could prompt moms to click on ads for formula. Moreover, the high prevalence of pornographic content relating to breastfeeding confirms that some view breastfeeding in a sexual way, and cannot separate the maternal mother from the sexual mother.</p>

<p>Moukarzel, S; Rehm, M; del Fresno, M; Daly, AJ. 2020.</p>	<p>This study corresponds with the study listed above. There is a recently recognized need for the scientific community to spread its knowledge to the public more efficiently online in order to counteract misinformation being posted, which suggests the use of Twitter to do so. So, in efforts already in place in breastfeeding communities on Twitter, what type of information is being shared, and how efficiently is information being shared?</p>	<p>Given that this study stems from the same research as the one listed above, the same method was used to identify a breastfeeding community of 3,798 users, and 59 influencers were selected for contributing the most amount of information in tweets. 711 tweets from those 59 influencers were analyzed via case study for type of information they contained and how efficiently the information was being spread (n = 711).</p>	<p>This study found that 41.6% of tweets were for commercial use, 23.5% was for professional communication, 11.8% was for presenting research findings, and 6.3% was for breastfeeding advocacy. Moreover, interested consumers most often shared research findings (34.7%), whereas the scientific community most often shared commercial interests (41.6%) and professional communication (23.5%). The scientific community reaches an average of 91 people with 498 tweets per month, whereas interested consumers reach 92 individuals with only 95 tweets per month. Limitations of this study include that the qualitative data collection method didn't allow for deeper analysis of tweets that could show inaccurate sharing of information, or information taken out of context. Therefore, it is difficult to get a complete picture of what type of information is shared on Twitter</p>	<p>The data indicates that not only is the scientific community less efficient at sharing information than interested consumers, but they also are less likely to share educational information. This reveals a huge gap in the potential for the scientific community to utilize platforms such as Twitter to share educational information regarding health issues, and in this case, breastfeeding.</p>
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			relating to breastfeeding.	
Regan, S; Brown, A. 2019.	Women in the United Kingdom may lack the support they need for breastfeeding due to a culture that predominantly uses formula, and a lack of professional support networks. This creates an opportunity for online resources to be utilized as spaces for women to find support. What are women's experiences in the UK using online support systems for breastfeeding?	14 women from South Wales, United Kingdom aged 18 or older who are currently breastfeeding or have breastfed in the past and are utilizing Facebook groups for breastfeeding support were selected for a semi-structured interview for a qualitative case study.	Overall, the women viewed the online groups in a positive light and reported that turning to an online support group was less daunting and more approachable from a practical and emotional standpoint. However, some women also had negative experiences, citing that they faced judgment for using formula at times, and that false information was sometimes posted. This study is limited by the fact that women who have already had negative experiences on social media may not choose to take part in such a study, therefore limiting the responses to being mainly positive. More conclusive data could be obtained with a larger study sample.	This study indicates that online support groups can be a great resource for breastfeeding women to obtain support, which can keep them breastfeeding. However, regulation for rude behavior and false information is needed to keep the online spaces productive and supportive.
Sheehan, A; Gribble, K; Schmied, V. 2019.	Mothers making the decision on whether or not to breastfeed are likely to be impacted by society's perceptions of breastfeeding, and particularly breastfeeding in public. What are attitudes and beliefs held among not	15 families were selected by the Australian Research Council to discuss their beliefs regarding breastfeeding and breastfeeding in public. However, only 9 of the discussions specifically mentioned breastfeeding in public, so those nine discussions with 50 people were analyzed for the purpose	This analysis found that some of both male and female participants believed breastfeeding should take place in private and not in front of men or in public. Others believed that women should cover up when	The data from this study indicates that there are still persistent beliefs in Australia regarding breastfeeding as a private act, and that it should be done discreetly. This indicates that there is room for improvement in

	only first-time expecting mothers, but also their family and friends?	of this qualitative case study (n = 50).	breastfeeding in public to avoid unwanted looks due to the perceived sexuality of breasts. The findings of this study are limited by the small sample size of only 9 families, so the data is not necessarily representative of a larger population. However, with that being said, it is difficult to obtain interview data from a large sample.	terms of normalizing breastfeeding and breastfeeding in public, so that negative societal beliefs don't continue to discourage women from breastfeeding.
Tugwell, S. 2019.	In 2015, breastfeeding selfies, or “brelfies” were reported as the top parenting trend. This prompts the author to question, what is the thought process behind sharing brelfies, what impact do they have for the mother sharing them, and how can they work to change the stigma around breastfeeding in public?	This article outlines a detailed case study of one white, working class single mother of two children who frequently shares brelfies on social media. She was chosen from a closed, private Facebook group of 12 that shares information about breastfeeding.	This case study finds that sharing brelfies helped the subject feel confident, proud, and acknowledged for her hard work, which is why she has continued to share brelfies on her social media throughout breastfeeding her youngest child. The study findings are limited by the fact that it is a case study of only one participant, so findings cannot necessarily be applied to a larger population. More data from a larger sample size is necessary to make generalizations.	While this case study cannot evaluate the impact of brelfies as a trend on society's view of breastfeeding, it does give a look into why moms choose to share brelfies, and the positive impact it can have on them. Moms who feel confident while breastfeeding are more likely to continue the behavior.

**Discussion**

*Attitudes Towards Breastfeeding*

The data from the four articles evaluating the attitudes of various groups towards breastfeeding, and breastfeeding in public in particular, demonstrate strong support for breastfeeding in general, but a hesitancy to accept seeing breastfeeding in public. Both Jamie et al. (2020) and Sheehan et al. (2019) describe how breastfeeding in public is unacceptable due to the sexualization of breasts and how seeing breasts in a non-sexual context can make people, especially men, feel uncomfortable. Moreover, the interview data with these insights come from the United Kingdom and Australia, respectively, indicating that while data is not present in a similar fashion for the United States, the sentiment of breastfeeding in public as inappropriate is prevalent in first-world countries. If women feel that breastfeeding in public is “scandalous,” or are made to feel that way, it is understandable to see why breastfeeding moms may experience shame, which can discourage them from breastfeeding in public and even breastfeeding at all. This demonstrates how the feelings others have towards breastfeeding can impact a mother’s choice to breastfeed or not; as the first article describes, “the pressure to breastfeed combined with suboptimal supports and an unsupportive breastfeeding culture can lead to further shame and isolation and potentially rejection of the recommendations” (Chan & Whitfield, 2020, pp. 102-203). This creates an opportunity for forms of media to be used to change people’s perceptions of breastfeeding and breastfeeding in public so to make women feel more comfortable doing so.

### ***Impact of Imagery on Breastfeeding***

Overall, the information from the five articles obtained related to the impact of imagery on breastfeeding indicate that viewing breastfeeding can cause both non-caregivers and mothers alike to be more accepting of breastfeeding in public, and that the media can be used effectively to portray breastfeeding in imagery to increase exposure among the general population. Having

non-caregivers view a television scene with public breastfeeding had a positive impact on their acceptance of breastfeeding; likewise, the posting of brelfies and sharing of various forms of breastfeeding portraits have a similar potential to improve attitudes towards breastfeeding in public, although specific data regarding the impact of portraits and brelfies is lacking. Moreover, Instagram provides a platform not only for images of breastfeeding to be shared, creating more exposure and celebration of breastfeeding, but also for a support space for breastfeeding moms in the comments of said photos. On the other hand, the news media on television tends to portray controversies surrounding breastfeeding, which can actually impair a mother's choice to breastfeed by portraying breastfeeding as polarizing and falsely elevating the prevalence of controversies regarding breastfeeding in public (Gearhart & Dinkel, 2016). This indicates that while most media exposure of breastfeeding has a positive impact on attitudes towards breastfeeding, there is room for improvement in the news media, which could instead provide education. However, news media outlets often report on what will catch a viewer's attention rather than what is most informative, so the potential for news media outlets to positively impact breastfeeding may be limited. All in all, we can conclude that the portrayal of breastfeeding in imagery can increase exposure of the population and mothers to breastfeeding in public, which may in turn improve overall approval of breastfeeding in public; this we know can encourage mothers to breastfeed. As Tugwell (2019) states, "the impact of the relinquishment of a need for discretion and encouragement of the sociality or collectivity of breastfeeding, which online spaces facilitate, give some hope to the possibility of a breakthrough or a spilling over of these attitudes into the wider social and cultural arena offline" (Tugwell, 2019, p. 12).

### ***Impact of Online Support Groups on Breastfeeding***

It is interesting to observe that Lebron et al. (2019) claims that online breastfeeding support groups are only used to gain information rather than emotional support, whereas the third article describes how support groups are used for both obtaining important information, but also seeking much needed emotional support and validation with regards to the challenges of breastfeeding. It is clear that online support groups can indeed be used both for emotional support and educational purposes. Regardless, it is important to recognize that online support groups fill a major gap resulting from decreased access to healthcare providers and healthcare resources, and also “allow mothers to find others experiencing the same life transition to express the challenges they are experiencing and work through solutions together” (Lebron et al., 2019, p. 2). As Bridges et al. (2018) states, 76% of queries were regarding topics that have been cited in previous literature as important for mother’s decisions to continue or stop breastfeeding; therefore, breastfeeding moms being able to have their questions asked in this format can positively impact breastfeeding practices. This is undoubtedly an advantage of online support forums for breastfeeding. Having a form of emotional support can also improve breastfeeding outcomes, as moms who feel unsupported in breastfeeding are more likely to stop breastfeeding early (Bridges et al., 2018). Moral support can also be provided in discussion posts on Instagram, as described in the section above. However, it must also be acknowledged that online support groups necessitate proper monitoring for inappropriate behavior and false information being posted, so to avoid the negative experiences as described by Regan & Brown (2019).

### ***Impact of Miscellaneous Media Sources on Breastfeeding***

All in all, the information from these four sources outline the negative impacts mass media can have on attitudes towards breastfeeding and breastfeeding practices, along with great room for improvement in utilization of mass media to educate the public on breastfeeding. With

regards to data found by Bylaska-Davis (2015), it is important to note that while the women stated that mass media depictions of breastfeeding did not have a significant role in their decision to breastfeed or not, all data obtained from other articles included in this literature review indicate otherwise. This could be attributed to the fact that there was no trial of opinions before and after exposure to breastfeeding inclusion in mass media, and people may underestimate the influence that mass media has on their perceptions. However, this is not to downplay the impact that opinions of partners, families, and healthcare providers have on a woman's choice to breastfeed or not, as described in the first article. Lastly, the fact that the women reported sexualization of breasts in the media as a factor for breastfeeding in public being unacceptable is congruent with the findings of data described above, in the first section. As for depictions of breastfeeding in newspapers by Hitt et al. (2017), while most mentions of breastfeeding are in a positive light, stories about barriers to breastfeeding may impede a woman's choice to breastfeed, such as with television news sensationalizing controversies. It would be more beneficial to present barriers with possible solutions to overcome them, but again, as with television news, newspaper reporters want to write about what will grab a reader's attention and not necessarily what is most informative. Therefore, this indicates that not all forms of mass media are helpful in positively impacting breastfeeding attitudes and behaviors. And finally, upon evaluation of the articles by Moukarzel, Rehm, & Daly (2020) and Moukarzel, Rehm, del Fresno, et al. (2020) describing use of Twitter to spread breastfeeding-related information, it is evident that there is a huge missed window of opportunity for the scientific community to provide best-practice information and advocate for positive change, and to do so in a more efficient manner, like individual consumers. As Moukarzel, Rehm, del Fresno, et al. (2020) describes, the scientific community may need to increase their "social media literacy" in order to

effectively utilize the app (Moukarzel, Rehm, del Fresno, et al., 2020, p. 9). All that being said, this group of articles describes how improper use of mass media can fall short in the opportunity to promote positive breastfeeding attitudes and practices, and can also even discourage women from choosing to breastfeed. However, one important consideration is that forms of media such as newspapers are losing popularity in an increasingly-digital world, so it may be more effective for the medical community to learn how to best utilize social media such as Twitter to disseminate helpful information regarding breastfeeding.

### ***Impact of Social Media Campaigns on Breastfeeding***

Altogether, the three articles found that evaluate the impact of social media campaigns on breastfeeding indicate that targeted social media campaigns, especially for high risk populations, can be effective at improving knowledge of breastfeeding, but there is work to be done to determine how best to tailor messages to be culturally appropriate and how to increase engagement. Dauphin et al. (2020), by mentioning the sixty women who requested to stay in the Facebook group in order to have postpartum support, reiterates the fact that online support groups are greatly desired by mothers in order to feel supported and obtain information related to breastfeeding (Dauphin et al., 2020). This study also demonstrates a need for a breastfeeding education campaign targeting African American women, as they disproportionately breastfeed their babies less than other ethnicities in the U.S, and are more likely to be less educated on breastfeeding practices. Moreover, the women in the study reported that they feel as if African American-specific education on breastfeeding would be educational (Dauphin et al., 2020). This gives way to the actual implementation of a culturally-specific breastfeeding campaign, *Breastfeed4Ghana*, which took the time to evaluate the cultural appropriateness of campaign materials before their distribution. Aryeetey et al. (2020) also described the process of editing

images so not to create image-message misalignment, as with the photo of the mom breastfeeding her child that was changed to be encircled by icons of public places (Aryeetey et al., 2020). This emphasizes the idea listed under the “imagery” section above that images intended to increase exposure to breastfeeding can unintentionally reinforce the preconceived notion that it is a private practice, but adding the icons can help combat that misinterpretation. Lastly, this article demonstrates a need for campaign designs to seek more effective ways to engage the public so that education can be effective, which goes along with the need to improve Twitter communication about breastfeeding. Overall, these articles display a potential for successful social media campaigns to target specific populations, but “there is great need to fill the gaps in the literature regarding best practices and impacts of such interventions in order for the health sector to successfully uptake and utilize social media most effectively for health promotion and education” (Harding et al., 2020, p. 9). This is critical because lack of education about breastfeeding is a common barrier cited among women to breastfeeding initiation and success.

### ***Impact of Smartphone Apps on Breastfeeding***

The data found by Coughlin (2016) and Asiodu et al. (2015) regarding the use of smartphone apps on breastfeeding clearly indicates that there are not adequate smartphone apps to provide breastfeeding education, and the apps that do exist present poor information. There is great potential for smartphone apps to be effective at providing breastfeeding education, because the moms in the second article reported using apps frequently to track their baby’s growth and development, but the unique technology and accessibility of smartphone apps are not, at this point in time, being utilized in the slightest. Moreover, the fact that Asiodu et al. (2015) delved into social media use by low-income, African American mothers indicates that since they do

report using smartphone apps for educational purposes, smartphone apps should be utilized to provide breastfeeding education for this population that has the lowest rate of breastfeeding in the U.S.

### ***Limitations***

There are several limitations to be explored with regards to this review of literature. While there are limitations described for each article in Table 1 above, there are a few limitations that are common among a significant portion of the articles. First and foremost, not all articles and corresponding data are from the United States, as there is also data included from Ghana, Canada, Australia, and the United Kingdom. This decreases the generalizability of the data to the population in the U.S. Secondly, almost half of the data is qualitative (9 out of 20 articles) and utilizes semi-structured interview with small population groups, which limit the application of study findings because a small study group may not be representative of an entire population or even a population subgroup. Additionally, semi-structured interviews mainly rely on retrospective data, which may not necessarily be accurate. It is also important to note that the articles by Asiodu (2015), Bridges (2018), and Lebron (2019) evaluating the impact of social media on breastfeeding did not go as far as measuring breastfeeding implementation before versus after exposure to a social media campaign, so the actual impact of social media on breastfeeding is not yet well-studied. Lastly, given that there was a wide variety of study designs, a meta-analysis could not be conducted, so creating an analysis of the articles for this review of literature was more challenging.

### ***Identified Gaps***

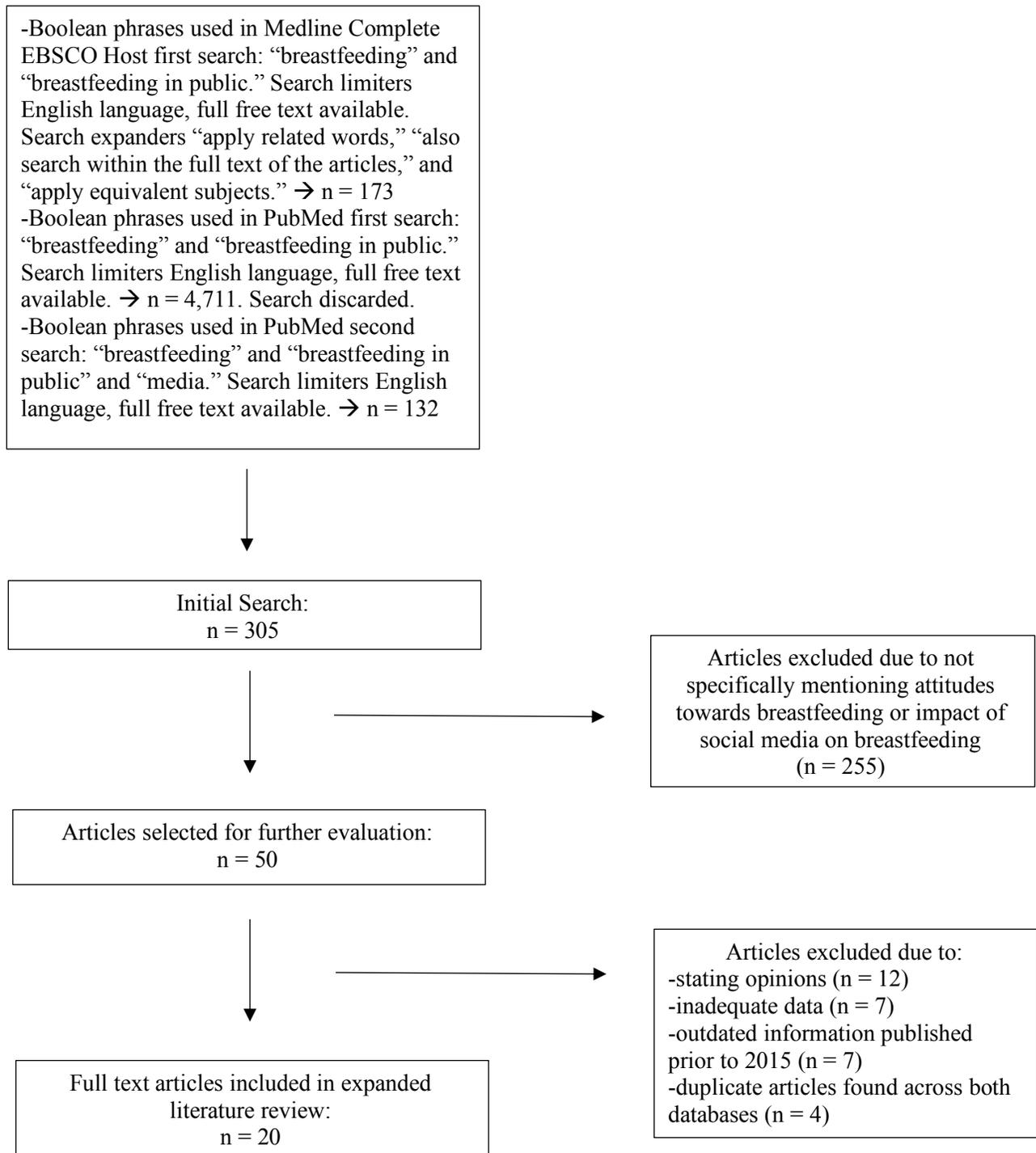
There are a multitude of identified gaps in the data found in this literature review. Most significantly, there is a major gap purely in the amount of data available. When I conducted my

search of literature, only 50 articles were somewhat relevant to my research question, and after reading through each article, only 20 articles were specific enough to extract pertinent information. Additionally, the sample sizes of many of the semi-structured interviews are small, which indicates that research findings cannot be applied to a population. It would be beneficial to obtain more data regarding attitudes towards breastfeeding from people of various ages, geographical location in the United States, political affiliation, and ethnicity; for mothers in particular, it would be beneficial to explore attitudes among women of various relationship statuses, sexuality, and multipara versus primipara. As for specific articles, the study describing the portrayal of breastfeeding in television news only obtained data from national news sources, but data from local news stations could give a more detailed perspective (Gearhart & Dinkel, 2016). Additionally, an article exploring attitudes towards breastfeeding among both non-caregivers and mothers following exposure to breastfeeding were studied in areas where rates of breastfeeding are low, which results in inherently less exposure and potentially fewer positive attitudes towards breastfeeding, thereby skewing the data (Foss & Blake, 2018). This reiterates the idea that data should come from various geographic and socioeconomic populations throughout the United States to enable generalizability. Generally speaking, the gaps in literature exist due to the lack of data regarding attitudes towards breastfeeding and especially the use of social media with regards to influencing attitudes towards and behaviors of breastfeeding.

### **Conclusion**

In conclusion, this review of literature indicates that throughout Western culture, breastfeeding is generally accepted and viewed in a positive light, but not when done so in public. Forms of mass media, and social media in particular, present a unique opportunity for healthcare providers to increase breastfeeding knowledge and improve attitudes towards

breastfeeding through increased exposure among moms and the wider population. Both of these approaches, which can be done congruently, have the potential to help women overcome common barriers to breastfeeding in order to increase breastfeeding rates worldwide. However, the current data indicates that while there is some data backing how social media can have a positive impact in these two areas, especially in online support groups and on Instagram, other forms of mass media such as Twitter, newspapers, television, and smartphone apps have ample room for improvement in terms of effectively utilizing their widespread reach to positively impact breastfeeding attitudes and behaviors. Most significantly, there is a prominent lack of data in this area overall. The scientific community is lacking data for various areas and demographics of the United States specifically, and most of the data I found was qualitative, which limits the generalizability of it. Moreover, the studies that evaluated the use of social media with regards to breastfeeding exposure and education didn't go as far to investigate the actual impact of social media on breastfeeding women, so it is unknown how much social media can actually impact a woman's choice to breastfeed or continue breastfeeding. However, the landscape of mass media is evolving, and the use of social media for educational purposes is a relatively new concept, so more data should be presented in the upcoming years as it is increasingly studied within the healthcare landscape. Once attitudes towards breastfeeding in the United States are better understood, with further research, the scientific community can explore how best to employ mass media to have a positive impact on breastfeeding.

**Appendix 1 – Flowchart of search results**

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