Research Square

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Examining Supports and Barriers to Breastfeeding through a Socio-Ecological Lens

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Abstract

BACKGROUND: Early breastfeeding cessation is a societal concern given the massive benefits associated with breastfeeding for mother and child. More effective interventions are needed to increase breastfeeding duration. Prior to developing such interventions more research is needed to examine breastfeeding supports and barriers from the perspective of breastfeeding stakeholders. One such framework that can be utilized is Brofenbrenner's Social Ecological Model. The purpose of this study was to examine supports and barriers to breastfeeding based on the Social Ecological Model.

METHODS: A total of 49 representatives participated in a telephonic interview. Interviewees represented various levels of the model based on their current breastfeeding experience (i.e., mother or significant other) or occupation. A direct content analysis was performed as well as a constant comparative analysis to determine differences between level representatives.

RESULTS: Common supports identified by all interviewees were in-hospital breastfeeding education (organizational level) and the existence of breastfeeding protection legislation (policy level). Barriers identified by all interviewees included a lack of support (interpersonal level), lack of hospital resources (organizational level) and lack of specificity within the existing breastfeeding protection legislation (policy level). Other identified supports and barriers varied by representatives for each level of the model.

CONCLUSION: Breastfeeding organizations such as state and local coalitions should utilize this information to guide future strategy as well as develop interventions to eliminate the disparities between breastfeeding mothers' perceptions and the stakeholders working to increase breastfeeding initiation and duration rate.

Introduction

The short and long-term benefits of breastfeeding for child and mother are well-established.[1] Not only can breastfeeding support child survival in the first year of life but it can also produce long-term benefits in intelligence, academic achievement and reduce risk for chronic conditions later in life.[1,2] Further, breastfeeding mothers have a lower risk of type 2 diabetes, hypertension, breast and ovarian cancer.[3] Despite the significant health benefits, breastfeeding rates in the United States are still occurring well-below the recommended duration of exclusively breastfeeding for at least the first 6 months of life.[4–8] Research suggests concurrent intervention delivery using a combination of systems such as home, family, healthcare and community involvement improves breastfeeding rates; however, few successful interventions are currently in practice.[9] A better understanding of how these systems interact with one another and how they influence breastfeeding rates is crucial. One such theory that can explain the interaction of these systems is Urie Brofenbrenner's socioecological model (SEM) of health promotion.[10]

Brofenbrenner's SEM was designed to conceptually understand human development. The SEM examines the interaction and interdependence of levels that can influence human behavior.[11] These five levels

include individual, interpersonal, community, organization and policy. The first level, individual, includes items such as personal knowledge, attitude and behavior. The second level, interpersonal, includes the formal and informal social support systems. This support typically stems from family, friends, peers and co-workers. The third level of support is the community level that focuses on how community organizations provide one another formal and informal support. The fourth level, organization, focuses on rules and regulations that affect how services or support may be provided to an individual. Finally, the fifth level, policy, focuses on policies at the local, state, national and global level that can influence resource allocation and access.[12]

The SEM is a valuable framework for assessing breastfeeding barriers and support. Influencers of breastfeeding can be identified at each level of the framework. For example, research has shown factors such as low self-efficacy (individual), lack of partner support (interpersonal), community stigma (community), hospital formula samples (organizational) and lack of protective laws (policy) hinder breastfeeding.[13–16] Conversely, factors at each level have also been identified as breastfeeding supports such as high self-efficacy (individual), supportive family and friends (interpersonal), access to community resources (community), in-hospital education (organizational) and workplace protections (policy).[8,17–19]

To the researchers' knowledge few studies have utilized SEM to explore breastfeeding behavior. [20,21] Further, these studies were limited to the perspectives of mothers and healthcare providers. Research is needed to understand factors across SEM levels to understand how to best support women in their breastfeeding journey. Exploring the perspectives of representatives of each level of the model would be beneficial prior to intervention development and to the researchers' knowledge has not been done before.

Methods

Design: A cross-sectional qualitative design guided by the SEM and grounded theory was utilized.

Setting: Participants were recruited throughout the state of Nebraska with an emphasis on achieving geographic diversity in the sample. Thus recruitment methods targeted both rural and urban areas. Urban and rural areas were differentiated by census tract-based rural urban community area (RUCA) codes. Urban residents were defined as RUCA codes 1–6 and rural residents as codes 7-10.[22]

Sample: A purposive sampling technique was utilized as is typically required of grounded theory exploration.[23] Representatives of each level of the SEM were recruited based on their profession or personal history with breastfeeding. Recruitment methods included sending an e-mail to all current members of the State Breastfeeding Coalition, posting interview information on local and statewide breastfeeding *Facebook* support groups and through snowball sampling. Interested participants were encouraged to reach out to the first author directly to set up a time to conduct the interview. A goal of 12 participants per level was sought however once ongoing data analysis indicated saturation within level participants recruitment was halted. Those classified at the individual level were currently breastfeeding mothers themselves (n = 12). Participants at the interpersonal level were identified as personal supports

to breastfeeding mothers. These included in-home childcare providers (n = 6) and partners of breastfeeding mothers (n = 4). Individuals representing the community level served as community leaders and advocates for breastfeeding (e.g., childcare center directors (n = 6), a peer lactation counselor (n = 1) certified lactation counselors (n = 3), social worker (n = 1) and a medical librarian/community advocate (n = 1)). Those representing the organizational level served in an administrative capacity that had the capability to develop or alter rules and regulations for breastfeeding supports and services within an organization (i.e., community program administrators/managers(n = 8) and maternal/child health nonprofit directors (n = 2)). Finally, those representing the policy level were in a role that would allow them to be involved in policy development and decision making related to breastfeeding whether that be due to their employment type (i.e., Health Department Division Chief (n = 1)) or expertise in the field (i.e., MD, IBCLC (n = 4)). The 4 healthcare providers interviewed had all been actively involved in Nebraska breastfeeding legislation within the past ten years by providing written or in-person testimony.

Data Collection: A total of 49 telephonic semi-structured interviews were conducted between the months of May and August, 2019. Informed consent was obtained verbally per the approval of a University affiliated institutional review board. Participants were read a brief summary of the study purpose and risks involved and told that their participation was voluntary and they could elect not to participate at any time. In addition to the interview, participants were asked to report age, race/ethnicity and occupation. Each interview took approximately 25 minutes to complete.

The 15-question interview guide utilized a semi-structured format guided by the SEM. The interviews focused on participant perceptions relating to how various levels of the SEM supported or hindered breastfeeding. Questions were developed by a qualitative research expert and piloted with a stakeholder representing each of the five SEM levels. Face validity was conducted within these five pilot interviews to ensure the wording was clear and interpreted accurately (Silverman, 2016). These pilot interviews were then transcribed by the trained researcher verbatim and reviewed by a qualitative expert for accuracy of transcription wording. Small wording changes (n = 15) were made based on clarification needs and the interview guide was considered complete.

Data Analysis: A framework for grounded theory analysis was utilized to enhance the validity of findings.[23,24] All interviews were transcribed by the interviewer and reviewed for accuracy by the primary author. The first step in the analysis process was a direct content analysis which included two researchers reviewing all interview transcripts in their entirety twice.[25] The two researchers separately identified and coded statements that directly related to one of the SEM levels. Both researchers kept memo notes throughout their coding process and came together to discuss discrepancies. The next step involved a constant comparative analysis.[23] This involved both researchers analyzing the responses of individuals identified to represent each level of SEM in order to compare experiences and identify categories of significance between the individuals. This process allowed for the strategy of intuiting to occur. Intuiting is the reflection of themes found in individual participant accounts.[26] This produced more in-depth analysis at each level of SEM based on stakeholder reflection. The themes produced across

cases were then categorized into subthemes based on the initial themes determined. An additional analysis of rural versus urban participants was also performed.

Peer debriefing took place throughout the analysis process. [24] A second trained qualitative researcher was asked to review the themes after the direct content analysis and the across-cases analysis. Consensus was achieved through frequent discussions and changes were made until both authors agreed on the themes and subthemes.

Results

Of the 49 interviewees the mean age of participant was 38.7 ± 10.1. A majority of participants identified as Caucasian (85.7%) followed by African American (8.2%), Caucasian/Asian American (4.1%) and Hispanic (2.0%). Further, 75.5% of the population resided in an urban residence with the remaining 24.5% residing in a rural residence. Complete demographic tables including occupation type for each participant can be found in Table 1.

Table 1
Sociodemographic Information for Interview Participants

Representative	Occupation	Age	Race/ethnicity	Geographic Residence
Individual	Nutritionist (Breastfeeding Mother)	41	Caucasian	Urban
Individual	Works Inside the Home (Breastfeeding Mother)	38	Caucasian	Rural
Individual	Works Inside the Home (Breastfeeding Mother)	26	Caucasian	Urban
Individual	Teacher (Breastfeeding Mother)	23	Caucasian	Urban
Individual	Teacher (Breastfeeding Mother)	29	Caucasian	Urban
Individual	Teacher (Breastfeeding Mother)	27	Caucasian	Urban
Individual	Works Inside the Home (Breastfeeding Mother)	27	Caucasian	Rural
Individual	Associate Professor (Breastfeeding Mother)	37	Caucasian	Urban
Individual	Teacher (Breastfeeding Mother)	35	Caucasian	Urban
Individual	Works Inside the Home (Breastfeeding Mother)	32	African American	Urban
Individual	Controller (Breastfeeding Mother)	32	Caucasian	Urban
Individual	Human Resources Director (Breastfeeding Mother)	31	Caucasian	Urban
Interpersonal	Childcare Worker	43	Hispanic	Rural
Interpersonal	Childcare Worker	37	Caucasian	Rural
Interpersonal	Childcare Worker	39	Caucasian/Asian	Urban
Interpersonal	Childcare Worker	40	Caucasian	Rural
Interpersonal	Childcare Worker	23	Caucasian	Urban
Interpersonal	Childcare Worker	42	Caucasian	Urban
Interpersonal	Manager (Father)	35	Caucasian	Urban
Interpersonal	Information & Technology (Father)	38	Caucasian	Urban
Interpersonal	Teacher (Father)	36	Caucasian	Urban
Interpersonal	Histologist (Father)	27	Caucasian	Urban
Community	Certified Lactation Consultant	29	Caucasian	Urban

Representative	Occupation	Age	Race/ethnicity	Geographic Residence
Community	Certified Lactation Consultant	33	Caucasian	Urban
Community	Certified Lactation Consultant	32	Caucasian/Asian	Urban
Community	Social Worker	58	African American	Urban
Community	Childcare Center Director	30	Caucasian	Rural
Community	Childcare Center Director	61	Caucasian	Rural
Community	Childcare Center Director	43	Caucasian	Urban
Community	Childcare Center Director	48	Caucasian	Urban
Community	Childcare Center Director	50	Caucasian	Rural
Community	Childcare Center Director	50	Caucasian	Rural
Community	Peer Counselor	31	Caucasian	Urban
Community	Medical Librarian/Community Advocate	37	African American	Urban
Organizational	Maternal/Child Health Program Coordinator	39	Caucasian	Urban
Organizational	Labor & Delivery Administrator	26	Caucasian	Rural
Organizational	Nonprofit Director	31	Caucasian	Urban
Organizational	Nurse Administrator	55	Caucasian	Urban
Organizational	Hospital Administration	38	Caucasian	Urban
Organizational	Nonprofit Director	44	Caucasian	Urban
Organizational	Maternal Child Program Administrator	35	Caucasian	Rural
Organizational	Maternal Child Program Administrator	61	Caucasian	Urban
Organizational	Health Director	40	Caucasian	Urban
Organizational	Hospital Administration	52	Caucasian	Rural
Policy	IBCLC	55	Caucasian	Urban
Policy	IBCLC, NP	33	African American	Urban
Policy	MD, IBCLC	49	Caucasian	Urban
Policy	Health Department Division Chief	59	Caucasian	Urban
Policy	Physician Assistant, IBCLC	35	Caucasian	Urban

Supports and Barriers to Breastfeeding

Two figures were created to demonstrate the major themes determined for each level of the SEM. The stakeholders identifying these themes is denoted via a symbol. Figure 1 notes the most commonly reported themes for breastfeeding support among the interviewed sample and Fig. 2 denotes the most common breastfeeding barriers discussed.

Individual Factors

Specific to breastfeeding support, at the individual level, the main themes found were related to viewing breastfeeding as a valued behavior and a desire for mothers to try. Breastfeeding mothers (individual level), significant others (interpersonal level) and community representatives reported that they were seeing women personally valuing breastfeeding to a greater degree than in the past. Those at the organizational and policy level reported mothers as having a strong desire to "try" to breastfeed. For instance, a Community Health coordinator reported, *"I think it is becoming more popular nowadays, to at least attempt to start breastfeeding. Women will brag that they made it a whole year or breastfed six months."*

Individual barriers were typically related to time commitment, exhaustion, and isolation. Specific to time commitment, representatives of the individual, interpersonal and organizational level most often reported this issue. For example, a labor and delivery nurse stated, *"just the time commitment of it. I mean I always say it's not hard it's just demanding you to live on a two-hour clock*." Exhaustion was a common theme reported by those at the interpersonal, community and policy level. For instance, a community program coordinator noted, *"I think the lack of sleep that comes with a newborn. You know you're not well-rested and you're trying to have good mental health and it's a struggle*." Finally, specific to isolation, all currently breastfeeding mothers reported this as an issue. For example, "*I would definitely say like kind of the isolation factor of it. You're the only one who can do it and sometimes it's a little lonely just feeling stuck sometimes"* (Breastfeeding Mother).

Interpersonal Factors

At the interpersonal level, the greatest supports focused on social media, peer-to-peer, and family. Related to social media representatives of the individual and community level most commonly reported this as a support. For example, a County Health Director stated, *"I see a really strong social media presence, a supportive social media presence. It seems like women are going to social media to find support."* General peer-to-peer support was also reported by interpersonal and community representatives. A husband of a breastfeeding women noted, "*I think what really helped my wife was the support groups she found that allowed for mother-to mother peer counseling."* Finally, familial support was often stated as a key influencer of breastfeeding support by those at the individual, community, organizational and policy level. A community program coordinator stated, "*Some of the biggest support pieces that I feel like are critical are having support from your own family."*

The main barrier identified by all interviewed participants was related to a lack of support from family and/or friends. For example, a social worker stated: *"I would say probably lack of social supports. A lot of*

our moms they want to breastfeed and they don't have a lot of support from like dads or friends."

Community Factors

At the community level, representatives of the community, organizational and policy level reported that normalization of breastfeeding was occurring to at least some degree and representatives at the individual, interpersonal and organizational level reported ample access to community lactation support. When describing breastfeeding normalization, an in-home childcare provider stated, "*I think it's becoming better, it's more socially normally to see a mother breastfeeding in public. I think it's not as shunned upon not to do it in public and everything."* Related to community lactation support, many interviewees reported the existence of several community organizations or support groups that women could access. For example, a currently breastfeeding mother reported, "*definitely places like [community breastfeeding non-profit] for lactation support…it's helpful I feel like just to have places like that in the community that women can go."*

Barriers at the community level were related to a lack of community resources in rural and underserved areas as well as a lack of normalization which is contrary to the supports stated previously.

Specific to the rural disparities, participants at the community, organizational and policy levels identified this most frequently. One nurse residing in a rural area reported, "*we have very minimal support. When I moved here I searched for support groups and there was nothing to be found*." A lack of normalization was mainly reported by those representing the individual and interpersonal level. One mother noted, "*It's just hard to breastfeed in public. I know it's supposed to be a thing you can do everywhere but sometimes it's just not really looked at as acceptable yet".*

Organization Factors

At the organizational level, reported breastfeeding supports most commonly consisted of hospitals having helpful procedures in place regarding breastfeeding and that in-hospital education directly after birth were useful and effective. Those at the community, organization and policy level typically reported the hospital procedures as supportive. For example, a home-visiting IBCLC stated, "*I think they [hospitals] have done a great job with all of the new policies that we've put in place so the sacred hour, skin-to-skin, delaying the bath, they've put a lot of things in place to help breastfeeding moms*."

Conversely, although not a majority, two healthcare providers stated that they worked in facilities in which mothers were given formula even prior to their child's birth. For example, a labor and delivery nurse residing in a rural area stated,

They give out formula at your first visit when you come to the hospital to register before you come in for delivery..they send you home with a bunch of [formula brands]..

An additional organizational barrier cited focused on having a lack of hospital resources despite good procedures. One example came from an IBCLC that stated,

"It would be nice if they could have more CLC's or IBCLC's on staff because what I hear from families is that there was an IBCLC there but they weren't able to spend much time with them".

Policy Factors

Finally, at the policy level breastfeeding supports typically discussed by representatives at all levels were the laws currently in place that make it legal to breastfeed anywhere as well as the workplace protections that exist. An IBCLC stated, *"I think they [laws] have been very helpful, especially with moms going back to work, you know the laws to breastfeed in public and the pumping laws have definitely been a huge help".*

Conversely, participants at all levels felt there was still a lack of specificity within the existing breastfeeding laws/policies that left women unprotected. A community program manager noted *"I know there are policies and laws but I feel like some of those still have loopholes. Like it doesn't seem to cover every occupation especially those teachers and nurses who need varying pumping schedules."*

Discussion

This qualitative inquiry took a unique investigative approach by utilizing the SEM to explore perspectives of breastfeeding from representatives at each level of the SEM. Not only did this produce findings on supports and barriers at each level of the SEM but it also highlighted disconnects between breastfeeding mothers and the professionals working to improve health systems for these women. Focusing on these disconnects could improve the maternal/child systems currently in place as well as support the overall health of mothers and their children.

One entity that has the potential to impact barriers and supports at all SEM levels simultaneously is the state breastfeeding coalition. As of 2011, all 50 states in the United States had formed breastfeeding coalitions with the majority also having local, tribal and territorial coalitions.[27] The wide reach of state coalitions especially when working in conjunction with local coalitions could have widespread impact on maternal/child systems and health. Specifically, our findings lead to 4 key recommendations state coalitions could consider for improving their widespread impact.

First, at the individual level, currently breastfeeding mothers commonly reported isolation as a barrier while those representing the other SEM levels attributed individual barriers to be more related to time commitment or exhaustion. At the interpersonal level, mothers reported social media being a great support to their breastfeeding journeys. State breastfeeding coalitions typically have a social media presence (i.e., *Facebook* page) and could leverage this presence to facilitate opportunities for discussion between breastfeeding mothers to help mitigate the effects of isolation. Ideas may include private *Facebook* groups where mothers can speak openly about issues or discussion forums with weekly topics.[28]

Second, supportive normalization of breastfeeding was identified at the community and organizational levels but a lack of normalization was reported at the individual and interpersonal levels. This disconnect

indicates more efforts are needed. Despite policy and legislation improvements there is still an absence of images of women breastfeeding in community settings which could be continuing to drive the notion of breastfeeding as something to be done in solitude.[29] Further, this could be influencing the isolation breastfeeding mothers reported feeling. State coalitions could consider working with hospitals and maternal/child health organizations to develop a photograph collection of women nursing in public settings and posting these pictures at organizations and in public spaces throughout the state as well as on their social media sites.

Third, while hospitals were applauded for the improvements made to procedures and breastfeeding education a scarcity of resources to maintain these improvements was identified. State coalitions may consider working to help bridge relationships between hospitals and local community efforts. For example, hospitals could use community lactation providers to support in-hospital education classes or even follow-up support protocols (i.e., phone follow-ups). Further, healthcare workers in the hospital setting should be aware of all community resources available (i.e., La Leche Leagues, community *facebook* groups, community non-profits) and be able to effectively refer women to these resources. This could support the large drop in exclusive breastfeeding that is occurring within the first 2 weeks postpartum.[30]

Fourth and finally, while the legislation and policies in place to support breastfeeding mothers were recognized there was still a desire for greater specificity within these policies indicating more work is needed. State coalitions are at a unique advantage as they may have greater access to policy changemakers like senators and members of congress. Further, the number of mothers serving in congress or the senate is growing. In 2013–2014, 16% of women in the House of Representatives had a child under 18. Promisingly, research has demonstrated that these mothers consistently produce the most bills relate to children and family.[31] Thus, now is an optimal time to contact working mothers that serve in state and national political roles to share the identified needs of breastfeeding women related to more specific workplace protections and better maternity leave.

Limitations

This study was weakened by the fact that while individuals were selected based on their breastfeeding relationship or employment they may have also identified at other levels of the SEM. For instance, an IBCLC who had breastfed within the past 5 years may have greatly influenced her answers by her personal breastfeeding experience. There was an attempt to mitigate this limitation by asking individuals to answer based on their employment type however personal influences may have been seen.

Conclusion

Designing interventions that can effectively target multiple levels of the SEM simultaneously could improve maternal/child health and the systems that support them. The utilization of entities such as state breastfeeding coalitions offer potential opportunities to maximize support at each level of the SEM

framework. The findings from this study indicate 4 areas of opportunity that state coalitions should consider focusing on. These include; leveraging their social media presence to enhance maternal support opportunities, increasing public awareness of breastfeeding in the community through a photography campaign, bridging relationships between community coalitions/organizations and hospitals and finally enhancing connections with state politicians, especially mothers in political roles. These strategies would simultaneously influence many levels of the SEM while addressing the barriers identified in this research.

Declarations

Ethics approval and consent to participate: The Creighton University affiliated IRB approved this research. All participants provide verbal assent prior to participation.

Consent for publication: Not Applicable

Availability of data and materials: The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Competing Interests: The authors declare that they have no competing interests.

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Authors' Contributions: KS, EH, HD, AC, CH, DD assisted in the development of the interview guide and participant recruitment. KS and DD analyzed the interview data. All authors assisted in writing the manuscript, KS was the main contributor. All authors read and approved the final manuscript.

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Figures

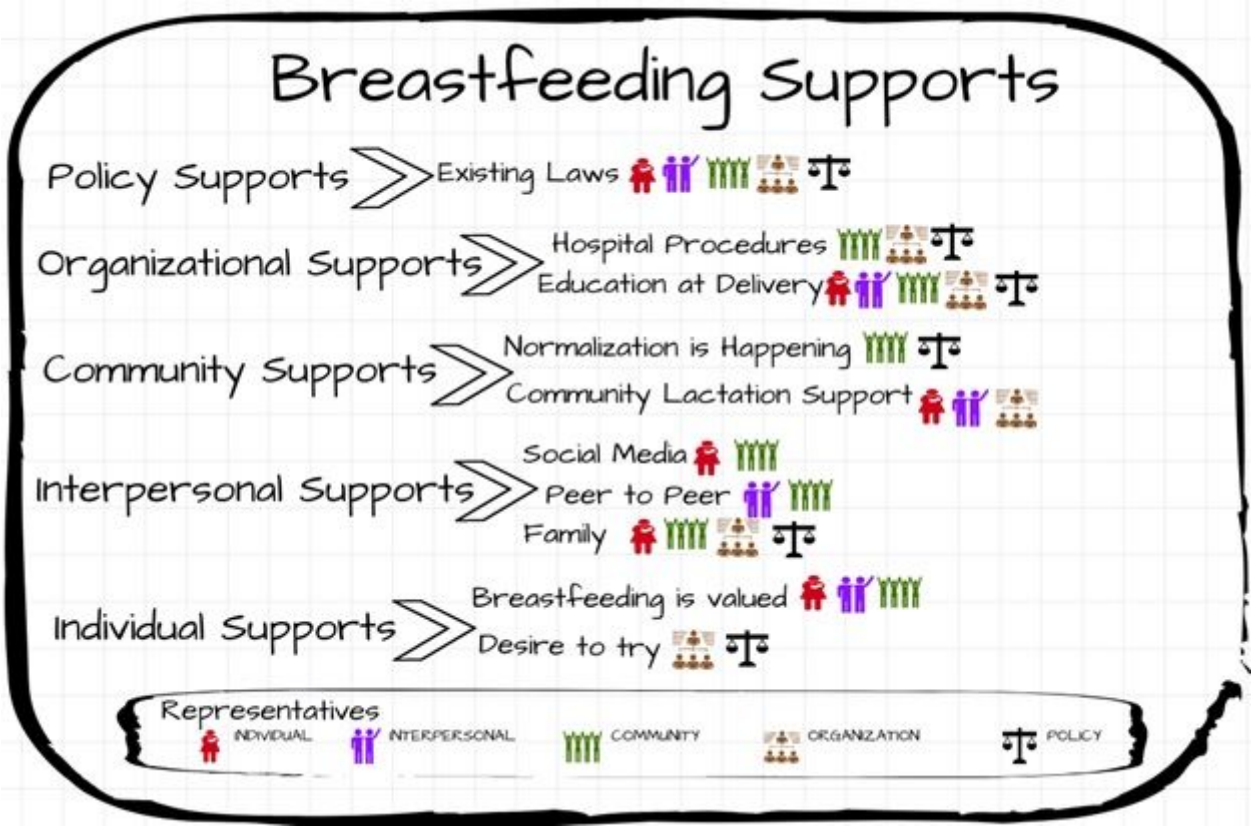

Figure 1

Breastfeeding Support Themes

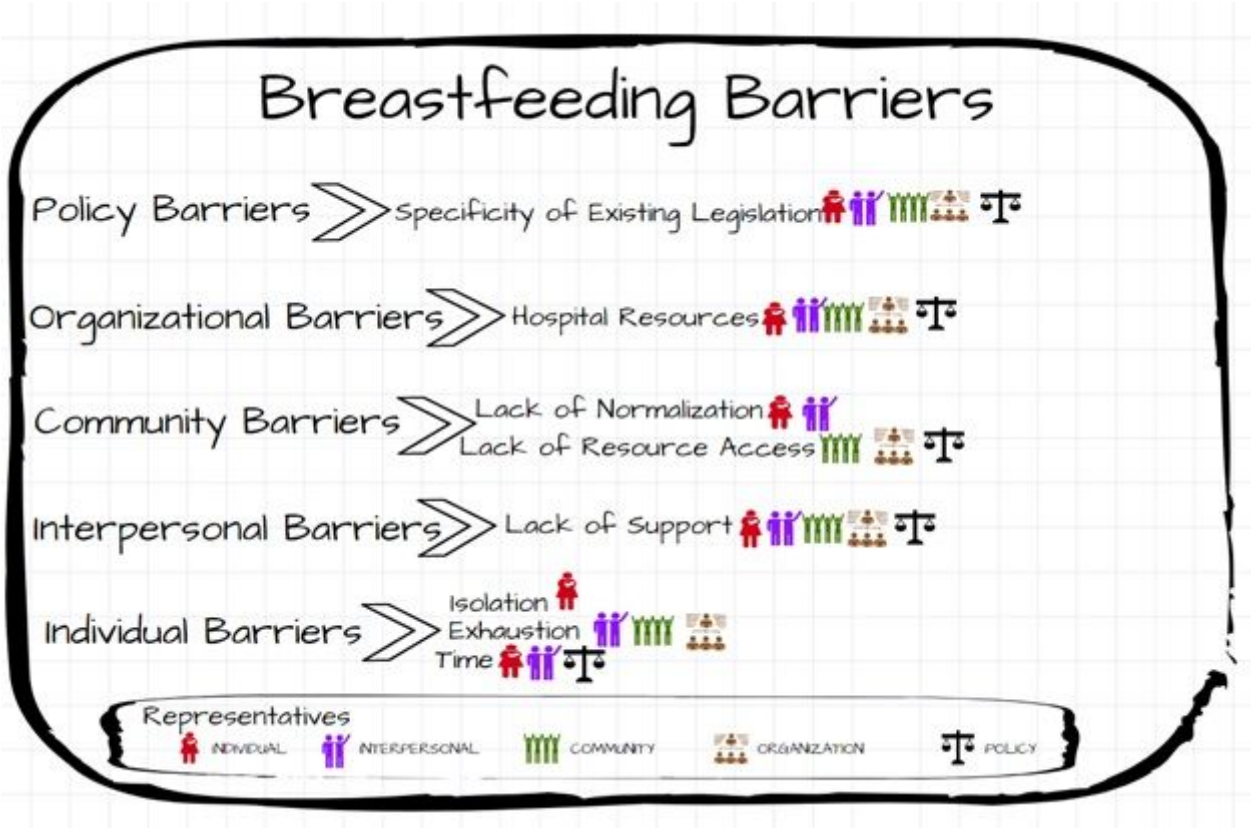

Figure 2