

INTERVENTIONS TO IMPROVE BREASTFEEDING ATTITUDES IN COLLEGE
STUDENTS

A Thesis

by

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This thesis meets the standards for scope and quality of
Texas A&M University-Corpus Christi and is hereby approved.

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ABSTRACT

Breastfeeding is the optimal choice of nutrition for infants as there are numerous health, immunological, and psychological benefits that breastfeeding provides for both mothers and infants. The benefits of breastfeeding are known, however, there are individual and social factors that contribute to mothers feeling worried or nervous about breastfeeding in public; therefore, social support is a key component to mothers achieving their breastfeeding goals. Improving attitudes toward breastfeeding in general, and public breastfeeding in particular, may indirectly provide such social support, which would hopefully create a more welcoming society for breastfeeding mothers. The purpose of this study was to examine the effectiveness of brief interventions in improving attitudes toward breastfeeding among college students. Participants received an information-based, image-based, or information plus image-based breastfeeding intervention (or a control non-breastfeeding intervention). They then completed measures of their attitudes towards breastfeeding in general, attitudes toward breastfeeding in public, and breastfeeding knowledge. Results from this study show that the participants did not differ in their breastfeeding attitudes or knowledge following the interventions.

TABLE OF CONTENTS

	Page
ABSTRACT.....	iv
TABLE OF CONTENTS.....	v
LIST OF TABLES	vii
CHAPTER I: IMPORTANCE OF IMPROVING BREASTFEEDING ATTITUDES.....	1
CHAPTER II: REVIEW OF THE LITERATURE	2
Breastfeeding Benefits and Rates	2
Breastfeeding Benefits to Mothers and Their Babies	2
Breastfeeding Recommendations Rates in the United States	3
Factors that Influence Mothers to Choose to Breastfeed	3
Influences on Mothers’ Breastfeeding Decisions: Personal Factors.....	3
Influences on Mothers’ Breastfeeding Decisions: Social Factors	5
Breastfeeding Perceptions and Attitudes	7
Perceptions of Breastfeeding in Public	7
Breastfeeding Attitudes in the College Student Population.....	9
How to Influence Attitudes Towards Breastfeeding.....	10
Breastfeeding Interventions	10
The Present Study	11
CHAPTER III: METHOD	13
Participants.....	13
Procedure	13
Measures	14

CHAPTER IV: RESULTS.....	16
Descriptive Statistics.....	16
Correlations.....	16
Hypothesis Testing.....	16
CHAPTER V: DISCUSSION AND CONCLUSION	17
Limitations of the Current Study and Future Directions	17
Conclusion	18
REFERENCES	19
APPENDIX A: PAMPHLET INFORMATION, PHOTOS, AND QUESTIONNAIRES	24
APPENDIX B: TABLES	32

LIST OF TABLES

	Page
Table 1. Descriptive Statistics for Primary Dependent Variables	32
Table 2. Correlations Among Primary Dependent Variables	32
Table 3. ANOVA Results of Intervention Condition on Public Breastfeeding Attitudes	33
Table 4. ANOVA Results of Intervention Condition on General Breastfeeding Attitudes	33
Table 5. ANOVA Results of Intervention Condition on Breastfeeding Knowledge.....	33

CHAPTER I

IMPORTANCE OF IMPROVING BREASTFEEDING ATTITUDES

Breastfeeding is the optimal choice of nutrition for infants as there are numerous health, immunological, and psychological benefits that breastfeeding provides for both mothers and infants (Dieterich et al. 2013). While the benefits of breastfeeding are known, there are mothers who choose not to breastfeed, or who end their breastfeeding time earlier than anticipated, due, in part, to the worry of having to breastfeed in public and potentially encountering others with negative attitudes about breastfeeding or breastfeeding in public (Li, et al, 2008). Both individual and social factors can contribute to mothers feeling worried or nervous about breastfeeding in public; therefore, social support is a key component to mothers achieving their breastfeeding goals (Odem et al., 2013). Improving attitudes toward breastfeeding in general, and public breastfeeding in particular, may result in benefits such as social support and improving breastfeeding rates. The purpose of this study was to examine the effectiveness of brief interventions in influencing attitudes towards breastfeeding in a positive way among college students.

CHAPTER II

REVIEW OF THE LITERATURE

Breastfeeding Benefits and Rates

Breastfeeding Benefits to Mothers and Their Babies

Breastfeeding is the ideal source of nutrition for babies as it provides unique nutritional and immunological benefits that formula does not (Boyer, 2011) and is associated with numerous health benefits for mothers and babies. For infants, breastmilk reduces the risk of obesity, childhood leukemia (Moore, 2018), and type 2 diabetes (Binns et al., 2016). Infants who are not breastfed have a higher risk of respiratory tract infections, sudden infant death syndrome, and necrotizing enterocolitis, which is common in premature babies (Steube, 2011). For mothers, breastfeeding decreases the risk of ovarian cancer, breast cancer, and osteoporosis (Rea, 2004). It also reduces the risk of heart disease, type 2 diabetes, and heart disease for mothers (Binns, et al., 2016). The longer a mother breastfeeds, the longer she is able to provide the benefits to her and her baby.

Breastfeeding not only provides health benefits but emotional and psychological benefits as well. Emotional benefits are due to the release of oxytocin, the “love hormone,” that is responsible for women being able to release milk. Oxytocin is exchanged between mothers and babies when the baby is nursing, which promotes bonding and a trusting relationship between mother and baby (Lane et al., 2012). Mothers who breastfeed their infants have more positive mental health outcomes and experience lower rates of postpartum depression (Hamdan & Tamim, 2012; Kendall-Tackett, 2007).

Breastfeeding Recommendations Rates in the United States

The American Academy of Pediatrics recommends exclusively breastfeeding for the first six months of an infant's life and continuing to breastfeed along with regular table food through the first year (CDC, 2021), and the World Health Organization recommends breastfeeding for two years minimum (World Health Organization, 2021). However, breastfeeding rates are low in the United States compared to other industrialized countries (UNICEF, 2018). Currently in the United States, 84.1% of babies are breastfed when they are born (CDC, 2017), but by 12 months only 35.3% of infants are still fed breastmilk, including those who receive formula and breastmilk. Thus, in the U.S., many mothers do start off trying to breastfeed, but it does not take long for them to end their breastfeeding journey. Odom et al. (2013) found that approximately 60% of mothers stopped breastfeeding before their personal goal due to many different reasons.

Factors that Influence Mothers to Choose to Breastfeed

Influences on Mothers' Breastfeeding Decisions: Personal Factors

There are many factors that can influence a mother's decision to breastfeed and for how long she chooses to do so. Demographic characteristics, education on breastfeeding, breastfeeding support in the workplace, and breastfeeding difficulties, all play a role in breastfeeding decisions.

Demographic Characteristics

A study by Li (2008) found that women who were younger (less than 24 years old), unmarried, less educated (high school education or less), poorer, and WIC participants were more likely to discontinue breastfeeding before their infant turned 6 months old. Mothers that use WIC are given vouchers to get formula and it may be easier for them to do so instead of

breastfeeding. In general, being younger and less educated might provide mothers with less access to breastfeeding education and professional breastfeeding support.

Mothers' Education on Breastfeeding

When a woman is preparing to have a child, she may or may not be educated in breastfeeding versus formula feeding, how to breastfeed, the major benefits of it, and where to go if she needs help with breastfeeding. One may take a childbirth or breastfeeding class prior to giving birth, but those may not always be available. Mothers' breastfeeding knowledge has been significantly associated with the initiation of breastfeeding and the intention to breastfeed exclusively (Stuebe, 2011). Stuebe also found that women who were comfortable breastfeeding in front of close friends and in public were more likely to initiate breastfeeding and continue to exclusively breastfeed.

Difficulties with Breastfeeding

Being a breastfeeding mother is quite demanding; it can be emotionally and physically exhausting and time consuming. While breastfeeding has numerous health benefits, there are a myriad of reasons as to why mothers stop breastfeeding or choose not to initiate breastfeeding at all. Reasons range from lactational factors of perceived problems with not making enough milk and babies having difficulties efficiently removing milk from the breast (Odom et al., 2013), to psychosocial factors such as feeling tired from breastfeeding and wanting to leave the house without the baby, to mothers simply desiring their own autonomy again by wanting to eat, drink, and workout as they please without worrying about it affecting their breastfeeding supply (Li, 2008).

Influences on Mothers' Breastfeeding Decisions: Social Factors

For a mother to successfully breastfeed her infant, the social structures with which she interacts with need to work cohesively to ensure she is supported to do so. This starts with supportive lactation professionals at the hospital, a supportive partner and family members, and a supportive workplace if/when the mother decides to return to work. Not only does a mother need support from social structures, but she also needs to feel confident in feeding her baby whenever and wherever she may need or she will be more likely to quit breastfeeding (Li et al., 2008).

Breastfeeding Support in the Workplace

A mother's workplace can influence both breastfeeding initiation and longevity (Li, 2004). The United States does not have mandatory paid leave for mothers, so often they are returning to work within six to eight weeks postpartum during which period their milk supply is still developing. During those first few weeks of breastfeeding, it is crucial to establish the milk supply by frequently and efficiently removing milk every 2-3 hours. Not pumping can result in a drop in milk supply, clogged milk ducts, or mastitis (uofmhealth.org). If a breastfeeding mother must return to work, she needs resources to be able to pump milk every few hours (e.g., time to leave her job and a private space to pump). Dixit et al. (2015) found that one in three women did not meet their goal of feeding their infant exclusively breastmilk, and one in four did not meet their breastfeeding goal due to inadequate support in the workplace. Not having adequate space or allotted time to pump can be a barrier to a mother's breastfeeding journey and can be a predictor of early cessation.

Support for Breastfeeding in Public

For the first few months of life, breastfed babies typically nurse every two to three hours, so if a mother were running errands or had appointments, it is inevitable she would need to

breastfeed her baby in public at some point. Breastfeeding in public can be defined as feeding her baby anywhere that is not in private or at home, such as a grocery store, restaurant, or a pediatrician's office.

For some women, having to breastfeed their baby in public contributes to their decision of whether or not to breastfeed or to continue breastfeeding. Some mothers may find it difficult to breastfeed in public; it may be difficult to find a comfortable place to sit, and they may feel uncomfortable with the lack of privacy. This can be particularly difficult if the mother is out with people who disapprove of public breastfeeding or if they encounter individuals who disapprove. Sheeshka (2011) showed that mothers feel embarrassed to breastfeed in public places and that this embarrassment is also met with fear that breastfeeding in public may elicit hostile reactions from people. Some mothers are worried about breastfeeding in public before they even give birth and choose to use the formula from the start simply to avoid having to ever breastfeed in public (Boyer, 2018). Not only does research show that women who feel comfortable breastfeeding in public are more likely to breastfeed, they are also more likely to breastfeed longer than those who feel uncomfortable breastfeeding in public (Stuebe, 2011).

Forster et al. (2010) found that some breastfeeding mothers described their experiences as “traumatic” and making them feel “fearful”, and ashamed” (p. 121). Feeling embarrassed is a significant reason why women choose not to breastfeed or stop earlier than they would like to (Scott et al., 2015). Boyer (2018) completed a study in the UK that shone a light on the effects of negative comments people made while seeing a mother breastfeed in public. Forty-nine percent of the interviewees had a negative experience while breastfeeding in public. Some of the comments that were reported by survey participants included, “I don't think others are comfortable with it which made me feel uncomfortable” and “People were really shocked by the

fact that you're breastfeeding in public... I found it really stressful, really embarrassing, really horrible" (p. 37). To avoid this embarrassment, breastfeeding mothers may try to time their babies' feedings, pump breastmilk and feed expressed milk from a bottle, or avoid going out altogether. While that may work well for some mothers, others may not want to do that. Therefore, social structures such as public health education policies regarding breastfeeding, lactation/nursing rooms being readily available in public spaces, and support for breastfeeding women in the workplace can all be beneficial to supporting breastfeeding mothers.

Breastfeeding Perceptions and Attitudes

Perceptions of Breastfeeding in Public

Women may feel uncomfortable breastfeeding in public if they perceive that others disapprove of this behavior or show obvious signs of distaste. Women's insecurities about breastfeeding in public are not unfounded. For example, among New York City residents, Mulready-Ward and Hackett (2014) found generally positive consensus supporting women breastfeeding their baby in general (for example, at home or in their car if they were out in public), but negative attitudes were reported when respondents were asked about a mother who is breastfeeding in public. Specifically, 50.4% of respondents were not supportive of public breastfeeding and reported that it is something that should be done in private (Mulready-Ward & Hackett, 2014). Additionally, only 33.2% of respondents were comfortable having a mother breastfeed near them in public.

Education Levels and Public Breastfeeding Perceptions

Education level may influence people's attitudes toward public breastfeeding, as multiple studies have documented a positive correlation between education level and support for public breastfeeding (Mulready-Ward & Hackett, 2014). Similar results have been found in Canada, a

country that seems to encourage and support breastfeeding, where breastfeeding women have the right to breastfeed in public, without the worry of negative comments. The Ontario Human Rights Code states that women have the right to breastfeed undisturbed and they cannot be asked to move somewhere else or to cover up (Ontario Human Rights Code, 2014). Russell and Ali (2017) found that in response to questions: “Do you think it is acceptable for a woman to breastfeed while in a restaurant?” and “What about in a shopping mall, do you think it is acceptable for a woman to breastfeed her baby there?” Individuals with less education were less likely to be supportive of mothers breastfeeding in public. Li (2004) found similar results in a national U.S. survey, with participants with less education being less supportive of breastfeeding in public places.

Gender Influences and Sexism on Public Breastfeeding Attitudes

In addition to education levels, gender can also influence attitudes toward breastfeeding and breastfeeding in public. Magnusson (2017) conducted research to evaluate men’s views on breastfeeding in public. Following viewing images of covered versus uncovered women breastfeeding, participants were asked questions such as, “Women should be able to breastfeed in public if they are covered,” “Women should breastfeed anywhere they choose,” and “Breastfeeding should be restricted to a certain location.” Magnusson found that overall men viewed images of public breastfeeding less positively than the images shown of women breastfeeding in private. Men’s perceptions of breastfeeding in public are important because having a supportive partner plays a role in the longevity of a breastfeeding relationship, and Freed et al. (1992) found that women are more likely to choose to bottle feed if their significant other responded negatively to being asked if the mother should breastfeed.

In relation to sexist opinions and perceptions of public breastfeeding, Acker (2009) found that men who scored higher on benevolent and hostile sexism expressed less approval for public breastfeeding, and non-sexist males were more accepting of viewing images of mothers breastfeeding in public. Acker speculated that men with sexist attitudes generally disliked women breastfeeding in public as it violates their sexualized view of female breasts. Some people may have a hard time separating the sexual role of breasts from their biological role, contributing to discomfort when seeing a woman breastfeed in public.

Media Influence on Breastfeeding

Exposure to breastfeeding through media may also influence perceptions of public breastfeeding. Seeing breastfeeding through television, movies, or social media could normalize breastfeeding and diminish the perceived taboo of public breastfeeding. Exposure to breastfeeding has a significant relationship with positive attitudes toward breastfeeding and with women's intentions to breastfeed (Marrone et al., 2008). Furthermore, Foss and Blake (2019) found that viewing public breastfeeding on television improved participants' support for breastfeeding in public. Depictions of breastfeeding in American media are uncommon, but Foss and Blake's results suggest that exposure to breastfeeding images may be an effective way to shift breastfeeding attitudes. If breastfeeding images occurred more frequently, it could help create more support for breastfeeding.

Breastfeeding Attitudes in the College Student Population

College students are typically between the ages of 18-22 and most are not parents yet but may become parents in the next several years. As such, they represent an age group that may have malleable attitudes toward breastfeeding and may be receptive to breastfeeding education. In providing breastfeeding education to college students, the cultural view of breastfeeding being

inappropriate can shift in favor of more positive attitudes. Ultimately, this may help normalize breastfeeding and improve breastfeeding rates.

Research on college-aged individuals and breastfeeding attitudes is limited and not very current. The research that does exist shows young adults hold favorable attitudes toward breastfeeding and desire for their future children to be breastfed after exposure to educational interventions such as pictures of mothers breastfeeding or posters with breastfeeding information (Fairbrother & Ross, 2010; Spear, 2007; Tarrant & Dodgson, 2007).

How to Influence Attitudes Towards Breastfeeding

Breastfeeding Interventions

Using images and providing breastfeeding education can provide a cultural shift in attitudes toward breastfeeding. Exposure to breastfeeding (by watching someone breastfeed or being breastfed themselves) can influence future breastfeeding intentions and improve attitudes toward breastfeeding (Kavanagh et al., 2012). This is an advantage that can be integrated into public health information provided to new parents. Newell (2020) found that brief exposure to simple breastfeeding photographs had a significant increase in positive attitudes compared to their attitudes prior to viewing the images. The study attributes this to the “mere exposure effect,” which is attitudes toward target stimuli become more positive with repeated exposure (Zajonc, 1968).

Informational interventions may also influence breastfeeding knowledge and attitudes. Froehlich et al. (2013) demonstrated the effectiveness of this approach with a study that examined whether providing a brief educational intervention (a fact sheet on breastfeeding benefits) would affect attitudes toward breastfeeding in college students. They found that the intervention positively affected participants’ knowledge and attitudes towards breastfeeding,

including support for public breastfeeding. Thus, it appears that both image-based and information-based interventions may positively affect breastfeeding attitudes and knowledge; however, no studies have yet to test whether one approach is more effective than the other or whether a single intervention involving both images and information is more effective than images or information alone.

The Present Study

Improving breastfeeding rates would have positive effects on global public health as breastfeeding is “one of the more important components of life programming, including the specific positive impact it has on long term reduction of chronic disease” as it reduces chronic disease and provides health benefits (Binns et al., 2016, p. 7). Understanding the importance of breastfeeding benefits cannot be overstated, and although there are barriers to improving breastfeeding, there may be ways to impact individuals’ attitudes toward breastfeeding by evaluating what kind of information best supports improving attitudes toward breastfeeding.

The current study aims to examine the relative effectiveness of three brief interventions designed to increase positive attitudes toward women breastfeeding in general, as well as breastfeeding in public. More specifically, it will examine whether an information-based, image-based, or information plus image-based intervention has a differential influence on people’s attitudes toward breastfeeding. The following hypothesis and research question will be examined:

Hypothesis 1: Each breastfeeding intervention will result in more positive breastfeeding attitudes and greater breastfeeding knowledge compared to the control condition.

Research Question 1: Will there be differences in breastfeeding attitudes and knowledge among the three breastfeeding interventions (information-based, image-based, information plus image-based)?

CHAPTER III

METHOD

Participants

Participants in the present study were 225 undergraduate students at Texas A&M University-Corpus Christi recruited from psychology and sociology courses. The Qualtrics survey yielded 301 responses; however, 76 participants were removed from the analyses because they did not answer the manipulation check question correctly, resulting in a final sample of 225. The mean age of participants was 22 years old. The majority of participants were women (74.2%), White (45.15%) or Hispanic (54.55%), and heterosexual (75%).

Procedure

The current study utilized a one-way experimental design to compare the effectiveness of the four breastfeeding interventions.

Informed Consent

Participants completed an informed consent form prior to participating in the experiment. Participants were asked if they are over the age of eighteen and if they agreed to participate. The study was completed using Qualtrics survey software.

Experimental Manipulation

Participants were randomly assigned one of four conditions. Participants either read breastfeeding information, viewed an image of a breastfeeding mother, read breastfeeding information, *and* viewed an image of a mother breastfeeding, or viewed an image of an infant in a car seat and read information about car seat safety (this last condition served as the control condition). The educational material was adapted from the Centers for Disease Control website (CDC, 2022).

The breastfeeding information described the CDC recommendations and health benefits of breastfeeding for mothers and infants. The breastfeeding image depicted a woman breastfeeding an infant around six months old on a bench outside.

The car seat safety information was from the CDC car seat safety webpage and included the recommendations for car seats for children and the efficacy of using car seats as opposed to only seat belts in the event of a car accident. The image of the infant in the car seat had an infant around six months of age in a rear-facing car seat.

Questionnaire

After the participants viewed the images, they were asked to complete a survey assessing the dependent variables: attitudes toward breastfeeding, attitudes toward public breastfeeding, and breastfeeding knowledge.

Measures

Comprehensive Breastfeeding Knowledge Scale

Breastfeeding knowledge was assessed with the Comprehensive Breastfeeding Knowledge Scale (Abbass-Dick et., al, 2020), a 28 item self-reported measure that assesses an individual's general knowledge of breastfeeding. Participants are asked to indicate their level of agreement with the items with a three-option response set: disagree, unsure, and agree. For 23 of the 32 items, agree is the correct response. There are seven items where the correct response is disagree, and those items are reverse-coded. The 28 items were summed to create an index of breastfeeding knowledge ($\alpha = .69$).

Breastfeeding Behavior Questionnaire

General breastfeeding attitudes were assessed with the Breastfeeding Behavior Questionnaire (Libbus, 1992), which measures attitudes and beliefs that may affect feeding

choice and breastfeeding behavior. The questionnaire is made up of 12 scenarios that a breastfeeding mother might encounter. Scenarios include breastfeeding in front of others in their own home, breastfeeding in public places, and the influence of others on deciding to breastfeed. Items were scored on a 6-point Likert scale with higher scores indicating a more positive attitude toward breastfeeding. The 12 items were averaged to create a breastfeeding attitudes index ($\alpha = .69$).

Public Breastfeeding as Indecent

Attitudes toward public breastfeeding were assessed with the Public Breastfeeding as Indecent Scale, an eight-item questionnaire (e.g., “Pictures of breastfeeding women are obscene,” “I would be embarrassed if a friend breastfed in front of me.”). Items are scored on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree and coded so that higher scores indicate stronger support for public breastfeeding. The eight items were averaged to create a public breastfeeding attitude index ($\alpha = .89$).

Demographics

Participants were asked to report their age, gender, race/ethnicity, sexual orientation, political ideology, and parental status. In addition, they were asked to confirm their undergraduate student status.

CHAPTER IV

RESULTS

Descriptive Statistics

Overall, scores on the dependent variables were moderate (general breastfeeding attitudes: $M = 4.13$, $SD = .59$; public breastfeeding attitudes: $M = 5.51$, $SD = 1.12$; breastfeeding knowledge: $M = 63.35$, $SD = 5.42$; see Table 1).

Correlations

Correlational analyses revealed a significant correlation between general breastfeeding attitudes and public breastfeeding attitudes ($r = .62$, $p < .001$). There were also significant correlations between general breastfeeding attitudes and breastfeeding knowledge ($r = .33$, $p < .001$) and between public breastfeeding attitudes and breastfeeding knowledge ($r = .36$, $p < .001$; see Table 2).

Hypothesis Testing

A series of one-way ANOVAs with post-hoc Tukey test was conducted to examine the research question regarding potential differential effects of the intervention conditions on general breastfeeding attitudes, public breastfeeding attitudes, and breastfeeding knowledge. No statistically significant differences among the intervention conditions were detected for general breastfeeding attitudes ($F(3, 217) = 1.02$, $p = .38$), public breastfeeding attitudes ($F(3, 216) = .52$, $p = 0.67$), or breastfeeding knowledge ($F(3, 207) = .85$, $p = .47$; see Tables 3-5).

CHAPTER V

DISCUSSION AND CONCLUSION

This research project's goal was to examine how brief educational and visual interventions influence attitudes toward breastfeeding among college students. We hypothesized that each breastfeeding intervention (reading information about breastfeeding and its benefits, viewing an image of a mother breastfeeding in a public place, reading information, *and* looking at the image of the mother breastfeeding) would result in more positive attitudes and knowledge about breastfeeding compared to the control condition. In addition, the study aimed to compare the impact of each intervention on these variables. The current study did not demonstrate any statistically significant differences among the interventions in influencing college students' attitudes towards breastfeeding in public or their knowledge of breastfeeding.

The current study did not yield the same results as previous studies examining interventions and their influence on attitudes towards breastfeeding (Newell et al, 2020; Froelich et al., 2013). Newell et al. (2020) demonstrated slight but positive influence on breastfeeding attitudes after image-based interventions, and Froelich et al. (2013) demonstrated slight yet positive influence on breastfeeding attitudes after students reading educational information on breastfeeding.

Limitations of the Current Study and Future Directions

There were several limitations to the study including the lack of a pre-test to assess baseline breastfeeding attitudes and knowledge. Having a pre-test would have given us the opportunity to see any statistical significance in attitudes and knowledge *before* the study's interventions and to examine *change* in attitudes and knowledge. Implementing a pre-test was

not easily feasible during this current study, but future research involving this topic should include a pre-test.

Another limitation of the current study is the interventions conducted. It is a possibility the participants did not spend enough time reading/viewing the information/images provided to make a positive difference in attitudes. Another issue with the intervention may be the specific image that was provided; perhaps an image where it is more obvious the mother is breastfeeding or maybe in a more public location would have elicited more response. Future research should replicate this study with a wider array of breastfeeding photographs.

Conclusion

This study examined college students' attitudes towards breastfeeding in public after providing educational interventions including educational reading material about breastfeeding and an image of a woman breastfeeding. Our findings did not find a significant influence on the attitudes of college students towards breastfeeding in public. While the current study did not yield significant results, further research on attitudes toward breastfeeding is important as it can influence society to be more supportive, and in turn, will hopefully create more supportive environments for breastfeeding mothers.

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APPENDIX A: PAMPHLET INFORMATION, PHOTOS, AND QUESTIONNAIRES

Breastfeeding Condition – Pamphlet Information and Photo:

Breastfeeding Recommendations:

The Centers for Disease Control and Prevention currently recommends that infants are fed breastmilk exclusively for 6 months, and then continue to breastfeed until at least age two alongside eating table foods. Breastfeeding has many benefits for mothers and their babies. Babies who are breastfed have a lower risk of asthma, obesity, type 1 diabetes, and lower respiratory infections. Health benefits for mothers include lower risks of developing breast cancer, ovarian cancer, type 2 diabetes, and high blood pressure. The longer a mother breastfeeds, the stronger the benefits for her and her child.

Breastfed babies typically nurse every 2-3 hours as breastmilk is digested quickly. On average, a breastfed baby will eat 8-12 times in a 24-hour period. If a baby is younger or going through a growth spurt, they may feed up to every hour. How often a baby feeds can also depend on the time of day- most babies like to nurse more when they are tired or if it is later in the day. A nursing session can last anywhere from 10-45 minutes depending on the baby.

Given the frequency and duration of infant feeding, it is common for babies to need to eat outside of the home. If parents bring their baby with them as they run errands, eat at a restaurant, or visit a park, it is likely that the baby will need to be fed while they are out. Breastfeeding mothers may choose to breastfeed their baby in public, just as formula-feeding mothers may choose to give their baby a bottle in public.

Public breastfeeding is legal. All 50 states have laws that specifically allow women to breastfeed in any public location where they have the right to be and/or laws that exempt breastfeeding women from indecent exposure laws.



Control Condition – Pamphlet Information and Photos:

Car Seat Safety Recommendations:

Using the correct car seat for your baby's age can be lifesaving in the event of a car accident. Proper usage of a car seat can reduce the risk of injury in crashes by 71-82% for children when compared to seat belt usage alone. The type of car seat a child needs will depend on their age, weight, and height. The Centers for Disease Control and Prevention currently recommends that infants are in a rear-facing car seat until they reach the weight and height limits specified on the car seat (typically between age 2 and 4). Children should then transition to a booster seat from age 5 until the seat belt fits properly over the neck, which is typically between age 9 and 12. In a rear-facing seat the car seat straps should come from below the shoulders. In a forward-facing car seat, the straps should come from above the shoulders. The harness should be snug with the chest clip at your baby's armpit level. The car seat should be properly installed with either the LATCH system at the bottom (if the car is capable) or with the seatbelt through the belt path under the seat.

Visiting with a car seat technician is the smart way to ensure your baby is traveling safely. These technicians can provide car seat recommendations based on the child's age, weight, and height, the kind of vehicle you drive, and whether there are any other passengers in the backseat. Technicians can also ensure that the car seat is installed properly. Car seat laws and recommendations vary by state, so it is important to understand what the laws and recommendations are in your area.



Questionnaires
Demographic questionnaire

Please answer the following questions. You may skip questions if you do not feel comfortable answering them.

1. How old are you? (write in) _____

2. How do you identify your gender?

Man

Woman

Non-binary or gender-queer

Other (write-in): _____

3. Sexual orientation (Select one):

Heterosexual or straight

Homosexual, lesbian, or gay

Bisexual or pansexual

Asexual

Other (write-in): _____

4. How do you identify your race/ethnicity? (Check all that apply)

Asian or Asian American

Black or African American

Hispanic or Latino

White, Caucasian, Anglo, European American

American Indian or Native American

Hawaiian or Pacific Islander

Other (write in): _____

5. How would you describe your political views?

Very liberal

Liberal

Moderate

Conservative

Very conservative

No opinion

6. Are you an undergraduate student at Texas A&M University-Corpus Christi?

Yes

No

Background about Breastfeeding:

1. Were you breastfed?

Yes

No

I don't know

2. If you are a parent, was at least one of your children breastfed?

Yes

No

I am not a parent

3. (If “yes” to question 2)

For how long was that child breastfed? If more than one child, choose the one who was breastfed the longest.

2 weeks or less

3 weeks to 2 months

3 to 6 months

6 months to one 1 year

1 to 2 years

more than 2 years

4. (If “I am not a parent” to question 2)

If you have children in the future, how likely is it that you (or your partner) will breastfeed them?

Not likely 1--2--3--4--5 Very likely

Comprehensive Breastfeeding Knowledge Scale

Please answer the following questions with either: agree, disagree, or unsure. You may skip any questions you do not feel comfortable answering.

1. When a mother is sick with a flu or cold, she should continue to breastfeed her baby as this may prevent her baby from getting sick.

2. Laid back breastfeeding and baby-led latching refers to babies finding the nipple and attaching to the breast with minimal help.

3. Breastfeeding early after birth, spending time skin to skin and having the mother and baby room together are supportive hospital practices that help with establishing breastfeeding.

4. It is normal for breastfeeding to hurt.

5. The more often a mother breastfeeds, the more milk she will have for her baby.

6. Feeding your baby a bottle or giving a soother may change the latch and the way the baby sucks at the breast.

7. Babies should be breastfed at least 8 times in a 24-hour period to support an adequate milk supply.

8. Jaundice is best prevented with frequent breastfeeding and the baby having a good output.

9. Formula feeding is a good way of letting fathers/partners care for their breastfed babies.

10. The composition of breastmilk changes over time to meet the needs of the growing baby.

11. Learning the skill of hand expression will enable mothers to remove breast milk if needed.

12. Formula feeding and breast milk have the same effect on babies' development and brain growth.
13. Breast engorgement needs to be treated with breastfeeding the baby frequently, removing enough milk to feel comfortable, gentle massage, and cool compresses.
14. Babies should be fed when they cue (show signs they are hungry) and not at scheduled times.
15. Classes, drop-in clinics, support groups are some ways mothers can obtain breastfeeding support in the community.
16. Watching the output and energy level of the baby are good ways of monitoring if the baby is getting enough breast milk.
17. Breast milk changes over the first week with small amounts of colostrum being replaced with increased volumes of breast milk around day 2-4.
18. When breastfeeding, the baby has a wide mouth and suckles on a good amount of breast tissue, the nipple will be placed deep in the mouth where it is protected during the feed.
19. Exclusive breastfeeding (no water, other food or solids) is recommended for the first 6 months as it contains all the nutrients the baby needs (except vitamin D).
20. Small breasts will not make as much milk as larger breasts.
21. Hormones released in mom's brain respond to baby's suck and tell the breast to deliver milk.
22. Uninterrupted skin to skin contact between mother and baby immediately after birth is important for babies learning to breastfeed.
23. Baby's crying is the first sign of hunger.
24. Blocked milk ducts in the breast usually disappear on their own with routine feeding.
25. Schools and workplaces have no legal obligation to support breastfeeding mothers who want to pump or breastfeed.
26. A sore or cracked nipple is an indication of incorrect latch.
27. The baby sucks in the same way from their mother's breast or a bottle.
28. If a mother has mastitis (breast infection) she should continue to breastfeed her baby.
29. Breast milk contains germ fighting properties which protect a baby from infections and strengthen his/her immune system.
30. Breastfeeding can decrease a mother's risk of developing breast, uterine, and ovarian cancers.
31. Breast milk is no longer important to a baby's diet after foods have been introduced at 6 months.
32. Breastfeeding promotes mother-infant bonding and emotional attachment.

Breastfeeding Behavior Questionnaire

For each of the following scenarios, please indicate if you agree or disagree with the woman's choice using the following scale:

Very strongly disagree	Strongly disagree	Disagree	Agree	Strongly agree	Very strongly agree
1	2	3	4	5	6

1. Grace Johnson, a new mother, is breastfeeding her baby in the living room. Her girlfriend from next door comes to see the new baby. Jane covers her breast and the baby's head with a receiving blanket and the baby continues to nurse while the two women talk. Do you agree that it was all right for Grace to continue breastfeeding?

2. Estelle Gonzalez is breastfeeding her baby in the living room. The man and woman from next door come to see the new baby. Estelle covers her breast and the baby's head with a receiving blanket and the baby continues to breastfeed while the neighbors talk. Do you agree that Estelle should have stopped breastfeeding?
3. Tameka Williams is at McDonald's eating lunch with her girlfriends. When her baby wakes up and seems hungry, she decides to breastfeed him under her blouse. Do you agree Tameka should have taken the baby out of the public place to breastfeed?
4. Ashley Benavides is eating lunch at Dairy Queen with her girl friends. When her baby wakes up and seems hungry, she decides to breastfeed him under her blouse. Her friends are embarrassed by this, so she takes him out to the car to breastfeed him instead. Do you agree with Ashley's decision to take the baby out to the car to breastfeed him?
5. Anne Evans and her husband take their baby to church. When it is time for the baby to breastfeed, Anne takes her into the ladies' bathroom. Do you agree that Anne should have taken the baby out of church to breastfeed?
6. Maria Sandoval and her husband take their baby to church. When it is time for the baby to eat, Marie breastfeeds the baby under her blouse. She also covers the baby's head with a receiving blanket in case the blouse slips. Do you agree that Maria should have fed the baby in the church?
7. June Chen is expecting her first baby and wants to breastfeed. June's mother tells her that no one in their family has been able to successfully breastfeed since all the women have small breasts and can't make enough milk. June decides to breastfeed anyway. Do you agree with June's decision?
8. Laura Benitez is expecting her first baby and wants to breastfeed. Laura's husband wants her to bottle-feed the baby because he says that breastfeeding is "embarrassing." Laura decides to bottle-feed instead of breastfeeding. Do you agree with Laura's choice to not breastfeed because of her husband's opinion?
9. Linda Martinez is pregnant, and her doctor tells her that she should plan to breastfeed her new baby. Linda had planned to bottle-feed but changes her mind. Do you agree with Linda's decision to follow her doctor's advice?
10. Jane Lawson, who is expecting her first baby, was advised to breastfeed her new baby because "human milk is for human babies." Jane decides to bottle-feed instead because she heard that formula is every bit as good as breastmilk. Do you agree with Jane's decision to not breastfeed her baby?
11. Keysha Robinson is expecting her first baby very soon. She was advised to breastfeed but decides to bottle-feed because she wants to go back to work when the baby is 3 months old and has heard that a breastfed baby won't take a bottle. Do you agree with Keysha's decision not try to breastfeed her baby?
12. Jeanette Park is expecting her second baby. Even though she has been told that breastfeeding is better for babies, she decides to bottle-feed. She tried to breastfeed her first baby and had to stop because the baby lost weight during the first week. Do you agree with her decision to not try breastfeeding this baby?

Public Breastfeeding as Indecent

For each of the following statements, please indicate how much you agree or disagree by selecting the number that most closely corresponds to your opinion.

Strongly disagree	Disagree	Somewhat disagree	Neither agree or disagree	Somewhat agree	Agree	Strongly agree
1	2	3	4	5	6	7

1. I feel comfortable when other women breastfeed in front of me.
2. I would be embarrassed if a friend breastfed in front of me.
3. I would be embarrassed if a professor breastfed in front of me
4. I would be embarrassed if a family member breastfed in my presence.
5. Breastfeeding makes women look less attractive.
6. Pictures of women breastfeeding are obscene.
7. I would be comfortable breastfeeding in public.
8. I think women should breastfeed in public.

Which of the following did you review at the start of the study?

- Information about breastfeeding only
- A picture of a woman breastfeeding only
- Information about breastfeeding and a picture of a woman breastfeeding a baby
- Information about car seat safety and a picture of a baby in a car seat

APPENDIX B: TABLES

Table 1

Descriptive Statistics for Primary Dependent Variables

	M	SD	Range
General breastfeeding attitudes	4.13	0.59	3.0 – 6.0
Public breastfeeding attitudes	5.51	1.12	2.75 – 7.0
Breastfeeding knowledge	63.35	5.42	52.0 – 80.0

Table 2

Correlations Among Primary Dependent Variables

	Public breastfeeding attitudes	General breastfeeding attitudes	Breastfeeding knowledge
Public breastfeeding attitudes	1	.615*	.355*
General breastfeeding attitudes	.615	1	.326*
Breastfeeding knowledge	.355	.326	1

Note. *p < .001

Table 3*ANOVA Results of Intervention Condition on Public Breastfeeding Attitudes*

Source	Sum of Squares	df	Mean square	F	Sig
Between Groups	1.98	3	0.66	1.02	.67
Within Groups	273.97	216	1.27		
Total	275.95	219			

Table 4*ANOVA Results of Intervention Condition on General Breastfeeding Attitudes*

Source	Sum of Squares	df	Mean square	F	Sig
Between Groups	1.06	3	0.35	.52	.38
Within Groups	74.92	217	0.35		
Total	75.98	220			

Table 5*ANOVA Results of Intervention Condition on Breastfeeding Knowledge*

Source	Sum of Squares	df	Mean square	F	Sig
Between Groups	74.98	3	24.99	0.85	.47
Within Groups	6082.76	207	29.39		
Total	6157.74	210			