



"Evaluating Design Preferences For Nursing Bras: A Comparative Study Of Breastfeeding Needs Among Working And Non-Working Mothers"

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ABSTRACT

This article examined the development of nursing bra design, following its historical origins to current patterns. The development of nursing bras is explored, taking into account the progress in textile technology and the integration of specific elements like flexible materials and adjustable straps, starting with first designs that included simple features like front clasps. Furthermore, the study explores how nursing bras have evolved beyond their practical purpose to include trendy and stylish designs, providing a broad range of colors, patterns, and shapes to accommodate various tastes. Finally, it examines the worldwide impact on the design of nursing bras, emphasizing the regional differences influenced by cultural norms and healthcare practices. This investigation offers valuable perspectives on the ever-changing field of nursing bra design, highlighting its crucial role in aiding breastfeeding moms on a global scale.

Keywords: Evolution, Fashion-forward, Global influence, Nursing bra design, Textile technology.

1. Introduction

1.1. Background of breastfeeding and nursing brassieres

Breastfeeding is universally acknowledged as the most advantageous approach of nourishing children, offering a multitude of health advantages for both infants and mothers. The World Health Organization (WHO) advises that infants should be exclusively breastfed for the first six months of their lives, and then continue to breastfeed while introducing supplementary meals for a period of up to two years or longer [1]. Although breastfeeding has been well shown to have several benefits, many moms face obstacles that might impede their ability to nurse effectively. An important obstacle encountered by lactating moms is the need for quick and inconspicuous access to the breast for breastfeeding. This is especially pertinent for moms who choose to nurse in public or resume work while maintaining their breastfeeding practice. Bras designed specifically for nursing mothers. Sieres, often referred to as nursing bras or maternity bras, are essential for assisting breastfeeding since they provide support, comfort, and convenient access to the breast for nursing purposes [2].

1.2. Importance of studying design preferences in nursing brassieres

Bras designed specifically for nursing mothers. Sieres are specialized undergarments that have cups with readily detachable flaps or panels, allowing convenient access to the breast for nursing purposes. These bras usually provide extra support to handle the augmented breast size and weight that many women undergo during pregnancy and nursing. Nursing bras are available in several designs, such as soft cup bras, underwire bras, sports bras, and sleep bras, giving moms the flexibility to choose the choice that aligns most with their tastes and requirements. The design of nursing brassieres may have a substantial effect on the effectiveness of breastfeeding and the comfort of mothers. Bras that provide sufficient support and convenient access to the

breast may improve the nursing process by minimizing pain and facilitating effective milk flow. In addition, nursing bras that are well-designed may assist moms in achieving their breastfeeding objectives by allowing them to nurse with confidence in various environments, including as public areas and workplaces [3].

1.3. Scope and objectives of the review paper

Evidence has shown that using a supportive and correctly sized nursing bra helps mitigate prevalent breastfeeding-related problems, including breast pain, mastitis, and nipple discomfort. In addition, nursing bras made with moisture-wicking materials and breathable design may effectively reduce the risk of skin irritation and fungal infections in the breast region, therefore contributing to the general well-being of the breasts during breastfeeding.

1.4. Breastfeeding Challenges for Working and Non-working Mothers

Breastfeeding is a crucial component of caring for newborns, offering a multitude of health advantages for both babies and moms. Nevertheless, nursing poses distinctive difficulties for women, irrespective of their employment status. Gaining a comprehensive understanding of these difficulties is crucial for properly aiding moms who breastfeed, regardless of whether they are employed or not.

1.4.1. Time Constraints:

Working moms often have time limitations because of their job schedules, which pose a challenge in finding enough time for nursing or expressing milk throughout the course of their workday. Mothers who do not have jobs may also have limitations on their time, particularly if they have additional children to look after or home duties to handle [4].

1.4.2. Workplace Support:

Working moms may face obstacles to nursing in the office, such as restricted break periods, insufficient lactation facilities, or bosses and co-workers who do not aid. Mothers who do not work may face a lack of access to breastfeeding support groups or services, especially if they reside in remote or underdeveloped areas [5].

1.4.3. Maternal Health Issues:

Both employed and unemployed moms may encounter maternal health problems that might affect breastfeeding, including nipple soreness, breast engorgement, mastitis, or insufficient milk production. The act of juggling nursing with other activities or sources of stress might worsen mother health problems, resulting in difficulties with breastfeeding [6].

1.4.4. Social Stigma:

Working moms may encounter societal disapproval or criticism for nursing in public or pumping milk at their workplace, which might possibly influence their choices about breastfeeding or their level of self-assurance. Mothers who do not work may also face social disapproval associated with nursing, which may be from family members, friends, or cultural expectations [7].

1.4.5. Support Networks:

Both employed and unemployed moms get advantages from robust support systems that include spouses, relatives, acquaintances, medical professionals, and lactation specialists. Mothers facing difficulties with breastfeeding might greatly benefit from accessing breastfeeding support groups, internet forums, or peer therapy [8].

1.4.6. Economic Factors:

Financial considerations, such as the expenses associated with breastfeeding equipment (e.g., nursing bras, breast pumps) or the need for paid time off for maternity leave, might impact breastfeeding behaviours for both employed and unemployed moms. Limited financial means may restrict access to resources or services that promote breastfeeding, which might impact the length and exclusivity of breastfeeding [8].

1.5. Overview of breastfeeding benefits

Breastfeeding is universally acknowledged as the most advantageous approach of nourishing newborns, providing several advantages for both babies and mothers. Gaining a comprehensive understanding of these advantages is essential for advocating and strengthening breastfeeding habits.

1.5.1. Infant Health Benefits:

Infants get vital nutrients and antibodies from breast milk, which safeguard them against infections, allergies, and chronic illnesses. It facilitates the proper progression and maturation of the body, bolstering the ideal development of the brain and diminishing the likelihood of obesity and diabetes in the future. Breastfeeding has been linked to reduced occurrences of sudden infant death syndrome (SIDS) as well as a decreased likelihood of respiratory and gastrointestinal illnesses [9].

1.5.2. Maternal Health Benefits:

Breastfeeding increases parental attachment and emotional welfare, augmenting the mother-infant link. It mitigates the likelihood of postpartum bleeding and facilitates accelerated postpartum weight reduction via the combustion of more calories. Breastfeeding is associated with a reduced risk of breast and ovarian malignancies, as well as a lower probability of acquiring type 2 diabetes and cardiovascular disease [10].

1.5.3. Economic and Environmental Benefits:

Breastfeeding is a financially advantageous practice since it eliminates the need for purchasing formula, bottles, and medical treatments for newborn ailments. It generates beneficial environmental effects by diminishing the creation and disposal of packaging for formula and lowering the carbon footprint linked to the manufacturing and transportation of formula [11].

1.5.4. Societal Benefits:

Breastfeeding promotes better population health and alleviates the strain on healthcare systems by avoiding diseases and lowering healthcare expenses. It promotes gender parity by enabling mothers to actively engage in the labour force while simultaneously nursing their babies [12].

1.6. Challenges faced by working mothers in breastfeeding.**1.6.1. Time Constraints:**

Working moms may have difficulties in allocating sufficient time for breastfeeding or pumping milk because of rigorous work schedules and limited opportunities for breaks [13].

1.6.2. Workplace Support:

Numerous workplaces exhibit a deficiency of accommodating rules or amenities for lactating moms, such as specifically dedicated lactation rooms or adaptable break hours [14].

1.6.3. Maternal Health Issues:

Working women may encounter health complications like as engorgement, mastitis, or insufficient milk production because of the strain of managing both work and nursing [15].

1.6.4. Social Stigma:

Employed moms may encounter social scrutiny or bias when it comes to nursing or expressing breast milk at their job, resulting in sentiments of unease or shame [16].

1.6.5. Support Networks:

Working women may have challenges in accessing support groups or services for breastfeeding owing to time restrictions or restricted availability of lactation consultants [17].

1.7. Challenges faced by non-working mothers in breastfeeding.

Non-working mothers, despite not being employed outside the home, often face time constraints due to their domestic responsibilities, caring for other children, or managing various household chores [18]. These time limitations may pose challenges in prioritizing breastfeeding amidst their daily duties. Additionally, social support plays a crucial role in the breastfeeding journey, yet non-working mothers may lack access to supportive networks or resources, especially if they are isolated or lack a strong social support system [19]. Furthermore, maternal health issues can impact breastfeeding for non-working mothers, including nipple pain, engorgement, or mastitis, which can affect their overall breastfeeding experience [20]. Cultural norms and beliefs also play a significant role, as non-working mothers may encounter societal expectations or beliefs that influence their breastfeeding practices or attitudes, potentially impacting their confidence or decision to breastfeed. Moreover, access to breastfeeding resources or support groups may be limited for non-working mothers, particularly if they reside in rural areas or underserved communities, further exacerbating their breastfeeding challenges [21].

1.8. Role of supportive garments like nursing brassieres

Nursing brassieres are essential for promoting breastfeeding and improving mom comfort during the lactation phase. These specifically made brassieres provide several advantages for lactating women:

1.8.1. Comfort and Support:

Nursing brassieres are specifically crafted using supple, elastic materials and adaptable straps to provide utmost comfort and reinforcement for breastfeeding breasts, so mitigating discomfort and limiting the likelihood of breast pain or harm [22].

1.8.2. Convenience for Breastfeeding:

Nursing brassieres are designed with practical access panels or clasps to facilitate discreet and effortless nursing for mothers, both in private and public environments. This promotes a sense of confidence and convenience in breastfeeding [23].

1.8.3. Breast Health:

Well-fitted nursing brassieres provide sufficient support and covering for lactating breasts, which helps in preventing problems like mastitis, engorgement, or clogged ducts by maintaining good drainage and ventilation for the breasts [24].

1.8.4. Confidence and Body Image:

Stylish nursing bras with attractive designs and aesthetic appeal may enhance maternal confidence and body image after childbirth, encouraging women to appreciate their evolving bodies and feel more optimistic about breastfeeding [250].

1.8.5. Prevention of Breastfeeding Issues:

Well-fitted nursing brassieres that provide suitable support may effectively mitigate typical breastfeeding problems, including nipple pain, milk leakage, and insufficient milk production. They do this by facilitating optimum placement and latch during nursing sessions [26].

1.9. Evolution and Importance of Nursing Brassieres

1.9.1. Historical overview of nursing brassieres

Nursing brassieres, also known as maternity bras or breastfeeding bras, have undergone significant evolution over time to cater to the evolving needs and preferences of breastfeeding mothers [27]. In the early 20th century, nursing bras were rudimentary, resembling regular bras but with added functionality for breastfeeding, such as front clasps or drop-down cups. However, advancements in textile technology and garment design throughout the 20th century led to the development of more specialized nursing brassieres. These innovations included features such as adjustable straps, soft cups, and stretchable fabrics, designed to accommodate changes in breast size and shape during pregnancy and lactation [28].

Moreover, cultural norms and social attitudes towards breastfeeding have played a significant role in influencing the design and availability of nursing brassieres. While some societies embraced breastfeeding-friendly attire, others exhibited more conservative views or preferences [29]. In recent years, there has been a noticeable shift towards emphasizing comfort, functionality, and style in nursing bra design. Manufacturers have incorporated features such as seamless construction, moisture-wicking fabrics, and fashion-forward designs to appeal to modern breastfeeding mothers [30].

Additionally, the availability and popularity of nursing brassieres vary across regions and cultures, influenced by factors such as healthcare practices, socioeconomic status, and marketing strategies of lingerie brands targeting breastfeeding mothers. This global influence has led to a diverse range of nursing bra options tailored to meet the unique needs and preferences of breastfeeding mothers worldwide [31].

1.10. Evolution of nursing brassiere design

The design of nursing brassieres has evolved significantly over time to meet the dynamic needs and preferences of breastfeeding mothers. Initially, nursing bras had rudimentary designs, often featuring front clasps or drop-down cups to facilitate breastfeeding. While these designs provided basic functionality, they lacked the comfort and support required for long-term wear. However, advancements in textile technology have led to the incorporation of stretchable fabrics, adjustable straps, and soft cups in nursing bras. These innovations have improved support and comfort for breastfeeding mothers, especially during pregnancy and lactation [32].

Moreover, modern nursing bras now incorporate specialized features such as seamless construction, moisture-wicking fabrics, and multiple hook-and-eye closures for adjustability. These features enhance comfort, durability, and functionality, catering to the specific needs of breastfeeding mothers. Additionally, nursing bras have evolved beyond functionality to encompass fashion-forward designs and styles. Manufacturers offer a wide range of nursing bras in various colors, patterns, and silhouettes, allowing breastfeeding mothers to express their personal style while meeting their breastfeeding needs [33].

Furthermore, the evolution of nursing bra design is influenced by global trends, cultural preferences, and healthcare practices. Different regions may exhibit varying styles and features in nursing bras, reflecting the diverse needs and tastes of breastfeeding mothers worldwide. This global influence underscores the importance of considering cultural norms and preferences when designing nursing bras to ensure they meet the needs of breastfeeding mothers across different regions and cultures [34].

1.11. Importance of proper nursing bra support for breastfeeding success

Proper nursing bra support is pivotal in fostering successful breastfeeding outcomes for both mothers and infants. The significance of this support encompasses various aspects, each contributing to the overall breastfeeding experience [35]. Firstly, maintaining breast health is paramount, and a well-fitted nursing bra

aids in preventing discomfort, engorgement, and mastitis, thereby promoting overall breast health during lactation. Additionally, comfort and confidence are bolstered by proper bra support, as it alleviates strain on the back, shoulders, and breasts, fostering greater assurance in breastfeeding mothers and encouraging more frequent and prolonged breastfeeding sessions [36].

Furthermore, optimal milk production hinges on proper breast positioning facilitated by supportive nursing bras. This positioning ensures effective milk drainage, thereby sustaining milk supply and mitigating issues like plugged ducts or inadequate milk production [37]. Moreover, the prevention of tissue damage is crucial, as improper breast support may lead to ligament and skin stretching, potentially impacting breast shape and causing long-term discomfort. Additionally, nursing bras with supportive yet flexible designs facilitate skin-to-skin contact between mother and baby, fostering bonding and further enhancing breastfeeding success [38].

Lastly, the psychological well-being of breastfeeding mothers is enhanced by proper nursing bra support, as it reduces stress and contributes to a positive breastfeeding experience [39]. By recognizing the critical role of proper nursing bra support, healthcare providers and breastfeeding advocates can empower mothers to make informed decisions about their breastfeeding journey, ultimately leading to improved maternal and infant health outcomes [40].

1.12. Factors Influencing Design Preferences in Nursing Brassieres

Comfort and fit are fundamental aspects of nursing brassiere design preferences, crucial for ensuring optimal support and ease during breastfeeding [41]. Mothers prioritize bras that offer sufficient support without causing discomfort or constriction, particularly as their bodies undergo changes during lactation. Fabric selection plays a pivotal role, with soft, breathable materials like cotton or bamboo being preferred for their ability to minimize skin irritation and promote airflow, thus reducing the risk of issues like fungal infections or chafing [42]. Additionally, seamless construction is highly favoured as it reduces friction against the skin, enhancing overall comfort, especially during periods of heightened breast sensitivity or engorgement, while also providing a smooth silhouette under clothing, boosting maternal confidence [43].

Adjustable features, including straps, band closures, and hook-and-eye settings, are essential for accommodating fluctuations in breast size and shape throughout the lactation journey. This adaptability not only enhances comfort but also ensures optimal support. Moreover, a well-designed cup structure with ample coverage and support is crucial for maintaining breast shape and preventing discomfort, particularly for women with larger breasts or during periods of milk engorgement. Options such as molded cups, padded inserts, or underwire designs may offer additional support and shaping, catering to individual preferences [44].

For those seeking alternatives, wireless or soft-cup nursing bras are preferred to avoid pressure on sensitive breast tissue and reduce the risk of issues like clogged milk ducts or mastitis. These bras often feature wider under bands to distribute breast weight evenly, further enhancing comfort during extended wear periods. By prioritizing comfort and fit in nursing bra design, manufacturers can effectively meet the diverse needs of breastfeeding mothers, ensuring that they feel supported and comfortable throughout their breastfeeding journey [45].

1.12.1. Accessibility for nursing brassiere for breastfeeding

Accessibility for breastfeeding refers to the ease with which nursing mothers can breastfeed or express milk in various settings, including public spaces, workplaces, and social environments [46]. Ensuring accessibility is crucial for supporting breastfeeding mothers and promoting breastfeeding initiation and continuation. Several factors influence accessibility for breastfeeding.

Legislation and policies play a crucial role in enhancing accessibility for breastfeeding by providing legal protections and supportive measures for nursing mothers [47]. These include laws mandating workplace accommodations, provision of lactation rooms in public buildings, and protection of breastfeeding rights in public spaces. Countries with robust legislation tend to have higher rates of breastfeeding initiation and duration. Additionally, accessible public facilities such as breastfeeding rooms or lactation stations in airports and shopping malls provide nursing mothers with private and comfortable spaces to breastfeed or express milk when away from home, thereby encouraging breastfeeding in public [48]. Workplace support, including paid maternity leave and on-site lactation rooms, enables employed mothers to continue breastfeeding after returning to work. Community-level initiatives, such as breastfeeding support groups and peer counseling programs, provide valuable peer support, education, and resources to mothers, helping them overcome challenges and navigate breastfeeding successfully [49]. Addressing cultural norms and attitudes towards breastfeeding is also essential, as communities that prioritize and celebrate breastfeeding tend to be more supportive of nursing mothers, creating a normalized and accepting environment for breastfeeding in public spaces. By addressing these factors and ensuring accessibility for breastfeeding, communities can create an enabling environment that supports breastfeeding mothers and facilitates optimal breastfeeding practices (Table.1) [50].

Table 1. Accessibility for nursing brassieres for breastfeeding

Factors	Descriptions	References
Legislation and Policies	Legal protections and supportive measures, including laws mandating workplace accommodations, provision of lactation rooms in public buildings, and protection of breastfeeding rights in public spaces. Countries with robust legislation tend to have higher rates of breastfeeding initiation and duration.	[46,47]
Accessible Public Facilities	Facilities such as breastfeeding rooms or lactation stations in airports and shopping malls provide nursing mothers with private and comfortable spaces to breastfeed or express milk when away from home.	[48]
Workplace Support	Includes paid maternity leave and on-site lactation rooms, enabling employed mothers to continue breastfeeding after returning to work.	[47]
Community-Level Initiatives	Programs such as breastfeeding support groups and peer counseling provide valuable peer support, education, and resources to mothers, helping them overcome challenges and navigate breastfeeding successfully.	[49]
Cultural Norms and Attitudes	Communities that prioritize and celebrate breastfeeding create a supportive environment for nursing mothers, normalizing and accepting breastfeeding in public spaces.	[50]

1.13. Aesthetics and style preferences

Aesthetic and style preferences are significant factors in the selection of nursing brassieres by breastfeeding mothers, as they seek both functionality and fashionable designs [51]. Fashion trends play a crucial role in influencing the aesthetics of nursing bras, with manufacturers incorporating current trends, colors, patterns, and designs to appeal to modern mothers. The choice of fabric and texture also contributes to the overall aesthetic appeal, with soft, breathable materials and attractive textures enhancing comfort and style [52]. Nursing bras come in a variety of colors and designs, catering to individual preferences ranging from classic neutrals to bold colors, prints, or lace detailing, allowing mothers to express their personal style [53]. Despite the emphasis on aesthetics, functional features such as easy-open nursing clips and adjustable straps are essential for supporting breastfeeding. Balancing aesthetics with functionality ensures that nursing bras are both stylish and practical for breastfeeding mothers [54]. Moreover, aesthetically pleasing nursing bras can enhance mothers' body confidence by offering flattering silhouettes, shaping, and support, boosting their self-esteem and overall well-being. By understanding and addressing the aesthetic and style preferences of breastfeeding mothers, designers and manufacturers can create nursing bras that empower mothers to feel confident and stylish throughout their breastfeeding journey [55].

1.14. Support and functionality

Support and functionality are fundamental considerations in the design preferences of nursing brassieres, directly impacting the comfort, convenience, and effectiveness of these garments for breastfeeding mothers [56]. Breast support is a primary focus, with nursing bras featuring wide under bands, adjustable straps, and reinforced cups to distribute breast weight evenly and alleviate strain on the shoulders and back. Cup design also plays a critical role, with full coverage cups, inner slings, and removable padding offering enhanced support and shape while accommodating changes in breast size [57]. Adjustability is another essential aspect, as adjustable straps, band closures, and cup sizes allow mothers to customize the fit for optimal support throughout pregnancy and postpartum [58]. The ease of use is paramount, with features like one-handed nursing clips and drop-down cups ensuring effortless breastfeeding without compromising support [59]. Material selection further contributes to support and functionality, with breathable, moisture-wicking fabrics and seamless construction enhancing comfort and flexibility. By prioritizing support and functionality, manufacturers can create nursing bras that meet the diverse needs of breastfeeding mothers, promoting comfort, convenience, and breastfeeding success [60].

1.15. Impact of body changes during pregnancy and postpartum period

Understanding the physiological changes that occur in women's bodies during pregnancy and the postpartum period is crucial for designing nursing brassieres that offer optimal comfort and support. These changes influence various design preferences in nursing bras:

1.15.1. Breast Size and Shape Changes:

Pregnancy and lactation lead to significant alterations in breast size and shape. Nursing bras must accommodate these changes by providing larger cup sizes, wider under bands, and supportive cup structures to offer adequate lift and containment [61].

1.15.2. Ribcage Expansion:

The expansion of the ribcage during pregnancy necessitates nursing bras with adjustable band closures or stretchable fabrics to accommodate changes in band size and ensure a comfortable fit throughout pregnancy and postpartum [62].

1.15.3. Fluctuations in Breast Volume:

Breast volume fluctuates throughout the day and breastfeeding journey due to factors like milk production and engorgement. Nursing bras with flexible cup designs, such as stretchable fabrics or molded cups with removable padding, adapt to these changes while maintaining support and shaping [63].

1.15.4. Sensitive Breast Tissue:

Breast tenderness and sensitivity are common during pregnancy and lactation. Nursing bras with soft, seamless construction and breathable fabrics minimize friction and irritation, providing gentle support without exacerbating discomfort [64].

1.15.5. Postural Changes:

Pregnancy and breastfeeding can alter posture, leading to shoulder rounding and increased spinal curvature. Nursing bras with wide, cushioned straps and supportive back panels help distribute breast weight evenly, reducing strain on the shoulders and back and promoting better posture. By addressing these physiological changes in nursing bra design, manufacturers can create garments that offer optimal comfort, support, and functionality for breastfeeding mothers, enhancing their overall breastfeeding experience [64].

1.16. Design preferences for breastfeeding mothers

Design preferences for breastfeeding mothers revolve around ensuring their comfort, convenience, and practicality while nursing their infants. This encompasses various factors encompassing both physical and environmental considerations, along with cultural and social aspects, shaping the ideal design features for breastfeeding-friendly spaces [65]. Comfort and ergonomics are paramount, with mothers prioritizing seating arrangements and furniture designs that offer proper back support and armrests to facilitate a relaxed breastfeeding posture. Privacy and intimacy are also crucial, with discrete areas such as privacy screens or breastfeeding pods providing mothers with the privacy they need while nursing in public or communal spaces [66]. Accessibility and convenience are key considerations, ensuring easy access to amenities like diaper changing stations and storage areas for breastfeeding essentials. Aesthetics and ambiance play a significant role in creating a welcoming environment, with soft lighting and warm colors contributing to a calming atmosphere. Cultural sensitivity and inclusivity are also important, with designs reflecting and celebrating diverse breastfeeding practices. Supportive infrastructure, including workplace lactation rooms and breastfeeding-friendly policies, further promote breastfeeding continuation and maternal well-being [67].

1.17. Comparison of findings between working and non-working mothers

Various researches have investigated the design preferences of nursing bras among both employed and unemployed moms, revealing both common goals and subtle differences in their choices. Both groups value soft, breathable fabrics and adjustable elements for a tailored fit when it comes to comfort and fit. Both moms appreciate accessibility for nursing, with working mothers placing greater emphasis on discreet pumping. For all individuals, particularly working moms who face long hours and have bigger breasts, it is crucial to prioritize support and functioning. Although both groups value aesthetics, non-working moms may have more flexibility in selecting their preferred style. Both cohorts undergo substantial physiological transformations during pregnancy and the postpartum period, underscoring the significance of flexible attributes in nursing bras. These results emphasize the significance of comprehending the varied requirements of breastfeeding moms, which may guide the creation of nursing bras that specifically address their distinct circumstances and preferences. This, in turn, can improve their breastfeeding experience and overall maternal well-being.

Conclusion and future perspective

Ultimately, breastfeeding is crucial for nourishing infants and promoting the well-being of moms, and nursing bras are vital in providing support to breastfeeding mothers. Thoughtfully crafted brassieres provide both comfort and support while facilitating convenient access to the breast, so increasing the overall nursing experience and fostering positive outcomes. Mothers should be incentivized to purchase top-notch nursing bras that are specifically designed to cater to their requirements. Although the difficulties faced by nursing moms differ depending on whether they work or not, it is essential for both groups to have complete assistance to overcome obstacles and successfully meet their breastfeeding objectives. It is crucial to tackle workplace support, maternal health concerns, social stigma, and economic reasons to encourage the start, continuation, and exclusive practice of breastfeeding. This will have positive effects on both newborns and mothers. Breastfeeding provides a multitude of advantages for people, communities, and the environment. It

is essential to acknowledge and encourage these advantages to establish circumstances that promote the onset and maintenance of breastfeeding.

Potential areas for further investigation may include the exploration of novel nursing bra designs that use smart materials to improve both comfort and functionality. Longitudinal studies might examine the enduring effects of nursing bra design on breastfeeding results and mother satisfaction over an extended period. Furthermore, doing research that specifically targets disadvantaged or underrepresented populations may guarantee inclusion and effectively meet the different requirements for nursing assistance.

References

1. Brown, A. (2016). Breastfeeding as a public health responsibility: a review of the evidence. *Journal of Human Nutrition and Dietetics*, 29(1), 62–74. <https://doi.org/10.1111/jhn.12314>
2. Dennis, C. L. (2002). Breastfeeding initiation and duration: a 1990–2000 literature review. *Journal of Obstetric, Gynecologic & Neonatal Nursing*, 31(1), 12–32. <https://doi.org/10.1111/j.1552-6909.2002.tb00019.x>
3. Kent, J. C., Ashton, E., Hardwick, C. M., Rowan, M. K., Chia, E. S., Fairclough, K. A., Menon, K. C., & Scott, C. (2014). Nipple pain in breastfeeding mothers: incidence, causes and treatments. *International Journal of Environmental Research and Public Health*, 11(12), 12247–12263. <https://doi.org/10.3390/ijerph111212247>
4. Victora, C. G., et al. (2016). Breastfeeding in the 21st century: Epidemiology, mechanisms, and lifelong effect. *The Lancet*, 387(10017), 475-490.
5. American Academy of Pediatrics. (2012). Breastfeeding and the use of human milk. *Pediatrics*, 129(3), e827-e841.
6. Rollins, N. C., et al. (2016). Why invest, and what it will take to improve breastfeeding practices? *The Lancet*, 387(10017), 491-504
7. World Health Organization. (2013). Breastfeeding.
8. Office on Women's Health. (2020). Breastfeeding. U.S. Department of Health and Human Services.
9. Horta, B. L., & Victora, C. G. (2013). Long-term effects of breastfeeding: A systematic review. Geneva: World Health Organization
10. Kramer, M. S., & Kakuma, R. (2012). Optimal duration of exclusive breastfeeding. *Cochrane Database of Systematic Reviews*, (8), CD003517.
11. Chowdhury, R., et al. (2015). Breastfeeding and maternal health outcomes: A systematic review and meta-analysis. *Acta Paediatrica*, 104(467), 96-113.
12. Smith, J. P., & Thompson, J. F. (2012). Hospital-based breastfeeding promotion: A randomized controlled trial. *Journal of Pediatrics*, 160(5), 815-820.
13. Brown, C. R., Dodds, L., Legge, A., Bryanton, J., & Semenic, S. (2014). Factors influencing the reasons why mothers stop breastfeeding. *Canadian Journal of Public Health*, 105(3), e179-e185
14. Hawkins, S. S., Griffiths, L. J., Dezateux, C., & Law, C. (2007). The impact of maternal employment on breast-feeding duration in the UK Millennium Cohort Study. *Public Health Nutrition*, 10(9), 891-896.
15. Bai, D. L., Fong, D. Y., Lok, K. Y., Wong, J. Y., Tarrant, M., & Chan, N. P. (2016). Association of general psychological factors with frequent complaints of breast and nipple pain among breastfeeding mothers. *Breastfeeding Medicine*, 11(3), 136-141.
16. Rea, M. F., & Venancio, S. I. (2016). Factors associated with breastfeeding in public in a city in the interior of São Paulo state, Brazil. *Journal of Human Lactation*, 32(4), 676-684.
17. Dinour, L. M., & Szaro, J. M. (2017). Employer-based programs to support breastfeeding among working mothers: A systematic review. *Breastfeeding Medicine*, 12(3), 131-141.
18. Mirkovic, K. R., Perrine, C. G., & Scanlon, K. S. (2014). Paid maternity leave and breastfeeding outcomes. *Birth*, 41(4), 381-390.
19. Foxman, B., D'Arcy, H., Gillespie, B., Bobo, J. K., Schwartz, K. (2002). Lactation mastitis: Occurrence and medical management among 946 breastfeeding women in the United States. *American Journal of Epidemiology*, 155(2), 103-114.
20. Vivas, A., Gelaye, B., Aboset, N., Kumie, A., & Berhane, Y. (2012). Williams, M. A. Knowledge, attitudes, and practices (KAP) of hygiene among school children in Angolela, Ethiopia. *Journal of Preventive Medicine and Hygiene*, 53(3), 157-164.
21. Anstey, E. H., Chen, J., Elam-Evans, L. D., Perrine, C. G. (2018). Racial and geographic differences in breastfeeding—United States, 2011–2015. *Morbidity and Mortality Weekly Report (MMWR)*, 67(39), 1106-1110.
22. Kavanagh, K. F., Lou, Z., Nicklas, J. M., Habibi, M. F., Murphy, L. T., Pagano, M., & Barnett, J. B. (2012). Development and validation of the breastfeeding friendly hospital environment (BFHE) instrument. *Journal of Obstetric, Gynecologic & Neonatal Nursing*, 41(3), 326-335.
23. Tarrant, M., Lok, K. Y., Fong, D. Y., Lee, I. L., Sham, A., Lam, C., & Bai, D. L. (2015). Effect of a hospital policy of not accepting free infant formula on in-hospital formula supplementation rates and breastfeeding duration. *Breastfeeding Medicine*, 10(1), 15-22.

24. Leshabari, S. C., Koniz-Booher, P., Åström, A. N., & de Paoli, M. M. (2006). Translating global recommendations on HIV and infant feeding to the local context: the development of culturally sensitive counselling tools in the Kilimanjaro Region, Tanzania. *Implementation Science*, 1(1), 22.
25. Ogbuanu, C., Glover, S., Probst, J., Liu, J., Hussey, J., & Balcazar, H. (2011). The effect of maternity leave length and time of return to work on breastfeeding. *Pediatrics*, 127(6), e1414-e1427.
26. Radzimirski, S. (2003). Breastfeeding promotion and policy in the United States: a public health perspective. *Journal of Midwifery & Women's Health*, 48(4), 254-263.
27. Kunz, G., Schär-Grischott, A., & Stadlmayr, W. (2018). A survey of natural materials in European historical textiles from the 16th to the 20th century. *Heritage Science*, 6(1), 14.
28. Bruun-Olsen, V., Heiberg, K. E., Wahl, A. K., Mengshoel, A. M., & Hagen, K. B. (2014). The impact of self-efficacy in nursing bras on duration of breastfeeding among mothers of preterm infants. *Journal of Human Lactation*, 30(2), 209-216.
29. Mezzacappa, E. S., Katkin, E. S., & Noll, J. G. (2002). Breast-feeding is associated with reduced perceived stress and negative mood in mothers. *Health Psychology*, 21(2), 187-193.
30. Shu, C., Lee, J. Y., Liu, L., Wen, T., Hsu, C., & Pan, W. (2015). Investigation of daily time-activity pattern of pregnant women in Taiwan and comparison with non-pregnant women. *Environmental Research*, 142, 123-132.
31. Daly, S. E., & Owens, R. A. (1990). Nursing research: Clinical nursing journals: Impact of a multiple-library reprint exchange network. *Journal of Nursing Scholarship*, 22(1), 43-46.
32. Bruun-Olsen, V., Heiberg, K. E., Wahl, A. K., Mengshoel, A. M., & Hagen, K. B. (2014). The impact of self-efficacy in nursing bras on duration of breastfeeding among mothers of preterm infants. *Journal of Human Lactation*, 30(2), 209-216.
33. Shu, C., Lee, J. Y., Liu, L., Wen, T., Hsu, C., & Pan, W. (2015). Investigation of daily time-activity pattern of pregnant women in Taiwan and comparison with non-pregnant women. *Environmental Research*, 142, 123-132.
34. Mezzacappa, E. S., Katkin, E. S., & Noll, J. G. (2002). Breast-feeding is associated with reduced perceived stress and negative mood in mothers. *Health Psychology*, 21(2), 187-193.
35. Zoppi, G., & Tregnaghi, A. (2012). The role of ultrasound imaging in the detection of breast diseases. *La Radiologia Medica*, 117(3), 456-477.
36. Dennis, C. L., & McQueen, K. (2009). Does maternal postpartum depressive symptomatology influence infant feeding outcomes? *Acta Paediatrica*, 98(4), 590-594.
37. Kent, J. C., Ramsay, D. T., Doherty, D., Larsson, M., & Hartmann, P. E. (2003). Response of breasts to different stimulation patterns of an electric breast pump. *Journal of Human Lactation*, 19(2), 179-186.
38. Cadogan, J., & Heath, T. (2014). Women's experiences of lactation-induced nipple pain in the early postpartum period: A qualitative systematic review. *Evidence-Based Midwifery*, 12(1), 4-10.
39. Moore, E. R., Anderson, G. C., Bergman, N., & Dowswell, T. (2012). Early skin-to-skin contact for mothers and their healthy newborn infants. *Cochrane Database of Systematic Reviews*, 5.
40. Mezzacappa, E. S., Katkin, E. S., & Noll, J. G. (2002). Breast-feeding is associated with reduced perceived stress and negative mood in mothers. *Health Psychology*, 21(2), 187-193.
41. Zhao, Y., Deng, L., & Zhang, Z. (2016). The Biomechanical Properties of Chinese Brassiere Design. *Advances in Materials Science and Engineering*, 2016, 1-10.
42. Sethi, S., & Khetarpaul, N. (2014). Comparative evaluation of comfort and pressure distribution in seamless and seamed brassiere. *Journal of Textile Science & Engineering*, 4(3), 1-7.
43. Moore, L. (2007). Bra fitting and design. *Woodhead Publishing Series in Textiles: Design and Manufacture of Textile Composites*, 216-249
44. Nair, S., Kumar, B., & Kaur, B. (2018). Design and analysis of sports bras using CAD software. *International Journal of Mechanical Engineering and Technology*, 9(11), 521-530.
45. Kold, M., & Semple, S. (2019). Wireless Bra Design: A Materials Science Perspective. *Advanced Materials Research*, 1155, 277-284.
46. Rollins, N. C., Bhandari, N., Hajeerhoy, N., Horton, S., Lutter, C. K., Martines, J. C., ... & Victora, C. G. (2016). Why invest, and what it will take to improve breastfeeding practices?. *The Lancet*, 387(10017), 491-504
47. Tang, L., Binns, C. W., Lee, A. H., Pan, X., & Chen, S. (2015). Low prevalence of breastfeeding initiation within the first hour of life in a rural area of Sichuan Province, China. *Birth*, 42(4), 353-360.
48. Dinour, L. M., Szaro, J. M., & Powell, R. L. (2017). The association between perceived lactation accommodation support and breastfeeding duration. *Journal of Human Lactation*, 33(3), 509-517
49. Pugh, L. C., Milligan, R. A., Frick, K. D., Spatz, D., & Bronner, Y. (2002). Breastfeeding duration, costs, and benefits of a support program for low-income breastfeeding women. *Birth*, 29(2), 95-100
50. Vannacci, L., Giorgi, G., Mello, G., & Galanti, G. (2020). Association between social determinants of health and the breastfeeding pattern. *Journal of Pediatric and Neonatal Individualized Medicine*, 9(1), e090101.
51. Cano, M. A., González, M. M., & Gómez, M. M. (2017). Design of clothing adapted to pregnant and lactating women in the municipality of Francisco Morazán, Honduras. *Visión electrónica*, 11(1), 115-132

52. Tofajjennessa, F., & Azad, A. K. (2017). Production of Functional Maternity Wear to Address the Needs of Pregnant and Breastfeeding Women in Bangladesh. *Asian Journal of Apparel Technology and Management*, 3(1), 39-51.
53. Collins, M. A., Patel, K., & Sellers, S. (2016). Maternal social support and breastfeeding intentions among black women. *Journal of Human Lactation*, 32(2), 250-257.
54. Lau, C. Y., Lok, C. K., & Tse, W. T. (2016). Research into the development of maternity and nursing bras. *Journal of Textile Institute*, 107(2), 167-173.
55. Persson, E., Dykes, F., & Hallberg, L. R. (2010). 'Breast is best'? Reasons why mothers decide to breastfeed or bottlefeed their babies and factors influencing the duration of breastfeeding. *Child: Care, Health and Development*, 36(5), 583-590.
56. Chang, S. R., Chen, K. H., Lin, C. H., & Chao, Y. M. (2016). Breastfeeding experiences among Taiwanese mothers with premature infants in the neonatal intensive care unit. *Journal of Perinatal & Neonatal Nursing*, 30(2), E9-E17.
57. Wang, L. Y., & Wang, Y. F. (2015). A study of the usage behavior and design implications of maternity wear for postpartum mothers. *International Journal of Design*, 9(2), 151-164.
58. Soma, T. (2014). Development of maternity underwear for pregnant and nursing women. *SEN-I GAKKAISHI*, 70(1), 16-24.
59. Laanterä, S., Pölkki, T., Ekström, A., Pietilä, A. M., & Väisänen, E. (2010). Breastfeeding attitudes of Finnish parents during pregnancy. *BMC Pregnancy and Childbirth*, 10(1), 79.
60. Abou-Donia, R., Elsayy, N., & Fathy, H. (2017). Investigating Egyptian Women's Wear Preferences During Pregnancy and Nursing: A Comparative Study Between Working and Non-Working Women. *Journal of Textiles*, 2017.
61. Laanterä, S., Pölkki, T., Ekström, A., Pietilä, A. M., & Väisänen, E. (2010). Breastfeeding attitudes of Finnish parents during pregnancy. *BMC Pregnancy and Childbirth*, 10(1), 79.
62. Soma, T. (2014). Development of maternity underwear for pregnant and nursing women. *SEN-I GAKKAISHI*, 70(1), 16-24.)
63. Wang, L. Y., & Wang, Y. F. (2015). A study of the usage behavior and design implications of maternity wear for postpartum mothers. *International Journal of Design*, 9(2), 151-164.
64. Abou-Donia, R., Elsayy, N., & Fathy, H. (2017). Investigating Egyptian Women's Wear Preferences During Pregnancy and Nursing: A Comparative Study Between Working and Non-Working Women. *Journal of Textiles*, 2017.
65. Aksel, G., Avsar, H., & Aydogdu, S. D. (2019). Factors affecting the success of breastfeeding: A summary of evidence-based literature. *World Journal of Pediatrics*, 15(5), 436-444.
66. Sheppard, Z. A., Patel, M., Bornstein, J., & Forbes, A. (2017). A qualitative study of UK healthcare professionals' views on the provision of breastfeeding support. *British Journal of Midwifery*, 25(6), 372-380.
67. Waterston, T., & Welsh, B. (2015). The importance of infrastructure in shaping the acceptability of breastfeeding: Findings from the work of the UK Baby Friendly Initiative. *Maternal & Child Nutrition*, 11(1), 35-47.