

Strategies for boosting breast milk supply in postpartum women: a scoping review

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Abstract

Purpose: This scoping review aims to evaluate the evidence base relating to strategies used to increase breast milk supply in postpartum mothers. **Methods:** This scoping review adopts the PRISMA-ScR guidelines, which consist of five phases, according to Arksey and O'Malley. They reviewed three databases: Pubmed, Research Rabbits, and ScienceDirect. Inclusion requirements can only be met with full-text, original publications published in English and Indonesian between 2018 and 2022. **Results:** 30 potentially applicable articles and 10 papers matching the inclusion criteria were found among 644 articles. The four main topics are the impact of soy milk intake, oxytocin massage, breast care, mung bean extract, acupressure treatment, and oxytocin massage and acupressure therapy. **Conclusion:** The most beneficial therapies for increasing breast milk supply are oxytocin massage and breast care.

Keywords: breast milk production; postpartum mother; scoping review

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INTRODUCTION

Breast milk is a highly recommended choice as the primary food or nutritional intake for babies because it has several significant benefits. Breastfeeding is recommended for children under one and a half years old [1]. Breast milk is optimal for babies because it provides rich nutrition and is essential for the development and growth of the brain and nervous system. Breast milk, thanks to the immunological components it contains, helps protect babies from various diseases [2]. Providing breast milk inappropriately can result in all kinds of health problems, including malnutrition, infectious diseases, and developmental disorders in children and toddlers. However, giving breast milk can reduce the health costs of children in the family [3].

According to statistics obtained from the World Health Organization (WHO), if a certain proportion of babies were breastfed throughout the first year of life in 2018, using available information and the Global Breastfeeding Scorecard is known to come from 194

countries, only 40% of babies are exclusively breastfed too. A total of 23 countries have exclusive breastfeeding rates above 60%. Meanwhile, WHO has a target of approximately 50% exclusive breast milk (ASI) by 2025 [4].

Nationally, the scale of babies receiving certain types of breast milk in Indonesia in 2021 reached 56.9%. This value has exceeded the target of the 2021 plan (40%). The largest scale of breast milk provision is found in West Nusa Tenggara Province (82.4%), while the lowest is in Maluku Province (13%). The Maluku, Papua, Gorontalo, West Papua, and North Sulawesi regions will fail to meet the target in 2021. These provinces are located in Indonesia [5].

According to information from the Health Profiles of 340,285, the number of babies receiving exclusive breast milk was 199,877, achieving exclusive breast milk (60%). In contrast, for babies aged approximately six months, it was reported that approximately 44,546 babies received specific breast milk (50%) [6]. In connection with the understanding that breast milk is very important for babies and breastfeeding mothers,

some problems are sometimes faced in providing breast milk. However, mothers who give breast milk to their babies sometimes experience low milk production; this happens because the mother still doesn't know how to breastfeed correctly. The mother will give breast milk again after the baby is given formula milk, and the newborn baby, during the first few days of their lives, is forced to drink sugar water or prescription milk sweetened with dextrose [4].

There is global agreement on efforts to increase breastfeeding. Through the Innocenti declaration and an unambiguous summit on newborns, the World Health Organization (WHO) and the United Nations Infant Fund (UNICEF) have reached an agreement that confirms that they can achieve optimal health for mothers and children. Every mother is required to breastfeed exclusively and provide additional food at the right time [7].

Several ways to increase breast milk production include consuming soy milk, green bean juice, oxytocin massage, and acupressure therapy, which can increase the hormone prolactin. For example, alkaloids, polyphenols, steroids, and other substances may successfully increase and facilitate breast milk productivity. Barriers and challenges in breastfeeding include lack of breast milk production, inappropriate formula feeding, and the need for the role of health workers in empowering postpartum mothers to increase breast milk production through scientific evidence starting from non-pharmacological and pharmacological therapy.

Based on the abovementioned issues, researchers want to undertake a scoping review to find activities or therapies postpartum mothers may use to improve breast milk production. This review includes publications by various authors, including doctors, midwives, and other health-related experts.

METHODS

This method uses a scoping review approach, a planned way to review the methodology's scope and determine what the results mean based on evidence. It also organizes the ideas that form the basis of the field of study, like the sources and types of evidence already out there [8]. In compiling the literature study, the researcher chose PRISMA-ScR as a guide because the preparation checklist is complete and detailed and involves five stages: 1. identifying the scoping review problem; 2. identifying inclusion and exclusion criteria; 3. selecting relevant articles; 4. collecting data; 5. combining, summarizing, and presenting results [6].

Researchers use PEOS. The population of this scoping review is postpartum mothers; exposure is

efforts to increase; the outcome is breast milk production; and the studies are all original full-text research articles used in the scoping review. Publications in the last five years (2018–2022), original full-text articles, and articles in English and Indonesian about the struggle for breastfeeding mothers to pump more after giving birth. This evaluation does not include emotions, books, compositions, or surveys. This research utilized the databases Pubmed, Science Direct, and Gray Literature (Research Rabbits). Keywords are Postpartum women* OR postpartum mothers* AND Increase in breast milk* OR Breast milk production*.

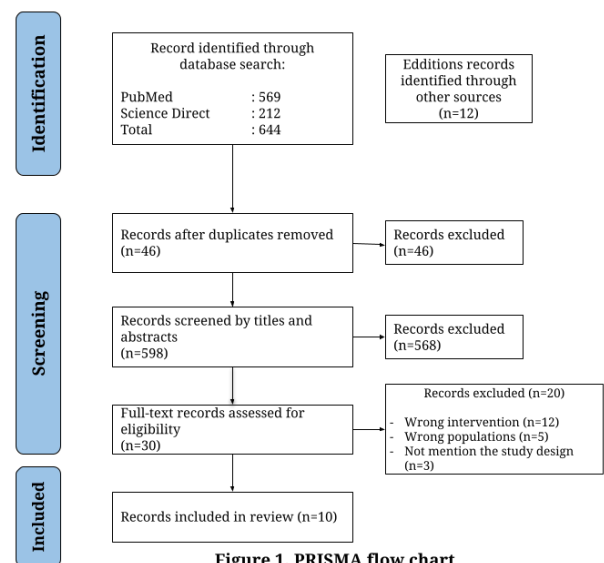


Figure 1. PRISMA flow chart

RESULTS

Table 1 presents the results derived from ten articles, identifying four primary themes influencing breast milk production. The first theme pertains to the role of soy milk in increasing lactation, as detailed in articles A1, A2, A3, and A4. The second theme focuses on the effectiveness of oxytocin massage and additional breast care techniques, which are explored in articles A7, A8, and A10. The impact of green bean extract on milk production is analyzed in articles A3, A5, and A6. Lastly, the benefits of acupressure treatment are discussed in article A9.

Effect of soy milk

The isoflavones in soy milk Article A1 presents data showing that amino acids, such as flavonoids, are rich in nutrients and are found in soybeans [8]. This research reveals information that mothers who consume soy-based foods in the form of milk or other soy products are thought to be able to increase isoflavone levels in the breasts. If consumed regularly, it can increase breast milk production in breastfeeding mothers.

Table 1. Data charting

Author/Year/Country	Aim of Research	Method of data Collection	Research Findings
[7] Indonesia	to determine whether soy milk intake is associated with increased breast milk production in breastfeeding mothers.	Quantitative Method/data was collected using observation sheets/Respondents in this study were eight postpartum mothers respondents.	Ho was rejected while He was allowed because scientific evidence shows that giving soy milk to postpartum mothers can increase breast milk production.
[9] Indonesia	to see whether supplementing breastfeeding mothers with soy and melon juice caused an increase in breast milk production.	Quantitative Method/data was collected using an Observation Sheet. The respondents in this study were 20 postpartum mothers.	The results of the T-paired statistical test show that p-value = 0.00 with a significance limit of p-value of 0.05, which indicates that Ha is accepted and Ho is rejected. Giving soy and melon juice can increase breast milk production.
[6] Indonesia	to determine whether there is a statistically significant difference in the volume of breast milk produced by postpartum mothers who consume soy milk and green bean extract at the Sukadiri Community Health Center, Tangerang Regency.	Quantitative Method/data was collected using a questionnaire / The respondents for this research were 30 postpartum mother respondents	The results of the independent t-test intervention for postpartum mothers who consumed soy milk and green bean extract obtained a calculated t-value of 1.436 (t calculated > t table 0.683) and a p-value of 0.162 which shows that Ho is accepted and concluded from the two In terms of intervention, there is no difference.
[10] Indonesia	to observe breastfeeding mothers who had just given birth to see whether consuming edamame affected breast milk production.	Quantitative Method/data collection by conducting interviews / Respondents for this research were six postpartum mother respondents.	According to the Wilcoxon test results, the difference in numbers between before and after postpartum mothers consume edamame to increase breast milk production is 0.025. This shows a p-value below 0.05, which is significant. It is seen that consuming edamame will affect breast milk production.
[11] Indonesia	to compare the breast milk production of postpartum mothers who were given green bean extract with those who were not.	Quantitative Method/data was collected using observation sheets / Research respondents were 30 postpartum mother respondents	Difference in average second breast milk The average difference in breastfeeding rates for the two groups is 2.60, p-value = 0.000 ($p < 0.05$), and in postpartum mothers given green peas but not green beans, the difference is the same as the production of breast milk extract. Bengkulu City in 2018.
[3] Indonesia	to determine whether breast milk production in breastfeeding mothers was influenced by the consumption of green bean juice.	Quantitative Method/data collected through Observation sheets / Research respondents were 11 postpartum mothers.	Based on the results of the characteristics equation test, the consumption of green bean extract affects breast milk production for breastfeeding mothers ($p > 0.05$). Analytical tests using the Wilcoxon test showed the influence of the natural flow of milk production ($p = 0.046$).
[12] Indonesia	to determine whether breast care that includes oxytocin rubbing can increase breast milk production in	Quantitative Method / data was collected using Observation sheets / Research respondents were 30	The research results showed that after three days of oxytocin massage and 3x1 breast care, the number of respondents who reported an increase in breast milk production increased by 14 (93.3%). As a result, almost all respondents

	new mothers.	post-mother respondents partum.	had positive experiences with smooth breastfeeding, and only one had a negative experience with substandard breast milk production. (6.7)%, with p_Value 0.000, which indicates (p = 0.005). Therefore, oxytocin massage therapy and breast care are excellent treatments for postpartum mothers to regulate breast milk production.
[5] Indonesia	to determine whether breast massage and oxytocin can increase breast milk production.	Quantitative Method/data collection was carried out using a questionnaire / The respondents of this study were 30 postpartum mother respondents	Before the intervention, 18 mothers produced little breast milk, and 12 had enough. After the intervention, there was a change in 18 mothers who had little breast milk production, where seven mothers had increased breast milk production, and 11 mothers still had little breast milk production.
[13] Indonesia	to examine whether there is a correlation between acupressure and breast milk production in breastfeeding mothers.	Quantitative Method/data was collected using observation sheets / Respondents in this study were 70 postpartum mothers: 35 control and 35 intervention groups.	Research shows that massaging the ST18, SI1, and ST17 acupuncture points three times a week for a long time will increase breast milk production. These results suggest that acupressure may be a viable non-pharmaceutical therapy option.
[14] Indonesia	to determine whether massaging with oxytocin stimulates breast milk production.	Quantitative Method/data collected using observation sheets/ Respondents in this study were 20 postpartum mothers.	It can be concluded that there is a different effect on the average volume of breast milk between the treatment group and the control group because the Independent T-Test statistical analysis carried out on ten respondents in the treatment group and ten respondents in the control group produced a score of p = 0.003 (0.05).

Article A4 [13] explains that when providing breast milk, mothers must pay attention to nutrition, protein, iron, and minerals to meet nutritional needs during breastfeeding. Soybeans, edamame plants, and preparations such as soy milk are local food ingredients that have the potential to be nutrition for breastfeeding mothers because they contain phytosterol compounds, which help increase, accelerate, and facilitate breast milk productivity (lactagogue effect) [12].

Effect of oxytocin massage and breast care

In article A7 [4], there are several ways to overcome the lack of breast milk productivity; one way is to do an oxytocin massage, which aims to stimulate the hormone oxytocin in breast milk production. Breast care is also something that can be done to stimulate breast milk production. Article A7 [4] revealed that breast care involves breast massage to improve blood circulation and nipple care so that it is clean and doesn't get sore quickly. According to article A8 [5], oxytocin massage and breast care helped postpartum mothers produce more breast milk. Both trials found that oxytocin massage and attention to the mother's breasts produce more breast milk. The regularity and duration of breastfeeding demonstrate this.

Effect of green bean juice

According to the author of article A6 [15], the nutritional content of green beans is relatively high and their elements are generally complete. Green beans have a protein composition that varies from 20 to 25% of the total. Additionally, chickpeas have several active ingredients, including flavonoids and polyphenols, which help the body produce more prolactin and optimal milk production during increased prolactin levels. The A6 article presents a study by A6 [3] in which it is believed that selected green bean concentrate can increase breast milk production in breastfeeding mothers; breastfeeding women will see an average increase in milk production in at least six days of drinking green beans separately. As long as breastfeeding mothers continue to consume green bean juice, this increase in breast milk production will continue. Research directed by [3] also shows this. This research aligns with the results of article A5 [7], which states that green beans affect breast milk. Mothers who regularly consume green bean juice are likely to be able to increase their nutrition every day so that breast milk production will also increase. It will continue to run smoothly.

Effect of acupressure therapy

Article A9 [9] says that efforts to increase breast milk production can be tried by using one of the

treatments, acupressure. Acupressure is a non-pharmacological therapy that involves massaging specific points. The points on the body correspond to acupuncture points. The points used to increase breast milk are the CV17, ST18, and SI1 acupuncture points [15]. Research [16] (A9) that supports using acupressure as a pain-free alternative to traditional medical treatments has demonstrated this. According to research project findings, applying acupressure to the ST18, SI1, and ST17 sites in waves three times per week can increase breast milk supply.

Soy milk, oxytocin massage, green bean extract, and acupressure treatment increase breast milk supply in postpartum mothers. However, a review of several articles shows that doing oxytocin massage 3x1 for three days increases breast milk production. Oxytocin massage and breast care are more effective in increasing and facilitating breast milk than other methods due to differences in duration and frequency of intervention in oxytocin massage.

DISCUSSION

Previous studies have approached this by increasing the promotion of breastmilk and breastfeeding over formula. Prenatal education increased family choice, time to first milking, and breast pumping compliance. Exclusive breastfeeding increased from 15% to 47% in four months, with decreased formula use and increased breastfeeding rates [8].

Previous research results show that soybeans, green bean juice, oxytocin massage and acupressure therapy can increase the hormone prolactin, alkaloids, polyphenols and steroids thereby increasing and facilitating breast milk production. The novelty in this research is exploring soybeans, oxytocin massage, soybean juice, melon, green bean juice, edamame beans, and acupressure therapy on breast milk production. Soy-based foods, such as milk and soy products, are believed to increase isoflavone levels in the breast, thereby potentially increasing breast milk in breastfeeding mothers.

The results of this scoping review show that soy milk, oxytocin massage, breast care, green bean juice, and acupressure therapy are proven to increase breast milk production.

CONCLUSION

Interventions in increasing breast milk production, such as giving soy milk, consuming green bean juice, oxytocin massage, and acupressure therapy, were proven effective based on these interventions' significant values and effect sizes. However, articles A7,

A8, and A10 state that oxytocin massage and breast care are more effective due to the duration and frequency of the intervention.

REFERENCES

- Tricco AC, Lillie E, Zarin W, O'Brien K, Colquhoun H, Kastner M, et al. A scoping review on the conduct and reporting of scoping reviews. *BMC Medical Research Methodology*. 2016;16(1):15.
- Dağlı E, Çelik N. The effect of oxytocin massage and music on breast milk production and anxiety level of the mothers of premature infants who are in the neonatal intensive care unit : A self-controlled trial. *Health Care for Women International*. 2021;0(0):1–14.
- Ritonga NJ, Mulyani ED, Anuhgera DE, Damayanti D, Sitorus R, Siregar WW. Sari kacang hijau sebagai alternatif meningkatkan produksi air susu ibu (asi) pada ibu menyusui. *Jurnal Keperawatan dan Fisioterapi*. 2019;2(1):89–94.
- Ramadani F, Mustarin Y, Keperawatan A, Bone L, Bone K. The effectiveness of giving a combination of oxytocin massage and breast care on milk expenditure at Hapsah Hospital, Bone Regency. *International Journal of Community Service*. 2021;02(02):23–9.
- Triansyah A, Stang, Indar, Indarty A, Tahir M, Sabir M, et al. The effect of oxytocin massage and breast care on the increased production of breast milk of breastfeeding mothers in the working area of the public health center of Lawanga of Poso District. *Gaceta Sanitaria*. 2021 Jan 1;35:S168–70.
- Mariati, Mizawati A, Arvianti RA. The influence of sari green nuts in breastfeeding products in postpartum mothers in Bengkulu City in 2018. *Advances in Health Sciences Research*. 2019;14:86–90.
- Siregar DA, Harahap ML. The effect of soybean milk on increasing breast milk production in postpartum mothers in Salambue Village, Southeast Padang Sidempuan District. *International Journal of Public Health Excellence*. 2022;1(2):133–45.
- H. Takako *et al.*, “Improving Human Milk and Breastfeeding Rates in a Perinatal Hospital in Japan: A Quality Improvement Project,” *Breastfeed. Med.*, vol. 15, no. 8, pp. 538–545, 2020, doi: 10.1089/bfm.2019.0298.
- Safitri A, Puspitasari DA. Upaya Peningkatan Pemberian Asi Eksklusif Dan Kebijakannya Di Indonesia. *Peneliti Gizi dan Makanan*. 2019;41(1):13–20.
- Monika H, Djogo A, Wuladari Tm, Letor Ymk. Pengaruh konseling asi eksklusif terhadap motivasi ibu menyusui di ruang nifas RSUD S.K. Lerik Di Kota Kupang. *Jurnal Ilmiah Ilmu Kebidanan dan Kandungan*. 2022.
- Sartika D, Kusuma Wardani F, Padilah Siregar A, Farmasi Dan Kesehatan F. The effect of giving edamame nuts on the improvement of breast milk production in postpartum women. *Science Midwifery*. 2022; 10(5), pp. 4122-4129.
- Hasibuan DA, Sari Dewi SS, Donna YB. The effect of soybean and melon juice on increasing breast milk production in mothers. *International Journal of Public Health Excellence (IJPHE)*. 2022 Jan 16;1(1):41–5.
- Febriani A, Yulita N, Juwita S. Efektivitas pemberian soybean (glycine max) dalam peningkatan ASI ibu menyusui di wilayah Kerja Puskesmas Kota Pekanbaru. *Journal of Midwifery Science*. 2020;4(2):46–51.
- Fauzia S, Rahayuning D, Widajanti L, Peminatan M, Fkm Undip G, Dosen), et al. Hubungan keberagaman jenis makanan dan kecukupan gizi dengan indeks massa tubuh (imt) pada ibu menyusui di wilayah kerja Puskesmas Kedungmundu Kota Semarang Tahun 2016. *Jurnal Kesehatan Masyarakat*. 2016; vol. 4, no. 3, pp. 233-242.
- Lisa UF, Ismayucha N. Efektivitas kombinasi pijat oksitosin dan breast care terhadap kelancaran ASI pada Ibu Post Partum Normal. *Journal Healthcare Technology and Medicine*. 2018;4(2):147.
- Schlaeger JM, Gabzdyl EM, Bussell JL, Takakura N, Yajima H, Takayama M, et al. Acupuncture and Acupressure in Labor. *Journal of Midwifery and Women's Health*. 2017 Jan;62(1):12–28.
- Sulymbona N, As'ad S, Khuzaimah A, Miskad UA, Ahmad M, Bahar B. The effect of acupressure therapy on the improvement of breast milk production in postpartum mothers. *Enfermeriam Clinica*. 2020 Mar 1;30:615–8.