Nat. Volatiles & Essent. Oils, 2021; 8(4): 6483-6490

Speed Of Breast Milk Expulsion In Postpartum Mothers With Application Of Massage Corset

Kasmiati[1], Andi Ria Metasari ,[2] Ermawati[3]

[1,2,3]Akademi Kebidanan Lapatau Bone,Sulawesi Selatan, Indonesia.

[1]Email: kasmiatilpt@gmail.com

ABSTRACT

Postpartum mothers often experience difficulty in breastfeeding due to lack of milk production. Furthermore, to speed up the expulsion and production of breast milk, back and oxytocin massage, as well as breast care methods, are used. The implementation requires the assistance of health workers, families, special skills, and time. Therefore, this study aims to analyze the speed of milk expulsion using a massage corset and a microcontroller with a sample of 40 people. A quasi-experiment with a post-test-only control design was used, and the variables were the postpartum massage (manual) and the massage corset group. The experiment was conducted twice daily for 4 days in a row, and both groups were controlled when milk expulsion occurred. The Independent T-Test showed a difference in the speed of breast milk expulsion where the massage corset group was faster at 3.67 hours. Therefore, this method can be applied in accelerating the expulsion of breast milk in postpartum mothers.

Keywords: Massage, Postpartum, Massage Corset, Breast Milk

BACKGROUND

Exclusive breastfeeding is one of the unachieved government programs due to different problems such as lack of breast milk, specifically in the early post-natal period. Formula milk is administered to babies since breast milk production occurs 3-4 days after postpartum. The speed of milk expulsion and production is influenced by many factors such as discomfort, fatigue, anxiety, and pain to inhibit the release of the oxytocin and prolactin hormones. [1,2,3,4]

Oxytocin and prolactin hormones play a very important role in the speed of milk production in postpartum mothers, and the breastfeeding process is conducted in the early post-natal period. However, mothers are often constrained in early breastfeeding because the production is less or absent on the first day after delivery.[1]

WHO recommends that all babies born can be exclusively breastfed for 6 months while the coverage is still very low at 39.9%. Based on the health profile for South Sulawesi, breastfeeding up to 0-5 months and 6 months was 55.0% and 38.5%, respectively, and these values are far from the national target of 80%.[5]

The initial interviews at 2 Independent Practice Midwives (BPM) in Bone Regency, namely BPM Hj. Harfiani and BPM Jumiani showed that 40 samples of postpartum mothers experienced discomfort and fatigue. In addition, milk expulsion that occurred <12 hours, >12-24 hours, 24-48 hours, and >48 hours were found in 3 people (7.5%), 6 people (15%), 12 people (30%), and 19 people (40%), respectively. Mothers do not practice early weaning and exclusive breastfeeding because of Impaired milk expulsion (1). The production and expulsion of breast milk can be accelerated through back massage, oxytocin massage, breast massage, and breast care. However, several difficulties are often experienced since these methods cannot be routinely conducted because of the limitations in terms of skills, time, and the scope of work. [6,7,8,9,10]

Based on the phenomenon above, this study aims to design a corset with the application of back and oxytocin massages that can be used without the assistance of health workers. Practically, this corset is efficient and can be used by postpartum mothers while breastfeeding babies or conducting other household tasks or activities. It accelerates the production of breast milk and supports government programs to achieve exclusive breastfeeding for babies.

METHODS

An experimental method with a clear design was used to measure the rate of milk production in both groups after intervention (post-test only control design). The study was conducted at 3 health care centers including Watampone Public Health Center, BPM Hj. Harfiani, and BPM Jumiani from May 17 to July 17. Furthermore, a total of 40 samples were obtained by the accidental sampling method. The study was conducted by applying a corset designed using a microcontroller to massage the postpartum mother's back. A total of 20 samples were used for the massage corset while the remaining 20 were used for postpartum massage. The massage was conducted twice daily for 4 consecutive days at 07:00 am and 02:00 pm with a duration of 10-15 minutes.

RESULTS AND DISCUSSION

Results

Table 1. Characteristics of Postpartum Mothers in the Massage Corset Group (Tools) and the Postpartum Massage Group (Manual)

Characteristics	Postpartum Massage		Massage Corset		p (Value)
	f	%	f	%	

Age	20-35 years old	16	80	12	60	0,16
	>35 and <20 years old	4	20	8	40	
Education	High	8	40	5	25	0.31
	Low	12	60	15	75	
Occupation	Employed	3	15	5	25	0.42
	Unemployed	17	85	15	75	
Body Mass Index (BMI)	Normal	20	100	20	100	-
	Abnormal	0	0	0	0	
Early Breastfeeding Initiation (EBI)	Successful EBI	12	60	15	75	0.31
	Failed EBI	8	25	5	25	
Parity	Primipara	4	20	3	15	0.67
	Multipara	16	80	17	85	
Postpartum blues	Yes	0	0	0	0	-
	No	20	100	20	100	
Drugs consumed	Consuming drugs	0	0	0	0	-
	Not consuming drugs	20	100	20	100	
Total		20	100	20	100	

Chi-Square Test

Source: Primary Data, processed in 2021

Table 1 showed that 70% from the samples were aged 20-35 years with a p-value of 0.16. Meanwhile, 67.5% had low education with a p-value of 0.31, 80% were unemployed with a p-value of 0.42, 67.5% had successful EBI with a p-value of 0.31, and 82.5% were multipara with a p-value of 0.67. The characteristics of respondents such as age, education, occupation, BMI, and parity had a p-value greater than (0.05). These characteristics do not affect the treatment given to the postpartum

(manual) and corset massage corset groups. Therefore, there is no inequality value between the two groups because of the similar samples.

Table 2. Frequency Distribution for the Speed of Breast Milk Expulsion in the Massage Corset Group (Tool) and Postpartum Massage Group (Manual)

POSTPARTUM MASSAGE	The Speed of Breast Milk Expulsion			
	FAST		SLOW	
	F	%	F	%
Postpartum Massage (Manual)	15	75	5	25
Massage corset	17	85	3	15
TOTAL	32	80	8	20

Source: Primary Data, processed in 2021

Table 2 showed that fast and slow milk expulsion was experienced by 15 (75%) and 5 (25%) people from the postpartum massage group. Meanwhile, 17 (85%) and 3 (15%) people experienced fast and slow milk expulsion in the massage corset group respectively. Therefore, the majority of samples in the massage corset group experienced fast milk expulsion.

Table 3. The Effect of Massage Corset (Tool) and Postpartum Massage (Manual) on the Speed of Breast Milk Expulsion

Group	Breast Milk Expulsion (Hours)			P (value)
	N	Mean	±SD	
Postpartum massage (manual)	20	6.23	±6.53	0.03
Massage corset	20	2.56	±3.23	

Independent T-Test

Source: Primary Data, processed in 2021

Table 3 showed that the independent T-Test obtains P (value) = 0.03 (<0.05) which means that the massage corset affects milk expulsion with the faster speed by 2.56 hours ± SD 3.23 compared to the postpartum massage group (manual) at 6.23 hours ±SD 6.53.

Results Analysis

The massage corset designed using a microcontroller produces vibrations on the vibrator and provides a comfortable feeling such as being massaged in postpartum mothers. The corset applied

affected the speed of milk expulsion, and the independent T-Test obtains p = 0.03 (<0.05), therefore, there is a significant effect between the two groups. The postpartum massage group had a longer milk expulsion of 6.23 hours ±SD 6.53 than the massage corset group at 2.56 hours ±SD 3.23. This is relevant to (Kasmiati 2020) which states that unmassaged and massaged postpartum mothers have a milk expulsion speed of 29.33 hours and 11.68 hours respectively. A study conducted by Ummah (2014) also supported this idea, where the average milk expulsion in the control and intervention groups was 8.93 hours and 6.21 hours, respectively. Furthermore, the results of Kasmiati and Ummah are slower becaus the samples consist of more primiparas than multiparas. This study has more multiparous samples than primiparas with a percentage of 82.5%. The multiparous mothers are experienced and have knowledge in breastfeeding.[5,11]

The difference in the speed of milk expulsion for the two groups was 3.67 hours since there was no significant difference in time even though the massage corset group was faster. Back and oxytocin massages were conducted through the corset to generate vibration with a microcontroller for 10-15 minutes. During massage, the sensory nerves of the skin were activated in response to vibrations, pressure, and warm temperatures. Furthermore, peripheral nerves were stimulated to increase impulsesstimulate, reduce pain, increase flexibility of muscles and provide a therapeutic effect.[12,13,14,15]

Early Breastfeeding Initiation (EBI) is one of the factors related to the speed of breast milk expulsion. However, this study obtains p = 0.31 (> 0.05) which means that there is no relationship between EBI and the speed of breast milk expulsion in the massage corset and postpartum massage groups.[2]

This study is also relevant to Wulandari et al (2014), where the effect of oxytocin massage on production of cholesterol was stated. In the control and intervention groups, the production lasted for 8.16 hours and 5.21 hours respectively.[6]

Postpartum massage increases the conduction of nerve impulses through the peripheral nerves. It increases muscle flexibility and provides a sense of comfort and relaxation. In addition, it increases the release of prolactin and oxytocin hormones as well as stimulates mammary nerves to secrete milk. Mothers that have experienced massage corsets will feel more relaxed because they can take a more comfortable position without the assistance of health workers or husbands.[16,17,18,19,20,21,22]

The application of back and oxytocin massages provides a significant difference, therefore, this corset is a very good alternative to use. This method can be applied without specific skills because postpartum mothers only need to press the on and off buttons.[18,19]

The respondents experienced smooth milk expulsion after being given a massage corset,

and the application relieves the fatigue felt throughout the body after giving birth. Mothers with manual postpartum massage did not experience any feeling while those with massage corsets felt more comfortable and relaxed.

CONCLUSION

It is reasonable to conclude that there is an effect of postpartum massage and massage corset on the speed of milk expulsion in postpartum mothers. Furthermore, it is expected that postpartum massage can be a manual intervention in accelerating milk expulsion. The massage corset, as the present-day solution should be developed and used independently.

ACKNOWLEDGMENTS

The authors are grateful to the Ministry of Research, Technology, and Higher Education for providing the opportunity to develop specific abilities in terms of study by providing study funding for novice lecturers. They are also grateful to the Bone Regency Health Office, specifically the head of the Watampone Public Health Center, BPM Hj. Harfiani, and BPM Jumiani for their kindness and generosity in giving permission to conduct this study.

REFERENCES

1. Cunningham F. G. et al. (2014). Obstetri Williams. Edisi 23. Edited by R. Setia. Jakarta: EGC.
2. Murray S. S. & McKinney E. S. (2014). Postpartum Physiologic Adaptations. Foundations of maternal-newborn and women's health nursing, p. 852. JMSCR Vol. 05 , Issue 10 , October. 05(10):pp. 28756–28760.
3. Safitri W. N. & Panggayuh A. (2015). Pijat punggung dan percepatan pengeluaran ASI pada ibu post partum. Jurnal Informasi Kesehatan Indonesia, 1(2): pp. 148–153.
4. Ummah F. (2014). Pijat Oksitosin Untuk Mempercepat Pengeluaran Asi Pada Ibu Pasca Salin Normal Di Dusun Sono Desa Ketanen Kecamatan Panceng Gresik. Surya, pp. 121–125. Available from: http://stikesmuhla.ac.id/wp-content/ uploads/ jurnalsurya/ noXVIII/121-125.
5. Kementerian Kesehatan RI (2017). Data dan Informasi Profil Kesehatan Indonesia 2016
6. Wulandari F. T., Aminin F. & Dewi U. (2014). Pengaruh pijat oksitosin terhadap pengeluaran kolostrum pada ibu post partum di rumah sakit umum daerah Provinsi Kepulauan Riau. Jurnal kesehatan, V: pp. 173–178.
7. Abadian, L., Pouraboli, B., Ranjbar, H., Shariat, M., Otadi, K., & Nia, N. A. (2020). Comparison of the Effect of Massage and Music on Fatigue in Mothers With Premature Newborns Admitted to the Neonatal Intensive Care Unit: A Randomized Clinical Trial. Journal of Chiropractic Medicine, 19 (4), 241–248. https://doi.org/10.1016/j.jcm.2020.06.003
8. Aminin, F., & Dewi, U. (n.d.). Pengaruh Pijat Oksitosin Terhadap Pengeluaran Kolostrum Pada

Ibu Post Partum Di Rumah Sakit Umum Daerah Provinsi Kepulauan Riau.Jurnal Kesehatan Politeknik Kesehatan Tanjung KarangVol 5, No 2 (2014) http://dx.doi.org/10.26630/jk.v5i2.53

9. Arsita, R. D., & Sari, R. P. (2021). The Effect of Back Massage For Health: Literature Review. 4
10. Kütmeç Yilmaz, C., Duru Aşiret, G., & Çetinkaya, F. (2021). The effect of back massage on physiological parameters, dyspnoea, and anxiety in patients with chronic obstructive pulmonary disease in the intensive care unit: A randomised clinical trial. Intensive and Critical Care Nursing, 63, 102962. https://doi.org/10.1016/j.iccn.2020.102962
11. Kasmiati, Sriwidyastuti. (2020). Pijat Postpartum Terhadap Kecepatan Pengeluaran Air Susu Ibu (ASI). Hasanuddin Jurnal Midwifery, 2(2): 42-48 P-ISSN: 2654-3028, E-ISSN: 2654-2730 . http://dx.doi.org/10.35317/hajom.v2i2.2691
12. Nuampa, S., & Payakkaraung, S. (2021). Effectiveness of Different Massage Techniques for Breastfeeding Mothers to Increase Milk Production: A Systematic Review. 25(1), 17.
13. Hwang A.J, Bae Hyun S,Kim Do G,Kim Y.K.(2013). The Effects of Sensorimotor Training on Anticipatory Postural Adjustment of the Trunk in Chronic Low Back Pain Patients. Journal of Physical Therapy Science. Vol. 25, No. 9.https://doi.org/10.1589/jpts.25.1189
14. Visser, F.A. (2018) Haptic Feedback in a Posture Correcting Wearable. EEMCS: Electrical Engineering, Mathematics and Computer Sciencehttp://purl.utwente.nl/essays/75537
15. Laosee, O., Sritoomma, N., Wamontree, P., Rattanapan, C., & Sitthi-Amorn, C. (2020). The effectiveness of traditional Thai massage versus massage with herbal compress among elderly patients with low back pain: A randomised controlled trial. Complementary Therapies in Medicine, 48, 102253. https://doi.org/10.1016/j.ctim.2019.102253
16. Lee, H.-J., & Ko, Y.-L. (2015). Back massage intervention for relieving lower back pain in puerperal women: A randomized control trial study: Back massage relieving back pain. International Journal of Nursing Practice, 21, 32–37. https://doi.org/10.1111/ijn.12299
17. Yahya, F. D., Ahmad, M., Usman, A. N., Sinrang, A. W., Alasiry, E., & Bahar, B. (2020). Potential combination of back massage therapy and acupressure as complementary therapy in postpartum women for the increase in the hormone oxytocin. Enfermería Clínica, 30, 570–572. https://doi.org/10.1016/j.enfcli.2019.07.163
18. Yuniar Angelia Puspadewi & Jiarti Kusbandiyah. (2021). Differences in The Effectiveness of Oxytocin Massage and Major Pectoralist Massage Towards Acceleration of Breast Milk Expenditure in Postpartum Mothers in PMB Ngadila Sobirin Malang District. EMBRIO, 13(1), 56–63. https://doi.org/10.36456/embrio.v13i1.3323

19. Lali, M., Jouzi, M., & Moghimian, M. (2020). The Effect of Back Massage on Anxiety Components of Mothers With Preterm Infants. Complementary Medicine Journal, 3902–3913. https://doi.org/10.32598/cmja.9.4.933.1

20. Resident doctor Department of Paediatrics, & Kushwah, D. A. (2021). Effect of Back Massage on Lactation among Postnatal Mothers in Tertiary Level Hospital. Journal of Medical Science And Clinical Research, 09(01). https://doi.org/10.18535/jmscr/v9i1.01

21. Ekawati, H. (2018). Pengaruh Rolling Massage Punggung Terhadap Peningkatan Produksi Asi Pada Ibu Nifas. Medical Technology and Public Health Journal, 1(2), 69–78. https://doi.org/10.33086/mtphj.v1i2.784

22. Anggraeni, E. W., Indasah, I., & Koesnadi, K. (2020). Analysis the Implementation of Early Mobilization, Breast Care and Oxytosin Massage on Production ASI in Primipara Post Partum Mother in Dongko Health Centre Trenggalek City. Journal for Quality in Public Health, 3(2), 357–364. https://doi.org/10.30994/jqph.v3i2.84