THE EFFECTIVENESS OF NECK MASSAGE IN INCREASING PUERPERAL MOTHERS’ BREAST MILK QUANTITY FROM DAY ONE TO DAY THREE IN BANTUL

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ABSTRACT

Objectives: The common problem is that the mother experiences interrupted production of breast milk during day one to day three. Neck massage and pectoralis major muscles massage

Breast milk is the most perfect baby food in terms of quality and quantity through proper breastfeeding management. Breast milk as a single food will be sufficient to satisfy the needs of normal infant growth until the age of six months. Breast milk given 30 minutes after birth up to 6 months without additional liquids is called exclusive breastfeeding, due to its protective factors and appropriate nutrients in breast milk that ensures nutritional status of the baby and declines infant mortality rate and illnesses [1]. According to the data of Central Bureau of Statistics (BPS) in 2013, Infant Mortality Rate (IMR) in world is 34 per 1000 live births, in developing countries the IMR is 37 per 1000 live births and in developed countries the IMR is 5 per 1000 live births. While in East Asia, the IMR is 11 per 1000 live births, in South Asia the IMR is 43 per 1000 live births, in Southeast Asia the IMR is 24 per 1000 live births and in West Asia the IMR is 21 per 1000 live births [2]. In Indonesia, the IMR in 2016 is 25.5 per 1000 live births. Sustainable Development Goals (SDGs) targeted that until 2030, the IMR will be 12 per 1000 live births. One of the main causes of infant mortality rate and illnesses in Indonesia is diarrhea and infection, whereas diarrhea and infectious diseases can be prevented by breast feeding the baby. Colostrum is the breast milk produced on the first day until the third day after the birth of the baby. Colostrum is consumed by the baby before consuming the actual breast milk. Colostrum contains white blood cells and antibodies which is higher than the actual breast milk, especially high in the level of passive A (IgA), which help encapsulate baby’s tensile bowels and prevent germs from attacking the baby [3]. Based on the report of Indonesia Demographic and Health Survey (IDHS) in 2015, exclusive breastfeeding rate in Indonesia was 55.7%. A report from Yogyakarta Provincial Health Office in 2015 revealed that the rate was 71.6%. In Bantul, one of the regencies in D.I Yogyakarta, the exclusive breastfeeding rate was 74.73%, this breastfeeding coverage still has not reached the national target of 80% as expected by the government.

INTRODUCTION

The study is to investigate the effectiveness of neck massage in increasing the number of puerperal mother’s milk during day one to day three in Bantul using pre-experiment, the static group comparison design research method. The samples of the research are 27 respondents in the group of neck massage, 27 respondents in the group of pectoralis major muscles massage. Methods: The sampling technique used Propostionate Systematic Random Sampling. The massage was done once a day in 15 minutes for 3 days. The data were analyzed using Mann Whitney. The sampling results of this study discovered that the majority of respondents are 21-23 years old with normal nutritional status and have more than one child. Results: It was obtained that p-value of 0.000 (p<0.05) shows that neck massage has a significant effect on increasing the quantity of puerperal mother’s milk on day one to day three in Bantul. This research discovered that neck massage is more effective than pectoralis major muscles massage in increasing puerperal mother’s milk from day one to day three in Bantul. Conclusion: After researched that neck massage is effective in increasing the quantity of puerperal mother’s milk in Bantul. And neck massage is more effective than pectoralis major muscles massage in increasing puerperal mother’s milk production from day one to day three in Bantul.

Methods

Research Procedures

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The data were collected using SOP neck massage and SOP pectoralis major muscles massage, breast pump and syringe (1 cc, 3 cc, 5 cc).

The respondents consist of two groups divided into experimental group (the respondents are given neck massage for 15 minutes) and comparison group (the respondents are given pectoralis major muscles massage for 15 minutes). The study was conducted at two hospitals, namely Maternal and Child Health Hospital Ummi Khasanah Bantul and Local Public Hospital Panembahan Senopati Bantul from December 2017 to February 2018. The study was conducted for three days and each of the respondents was given massage one time for the duration of 15 minutes. On a monthly average, the population of puerperal mothers at MCHH Ummi Glossary Bantul is 25 persons after 6 months.
cesarean birth and an average population of puerperal mothers at RSUD Panembahan Senopati Bantul is 55 persons after cesarean birth. By using equations from the calculation results, the sample size obtained is 52 respondents and the sample per group is 26 respondents. The sampling technique used in this research is Systematic Proportionate Random Sampling [10]. The independent variable (free) in this research is neck massage and pectoralis major muscles massage [10]. The dependent variable (bound) is the production of breast milk of puerperal mothers. While the disturbing variable is the mother’s characteristics such as her age, nutritional status and parity (number of children). The data were analyzed in two stages; first is univariate analysis which is aimed at investigating the frequency distribution of each respondent. Second, bivariate analysis which is aimed at discovering the effectiveness of neck massage in increasing the quantity of puerperal mother’s milk from day one to day three. The statistical test used was Mann Whitney test.

Results and Discussion

Based on the number of respondents of 54 breastfeeding moms from day one to day three, the respondents’ ages from both groups are between the ages of <25 years and >35 years and in majority the total respondents at the age of 21-35 years (healthy reproduction) are 39, where the age of 21-35 is a safe age to control fertility for the processes of pregnancy, childbirth and lactation and to get healthy babies. Based on the nutritional status of 54 respondents, the average number of respondents with normal nutritional status is 31 respondents where it means that the needs of maternal nutrition during pregnancy is adequately fulfilled and 18 respondents were classified into thin category. Based on parity distribution from 54 respondents, it was discovered that on average 31 respondents reported to have children more than 1 and 23 respondents reported to have 1 child. Based on the research results of the effect of neck massage in increasing the quantity of puerperal mother’s milk from day one to day three based on data analysis of experiment group and comparison group, it was obtained that the get p-value is 0,000, thus concluding that neck massage is more effective than pectoralis major muscles massage in increasing the production of puerperal mother’s milk. Neck massage in increasing the quantity of breast milk is important to keep lactating their babies as often as possible and maintain milk production so as to ensure sufficient food for baby, with massage nerves cells are stimulated, sympathic nervous and parasympathetic nervous system are activated, the massage also stimulates hypothalamus and anterior pituitary to remove the prolactin inhibiting factor to pituitary through portal circulation. Basal section of hypothalamus secretes dopamine to portal system and affects anterior hypophysis. Dopamine is tied to lactotrophic cells and suppresses the secretion of prolactin to circulation, without this dopamine, the prolactin will still be secreted. Dopamine is tied to G protein-coupled receptor which is long and short, but only the receptor D2 (long) is located on lactotrof. When the neck is given the massage, then suboccipital nerves will stimulate the hypothalamus system to suppress dopamine excretion so that the anterior hypophysis produces prolactin and oxytoxin hormones. Anatomically, the chest has pectoralis major muscles. The role of this muscle is to bring blood circulation to the smallest muscles in the breast. By strengthening this muscle, the muscles around blood vessels are slackening (relaxed) and the diameter of the blood vessels is widened, as a result the blood flow that carries nutrients for breast milk production is uninterrupted [8]. If we see the difference of anatomical layout between neck and pectoralis major muscles, when neck massage is given, a stimuli is delivered to the hypothalamus through lateral cervical nerves of brainstem, while massage given in pectoralis major muscles is through portal system of blood vessels. It is therefore recommended to respondents at MCHH Umni Khasanah Bantul and Local Public Hospital Panembahan Senopati Bantul that it is important to keep lactating their babies as often as possible and give self- massage to the neck at home in order to improve milk quantity and quality so that milk supply for the baby is adequate and the baby can get exclusive breastfeeding (Tables 1-5).

Table 1 Respondents’ characteristics in Bantul.

| Characteristics          | Experiment | Comparison | P     |
|--------------------------|------------|------------|-------|
| N                        | %          | N          | %     |
| Healthy reproduction     |            |            |       |

...
Age

21 38.50%

Old reproduction
The majority of respondents with healthy reproduction is on the experiment group as many as 21 (38.5%) respondents while the comparison group is 18 (33.3%) respondents. In terms of nutritional status, the majority of each group with normal nutritional status is the experiment groups as many as 16 (29.6%) respondents and the comparison group is as many as 15 (29.6%).

| Nutritional status | Experiment | Comparison |
|--------------------|------------|------------|
| Thin               | 9          | 16.70%     |
| Normal             | 2          | 29.60%     |
| Fat                | 2          | 3.80%      |

| Parity            | Experiment | Comparison |
|-------------------|------------|------------|
| Primipara         | 16         | 29.60%     |
| Multipara         | 11         | 20.40%     |

| Parity            | Experiment | Comparison |
|-------------------|------------|------------|
| Primipara         | 16         | 29.60%     |
| Multipara         | 11         | 20.40%     |
with 15 (27.8%) respondents. Based on parity of experimental group primipara majority is as many as 16 (29.6%) respondents and in comparison group, multipara majority is as many as 20 (37%) respondents.

Table 2 Normality test results.

| Variables                      | Mean  | SD    | P-value |
|--------------------------------|-------|-------|---------|
| The quantity of breast milk day 1 | 0.4519* | 1 | 0       |
| The quantity of breast milk day 2 | 3.7731 | 8.2151 | 0       |
| The quantity of breast milk day 3 | 16.3017 | 24.72 | 0       |

*Kolmogorov-Smirnov Test. 0.05 level of significant.

Normality test results using Kolmogorov-Smirnov, it was obtained that the quantity of breast milk day 1 is p-value=0.000 < sig 0.05, the quantity of breast milk day 2 is p-value=0.000 < sig 0.05, the quantity of breast milk day 3 is p-value=0.000 < sig 0.05, thus it can be concluded the data are not normally distributed.

Table 3 Average breast milk quantity on experimental group and comparison group in Bantul.

| Group                              | N   | The quantity of breast milk day 1 | The quantity of breast milk day 2 | The quantity of breast milk day 3 |
|------------------------------------|-----|----------------------------------|----------------------------------|----------------------------------|
| Mean                               | SD  | Mean                             | SD                               | Mean                             |
| Neck massage                       | 27  | 0.856                            | 1.317                            | 6.9352                           |
| Pectoralis major muscles massage   | 27  | 0.481                            | 0.05798                          | 0.6111                           |

The quantity of breast milk on day two is 10.79537, the quantity of breast milk on day three is 28.719. Mean or an average value of the quantity of breast milk on day one after pectoralis major muscles massage is given is 0.481, the quantity of breast milk on day two is 0.6111 and the quantity of breast milk on day three is 0.05798, the quantity of breast milk on day two is 0.51986 and the quantity of breast milk on day three is 1.3223.

Table 4 The difference between experimental group and comparison group.

| Group       | Average breast milk quantity | P-value |
|-------------|------------------------------|---------|
| Experimental| 27                           | 39.44   |
| Comparison  | 27                           | 15.56   |

*Mann Whitney test. 0.05 level of significant.

The analysis results in this research is p-value= 0<sig 0.05, which means that there is a significant difference between neck massage and pectoralis major muscles massage. It is concluded that neck massage is more effective than pectoralis major muscles massage in increasing breast milk production of puerperal mothers from day one to day three.

Table 5 Bivariate analysis of confounding variable.

| Confounding Variable | Average breast milk quantity | P-value |
|----------------------|------------------------------|---------|
| Mean                 | Std                          |         |
| Age                  | 27.92                        | 0.452   |
| Healthy reproduction | 26.4                         |         |
| The reproduction of the elders | 28.5 |         |
| Nutritional status  | 26.81                        | 0.612   |
| Thin                 | 28.2                         |         |
| Fat                  | 28.2                         |         |
| Parity               |                              |         |

The quantity of breast milk production on day one after neck massage is given is 0.856, the quantity of breast milk on day two is 6.9352 and the quantity of breast milk on day three is 30.5259. The Standard deviation for the quantity of breast milk on day one by the experimental group is 1.317.
|                | Primipara | Multipara |
|----------------|-----------|-----------|
| 27.26          | 27.68     |

*p*0.25 level of significant. It was obtained that the age variable has p-value 0.71 > sig 0.25, nutritional status variable has p-value 0.955 > sig 0.25 parity variable has p-value 0.911 > sig 0.25. Therefrom, it can be concluded that the variables of age, nutritional status and parity did not confound with increasing the quantity of puerperal mother’s milk from day one to day three in Bantul.

**CONCLUSION**

After conducting a research entitled “The Effect of neck massage on increasing the quantity of puerperal mother’s milk from day one to day three in Bantul”, based on the analysis, it is concluded that neck massage is effective in increasing the quantity of puerperal mother’s milk in Bantul. And neck massage is more effective than pectoralis major muscles massage in increasing puerperal mother’s milk production from day one to day three in Bantul.

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