

DIFFERENCES IN THE EFFECTIVENESS OF THE MODIFICATION SYRINGE METHOD AND THE SYRINGE METHOD IN HANDLING INVERTED NIPPLES IN POST-CAESAREAN MOTHERS AT BANDUNG KIWARI REGIONAL GENERAL HOSPITAL IN 2023

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ABSTRACT

Background: Exclusive breastfeeding achievement at RSUD Bandung Kiwari has not yet been reached. This is partly due to complaints of inverted nipples. Therefore, handling of inverted nipples is needed, one of which is through the Modification Syringe method and the syringe method. **Objective:** To determine the difference in effectiveness between the Modification Syringe method and the syringe method in handling inverted nipples in postpartum mothers post-cesarean section at RSUD Bandung Kiwari in 2023. **Method:** The research method used was quasi-experimental with a two-group posttest-only design. The population consisted of 230 postpartum mothers post-cesarean section. The sample consisted of 25 mothers in the Modification Syringe method group and 25 mothers in the syringe method group. Data analysis was conducted using univariate and bivariate analysis with the Mann-Whitney test. **Results:** It took 5 sessions using the vacuum pump method to address inverted nipples, and it took 6 sessions using the syringe method to address inverted nipples. The p-value obtained was $0.033 < 0.05$, which means there is a difference in the effectiveness of the vacuum pump method and the syringe method in managing inverted nipples in postpartum mothers after cesarean section. **Conclusion:** There is a difference in the effectiveness of the vacuum pump method and the syringe method in managing inverted nipples in postpartum mothers after cesarean section. It is recommended that hospitals consider the vacuum pump method as an alternative procedure for handling inverted nipple problems.

Keywords: Inverted Nipples, Syringe, Vacuum Karampuan.

INTRODUCTION

The postpartum period is a period that begins when the placenta has been delivered and will end once the reproductive organs return to their original state as before pregnancy, and the postpartum period is identical to the breastfeeding period (Ambarwati, 2015). Breast milk is the first food given to babies during the breastfeeding period, and it is the best for babies as it is very natural. Breast milk contains many nutrients that are very much needed in the process of development and growth in newborns (Roesli, 2017).

Proportion Exclusive breastfeeding in Indonesia reached 37.3% (Riskesdas, 2018). In West Java, the coverage of exclusive breastfeeding based on the West Java health profile in 2021 was 68.09%. Based on regency/city, the lowest breastfeeding coverage was in Majalengka City at 62.32%, followed by Ciamis Regency at 52.82%, Pangandaran City at 51.84%, and Bandung City at 49.08% (Ministry of Health of the Republic of Indonesia, 2021). Breastfeeding coverage in Bandung City was 56.02% in 2020 and 49.08% in 2021, showing a decline in exclusive breastfeeding coverage.

Breastfeeding is carried out naturally and simply, but many mothers still encounter difficulties during nursing. Various obstacles can occur in the effort and process of providing

exclusive breastfeeding during the first six months of a baby's life (Astutik, 2017). The main barrier to exclusive breastfeeding is due to insufficient milk production and also problems with the breasts, such as inverted nipples (Saleha, 2018).

The nipple is a part of the breast. Basically, the shape of nipples varies for each woman, including women with flat, inverted, or prominent nipples. Inverted nipples are divided into three grades: grade 1, where the nipple can be easily drawn out by a baby's suction or a breast pump; grade 2, where the nipple can be drawn out with a baby's suction or a tool but will return inward; and grade 3, where the nipple is difficult or impossible to draw out. This can cause breastfeeding problems such as difficulty for the baby to latch, milk stasis, mastitis, and breast abscesses (Saryono, 2018).

The causes of inverted nipples include hormones, short milk ducts, nipple injury during early breastfeeding initiation which causes enlargement around the nipple possibly resulting in inversion, and a history of breast cancer (Cunningham, 2017). Treatment for inverted nipples can be carried out in several ways, including those done during pregnancy such as breast care, which involves breast maintenance. During the postpartum period, techniques like the Hoffman technique involve giving stimulation to the nipple which is then pulled by fingers. Breast shells, which are silicone cups for creating a vacuum on the nipple and breast, nursing pumps as a stimulus to encourage milk ejection, vacuum methods, and the sput method using a modified syringe can also be used (Saifuddin, 2018; Zainiyah, 2019; Almayaripa, 2019).

The vacuum syringe method involves pulling the nipple using a syringe that is inverted, then the plunger is pulled until the nipple protrudes. Based on research conducted by Zainiyah (2019), efforts to address inverted nipples using the syringe method can make the nipple protrude from a size of 0 mm to 12 mm, allowing 75% of mothers to breastfeed smoothly. However, different results were found according to research by Nabulsi (2022) on the inverted syringe technique for the management of inverted nipples in breastfeeding women, which found that there was no effect of using a vacuum syringe on inverted nipples. In addition, the vacuum syringe method has a side effect, namely a feeling of pain, although it can be tolerated by mothers during the intervention.

Another method regarding the modification of syringe usage is the vacuum karampuan method studied by Almayaripa (2019). This method emphasizes comfort during nipple extraction. The vacuum karampuan method is a method developed by students by modifying a 50 cc syringe (similar to the vacuum syringe method) but with the addition of an infusion tube as a connector between the syringe and the rubber nipple that attaches to the nipple. This method can be used by postpartum mothers without contraindications such as breast cancer and does not directly have any significant side effects due to the use of an infusion tube that can be adjusted for suction, thereby reducing the pain experienced by the mother during the intervention.

Based on the journal above, the research results found that handling inverted nipples using the syringe vacuum method showed that some were effective and some were not effective in dealing with inverted nipples. Meanwhile, for the Modification Syringe method, it showed an effect on inverted nipples, and there has not been any other research on the Modification Syringe method yet.

METHOD

Participant characteristics and research design

The research method used in this study is a quasi-experimental study. The design employed is a two-group posttest-only design, which is an experiment using two groups with assessment conducted only after the treatment (Sopiyudin, 2016). Data collection consisted of primary data by assessing inverted nipples after the intervention was carried out. The research

design involves comparing two interventions, namely the vacuum method and the syringe method. The variables used in this study are divided into 2. The independent variables in this study are the spuit and vacuum methods. And the dependent variable in this study is the number of experiments conducted.

Sampling procedures

The population in this study is postpartum mothers after cesarean section at RSUD Bandung Kiwari in June 2023, with an estimated 230 people, and the sample size in this study was 25 people for each group, namely 25 people in the vacuum intervention group and 25 people in the syringe group.

The sampling technique in this study is by accidental sampling, which is sampling based on events in the field (Sutriyawan, 2021). Sampling was conducted on 2 groups, namely, the researchers obtained the first 25 respondents to undergo vacuum intervention and the next 25 respondents underwent syringe intervention.

Sample size, power, and precision

The type of data in this study is primary data, namely data taken directly based on the results of observations using observation sheets. The research instrument is an observation sheet filled out by the researcher based on the results of observations according to the condition of the nipples.

Measures and covariates

The research procedure began with managing location permits and approaching prospective respondents to provide explanations and the completion of informed consent for postpartum mothers post-caesarean section at RSUD Bandung Kiwari on the first and second days who were breastfeeding, had grade 2 inverted nipples on both breasts, and whose babies had already roomed-in. Subsequently, interventions were carried out every 3 hours when the mother was going to breastfeed between 06:00 and 21:00 WIB (7–8 times over 2 days), preceded by an initial assessment of the nipple condition. The first group received the Modification Syringe method, which involved pulling the plunger with infusion tube adjustment to maintain the mother's comfort, meanwhile, the second group received the conventional Spuit method with manual plunger withdrawal without additional regulators based on the patient's pain tolerance limits; both methods were performed by maintaining suction for ± 15 seconds after nipple erection, repeated 3 times per session until there was an improvement of at least 1 degree. The research procedure was then concluded with the post-intervention stage (posttest) to measure and compare the median values of nipple degree changes in both groups.

Data analysis

The data processing in this study began with the editing stage to check the completeness of the observation results, coding in the form of assigning numeric codes, scoring values, and tabulating to organize the data so that it is easy to present and analyze. The data analysis used includes univariate and bivariate analysis, where univariate analysis is elaborated through median, minimum, and maximum values due to the data's non-normal distribution. For bivariate analysis, the Shapiro-Wilk normality test conducted first showed that the data were not normally distributed, with a p-value of 0.001 for the cup method and 0.000 for the syringe method (p-value less than or equal to 0.05), so the comparative test to see the difference in effectiveness of the two interventions on the degree of nipple was shifted to using the non-

parametric Mann-Whitney test with a significance level of $p\text{-value} < 0.05$. The entire series from data collection to analysis was carried out in research conducted at the postpartum room of RSUD Bandung Kiwari during June to July 2023.

RESULTS AND DISCUSSION

Research on the differences in the effectiveness of the cup suction method and the syringe method in the management of inverted nipples in postpartum mothers after cesarean section at Bandung Kiwari General Hospital in 2023. The study used a quasi-experimental design with a two-group posttest-only design approach. Data collection used primary data by observing the condition of the nipples. The sample in this study consisted of 25 respondents for the cup suction group and 25 respondents for the syringe group. The analysis used included univariate and bivariate analyses. The results of the univariate and bivariate analyses are presented in the table below:

1. Median of Success Trials in Handling Inverted Nipples in Post-Caesarean Mothers at Bandung Kiwari General Hospital in 2023 After Using the Modification Syringe Method

Tabel 1.

Median of successful attempts in handling inverted nipples in postpartum mothers after Caesarean section at RSUD Bandung Kiwari in 2023 after using the vacuum cup method

Variable	n	Median	Min	Max
The use of vacuum method for the ability to overcome inverted nipples	25	5	4	7

2. Median of Attempts for Successful Management of Inverted Nipples in Post-Caesarean Section Mothers at RSUD Bandung Kiwari in 2023 After Using the Syringe Method

Table 2.

Median of attempts for successful management of inverted nipples in post-caesarean section mothers at RSUD Bandung Kiwari in 2023 after using the syringe method

Variable	n	Median	Min	Max
The use of the syringe method to adress inverted nipples	25	6	5	7

3. Differences in the Effectiveness of the Modification Syringe Method and the Syringe Method in Handling Inverted Nipples in Post-Caesarean Mothers at RSUD Bandung Kiwari in 2023

Table 3.

Differences in the Effectiveness of the Modification Syringe Method and the Syringe Method in Handling Inverted Nipples in Post-Caesarean Mothers at RSUD Bandung Kiwari in 2023

Variable	n	Median	p-value
The use of the milk vacuum method to address inverted nipples	25	5	
The use of the syringe method to address inverted nipples	25	6	0,033

Based on Table 1. above, it shows that 5 actions are required using the cup vacuum method to overcome inverted nipples. According to the study, there were 2 respondents who succeeded on the 7th trial. Based on the characteristics of respondents in the cup vacuum method group, 68% were of reproductive age 20-35 years, 68% were primiparous, and 60% breastfed 6-7 times. In this study, age and parity did not affect the success of using the cup vacuum method for inverted nipples, as seen in respondents who succeeded on the 4th trial

with primiparous parity and ages 31 and 39 years. Out of 25 respondents, 5 experienced jaundice, with 1 mother aged <20 years, 4 aged 20-35 years, 3 primiparous, and 2 multiparous. This study was conducted on breastfeeding mothers with grade 2 inverted nipples. Based on the study results, to address the problem of grade 2 inverted nipples using the vacuum suction method with a median of 5 trials, out of 25 respondents, the success in changing the degree of inverted nipples was achieved by 2 respondents on the 4th trial, 13 respondents on the 5th trial, 8 respondents on the 6th trial, and 2 respondents on the 7th trial. Almayaripa's (2019) research on the use of vacuum suction in reducing pain and the management of inverted nipples found that there is an effect of vacuum suction on the management of inverted nipples, proven by a change in nipple grade with a p-value of $0.006 < 0.05$. The implementation of vacuum capability in this study was carried out after childbirth, but according to the researcher, it could also be done during pregnancy to provide better results in the form of nipples that do not retract when breastfeeding begins.

Based on Table 2. above, it shows that 6 actions using the syringe method are needed to address inverted nipples. According to the study, 5 respondents succeeded on the 7th trial. Based on the respondents' characteristics in the syringe method group, 88% were of reproductive age 20-35 years, 52% were primiparous, and 72% breastfed 6-7 times. In this study, age and parity did not affect the success of using the syringe method for inverted nipples, as seen in the respondents who succeeded on the 5th trial with primiparous parity and ages 25 and 39 years. Obtained from 25 respondents, there were 7 respondents who experienced jaundice, with maternal age <20 years 1 person, 20-35 years 5 people, and >35 years 1 person, and parity primipara 4 people and multipara 3 people. In this study, the respondents felt pain when the nipples were pulled with a syringe. Zainiyah's research (2019) efforts to overcome inverted nipples using the syringe method can make the nipples protrude from a size of 0 mm–12 mm, allowing 75% of mothers to breastfeed smoothly. Based on the results of this study and the other studies above, it can be said that one way to handle inverted nipples can be done using the syringe method. The implementation of the spuit method in this study was carried out after childbirth, but according to the researcher, it could also be done during pregnancy to provide better results in the form of nipples that do not retract when breastfeeding begins.

Based on table 4.3 above, it shows that there is a difference in the effectiveness of the nipple vacuum method and the syringe method in handling inverted nipples in post-cesarean postpartum mothers ($p\text{-value } 0.033 < 0.05$). The indications for using the nipple vacuum are the same as the syringe vacuum, namely the condition of inverted nipples. The contraindications for using the nipple vacuum are the same as the syringe vacuum, including causes of inverted nipples due to breast cancer, cracked and bleeding nipples, which would result in pain during the intervention. However, if the nipple condition is only cracked, it can still be done because with the nipple vacuum the suction can be adjusted to reduce the risk of pain (Almayaripa, 2019). Based on research conducted by Zainiyah (2019), efforts to overcome the problem of inverted nipples using the syringe method can make the nipples protrude from 0 mm to 12 mm, allowing 75% of mothers to breastfeed smoothly. However, a different result was found in research by Nabulsi (2022) regarding the inverted syringe technique for the management of inverted nipples in breastfeeding women, which showed that the use of syringe vacuum had no effect on inverted nipples. In addition, the syringe vacuum method has a side effect of causing pain, although it can be tolerated by mothers during the intervention.

Another method regarding the modification of syringe use is the vacuum ability method studied by Almayaripa (2019); this method emphasizes comfort during nipple extraction. The vacuum ability method is a method developed by students by modifying a 50 cc syringe (similar to the syringe vacuum method) but with the addition of an infusion tube as a connecting tool

between the syringe and the rubber nipple that will attach to the nipple. Clinically, in the field implementation of the research, the intervention was only carried out on one of the nipples experiencing inverted nipples. Therefore, the researcher could not determine the difference in the number of attempts to overcome inverted nipples between the left and right breasts.

The results of the study found that both the suction cup vacuum method and the syringe method are treatments that can be used to address the problem of inverted nipples. However, upon further examination, it was found that the success of the suction cup vacuum in overcoming inverted nipples occurred on the 5th trial, and for the syringe method on the 6th trial. This indicates that the suction cup vacuum can be more effective in treating inverted nipples. In addition, the use of the suction cup vacuum method seems to cause less pain for the mother compared to the use of the syringe method.

LIMITATION OF THE STUDY

A challenge during the research was that the researcher measured the frequency of breastfeeding but did not measure the duration of each breastfeeding session, so the length of time the baby breastfeeds in each session could be a supporting factor that can influence how quickly inverted nipples are resolved.

CONCLUSIONS AND SUGGESTIONS

Based on the results of research and discussion regarding the differences in effectiveness between the vacuum capability method and the syringe method in handling inverted nipples in postpartum mothers after a cesarean section at RSUD Bandung Kiwari, the results obtained are: (1) Median trial for the success of handling inverted nipples using the vacuum capability method is a median of 5. (2) Median trial for the success of handling inverted nipples using the syringe method is a median of 6. (3) There is a difference in effectiveness between the vacuum capability method and the syringe method in handling inverted nipples.

Acknowledgment (If Necessary)

Technical assistance and advice can be described at the end of the text. Then the names of individuals that are included in this section, the author is responsible for the written consent of every person who communicates personally or recognized by the individual in the text.

ETHICAL CONSIDERATIONS

Conflict of Interest Statement

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Aliansy, D., Barbara, M.A.D., & Septiani, M. (2026). Differences In The Effectiveness of The Modification Syringe Method and The Syringe Method In Handling Inverted Nipples In Post-Caesarean Mothers At Bandung Kiwari Regional General Hospital In 2023. 2(1) 133-140