



EFFECTIVENESS OF NIPPLE STIMULATION ON LABOR PROGRESS : EVIDENCE BASED CARE REPORT

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Abstract

Introduction: Prolonged labor is labor that lasts more than 24 hours for primigravida and or 18 hours for multigravida. Prolonged labor is one of several causes of maternal and newborn mortality. As labor progresses, contractions become more frequent, longer and stronger in intensity. Adequate contractions are needed so that labor can take place normally. Nipple stimulation is one way that can be used in increasing uterine contractions. Nipple stimulation causes the breasts to become aroused which causes the intensity of uterine contractions due to the stimulation of the receptors to loosen. This action can be stopped if the contractions experienced have become strong and prolonged. This method is a cost beneficial and effective alternative to induction and augmentation of labor.

Objectives: To evaluate effectiveness of nipple stimulation on labor

Method: Electronic database literature searches, namely Pubmed and Google Scholar.

Result: Two articles were selected from the literature search and then critically reviewed. Based on the study of Gulbahtiyar Demirel and Hanan Ibrahim et al, it was found that nipple stimulation is effective in reducing the induction of elective labor and there is an effect of nipple stimulation on the progress of labor in laboring women.

Conclusion: In this case, nipple stimulation was effective on the progress of labor in laboring mothers.

Keywords: Laboring mother, labor progress, nipple stimulation

INTRODUCTION

Prolonged labor is labor that lasts more than 24 hours for primigravida and 18 hours for multigravida. Prolonged labor is a prolonged labor accompanied by maternal and fetal complications.(1) Until now, prolonged partus is one of several causes of maternal and newborn deaths. On average, prolonged partus causes 8% of maternal deaths worldwide, while in Indonesia the incidence of prolonged partus is estimated at 4.3% of total deliveries. According to SKDI (Indonesian Demographic and Health Survey) data in 2017, the incidence of delivery in Indonesia using the SC method was 17% of the total number of births in health facilities. This indicates an increase in the number of deliveries through the Sectio Caesarea (SC) method.(2)

Normal labor occurs over 4-24 hours from the time of uterine contractions that cause cervical changes. As labor progresses, contractions become more frequent, longer and stronger in intensity. Adequate contractions are needed so that labor can take place normally. The active phase of labor is seen as more tiring and painful as uterine activity increases. In this phase there is often an increase in adrenaline production, this hormone

can inhibit contractions and slow labor. Adrenaline, which consists of ketocolamine, causes an increase in cardiac output and respiratory frequency.(3)

Increased adrenaline causes a decrease in blood flow to the uterus and placenta. Research by Simona Labor and Simon Maguire states that the lack of blood flow to the placenta makes the fetus experience hypoxia and fetal metabolic acidosis,(4) while reduced blood flow to the uterus makes uterine contractions reduced.(5) Reduced uterine contractions will result in cervical changes, as cervical dilation and thinning will occur when there are adequate contractions. However, not all mothers experience adequate contractions.(3) so measures are needed to increase contractions such as nipple stimulation.

Nipple stimulation is one way that can be used in increasing uterine contractions. This technique can stimulate the formation of natural oxytocin in the mother's body and channeled to the uterus so as to cause contractions.(6) The existence of adequate contractions can make the cervix experience flattening and opening. This action can be stopped if the contractions experienced have become strong and long.(4) Nipple stimulation is one of the natural inductions that can be done to speed up the labor process in healthy pregnancies.

The purpose of writing this case report is to determine whether nipple stimulation is effective on the progress of labor in laboring mothers.

CASE

G2P1A0 pregnant woman aged 29 years with at term gestational age came to Sukarasa Health Center on March 08, 2023 at 08.00 WIB with complaints of heartburn getting stronger and regular, there was mucus mixed with blood from the birth canal. There was no amniotic discharge yet. Fetal movement is still felt by the mother. The results of objective data on examination are vital signs within normal limits, physical examination in good condition. The results of palpation examination of the abdomen TFU 30 cm, Leopold I palpable buttocks, Leopold II palpable PUKA, Leopold III palpable head has entered PAP, Leopold IV Divergent, Perlimaan 2/5, HIS 3 x 10 '25", DJJ: 146 x/min, regular. Internal examination showed vaginal vulva no abnormality, soft thin portio, 50% cervical thinning, 2 cm opening, amniotic membrane intact, head presentation, right front fontanel, head position. Bishop's Score 7. The diagnosis of this case is G2P1. The diagnosis of this case is G2P1A0 parturien at term kala 1 latent phase live single fetus intrauterine head presentation.

The care given in this case is to observe the progress of labor, the condition of the mother and fetus, fulfillment of nutritional needs, hydration, and provision of nipple stimulation care.

March 08, 2023 at 09.45 WIB the mother complained of heartburn getting stronger and longer and there was an urge to pass and felt spontaneous water coming out of the birth canal. Palpation examination of the abdomen HIS 4 x/10 '45", DJJ 154x/minute regular. Internal examination of the vulva vagina there is no abnormality, portio is not palpable, cervical thinning 100%, opening 10 cm, amniotic membrane negative, head presentation, position of the fontanel front, decline station +2, molasses 0. Bishop's Score 12. The diagnosis of this case is G2P1A0 in partu at term kala II.

Is the application of nipple stimulation to multigravida laboring mothers in the latent phase of labor effective to accelerate the progress of labor?

P : laboring mother

I : nipple stimulation

C : no comparison

O : progress of labor

METHODS

The literature search procedure to answer the above problem is by searching the literature online using the electronic database Pubmed and Google Scholar. The keywords used were nipple stimulation and progress of labor using inclusion criteria in publications in the last 5 years (2018-2022), full-text, research design is RCT, quasi-experimental in English.

Based on the search method with the above criteria, 425 articles were obtained on Pubmed and 63 articles on Google Scholar, after further selection there were 2 articles that were considered relevant to the problem.

The two articles that have been selected are selected with the following flow.

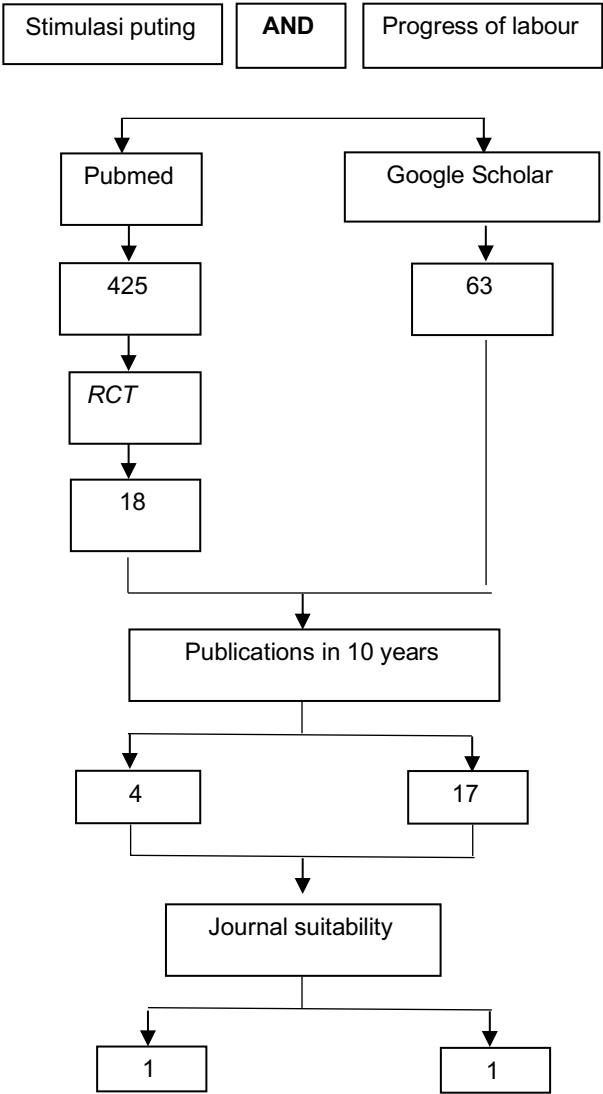


Figure 1. Flow of literature search and selection

Two suitable articles were then critically reviewed using the CASP instrument. The results of the critical review can be seen in Table 1.

Table 1. Summary of critical review

No	Journal	Validity	Importance	Applicability
1	<p><i>The Effect of Uterine and Nipple Stimulation on Induction With Oxytocin and the Labor Process</i></p> <p>Gulbahtiyar Demirel, PhD Handan Guler, PhD.</p> <p>Worldviews on Evidence-Based Nursing, Sigma Theta Tau International 2018</p> <p><i>Level of evidence 2a</i></p> <p>Source: PubMed</p>	<p>This journal is a type of research with a Randomized Controlled Trial design conducted between February 2011 and June 2012.</p> <p>The study was designed to assess the outcome of the intervention. The research question focused on the population of women who gave birth with normal vaginal delivery in the Maternity Ward of Sivas State Hospital in 2011, the interventions provided were nipple stimulation, uterine stimulation, the comparison group was not given the intervention, the measured outcome was bishop score.</p> <p>390 women who met the inclusion criteria (singleton fetus and head presentation, having a bishop score above 6 or more) were sampled and randomly divided into three groups: nipple stimulation group (NSG) 130, uterine stimulation group (USG) 130 and control group 130, randomly assigned to the three groups NSG, USG or CG (Randomization process not described) This process was used to evaluate things such as duration of stage I, stage II and stage III of labor and indicate whether to induce synthesis and Caesarean section.</p>	<p>The effect of the intervention was reported comprehensively. Calculations were performed, the outcome measured was the bishop score. Results were expressed by showing the mean score, standard deviation and p value. There was no significant difference in the three groups in terms of mean bishop score before intervention ($p>0.05$). The difference of the three groups in terms of mean duration of first, second and third stage of labor was found to be statistically significant ($p<0.05$). The duration of the first stage of labor was 3.8 hours in NSG, 4.0 hours in ultrasound and 6.8 hours on average in CG group.</p> <p>There were no drop outs in this study. Potential sources of bias were identified. Statistical tests used Levene's chi square test, analysis of Variance (e.g., age, mean number of past pregnancies and births, mean Bishop score, mean phase duration of the birth act), Tukey test, Dunnett test, T2 Tamhane test (Bishop score, phase duration of the birth act), chi-square test (application of synthetic induction or C-section). Assumption of significance as $p < .05$ in statistical analysis.</p> <p>In this journal, the precision of estimates of intervention</p>	<p>The benefits of this intervention outweigh the disadvantages and there is no need to have a cost.</p> <p>This method can improve the bishop score and speed up labor. Conclusion: This intervention can be applied</p>

		<p>There were no drop outs and none of the participants fell within the exclusion criteria for this study. All participants were included in the inclusion criteria. The study was not terminated early</p> <p>In this study, doctors and midwives were blinded to the study group.</p> <p>Apart from the experimental intervention, the study group received the same level of care. The study protocol was clear. No additional interventions were provided. There was no follow-up interval in the study group in this journal.</p>	<p>or treatment effects is not reported. Confidence intervals are not reported. Confidence intervals are important to know.</p> <p>The results stated that the Bishop scores of the nipple and uterus stimulation group improved substantially more than those of the control group. The action phase of birth had a shorter time duration in the nipple and uterus stimulation group than the control group.</p>
2	<p><i>Effect of Nipple and Uterine Stimulation on the Progress of Labor among Primiparous Women</i></p> <p>Hanan Ibrahim Ibrahim, Violet Nicola Ghattas, Nor El-Hoda Mohamed El-Said El-Shabory.</p> <p>International Journal of Novel Research in Healthcare and Nursing. 2021</p> <p><i>Level of evidence</i> 3b</p> <p>Source: PubMed</p>	<p>This study used a comparative quasi-experimental design that was conducted for 3 months from the beginning of December 2020 to the end of February 2021. 150 primiparous normal delivery women in the obgyn department of Damanhour National Medical Institute were asked to take part in the study on the effect of nipple and uterine stimulation on labor progress.</p> <p>The inclusion criteria were primiparous laboring women, at term pregnancy (37-42 weeks), history of normal pregnancy and labor, head presentation, active phase I, having a Bishop Score of 6 or more, and consenting to take part in the study.</p>	<p>Bishop scores were significantly higher in the NSG and ultrasound groups ($p=0.000$) at 2 and 4 hours after the intervention.</p> <p>The mean bishop scores at the 2nd hour were USG 10.44, NSG 10.04, CG 9.46 respectively. At the 4th hour, the mean bishop scores were USG 12.65, NSG 12.70, CG 10.82. At the 6th hour after intervention, where the mean bishop score was NSG 13.00, ultrasound 13.00, CG 12.50.</p> <p>The mean duration of labor was also found to be very significantly ($p=0.000$) shorter in the NSG and ultrasound groups compared to the control group. At 2nd hour, NSG 7.706 seconds & ultrasound 7.643 seconds respectively compared to 6.218 seconds for CG. At the 4th hour also NSG 0.553 min & ultrasound 0.487 min</p> <p>There is an effect of nipple stimulation on the progress of labor in laboring mothers. The practice can apply nipple stimulation to produce labor progress because it can influence. Conclusion: This intervention can be applied</p>

Laboring mothers were compared to 0.763 min for CG.
grouped into three groups:

nipple stimulation group (NSG) 50 people, uterine stimulation group (USG) 50 people and control group 50 people.

4 tools used in the study

- socio-demographic and clinical data through interview

- bishop score every 2 hours until delivery

- uterine contraction assessment assessed contraction characteristics

- pattern of labor to evaluate oxytocin requirement, mode of labor, duration of labor, and possible complications

The NSG group was intervened every 30 minutes after contractions during the first stage of labor. One nipple was rotated and pulled gently with the thumb and index finger for 2 minutes and the same procedure was performed on the other nipple. Cervical dilatation was evaluated every 2 hours and the procedure was continued if there was progress of 2 cm dilatation, while it was stopped if there was no progress. This group was reintervened before delivery.

The ultrasound group was intervened every 30 minutes after contractions during the first stage of labor. All fingers touched and pulled the entire uterus from the uterine tissue simultaneously and rhythmically for 2-3 minutes. Cervical dilatation was evaluated and

intervention	was
continued the same as the	
NSG group	
The control group	
received routine hospital	
care, where oxytocin was	
used to augment uterine	
contractions and labor	
progress.	

RESULTS AND DISCUSSION

Nipple stimulation is one way that can be used in increasing uterine contractions. This technique can stimulate the formation of natural oxytocin in the mother's body and channeled to the uterus so as to cause contractions.(6) Nipple stimulation can be done by the laboring mother or her partner.(7) The existence of adequate contractions can make the cervix experience flattening and opening. This can be stopped if the contractions have become strong and prolonged.(4)

Nipple stimulation has been suggested as an effective, inexpensive, non-pharmacological way to induce labor and speed up the progress of labor. In labor with a slowly progressing mother, one can gently tug or have one's partner stimulate the nipple of the laboring mother.(8)

Nipple stimulation can release the hormone oxytocin which is useful for stimulating uterine contractions that can accelerate the process of labor. This method is a cost-beneficial and effective alternative for induction and augmentation of labor.(9) Nipple stimulation causes the breasts to become aroused which causes the intensity of uterine contractions due to stimulation of the receptors to stretch, thus causing erection and the tactile nerve endings found on the nipples will be aroused. The stimulation is caused by afferent fibers, then carried to the hypothalamus at the base of the brain to release the hormone oxytocin from the posterior pituitary so that contractions occur during labor. In addition, oxytocin can also help smooth the process of labor by controlling contractions that occur in the uterus.(10) Contains a presentation of the results of the analysis related to the research questions. Contains a presentation of the results of the analysis related to the research questions.

Based on the articles of Gulbahtiyar Demirel in 2018 and Hanan Ibrahim Ibrahim et al in 2021, the results obtained support the need for nipple stimulation on the progress of labor in laboring women. In the first article, it was found that nipple stimulation was proven to help shorten the labor process, this is in line with the results of research conducted by and Gulbahtiyar in 2018 where there was a significant increase in the average bishop score between groups with nipple stimulation after 2, 4, and 6 hours of intervention than the group that was not given the intervention.(11) In the results of the research article Hanan Ibrahim Ibrahim et al in 2021, it shows that nipple stimulation can accelerate the process of labor in laboring women in stage I.(12)

Evaluation of the results of the nipple stimulation intervention, there is a faster progress of labor, where in the intervention carried out by the author at 08.00 with the results of cervical dilatation of 2 cm and Bishop's Score 7, HIS 3 x/10'; 25 "indicates that it is in the latent phase of labor, then midwifery care is provided by providing nipple stimulation performed by the author with the results of the progress of labor at 09.45 WIB. 45 WIB the mother complained of heartburn getting stronger and longer and there was an urge to defecate, felt the spontaneous discharge of water from the birth canal. Then an internal examination was obtained with a cervical dilatation of 10 cm with a Bishop's Score of 12. In

general, the latent phase of labor lasts up to 8 hours. However, in this case, it was found that the duration of the first stage of the latent phase was shorter, namely 1 hour 45 minutes and then entered the second stage of labor.

Without nipple stimulation, uterine contractions occur naturally. If not supported by physical factors and psychological state, uterine contractions are inadequate. Suggestions during labor such as eating, drinking, mobilizing, positioning and deep breathing need to be done by laboring mothers so that they can support uterine work. Other efforts that can be made by the family are to provide support by accompanying and meeting the needs of the mother during labor. In addition, midwives also need to provide support by providing labor care in accordance with the mother's condition so that uterine contractions can increase.(3)

CONCLUSION

From the results of the evidence-based case report, it can be concluded that the application of nipple stimulation in labor is effective in accelerating labor progress. This intervention is recommended in cases of normal labor and labor with slow progress of labor.

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