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The effect of betel leaves decoction on the healing of perineum wounds in postpartum mothers at the maternity health center in Demak District, Demak Regency

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Abstract---Background : Perineal wound is a wound in perineal area naturally caused by episiotomy. Injury to the perineum during childbirth causes the need for a proper treatment so that the injured can recover soon. The purpose of this study was to determine the effect of betel leaf decoction on the healing of perineal wounds in postpartum mothers. Methods : This study was carried out using Quasi Experimental research and post test with control group design of the intervention group and the control group. Meanwhile, the sampling technique used was the consecutive sampling method using the mann whitney test. Result : The intervention group which used betel leaf at fast category was 9 people (60.0%), medium category was 5 people (33.3%) and slow category was 1 person (6.7%). Meanwhile, the control group did not use betel leaf at the slow category was 10 people (66.7%), while those who were at the medium category was 5 people (33,3%). Conclusion: The results showed that p value obtained was 000 (< 0.05), thus H_0 is rejected and H_a is accepted, indicating that there was an effect of betel leaf decoction on the healing of perineal wounds in postpartum mothers.

Keywords---betel leaf, perineum wound, postpartum.

Introduction

According to WHO (World Health Organization), the maternal mortality rate (MMR) of 2014 in the world was 289,000 people. Among them, 9,300 were from

the United States, 179,000 were from North Africa, and 16,000 were from and Southeast Asia. The maternal mortality rates in countries in Southeast Asia, namely 214 per 100,000 live births in Indonesia, 170 per 100,000 live births in the Philippines, 160 per 100,000 live births in Vietnam, and 39 per 100,000 live births in Malaysia (WHO, 2014).

The Maternal and Child Health Program is one of the priorities of the Indonesian Ministry of Health. In this case, the success of the MCH program is one of the 2015-2019 National Long-Term Development Plans (RPJPN). Infant mortality cases in Indonesia in 2015 decreased from 33,278 to 32,007 in 2016 and 10,294 cases in the first semester of 2017. Meanwhile, the maternal mortality rate (MMR) decreased from 4,999 in 2015 to 4,912 in 2016 and 1,712 in the first semester of 2017 (Depkes RI, 2017). Particularly in Central Java in 2014, the Maternal Mortality Rate (MMR) from January to June has reached 357 per 100,000 live births, while in 2013 it reached 118.62 per 100,000 live births or 668 cases. Meanwhile, infant mortality rates in 2014 from January to June reached 21.65 per 1000 live births, while in 2013 it decreased to 10.41 per 1000 live births or 5865 cases. (Central Java Provincial Health Office, 2014). Furthermore, the maternal mortality rate (MMR) in 2016 in Central Java reached 602 cases (109.65 per 100,000 life disorders), while up to semester 1 of 2017, MMR in Central Java was recorded at 215 cases. Infant mortality cases in Central Java in 2016 were recorded at 5,485 cases, then decreased to 2,182 cases in January - June of 2017. In this case, the maternal mortality rate (MMR) in Semarang City from January to June 2017 was 17 cases (Central Java Health Office, 2017).

The causes of maternal death are bleeding, eclampsia, prolonged labor, abortion complications and infections. The percentage of birth canal tears has a small number, but this problem can be a serious in maternal mortality. Birth canal tears can affect the vagina, cervix, uterus and perineum (Saifuddin, 2010). According to Damarini, et al. (2013), perineal rupture is a tear that occurs when the baby is born either spontaneously or by using a tool or action. Perineal tears generally occur in the midline and can be extensive if the fetal head is delivered too soon. Perineal tears occur in almost all primiparas. Perineal rupture can occur due to spontaneous rupture or episiotomy. Most of the childbirth experienced a tear in the vagina and perineum that gave bleeding in varying amounts. Then, it requires suturing the perineum. The healing time of perineal sutures will last 7-10 days and not more than 14 days.

Perineal wound care is one way to prevent infection of birth canal injuries. Postpartum infection is the cause of maternal death which is second only to bleeding if it is not treated (Widyaningrum, 2011). The perineum requires treatment consisting of 3 techniques, namely the technique of using antiseptics, without antiseptics, and traditional methods, one of which is using betel leaf decoction to wash the perineal wound so that the perineal wound heals quickly and the smell of blood that comes out is not fishy (Damarini, 2013).

Betel leaf has the Latin name *Piper betle* linn. This leaf has chemical content and properties of essential oils consisting of hydroxy kavikol, cavibetol, estragol, eugenol, metileugenol, carvakrol (Celly, 2010 in Ari Kurniarum, 2015). Betel leaf which contains essential oil gives a distinctive smell and has the power to kill

bacteria and fungi. In addition, it is also an antioxidant and antiseptic that accelerates wound healing. Treatment using betel leaf is natural remedies so that it does not cause side effects. The betel leaf decoction treatment is done since the first postpartum day. Furthermore, the duration of perineal wound healing was measured through observation for 7 days (Susilo Damarini et al, 2013).

In this case, the betel leaves were processed by boiling 10 – 20 betel leaves for $\pm$ 10 minutes with 2 liters of water. This betel leaf decoction is used 2-4 times a day so that the betel leaves decoction contacts the perineal wound more often. Furthermore, this perineal care is carried out when taking a bath, after urinating, and after defecating which is using the betel leaves decoction for washing (Kusumaningsih, 2014).

The boiled water can be used to help treat wounds because the betel leaf decoction contains chemicals and antibiotics that are very beneficial. The main components of essential oils consist of phenol and its derivative compounds. One of the derivative compounds is kavikol, which has five times stronger bactericidal power than phenol. The antibacterial power of betel leaf essential oil is caused by the presence of kavikol compounds which can denature bacterial cell proteins (Ambarwati, 2008). The betel leaf decoction is used for vulvar hygiene during the puerperium to accelerate wound healing.

According to research conducted by Ari Kurniarum and Anik Kurniawati (2015), the use of betel leaf in perineal wound healing was 4.12 times more effective than betadine. Based on the identification of these problems, the researchers formulated the problem in this study, which is whether there is an effect of betel leaf decoction on the healing of perineal wounds in postpartum mothers at the Maternity Health Center, Demak District, Demak Regency?

Research Methods

This research is quantitative research using a quasi-experimental post-test only control design. The samples involved in this study were 30 respondents. These samples were chosen using the consecutive sampling method. Furthermore, this research was conducted at the Maternity Health Center, Demak District, Demak Regency on May – June 2019.

Furthermore, the data collection tool used is perineal wound healing assessment sheet. The measurement of wound healing variable was carried out on both the intervention group and control group. The analysis included univariate and bivariate analysis. Univariate analysis describes the frequency distribution based on age, while bivariate analysis was performed using the Mann Whitney test. In addition, the differences in perineal wound healing were analyzed in the intervention group and the control group.

Result

Characteristics of Respondents

Table 4.1
Frequency Distribution by Age of Respondents in the Intervention Group and Control Group on Postpartum Mothers (n = 30)

Category	Intervensi on		Control		<i>p</i>
	f	(%)	f	(%)	
Usia					0.694
<20	2	13.3	3	20.0	
20-35	12	80.0	11	73.3	
>35	1	6.7	1	6.7	

Based on table 4.1, it can be seen that the frequency distribution data shows that the respondents in the intervention group of the age category of 20-35 years was 12 people (40.0%), the age category of < 20 years was 2 people (6.7%), and the age category of >35 years was 1 person (3.3%). Meanwhile, the respondents in the control group in the age category of 20-35 years was 11 people (73.3%), the age category of < 20 years was 3 people (20.0%), and the age category of >35 years was 1 person (6.7%). In this case, the p-value obtained was 0.694 ($p > 0.05$), which means that there is no significant difference in the age range between the intervention group and the control group.

Univariate Analysis

Table 4.2
Frequency Distribution of Perineal Wound Healing in the Intervention Group and the Control Group in Postpartum Mothers (n = 30)

Wound healing	Intervensi on		Control	
	f	(%)	f	(%)
Slow	1	6.7	10	66.7
Currently	5	33.3	5	33.3
Fast	9	60.0	0	0

Based on the table above, it can be seen that the intervention group that was given treatment using betel leaf decoction in postpartum mothers was mostly in the category of having fast wound healing, namely 9 people (60.0%), postpartum mothers who were in the category of moderate wound healing was 5 people (33.3%) and postpartum mothers who were in the category of slow wound healing was 1 person (6.7%).

Furthermore, the table above also shows that the control group who was not given treatment using betel leaf decoction in postpartum mothers was mostly in the category of having slow wound healing, namely 10 people (66.7%), postpartum mothers in the category of moderate wound healing was 5 people (33.3%), and postpartum mothers who were in the category of fast wound healing was none.

Bivariate Analysis

Table 4.4
Effect of Perineal Wound Healing Intervention Group and Control Group on
Postpartum Mothers (n = 30)

Group	N	Min	Max	Mean	SD	<i>p</i>
Intervention	15	1	3	2.53	0.640	0.000
Control	15	1	2	1.33	0.488	

Based on the results of the Mann - Whitney statistical test, it showed that the healing of perineal wounds in the postpartum mother group using betel leaf decoction treatment and the postpartum mother group receiving appropriate treatment from the puskesmas were statistically different. Table 4.3 shows the *p* value of 0.000, so it can be concluded that the *P* value is less than 0.05, thus *H*₀ is rejected and *H*_a is accepted. This indicates that there is an effect of betel leaf decoction on perineal wound healing in postpartum mothers at the Maternity Health Center, Demak District, Demak Regency.

Discussion

Characteristics of Respondents

Age

Based on the research results obtained from the Maternity Health Center in Demak District, Demak Regency, the frequency distribution data in the intervention group were mostly at the age of 20-35 years old by 12 people (40.0%), aged of less than 20 years were 2 people (6.7%), and in the age category of older than 35 years was 1 person (3.3%). Furthermore, most of the control group respondents were also aged 20-35 years old by 11 people (36.7%), aged younger than 20 years old by 3 people (10.0%), and older than 35 years was 1 person (3.3%). This is in accordance with the opinion stated by Yuliaswati (2018), the age of postpartum mothers is classified into 3 parts, namely age < 20 years, age 20-35 years and age > 35 years.

Furthermore, researchers conducted interviews to postpartum mothers aged 37 years old with fast wound healing. The results obtained that the mother said that she had experience in perineal wound care in previous deliveries. In this case, the mother was given counseling about proper vulvar hygiene and how to treat perineal wounds using betel leaf decoction before being treated for perineal wounds. According to Utami (2017), proper perineal wound care can accelerate the healing of perineal wounds, while improper perineal wound care can cause infection.

According to Notoatmodjo (2012), age affects the behavior of perineal wound care. This is in accordance with the theory that age indicates the development of the ability to learn and form the required teaching behavior. Age can affect a person's physical, psychological and cognitive maturity. A person's maturity can develop by learning from oneself or the experiences of others.

In addition, based on research that has been done by Yuliaswati (2018), it is stated that people are increasingly understanding and practicing healthy reproduction at the age of 20-35 years. Meanwhile, the age of 20-35 years is the right age for pregnancy, childbirth, and postpartum. This research is strengthened by previous research conducted by Lestari (2016) which also stated that age had a dominant effect on perineal care behavior in postpartum mothers, namely at the healthy reproductive age of 20-35 years.

Univariate Analysis

Perineal wound healing in the intervention group using betel leaf decoction

Based on the results of research that has been carried out, it was found that the healing of perineal wounds in postpartum mothers at the Maternity Health Center, Demak District, Demak Regency after being given an intervention using betel leaf decoction experienced differences between wound healing in the fast category by 9 people (60.0%), moderate category by 5 people (33.3%), and slow category by 1 person (6.7%). According to Kusumaningsih (2014), the processing method carried out was boiling 10-20 betel leaves for $\pm$ 10 minutes with 2 liters of water, which is then used 2-4 times a day. The use of betel leaf decoction in this study was carried out 4 times a day, aiming to expose the perineal wounds to betel leaf decoction more often.

According to Suryadi (2004) in Kusumaningsih (2014), wound care depends on the type of wound, whether there is a risk of bleeding and a risk that can lead to infection. Therefore, the first wound care is to control the inflammation, reduce the number of germs breeding, prevent infection, and treat infection. Second is maintaining a balanced moisture, protecting the wound from trauma, and protecting the skin around the wound. The third is supporting the epithelialization process, in which the wound closure process occurs in the proliferative phase of wound healing. Epithelial (wound edge) is very important to note so that the epithelialization process can take place effectively.

In this study, the intervention group that used betel leaf decoction contained 1 postpartum mother who experienced slow perineal wound healing caused by several factors, namely the mother's condition and excessive maternal activity because the first child was 15 months old and the second child was born again, so there was excessive maternal activity. The results shown are in accordance with the theory of Damarini et al. (2013), where the factors that influence perineal wound care are external factors, including environmental factors, traditions, knowledge, socio-economics, handling officers, maternal conditions and nutrition, while the internal factors are age, tissue handling, hemorrhage, hypovolemia, local edema factors, nutritional deficits, personal hygiene, oxygen deficit, and excessive activity.

Based on the opinion stated by Kusumaningsih (2015), perineal wound healing can be influenced by hygiene, activity and nutrition factors. In this case, the most influential on episiotomy wound healing is cleanliness. Perineal wound care is one way to prevent infection of birth canal injuries. Perineal care consists of various techniques, but what is often done consists of 3 techniques, perineal care

techniques using antiseptics, perineal care techniques without antiseptics, and perineal care in a simple or traditional way. Many people still use the traditional way of treating perineal wounds, one of which is using boiled water from the betel leaf to wash the perineal wound so that the perineal wound heals quickly and the smell of blood that comes out is not fishy. The treatment is carried out by the community from generation to generation from parents or grandmothers, apart from the ease of obtaining it (Yuliaswati, 2018).

Furthermore, according to the opinion stated Kurniawan (2015). betel leaf contains essential oil which gives a distinctive smell of betel leaf and has the power to kill bacteria and fungi. In addition, it is also an antioxidant and antiseptic that accelerates wound healing. Treatment using betel leaf is preferred by most people because of the ease of obtaining it, cheap price, easy processing, and is included in the herbal treatment series which is very popular with the Indonesian people. The use of herbal plants, such as betel leaf is also a natural treatment because the side effects can be minimized, unlike the use of chemical products (Agromedia, 2009). Reinforced by research conducted by Yuliaswati and Kamidah (2018), regarding Efforts to Accelerate Healing of Perineal Wounds Through the Use of Green Betel Decoction Water, the results of the Mann Whitney test obtained p value of 0.010 ($p < 0.05$). Therefore, it can be concluded that there is a significant difference in healing time perineum wound between the intervention group and the control group. Betel leaf has an antibiotic effect called arecoline which is useful for stimulating the central nervous system to increase peristaltic movement so that blood circulation in the wound becomes smooth, oxygen becomes more abundant, thus affecting faster wound healing. Based on these effects, betel can be used as a wound treatment.

Healing perineal wounds in the control group that did not use betel leaf decoction

Based on the research, it was found that most of the control group that did not use betel leaf decoction were in the slow category with a total of 10 people (66.7%) and the control group that did not use betel leaf decoction were in the medium category with a total of 5 people (33.3%).

In accordance with the statement from Suwiyoga (2010), improper perineal care can result in perineal conditions that are exposed to lochia and moist will greatly support the proliferation of bacteria that can cause infection in the perineum. The appearance of infection in the perineum can spread to the bladder tract or the birth canal which can result in the emergence of complications of bladder infection in the birth canal. Infection not only inhibits the wound healing process but can also cause damage to the supporting cell tissue, so that it will increase the size of the wound itself, both in length and depth of the wound. Based on interviews, the cause of slow perineal wound healing is that the mother does not understand good personal hygiene, does not understand how to treat perineal wounds, worries about the perineal sutures not being cleaned frequently, fear of pain in the birth canal when being washed, and do not understand the benefits and goals of perineal wound care. Furthermore, the perineal wound healing in the moderate category contained of 5 people (33.3%). This is because there are external factors, including the family and the external environment and the

experience of healing perineal wounds during previous deliveries so that mothers can treat their perineal wounds properly.

Another study conducted by Utami and Dewi (2017) regarding the relationship between perineal care and perineal wound healing in postpartum women obtained a p value of 0.000 ($p < 0.05$) which means that there is a relationship between perineal care and perineal wound healing in postpartum women. In this study, it showed that 21 respondents with good perineal care experienced good perineal wound healing. It was obtained 100% then 6 respondents who did not good perineal care were also 66.7%.

Analysis of the Effect of Betel Leaf Decoction on the Healing of Perineal Wounds in Postpartum Mothers at Maternity Health Center, Demak District, Demak Regency

Based on the results of the study, it is known that there is a significant difference between the intervention group using betel leaf decoction and the control group which did not use betel leaf decoction at the Maternity Health Center in Demak District based on bivariate analysis seen from the data centering value (Mean). In this case, the mean value in the intervention group that used betel leaf decoction was 2.53, while the mean value in the control group that did not use betel leaf decoction was 1.33. Therefore, it can be concluded that postpartum mothers who lapped with betel leaf decoction had faster wound healing than postpartum mothers that those who did not wash using betel leaf decoction. Statistically, there was a significant difference seen from ($p \ 0.000 < 0.05$). Therefore, it can be concluded that there is an effect of betel leaf decoction on perineal wound healing in postpartum mothers at the Maternity Health Center, Demak District, Demak Regency.

Furthermore, based on the results of observations by researchers in the intervention group, it is known that the perineal sutures in postpartum women heal and dry up on days 3-4 post partum and there are no signs of infection. Meanwhile, based on the results of interviews with respondents, it was obtained that respondents said the pain in the perineal suture wound also decreased quickly and felt more intense. This is in accordance with the theory stated by Prawirohardjo (2011) that the average birth canal wound will heal in 6 to 7 days if there is no infection. The healing of perineal wounds occurs quickly because postpartum mothers use betel leaf boiled water for washing. According to Morison (2012), the characteristics of an ideal antiseptic are killing micro-organisms in a wide range, remaining effective against various dilutions, non-toxic to the human body, not easy to cause sensitivity reactions, both local and systemic, react quickly, work efficiently, even if there are organic ingredients (eg pus, blood or soap), they are inexpensive and durable.

These results are consistent with the results of laboratory tests conducted by researchers at the Faculty of Biology, Universitas Gadjah Mada that betel leaf decoction contains essential oils, saponins, flavonoids, phenolics, alkaloids, piperine, tannins and eugenol (Kusumaningsih, 2014). Betel leaf is a leaf that contains antiseptic substances that can kill bacteria, so it is widely used as an antibacterial and antifungal agent. This is because the phenol derivative, kavikol,

has five times more effective antiseptic properties than ordinary phenol (Sugiarti, 2000 in Kusumaningsih, 2014).

Green betel leaf contains a lot of volatile oil 1-4.2% (as a fragrant aroma in betel leaf), while the essential oil contained betlephenol, sesquiterpenes, starch, diastase of 0.81%, sugar, and tannins (chemical compounds used to kill or inhibit the growth of microorganisms on living tissue such as the surface of the skin), as well anti-inflammatory or chemical compounds used to relieve inflammation. In addition, there is also kavikol 7.2-16.7% which functions as an antiseptic or a substance that can inhibit the growth of germs (Gendrowati, 2014).

According to researchers, community needs to use herbal-based medicines, including medicines to accelerate perineal wound healing need to be addressed wisely. The benefits of green betel decoction have been proven and trusted by the public for decades. This is supported by the results of Yuliaswati's research (2018) in Surakarta that betel leaf contains such as kavicol and essential oils which are anti-fungal and anti-bacterial. Among these ingredients, betel also has an antibiotic effect and arecoline which is useful for stimulating the central nervous system to increase peristaltic movement so that blood circulation in the wound becomes smooth, oxygen becomes more abundant, thus causing faster wound healing. Based on these effects, betel can be used as a wound treatment.

Based on the results of this study, it shows that the healing of perineal wounds in respondents who used betel leaf tends to be faster than respondents who did not use betel leaf. This is because the chemical content of betel leaf can accelerate the wound healing process. Betel leaf is proven as an ideal antiseptic class in accordance with laboratory experiments that have been carried out and the results of research conducted on perineal wound healing in postpartum women. The use of betel leaf in this research is to provide a real example to the community that wound healing can be done without patent drugs. In addition, the ease of obtaining betel leaves and inexpensive price in the community is a factor considered by researchers (Kusumaningsih, 2014).

In addition, based on the results of study previously carried out by Kurniawati and Maria (2015) about the difference between using betel leaf on the healing time of perineal wounds, obtained that the Mann Whitney test showed a p value of 0.000 (p value <0.05). This indicated differences in the healing time of perineal wounds between groups who used betel leaf and group who did not use betel leaf. The results of this study showed that the healing time of the perineal wound of mothers who did not use betel leaf mostly (62.5%) experienced perineal wound healing on the 8th day, while the majority of mothers who used betel leaf (62.5%) had perineal wound healing on the 5th day.

Based on these characteristics, betel leaf can be classified as an ideal antiseptic, particularly according to laboratory experiments that have been carried out and the results of research conducted on perineal wound healing in postpartum women. Furthermore, the use of betel leaf in this research is to provide a real example to the community that wound healing can be done without patent drugs. In addition, the ease of obtaining betel leaves and its inexpensive price in the community is factors considered by researchers.

Conclusion

The perineal wound healing in the intervention group at the Maternity Health Center, Demak District, Demak Regency containing 15 respondents mostly were in the fast category by 9 people (60.0 %). Meanwhile, the perineal wound healing in the control group at the Maternity Health Center, Demak District, Demak Regency containing 15 respondents, mostly were in the slow category by 10 people (66.7%). The results of this study showed the effect of betel leaf decoction on perineal wound healing in postpartum mothers at the Maternity Health Center, Demak District, Demak Regency. Value (p-value 0.000/ p-value < 0.05).

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