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ORIGINAL RESEARCH

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## EFFECT OF CONSUMING TAMARIND AND TURMERIC DRINK ON THE LENGTH OF PERINEAL WOUND HEALING IN POSTPARTUM MOTHERS

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### ABSTRACT

**Background:** The incidence of perineal tear is still high in Indonesia. It is therefore the intervention to accelerate wound healing is needed. The use of turmeric and tamarind is considered as the alternative treatment for wound healing. However, little is known about the effect of the combination of turmeric and tamarind.

**Objective:** To determine the effect of consuming turmeric and tamarind on the duration of perineal wound healing.

**Methods:** The study was a quasi-experimental study with one group post-test only design conducted in the working area of the Community Health Center of Ngesrep and Sronдол, Semarang City, Central Java, Indonesia in December 2016 until January 2017. There were 28 respondents recruited using consecutive sampling, with 14 randomly assigned in each group. The REEDA scoring system was used to measure the wound healing. Data were analyzed using Independent t-test.

**Results:** The results revealed that the average duration of wound healing in the intervention group was 6.25 days, while in the control group was 8.57 days with p-value 0.000 (<0.05), which indicated that there was statistically significant effect of tamarind turmeric drink of the duration of perineal wound healing in postpartum mothers.

**Conclusion:** There was a significant effect of turmeric tamarinds drink on the duration of perineal wound healing in postpartum mothers. It is therefore suggested to the health providers, especially midwives, to apply this intervention the accelerate healing of perineal wound in postpartum mothers.

**Keywords:** turmeric, tamarind, perineal wound, postpartum mothers

## INTRODUCTION

The incidence of perineum rupture is high, from a total of 1951 spontaneous vaginal births, there are 57% of mothers experienced perineal ruptures, which 28% of them due to episiotomy, and 29% due to tear.<sup>1</sup> The effect of perineal rupture on the mothers include infections in the perineal rupture. Results of research conducted by Sim Romi shows the incidence of infections (7.1%) in postpartum mothers with episiotomy.<sup>2</sup>

Based on the preliminary study conducted at the Community Health Center of Ngesrep on July 20, 2015, of 140 mothers delivering in the working area of the health center, 97 of mothers suffered from perineum injuries and 1 suffered from perineal wound infections. In the Community Health Center of Sronдол, from 37 deliveries, 29 mothers (76.31%) suffered from perineal wound.

Mothers who have perineal ruptures certainly feel pain and discomfort, which interfere with their activities, particularly in caring their children.<sup>3,4</sup> There is evidence of changes in the quality of life experienced by the mother during postpartum period, regularly a series of psychological and physical symptoms such as physical limitations, fatigue and pain. Although this phenomenon is often regarded as temporary or non-permanent, it is strongly associated with an assessment of the quality of life of postpartum mothers.<sup>5</sup> Thus, the effort to reduce the pain and discomfort in postpartum mothers with episiotomy is needed.

The use of turmeric and tamarind is considered as the alternative treatment for wound healing. Turmeric and tamarind have been shown to be anti-inflammatory, antioxidant, anticarcinogenic, anti-infection, analgesic, and anticoagulant.<sup>6,7</sup> They also works at various stages to

accelerate wound healing by increasing wound contraction and accelerate epithelial cell migration under wound.<sup>6</sup> However, little is known about the effect of the combination of turmeric and tamarind, especially in perineal wound healing. Therefore, this study aimed to determine the effects of turmeric and tamarind on perineal wound healing in postpartum mothers.

## METHODS

### *Design*

The study was a quasi-experiment with one group post-test only design conducted in the working area of the Community Health Center of Ngesrep and Sronдол, Semarang City, Central Java in December 2016 until January 2017.

### *Sample*

Using consecutive sampling, the total sample in this study was 28 respondents, which 14 randomly assigned in intervention and control group. The inclusion criteria included: a) a normal postpartum mother (the 1<sup>st</sup> day), b) had been willing to receive intervention and examination, c) a postpartum mother with sutured second-degree perineal lacerations, and d) willing to be respondent. The exclusion criteria included a mother suffered from diseases that can inhibit wound healing, such as AIDS, kidney and hepatic disease). In this study, those who had less than 100% of intervention adherence were dropped out.

### *Intervention*

The treatment group was given intervention in the form of consumption of tamarind turmeric drink with a dose of turmeric (*Curcuma Longa*) was 165 mg / KgBB while the dosage of tamarind (*Tamarindus Indiciae*) was 1:3 of turmeric

weight. The amount of water used was 150 ml. The drink was taken every morning after breakfast until the wounds of the perineum healed. Perineal care was also given to the treatment group. On the other hand, the control group received standard treatment in the form of perineal care and oral antibiotics (10 amoxilin 500 mg tablets) taken 3 times daily. Perineal care was done alone by the respondent, i.e. by cleaning the perineum with clean water, then dried with a clean towel.

### *Instrument*

The research instrument used to measure the duration of perineal wound healing

was an observation sheet using the REEDA scoring system (Redness, Edema, Ecchymosis, Discharge and Proximity) tool. The REEDA scale is a tool for assessing perineal healing that was primarily developed by Davidson<sup>8</sup> and later reviewed by Carey.<sup>9</sup> It includes five items related to the healing process: hyperemia, edema, ecchymosis, discharge and coaptation of the wound edges (Redness, Edema, Ecchymosis, Discharge, Approximation - REEDA) (see Figure 1). The length of time and level of wound density were measured and observed one day after treatment.

Points	Redness	Oedema	Ecchymosis	Discharge	Approximation
0	None	None	None	None	Close
1	Within 0.25 cm of the incision bilaterally	Perineal, less than 1 cm from incision	Within 0.25 cm bilaterally or 0.5 cm unilaterally	Serum	Skin separation 3 mm or less
2	Within 0.5 cm of the incision bilaterally	Perineal and/or between 1 to 2 cm from the incision	Between 0.25 cm to 1 cm bilaterally or between 0.5 to 2 cm unilaterally	Serosan-guinous	Skin and subcutaneous fat separation
3	Beyond 0.5 cm of the incision bilaterally	Perineal and/or vulvar, greater than 2 cm from incision	Greater than 1 cm bilaterally or 2 cm unilaterally	Bloody, purulent	Skin, subcutaneous fat and fascial layer separation
Score					
					Total

**Figure 1** REEDA Scale<sup>9</sup>

### *Data analysis*

Data were homogenous and in normal distribution. Thus, independent t-test was used to analyze the data.

### *Ethical Consideration*

Ethical clearance was obtained from research ethics committees of Poltekkes Kemenkes Semarang with code of conduct: 271 / KEPK / Poltekkes-SMG / EC / 2016. Research permit was obtained from educational institution, National Unity Board of the Republic of Indonesia in Semarang, and the Community Health Center of Ngesrep and Srondil. Inform consent given to the respondents had been

adjusted to the standard informed consent at the time of filling ethical clearance by first explaining the research (objective, benefits, risk, and duration). The participation of respondents was voluntary and the researcher ensured the confidentiality of the respondent's data.

## **RESULTS**

The characteristics of the respondents as shown in the table 1 indicated that majority of the respondents in the intervention and control group aged 20-35 years, primipara, had spontaneous wound, normal nutritional status, enough sleep

pattern, normal stress level, and no infection. There was no difference in

characteristics of the respondents between both groups.

**Table 1** Characteristics of respondents

Characteristics of respondents	Intervention group		Control group		Total	
	n	%	n	%	N	%
<u>Age (Year)</u>						
<20 years	3	37.5%	5	62.5%	8	28.5%
20-35 years	10	52.6%	9	47.4%	19	67.8%
>35 years	1	100%	0	0%	1	3.7%
<u>Parity</u>						
Primipara	8	44.4%	10	55.6%	18	64.2%
Multipara	6	60%	4	40%	10	35.8%
<u>Type of wound</u>						
Spontaneous	13	56.5%	10	43.5%	23	82.1%
Episiotomy	1	20%	4	80%	5	17.9%
<u>Nutritional Status</u>						
Thin	1	100%	0	0%	1	3.6%
Normal	5	29.4%	12	70.6%	17	60.7%
Overweight	6	85.7%	1	14.3%	7	25%
Obesity	2	66.7%	1	33.3%	3	10.7%
<u>Sleep pattern</u>						
Enough	8	40%	12	60%	20	71.4%
Less	6	75%	2	25%	8	28.6%
<u>Stress level</u>						
Normal	5	33.3%	10	66.7%	15	53.6%
Depression	9	69.2%	4	30.8%	13	46.4%
<u>Infection</u>						
Infection	0	0%	0	0%	0	0%
No infection	14	50%	14	50%	28	100%

**Table 2** Duration of perineal wound healing in postpartum mothers

Group	Minimum value	Maximum value	Mean	Standard of deviation
Intervention	5	8	6.25	1.06
Control	6	12	8.57	1.55

The results as shown in the table 2 revealed that the minimum value of perineal wound healing in the treatment group was 5 days, while perineal wound healing in the control group was 6 days. The maximum value in the intervention group was 8 days while control group was

12 days. The average duration of wound healing in the intervention group was 6.25 days, while in the control group was 8.57 days. It tells that the tamarind turmeric juice could shorten the day of wound healing.

**Table 3** Effect of consuming tamarind turmeric on the duration of perineal wound healing in postpartum mothers

Group	N	Mean	P-value
Intervention	14	6.29	0.000
Control	14	8.57	
Total	28	100	

Table 3 shows p-value 0.000 (<0.05), which indicated that there was statistically significant effect of tamarind turmeric drink of the duration of perineal wound healing in postpartum mothers.

## DISCUSSION

This study aims to determine the effect of turmeric and tamarind drink on the perineal wound healing in postpartum mothers. Findings of this study revealed that there is a significant effect of tamarind turmeric juice on the duration of perineal wound healing in postpartum mothers. This result is in line with the previous studies, which reported that turmeric was applied and effective for wound healing. It contains the antioxidant curcumin which may help reduce inflammation and, in effect, may speed up the progress of the stages of wound healing.<sup>6</sup>

The wound healing potential of curcumin is attributed to its biochemical effects such as its anti-inflammatory,<sup>10</sup> anti-infectious,<sup>11</sup> and anti-oxidant,<sup>12</sup> activities. Curcumin has also been found to enhance cutaneous wound healing through involvement in tissue remodeling, granulation tissue formation, and collagen deposition.<sup>13</sup> Various studies have shown that curcumin's application on wound also enhances epithelial regeneration and increases fibroblast proliferation and vascular density.<sup>6,14</sup>

On the other hand, tamarind extract enhances epidermal wound healing.<sup>15</sup> It also promotes proliferation and migration of human skin cells through internalization via stimulation of

proliferative signal transduction pathways.<sup>16</sup> However, the medicinal value of tamarind is mentioned in traditional Sanskrit literature. Tamarind fruits were well known in Europe for their medicinal properties, having been introduced by Arab traders from India. Tamarind products, leaves, fruits, and seeds have been extensively used in traditional Indian and African medicine.<sup>17</sup>

This study provides the new insight of the mixture tamarind turmeric juice could reduce the duration of perineal wound healing compared to the perineal care alone. However, the small sample size might limit the generalization of the findings.

## CONCLUSION

There is a significant effect of turmeric tamarinds drink on the duration of perineal wound healing in postpartum mothers. It is therefore suggested to the health providers, especially midwives, to apply this intervention to accelerate healing of perineal wound. Further research is needed with bigger sample size.

### Declaration of Conflicting Interest

None declared

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### Author Contribution

All authors contributed equally in this study.

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