

## CHAPTER I INTRODUCTION

### 1.1 Background

*Postpartum* pain is a discomfort feeling that is often complained by mothers after giving birth, such as headaches, discomfort or cramps in the stomach, and pain felt at the birth site. Based on its pathophysiology, postpartum pain is categorized as nociceptive pain, which is pain that occurs due to cell damage, trauma, or injury. In general, the degree of nociceptive pain is in accordance with the extent of tissue damage and the release of inflammatory mediators.<sup>1</sup>

Pain that occurs in postpartum mothers causes conditions that must be controlled properly so as not to affect the body's systems and does not cause negative impacts on *postpartum maternal morbidity and mortality* that can interfere with their activities in caring for their babies. Some postpartum mothers who are not treated properly state that they feel dizzy and nauseous that last up to 2 weeks after delivery, making it difficult to adapt to changes in terms of anatomy and physiology in their bodies that can affect breastfeeding their babies. Therefore, *postpartum care* is considered very important because most maternal and newborn deaths occur after delivery.<sup>2</sup>

After giving birth, most postpartum mothers complain of pain and discomfort in the head. Headaches in postpartum mothers can be caused by symptoms of postpartum hypertension due to dehydration, changes in body stability, side effects of high-dose NSAID use after delivery, gestational hypertension, preeclampsia, or eclampsia<sup>3</sup>. Pain has a very complex impact on the recovery process of postpartum mothers, because it can inhibit mobilization, lactation, bonding processes, disrupt

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<sup>1</sup>Ryantama, 2017. Respon Tubuh Terhadap Nyeri, Fakultas Kedokteran Universitas Udayana, RSUP Sanglah Denpasar.

<sup>2</sup> Ningsih Safari And Sinaga, "Pemanfaatan Pilis Wangi Dan Jamu Pasca Melahirkan Sebagai Terapi Tradisional Perawatan Nifas Di Wilayah Kerja Klinik Anugrah Binjai Tahun 2022." *Jurnal Pengabdian Masyarakat Aufa ( JPMA)*, Vol. 4, No. 2, Agustus 2022.

<sup>3</sup> Ghuman et al., "Hypertension In The Postpartum Woman." , Review Paper, *The Journal Of Clinical Hypertension*, Vol. 11, No. 12, December 2009

sleep patterns, and even cause postpartum blues if the pain suffered lasts a long time.<sup>4</sup>

To reduce or treat postpartum pain, either normal or cesarean section, doctors usually give high doses of NSAIDs. However, the use of NSAIDs for postpartum mothers can cause serious side effects, such as increased blood pressure, headaches, and liver disorders. Some of the consequences of NSAID use if not treated immediately can cause more severe diseases such as heart failure, cerebrovascular disorders, and acute oliguric kidney failure. Women who experience hypertension due to NSAID use in the postpartum period mostly experience headaches, edema that worsens and lasts a long time, and kidney dysfunction.<sup>5</sup>

So far, research to treat postpartum pain is still being developed to minimize the side effects of using chemical analgesic drugs. As an alternative to analgesic drugs, herbal medicine can be an option to avoid side effects and maintain the health of postpartum mothers so that they can continue to breastfeed and care for their babies properly. One of the traditional medicines that has long been trusted by the community to relieve postpartum pain is jamu pilis. Jamu pilis is a herbal mixture of various plants that is usually used as a compress by mothers after giving birth. This herbal medicine is believed to reduce headaches that cause other symptoms such as dizzy eyes and blurred vision.<sup>6</sup>

However, the use of pilis is decreasing, this is proven by the low public acceptance of pilis, which is 11.3%. Most postpartum mothers choose not to use pilis because its shape interferes with their appearance. Pilis is a concoction used on the forehead as a compress to improve blood circulation in the head so that it can relieve headaches and maintain eye health for postpartum mothers. Pilis has a striking color that makes its users not confident to use it. In fact, there are many

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<sup>4</sup> Rohmah, "Manajemen Nyeri Non Invasive Pada Ibu Post Partum Dengan Pendekatan Evidence Based Practice.", Fakultas Ilmu Kesehatan, Universitas Muhammadiyah Jember.

<sup>5</sup> Ghuman et al., "Hypertension In The Postpartum Woman." , Review Paper, *The Journal Of Clinical Hypertension*, Vol. 11, No. 12, December 2009.

<sup>6</sup> Ningsih Safari And Sinaga, "Pemanfaatan Pilis Wangi Dan Jamu Pasca Melahirkan Sebagai Terapi Tradisional Perawatan Nifas Di Wilayah Kerja Klinik Anugrah Binjai Tahun 2022." *Jurnal Pengabdian Masyarakat Aufa ( JPMA)*, Vol. 4, No. 2, Agustus 2022.

benefits obtained from the use of pilis, including eliminating dizziness caused by fatigue during the labor process.<sup>7, 8</sup>

It has long been believed that the analgesic effect of this herbal medicine has never been scientifically studied. Therefore, this study was conducted to see the analgesic effect of pilis herbal medicine on test animals. Pilis preparations were developed into gel preparations because gels have clear and transparent properties so they are comfortable to use and will not interfere with appearance. As a topical drug delivery, gels have better potential compared to ointments, because gels are not sticky, do not require a lot of energy in their formulation, are stable and have good physical characteristics.<sup>9</sup>

## 1.2 Problem Formulations

The problem formulations in this study are:

1. What are the physical characteristics of postpartum pilis herbal extract gel with varying extract concentrations?
2. Does postpartum herbal medicine gel have analgesic effect on mice?
3. Which formula gives the best analgesic effect on mice?

## 1.3 Research Objective

The objectives of this study are:

1. To determine the physical characteristics of postpartum pilis herbal extract gel with varying extract concentrations.
2. To determine the analgesic effect of postpartum pilis herbal extract gel on mice.
3. To determine the formula that gives the best analgesic effect on mice.

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<sup>7</sup>Fifi Ria, Eliza Bestari, 2022. Pemanfaatan Pilis Wangi Dan Jamu Pasca Melahirkan Sebagai Terapi Tradisional Perawatan Nifas Di Wilayah Kerja Klinik Anugrah Binjai Tahun 2022, Akademi Kebidanan Kholisaturrahmi Binjai. *Jurnal Pengabdian Masyarakat Aufa (JPMA)* Vol. 4, No. 2, Agustus 2022

<sup>8</sup> Yustika, Nasution, And Riyanto, 2022 “Jenis Tumbuhan Obat Yang Dimanfaatkan Untuk Pasca Melahirkan Oleh Etnis Melayu Di Tanjung Pura Kabupaten Langkat, Sumatera Utara.”, *Jurnal Ilmiah Biologi UMA (JIBIOMA)*.

<sup>9</sup> Ardana, Aeyni, And Ibrahim, “Formulasi Dan Optimasi Basis Gel HPMC (Hidroxy Propyl Methyl Cellulose) Dengan Berbagai Variasi Konsentrasi.”, *Journal Trop. Pharm. Chem.* 2015. Vol. 3, No. 2



## 1.4 Research Benefits

### 1. Theoretical Benefits

The results of this study can be used as reference material for further research, especially regarding the analgesic effect of postpartum pilis herbal medicine.

### 2. Practical Benefits

The results of this study are expected to produce herbal medicine product innovations as an alternative to analgesic herbal medicines that can be useful for the wider community, especially postpartum mothers.

## 1.5 Research Authenticity

Research on the analgesic effect of gel preparations on test animals has been carried out by several researchers as shown in table 1 below.

Tabel 1. Keaslian Penelitian

Title of Research	Research Method	Variable	Result	Research Differences
Analgesic Activity Test of Bulung Gel ( <i>Gracilaria sp.</i> ) on Male White Mice ( <i>Mus musculus</i> ) <sup>10</sup>	Ekperimental Laboratorium	<b>Dependent:</b> Analgesic activity on male white mice ( <i>Mus musculus</i> )  <b>Independent:</b> Bulung gel ( <i>Gracilaria sp.</i> )	Bulung gel formula with a concentration of 1.5% has analgesic activity in all test animals and analgesic activity increases as the dose increases..	<b>Independent:</b> Postpartum pilis herbal extract gel
Analgesic and Anti-inflammatory Effects of Hydroalcoholic and Hexane Extract of <i>Smyniopsis aucheri</i> in Animal Models <sup>11</sup>	Ekperimental laboratorium	<b>Dependent:</b> Analgesic and anti-inflammatory effects in animal models  <b>Independent:</b> Hydroalcoholic and hexane extracts of <i>Smyrniopsis aucheri</i> were administered intraperitoneally	Hydroalcoholic and hexane extracts of <i>Smyniopsis aucheri</i> (100-400 mg/kg) significantly reduced the abdominal spasms in the acetic acid test. In the formalin test, <i>Smyniopsis aucheri</i> hydroalcoholic extract at doses of 200 and 400 mg/kg reduced chronic phase pain. Hexane extract of <i>Smyniopsis aucheri</i> effective in both acute and chronic phase. In the hot plate test, both extracts were ineffective.	<b>Dependents:</b> Analgesic effect on mice <b>Independent:</b> Postpartum pilis herbal extract gel administered topically.

<sup>10</sup> Yan Degus, W. W., et al., Uji Aktivitas Analgesik Gel Bulung (*Gracilaria Sp.*) Terhadap Mencit Putih Jantan (*Mus Musculus*), Iptekma: Jurnal Mahasiswa Universitas Udayana, Vol. 8, No. 2. 2019

<sup>11</sup> Valiollah, H., Seyed, E., Maram, H., Analgesic And Anti-Inflammatory Effects Of Hydroalcoholic And Hexane Extract Of *Smyniopsis Aucheri* In Animal Models, *International Journal Of Preventive Medicine*, 2021.

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In the carrageenan and carrageenan and croton tests, both extracts at a dose of 400 mg/kg significantly reduced edema.

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