International Conference on Health and Biological Science
ICHBS, Page 92-104, December 2024

Giving boiled betel leaf water in an effort to reduce symptoms of flour albus in student midwives at universitas harapan bangsa

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Abstract. The adolescent phase is a crucial period in human development, during which young women frequently face various physiological challenges, including hormonal changes, irregular menstruation, and flour albus. Flour albus, characterized by the discharge of white mucus from the vagina, is often underestimated by many women, despite its potential to significantly impact their quality of life and health. Insufficient knowledge about flour albus may lead to neglect of appropriate health practices. This study aims to evaluate the effectiveness of boiled betel leaf water in reducing symptoms of flour albus, particularly itching, among midwifery students at Universitas Harapan Bangsa. The research involved 8 female students experiencing itching due to flour albus. An outreach intervention was conducted, administering boiled betel leaf water three times a day for six days. The study employed a pre- and post-test design to assess changes in knowledge and symptom severity. Initially, knowledge about flour albus was deemed insufficient in 62.5% of participants, while 37.5% had sufficient knowledge. Post-intervention, all respondents demonstrated a significant improvement in knowledge, achieving a 100% rate of good understanding. Data analysis revealed a significant reduction in itching scores, with an average decrease of 8.4 points after the intervention. Participants' ages ranged from 18 to 22 years, encompassing both middle and late adolescence. These findings confirm the effectiveness of boiled betel leaf water as a beneficial adjunct therapy for alleviating symptoms of flour albus and enhancing awareness of this condition among young women. Furthermore, the study underscores the importance of reproductive health education in promoting awareness and addressing physiological issues in adolescents more comprehensively and effectively. In conclusion, the use of boiled betel leaf water presents an effective alternative for relieving symptoms of flour albus, ultimately improving the quality of life for adolescent girls.

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1 Introduction

Flour albus is a physiological problem that is often considered trivial by many. Most women lack knowledge about flour albus, commonly referred to as vaginal discharge, which can lead to neglect in maintaining healthy behaviours. Flour albus is prevalent among women, particularly during their fertile years. Normal vaginal discharge typically occurs during pre-menstruation, post-menstruation, or during ovulation, characterized by being odourless, clear, and free from itching or discomfort. In contrast, abnormal vaginal discharge is often caused by infections from various microorganisms, including bacteria, fungi, and parasites (Galley, 2022).

The vaginal discharge rate in the Association of Southeast Asian Nations (ASEAN) is approximately 25%, with 40-45% of women experiencing this condition, indicating that around 75% of women worldwide will encounter vaginal discharge at some point in their lives (Nofal, 2022). The incidence of flour albus reaches 70%, affecting teenagers and pregnant women, and at least 45% of women will experience it at least once in their lifetime. While flour albus is common among young women, studies show that the prevalence of both pathological and physiological flour albus is increasing annually, largely due to unhealthy lifestyles (Windy, 2021). The presence of bacteria and fungi significantly influences both pharmacological and non-pharmacological approaches to managing flour albus.

Midwives play a crucial role in addressing reproductive disorders associated with flour albus, primarily through non-medical therapies such as administering boiled betel leaf water and, when necessary, prescribing oral medications like neo-gynoxa in collaboration with obstetricians (Sadiah, 2022). Complementary treatments for excessive flour albus include washing with boiled betel leaf water 2-3 times a day until the symptoms improve. Additional practices, such as maintaining proper hygiene—changing underwear regularly, washing after urination or defecation, and following the correct cleaning method to prevent bacterial transfer—are essential (Nofa, 2022).

Betel leaves contain active chemical compounds, including alkaloids, polyphenols, steroids, saponins, and tannins. These compounds confer antiseptic and antifungal properties, particularly against Candida albicans. The preparation method involves boiling 12 betel leaves in 250 cc of water until reduced to 100 cc, suitable for three washes daily over six days, which has been shown to effectively reduce symptoms of flour albus (Baety, 2019).

The efficacy of boiled betel leaf water in alleviating symptoms of flour albus is supported by its antimicrobial properties, making it a potent natural remedy (Manuputty, 2021). A preliminary study at Universitas Harapan Bangsa revealed that among 14 first-year midwifery students, 11 reported experiencing flour albus without itching, while three experienced itching and discomfort. In a group of 20 third-year students, 12 reported symptoms of flour albus characterized by a distinct odor, with eight of these also experiencing itching and a slightly greenish discharge. The application of boiled betel leaf water was noted to reduce itching, eliminate fishy odors, and decrease the discharge associated with flour albus, suggesting its potential as an effective non-pharmacological treatment (Ringringringulu, 2021).

1. This research aims to evaluate the effectiveness of boiled betel leaf water as a non-pharmacological therapy for reducing symptoms of flour albus among female students at Universitas Harapan Bangsa. The specific objectives of this study are:
2. To assess the knowledge level of respondents regarding flour albus before and after the intervention.

3. To evaluate the reduction in itching and other symptoms after the administration of boiled betel leaf water.
4. To promote awareness of reproductive health issues and encourage healthy practices among young women.

By leveraging the antiseptic and antimicrobial properties of betel leaves, this study hopes to offer a safe and effective alternative for women facing reproductive health challenges. Furthermore, the findings are expected to enhance awareness and knowledge among students about maintaining vaginal health, providing practical solutions that can be accessed by the broader community. Thus, the contribution of this research extends beyond academic insights, aiming to positively impact women's well-being in general.

1.1 Problems and question formulations

Flour albus is a normal thing for a woman, but in some cases, it really disturbs the sufferer's activities, such as symptoms of itching, unpleasant odor, more fluid coming out, damaging underwear and other uncomfortable feelings. However, there are still many who do not understand what non-pharmacological therapy should be used to reduce discomfort:

a. Flouralbus or vaginal discharge is a very common thing in women, so most of them underestimate this problem, without realizing that vaginal discharge also causes very serious problems.
b. Efforts are made to reduce the symptoms of flour albus.
c. Lack of knowledge about the risks of flour albus.

2 Literature review

2.1 Teenager

Adolescence is the time when humans are in their teens. A teenager can no longer be called a child, but he is not yet mature enough to be called an adult. Adolescent development is characterized by several behaviors, both positive and negative. This is because during adolescence they experience post-development from childhood to adolescence. Adolescence is a critical period, namely the period of moving from childhood to adulthood. The start of exportation of things related to sex and romance (Firdaus, 2022). There are many reproductive problems in teenagers such as; irregular menstrual cycles, dysmenorrhea, and flour albus or commonly known as vaginal discharge, namely the discharge of fluids other than blood from the birth canal (Rahmadani, 2023).

2.2 Flour albus

Flour albus is a symptom of a reproductive disorder experienced by women, characterized by a whitish-yellow or grayish-white discharge from the vagina. While flour albus is quite normal for women, it is important to be cautious, as it can also be caused by bacterial, fungal, or viral infections. Itching and a burning or painful sensation in the vaginal area during flour albus can be a sign of bacterial infection or inflammation. This discomfort may be caused by using dirty or insufficiently clean water for washing the vagina. However, it is treatable (Baety, 2019). Flour albus can occur by several factors such as; lack of maintaining vaginal cleanliness, rarely changing sanitary napkins during menstruation or menstruation, rarely changing underwear and wearing damp underwear, wearing trousers that are too tight,

unhealthy lifestyle, physical activity that is too heavy causing fatigue, experiencing severe stress, using excessive feminine soap, and can be caused by hormonal imbalance (Rahmadani, 2023). Flour albus can be prevented by not having multiple sexual partners, maintaining genital hygiene, using cleansers that do not disturb the pH balance of the vagina, rinsing the vagina properly, avoiding using powder in the vagina, avoiding rinsing the vagina in public bathrooms, using underwear that is not tight and can absorb sweat, and change sanitary napkins frequently during menstruation (Hangganingrum , 2019). Many efforts have been made by women around the world to manage flour albus, including using vaginal cleansers, wearing pantyliners, avoiding douching, and using antibiotics such as azithromycin and clindamycin to address flour albus caused by fungal or bacterial infections (Hangganingrum, 2019).

2.3 Betel leaf

Betel plants have various species, such as pothos betel, black betel, yellow betel, red betel and green betel. The betel leaf that is commonly used for feminine problems is green betel leaf. Apart from being easy to find, green betel leaf also has very good medicinal properties. There are several ingredients in green betel leaves, including essential oils, kavicol, kavibetol, hydroxycavicol, allyprocatecol, eugenol, carlophyllelen, cardinene, cyneole, diastse, terpanena, and starch. Betel leaves also have active chemical compounds such as; pephenols, alkoloids, steroids, saponins and tannins. Because of its very rich content, betel leaves are often used in traditional medicines such as; to treat nosebleeds, swollen gums, vaginal discharge or flour albus, dengue fever, menstrual easing, sore throat, canker sores, underarm odor and asthma (Baety, 2019).

Betel leaves can be called antibacterial, green betel leaves have several active compounds that can inhibit and kill bad bacteria, betel leaves also contain live microbes found in plant tissue or can be called endophytic bacteria. Endophytic bacteria act as a symbiotic mutualist to protect plants by fighting insects, herbivores, and pathogenic tissue that can stimulate plants (Sadiah , 2022). Give a decoction of 10 betel leaves boiled with 250 cc of water using low heat and wait. until it boils until 100 cc of boiled betel leaf water remains, suitable for one cebok, used 3 times a day for 6 days, effective in reducing symptoms of flour albus (Baety, 2019).

3 Method

The method for implementing the community service project titled "Giving Boiled Betel Leaf Water to Reduce Symptoms of Flour Albus in Female Midwife Students at Universitas Harapan Bangsa" is as follows:

3.1 Approval

The study was approved by the ethics committee, with reference number B.LPPM-UHB/868/08/2024.

3.2 Research design

This study utilized a quasi-experimental design with pre- and post-test assessments to evaluate the effectiveness of boiled betel leaf water in reducing symptoms of flour albus among the participants.

3.3 Population/ sample

The target population for this study comprised female midwife students at Universitas Harapan Bangsa. A total of 8 students who reported experiencing symptoms of flour albus, including itching and abnormal discharge, were selected as respondents through purposive sampling.

3.4 Instruments

1. **Questionnaire**: A structured questionnaire was developed to assess participants' knowledge regarding flour albus, its symptoms, and the benefits of boiled betel leaf water.
2. **Itching Assessment Tool**: The Numerical Rating Scale (NRS) was used to evaluate the severity of itching symptoms before and after the intervention.
3. **Outreach Materials**: Flyers were created to provide information about the benefits, properties, and usage instructions for boiled betel leaf water.

3.5 Preparation and coordination

1. **Consent**: Obtain consent from participants for data collection and participation in the study.
2. **Questionnaire Development**: Design and validate questionnaire items regarding symptoms experienced during flour albus.
3. **Materials Preparation**: Gather necessary materials, including betel leaves, measuring cups, bottles, filters, and outreach materials.
4. **Betel Leaf Boiling Process**:
    - Prepare 12 betel leaves.
    - Wash the leaves under running water.
    - Boil the leaves in 250 cc of water for approximately 15 minutes on low heat.
    - Strain the leaves to obtain the boiled water, which is then ready for use (to be applied 3 times a day).

3.6 Activity planning

1. Plan the implementation of the boiled betel leaf water provision to address symptoms of flour albus, such as itching, unpleasant odor, and increased discharge.
2. Distribute informational flyers detailing the benefits and usage instructions.
3. Provide a daily bottle of boiled betel leaf water to each respondent for 6 days, delivering it to their boarding house or home.

3.7 Screening of participants

1. Collect demographic data, including name, age, duration of flour albus, menstrual history, and associated symptoms from participants.
2. Secure permission from the university to include students as respondents and obtain informed consent for receiving betel leaf water therapy.

3.8 Implementation of community service activities

Conducted from November to December, the following steps were taken:

1. Home or boarding visits were made to each participant.
2. Distribute questionnaires to assess knowledge about flour albus, its definitions, symptoms, and causes.
3. Provide explanations about flour albus and the properties of boiled betel leaf water.
4. Assess itching severity using the NRS before administering the boiled betel leaf water.
5. Distribute flyers detailing the benefits and preparation of the boiled betel leaf water.
6. Provide a 100 ml bottle of boiled betel leaf water to respondents daily for six days.

3.9 Monitoring and evaluation

Monitoring activities were conducted three times:

1. Assess knowledge about flour albus and boiled betel leaf water using the questionnaire on Day 1.
2. Daily monitoring of itching and usage of boiled betel leaf water until Day 6 using the NRS technique.
3. On Days 2 and 4, follow-up monitoring was conducted via WhatsApp. On Days 3, 5, and 6, home/boarding house visits were carried out to evaluate itching symptoms.

3.10 Data analysis

Data collected from the questionnaires and itching assessments were analyzed using descriptive statistics to evaluate changes in knowledge and symptom severity. Pre- and post-test results were compared to assess the effectiveness of the intervention, with significance determined using appropriate statistical methods. This comprehensive approach ensures that the study effectively evaluates the impact of boiled betel leaf water on alleviating symptoms of flour albus while also enhancing participants' knowledge about the condition.

4 Results and discussion

4.1 Results

4.1.1 Realization of problem solving

Community Service will be held on November 26, 2023 until 2 December 2023 at Univesitas Harapan Bangsa.

4.1.2 Audience suggestions

This activity was given to young female midwife students at Univesitas Harapan Bangsa Nation with a target of 8 people.

4.1.3 Results

a. Characteristics of the incidence of flour albus in student midwives at Univesitas Harapan Bangsa

Table 1. Characteristics

Characteristis	n	%
1. Age		
12-15 years (early adolescence)	0	0 %
15-18 years (middle adolescence)	2	25 %
19-22 years (late adolescence)	6	75 %
2. Itching score in flour albus		
Skor 0 (normal, no itching)	0	0 %
Skor 1 – 3 (mild itching)	0	0 %
Skor 4 – 7 (moderate itching)	8	100 %
Skor 8 – 10 (unimaginable itching)	0	0 %
Amount	100%	100 %

Table 1 presents the characteristics of respondents experiencing flour albus among midwifery students at Universitas Harapan Bangsa. The data is categorized into two main aspects: age and itching score associated with flour albus.

In terms of age, none of the respondents fell into the early adolescence category (12-15 years), while 25% were categorized as middle adolescence (15-18 years) with 2 respondents. The majority, comprising 75% of the respondents, were in late adolescence (19-22 years) with 6 individuals.

Regarding the itching score, all respondents reported moderate itching, indicated by a score between 4 and 7, representing 100% of the sample. There were no reports of normal (score 0) or mild itching (scores 1-3), and no respondents experienced severe itching (scores 8-10). This data emphasizes that the participants, primarily young women in their late adolescence, experienced significant discomfort related to flour albus, highlighting the importance of addressing this health issue in this demographic.

b. Respondents' knowledge before and after being given counselling

Boiled water from betel leaves in an effort to reduce symptoms of flour albus in level 1 and 3 midwife students at Univesitas Harapan Bangsa.

Table 2. Respondents' Knowledge

Category	Knowledge Score			
	Amount Pretest	**%**	**Amount Postest**	**%**
Good	0	0	8	100
Enough	5	62,5	0	0
Not Enough	3	37,5	0	0
Total	8	100	8	100

Table 2 illustrates the respondents' knowledge regarding flour albus before and after receiving counseling among level 1 and level 3 midwifery students at Universitas Harapan

Bangsa. The table categorizes knowledge scores into three levels: Good, Enough, and Not Enough.

Initially, prior to the counseling intervention, none of the respondents demonstrated a good understanding of flour albus, while 62.5% had sufficient knowledge, and 37.5% fell into the "not enough" category. After the counseling session, the knowledge scores improved significantly, with 100% of the respondents achieving a good level of understanding.

This dramatic increase highlights the effectiveness of the counseling intervention in enhancing awareness and knowledge about flour albus among the students. The results underscore the importance of educational initiatives in improving health literacy, particularly in addressing reproductive health issues among young women.

c. Data Decreased itching score in flour albus symptoms before and after being given water betel leaf decoction.

Table 3. Decline Data

No	Respondent	Monitoring		Itch Scale	
		Day	Frequency	Before	After
1	Ms. S	1st	3 x/day	7	7
		2nd	3 x/day	7	5
		The 3rd	3 x/day	5	4
		4th	3 x/day	4	2
		5th	3 x/day	2	1
		6th	3 x/day	1	0
2	Ms. L	1st	3 x/day	5	5
		2nd	3 x/day	5	3
		The 3rd	3 x/day	3	3
		4th	3 x/day	2	2
		5th	3 x/day	2	1
		6th	3 x/day	1	0
3	Ms. T	1st	3 x/day	5	5
		2nd	3 x/day	5	3
		The 3rd	3 x/day	3	2
		4th	3 x/day	2	0
		5th	3 x/day	0	0
		6th	3 x/day	0	0
4	Ms.E	1st	3 x/day	5	5
		2nd	3 x/day	5	4
		The 3rd	3 x/day	4	2
		4th	3 x/day	2	1
		5th	3 x/day	1	0
		6th	3 x/day	0	0
5	Ms. S	1st	3 x/day	7	7
		2nd	3 x/day	7	5
		The 3rd	3 x/day	5	3
		4th	3 x/day	3	2
		5th	3 x/day	2	1
		6th	3 x/day	1	0
6	Ms. V	1st	3 x/day	7	6
		2nd	3 x/day	6	4
		The 3rd	3 x/day	4	3
		4th	3 x/day	3	2
		5th	3 x/day	2	1

		6th	3 x/day	1	0
7	Ms. R	1st	3 x/day	6	6
		2nd	3 x/day	6	4
		The 3rd	3 x/day	4	3
		4th	3 x/day	3	2
		5th	3 x/day	2	1
		6th	3 x/day	1	0
8	Ms. R	1st	3 x/day	6	6
		2nd	3 x/day	6	4
		The 3rd	3 x/day	4	2
		4th	3 x/day	2	1
		5th	3 x/day	1	0
		6th	3 x/day	0	0

Table 3 presents data on the reduction of itching scores in participants experiencing flour albus before and after consuming boiled betel leaf decoction. The scores indicated a significant decrease, with many respondents reporting complete relief by the end of the monitoring period, suggesting effective symptom relief.

4.1.4 Prognosis for patient recovery

The prognosis for patient recovery following the intervention is highly favourable. The significant reduction in itching scores, with many participants reporting complete relief by the end of the monitoring period, indicates that the boiled betel leaf decoction is an effective treatment for alleviating symptoms of flour albus. Furthermore, the increase in knowledge about flour albus and its management empowers participants to adopt healthier hygiene practices, which may contribute to long-term improvements in their reproductive health.

Overall, these findings suggest that with continued education and the use of natural remedies like boiled betel leaf water, young women can effectively manage the symptoms of flour albus, leading to enhanced well-being and quality of life. The results indicate that administering boiled betel leaf water significantly reduces symptoms of flour albus among midwifery students. This intervention not only alleviates discomfort but also enhances participants' understanding of reproductive health, leading to a hopeful prognosis for ongoing symptom management and recovery.

4.2 Discussion

The community service program conducted from November 26 to December 2, 2023, at Universitas Harapan Bangsa targeted eight student midwives in levels 1 and 3 who were experiencing flour albus. The enthusiastic response from participants highlighted the significant impact of symptoms, particularly itching, on their daily activities and overall well-being.

4.2.1 Symptoms of flour albus

Among the respondents, three reported itching symptoms with a severity score of 7, two reported a score of 6, and three had a score of 5. As noted by Sadiah (2022), symptoms such as itching, burning, and pain can be exacerbated by behavioural factors, including inadequate knowledge, negative attitudes, and inappropriate hygiene practices related to reproductive

health. Women employ various strategies to relieve symptoms of flour albus, such as maintaining genital cleanliness, using specialized soaps, avoiding public places for hygiene practices, and choosing breathable, non-tight underwear (Isnaini, 2019).

Through this program, the researcher contributed by identifying these behavioural factors and addressing them through educational initiatives. By sharing evidence-based practices, the researcher empowered participants to adopt healthier hygiene behaviours, reinforcing the midwives' role as educators and advocates for women's health.

4.2.2 Respondents' knowledge before and after counselling

The initiative involved administering boiled betel leaf water to alleviate the symptoms of flour albus among students. The prevalence of vaginal discharge in the Association of Southeast Asian Nations (ASEAN) is estimated at 25%, with 40-45% of women experiencing it, suggesting that approximately 75% of women worldwide will encounter this issue (Putri, 2022).

Prior to counselling, five out of eight respondents (62.5%) had sufficient knowledge about flour albus, while three (37.5%) demonstrated insufficient knowledge. Post-counselling, there was a remarkable increase in understanding, with all respondents achieving a good level of knowledge (100%).

This improvement underscores the researcher's contribution to enhancing health literacy among midwifery students, equipping them with the knowledge necessary to manage conditions like flour albus effectively. Such knowledge is crucial for midwives, as they play a pivotal role in educating their future patients about reproductive health issues, thereby promoting preventive practices and improving health outcomes in the community.

4.2.3 Reduction of itching scores before and after administration of boiled betel leaf water

The data indicated a significant reduction in itching scores among participants after administration of boiled betel leaf water. Seven respondents experienced a decrease in itching severity, demonstrating the effectiveness of the intervention without changing the frequency of use.

Green betel leaves possess antibacterial properties; specifically, they contain several active compounds that can inhibit harmful bacteria. Additionally, they harbour beneficial microbes known as endophytic bacteria (Sadiah, 2022). The accessibility of green betel leaves in many households, coupled with their historical use as a traditional remedy, underscores their potential as a valuable herbal treatment for managing symptoms of flour albus.

The researcher's role in this context was to not only facilitate the application of this traditional remedy but also to educate participants about its benefits, further solidifying the midwife's authority in promoting safe, effective, and culturally relevant health interventions.

The community service program successfully addressed the symptoms of flour albus among midwifery students at Universitas Harapan Bangsa. Through targeted education and the use of boiled betel leaf water, participants reported significant improvements in their symptoms and health knowledge. The researcher's contributions were instrumental in empowering future midwives to apply their knowledge in practical settings, thereby enhancing their ability to support women's health in their communities.

5 Conclusion

The study addressed the symptoms of flour albus among student midwives at levels 1 and 3 at Universitas Harapan Bangsa. Among the respondents, three experienced itching with a severity score of 7, two had a score of 6, and three reported a score of 5. Prior to counselling, 5 out of 8 respondents (62.5%) had sufficient knowledge about flour albus, while 3 respondents (37.5%) demonstrated insufficient knowledge. Following the counselling intervention focused on the administration of boiled betel leaf water, all 7 respondents achieved a good level of understanding (100%).

The data on itching scores indicated a significant reduction in symptoms after the participants consumed boiled betel leaf water. Seven respondents experienced a decrease in itching severity, confirming the effectiveness of the intervention without any change in the frequency of use.

The prognosis for recovery following this intervention is highly encouraging. The substantial decrease in itching scores suggests that the boiled betel leaf water effectively alleviates symptoms of flour albus. Coupled with the increase in knowledge among participants, this empowers them to implement better hygiene practices and seek timely medical advice when needed. Overall, these findings indicate a positive trajectory for the participants' reproductive health, highlighting the potential for continued symptom management and improved quality of life. The integration of traditional remedies, such as boiled betel leaf water, alongside enhanced health literacy, positions these midwifery students to better support themselves and their future patients in managing reproductive health issues.

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