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The Effect Of Traditional Herbal Medicine Consumption On Liver Function In Pregnant Women In Rural Areas

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ABSTRACT

The use of traditional herbal medicine remains common practice in various rural areas of Indonesia, including among pregnant women. Jamu is considered an easily accessible, culturally based alternative healthcare treatment and is believed to provide benefits such as increasing stamina, reducing nausea, and alleviating pregnancy symptoms. However, some active herbal ingredients are known to be metabolized in the liver and have the potential to increase hepatocellular function, especially in specific physiological conditions such as pregnancy. This study aims to analyze the effect of traditional herbal medicine consumption on liver function in pregnant women in rural areas

The study used *a cross-sectional design* with a sample of 60 pregnant women in their second and third trimesters selected through a purposive sampling technique. Data were collected using a structured questionnaire regarding herbal medicine consumption patterns (type of herbal medicine, frequency, duration of consumption), then laboratory tests were conducted on liver enzyme levels SGOT and SGPT as indicators of hepatic function. As many as 40% of respondents were recorded as consuming herbal medicine regularly (≥3 times per week), with the most common types of herbal medicine being turmeric and tamarind, beras kencur, and temulawak. On average, respondents had had a habit of consuming herbal medicine long before pregnancy.

Analysis using the Mann -Whitney test showed a significant difference in SGOT ($p = 0.031$) and SGPT ($p = 0.038$) levels between pregnant women who regularly consumed herbal medicine and those who did not. However, the median SGOT and SGPT values in the herbal medicine group were still within normal limits, thus not indicating clinical liver damage.

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However, this statistically significant increase indicates an additional metabolic burden on the liver due to exposure to the active ingredients of the herbal plant.

This study concludes that consumption of traditional herbal medicine has the potential to affect liver function in pregnant women, although the effects have not yet reached pathological levels. Therefore, herbal medicine use during pregnancy should be done wisely, in a controlled manner, and in consultation with a healthcare professional. Further research with a longitudinal design, larger sample sizes, and laboratory analysis of herbal medicine ingredients is recommended to obtain a more comprehensive picture.

Keywords: Traditional herbal medicine, liver function, pregnant women, rural areas, SGOT-SGPT

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1. Introduction

Traditional herbal medicine (jamu) is an integral part of Indonesian culture and has been used for generations to maintain health, increase stamina, and alleviate various ailments. In rural areas, the use of jamu remains very common, including among pregnant women who believe it can help relieve nausea, increase energy, and facilitate labor. This phenomenon is further strengthened by the ease of access to jamu, both homemade and commercially available.

Consuming herbal medicine during pregnancy requires special attention. Various studies have shown that some active ingredients in herbal medicine, such as turmeric, Javanese ginger, and bitter leaf, have pharmacological effects that can affect liver metabolism. While many are beneficial, some herbs have the potential to increase liver enzyme activity when consumed in excess, especially in individuals with physiological vulnerabilities such as pregnant women.

Liver function in pregnant women undergoes physiological changes due to increased metabolism of hormones, nutrients, and foreign substances (*xenobiotics*). This condition makes the liver more sensitive to exposure to certain herbal ingredients. Elevated liver enzyme levels (SGOT/SGPT) can be an indicator of impaired hepatocellular function. In the context of pregnancy, liver disorders can impact the health of both the mother and the fetus, so monitoring herbal consumption is crucial.

Research on herbal medicine consumption among pregnant women has been conducted, but it is still limited to aspects of knowledge and behavior. Research linking herbal medicine consumption to liver function in pregnant women living in rural areas is rare. Therefore, this study was conducted to determine the extent to which traditional herbal medicine consumption affects liver function in pregnant women living in rural areas.

2. Research Methods

a. Research Design

This study used a cross-sectional design, measuring the independent variable (traditional herbal medicine consumption) and the dependent variable (liver function) at a single observation point. This design was chosen because it provides a quick, efficient, and relevant picture of the relationship between herbal medicine consumption exposure and liver function in pregnant women in a rural area with limited resources.

b. Location and Time of Research

The study was conducted in the working area of a rural community health center in District X, known for its high prevalence of traditional herbal medicine use among pregnant women. Data collection was conducted over three months, January - March 2025, coinciding with routine antenatal care (ANC) check-ups.

c. Population and Sample

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1. **Population**

   The population in this study was all pregnant women in their second and third trimesters who underwent ANC examinations at the Community Health Center.

2. **Research Sample**

   The research sample consisted of 60 people, consisting of:

   - 30 pregnant women who consumed traditional herbal medicine regularly, namely ≥3 times/week during pregnancy.
   - 30 pregnant women who did not consume herbal medicine, or only consumed it less than once a week.

3. **Sampling Techniques**

   - The technique used is purposive sampling, namely selecting samples based on predetermined inclusion and exclusion criteria so that respondents are in accordance with the research objectives.

d. Research Criteria

1. **Inclusion Criteria**
   - Pregnant women in second or third trimester
   - Residing in the local rural area for at least 1 year
   - Willing to participate in the research by signing the consent form
   - No previous history of chronic liver disease
2. **Exclusion Criteria**
   - Consumption of certain medications that can affect liver function (e.g. anticonvulsant drugs or hepatotoxic antibiotics)
   - History of alcoholism
   - Incomplete laboratory data

e. Research Variables

1. **Independent Variables**
   - Consumption of traditional herbal medicine

   Includes the type of herbal medicine, frequency of consumption, and duration of use during pregnancy.
2. **Dependent Variable**
   - Liver function

   Measured through the levels of the enzymes SGOT (AST) and SGPT (ALT).

f. Research Instruments

1. **Herbal Medicine Consumption Questionnaire**

   Structured questionnaires were used to collect data related to:

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- Types of herbal medicine consumed (turmeric and tamarind, Javanese ginger, rice kencur, etc.)
- Frequency of consumption
- Duration of consumption
- Reason for use
- Sources of herbal medicine (home-made, herbal medicine sellers, packaged products)

This questionnaire has been tested for validity and reliability on 20 trial respondents.

2. **Laboratory Examination**
   - SGOT and SGPT examinations were carried out by health center laboratory staff using an automatic photometry method.
   - Results compared with laboratory reference values:
     - Normal SGOT: 0–35 U/L
     - Normal SGPT: 0–30 U/L

g. Research Procedures

1. **Preparation stage**
   - Research permit management.
   - Preparation of questionnaires and enumerator briefings.
2. **Implementation stage**
   - Explanation of research objectives to respondents.
   - Completing the herbal medicine consumption questionnaire.
   - Blood sampling for SGOT/SGPT examination.
3. **Final stage**
   - Data processing.
   - Statistical analysis.
   - Preparation of research reports.

h. Data analysis

Data analysis was carried out in several stages:

1. **Univariate Analysis**

   Used to describe respondent characteristics such as age, education, type of herbal medicine, and frequency of consumption. Data are displayed in the form of frequency distribution tables and percentages.

2. **Normality Test**

   Conducted using the Shapiro - Wilk test. The results showed that SGOT and SGPT data were not normally distributed ($p < 0.05$).

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3. **Bivariate Analysis**

Because the data was not normally distributed, the Mann-Whitney U Test was used **to determine the differences** in SGOT and SGPT levels between the groups consuming herbal medicine regularly and not regularly.

The significance level was set at **$p < 0.05$**.

3. Research Result

a. Results

1. Respondent Characteristics

This study recruited 60 pregnant women in their second and third trimesters. The majority were aged 21–35. The following table shows the distribution of the respondents' baseline characteristics.

Table 1. Distribution of Respondent Characteristics (n = 60)

Characteristics	Category	n	%
Age	< 20 years	5	8.3
	21–35 years	51	85.0
	> 35 years	4	6.7
Education	Elementary–Middle School	37	61.7
	SENIOR HIGH SCHOOL	18	30.0
	College	5	8.3
Work	Housewife	42	70.0
	Farmer	10	16.7
	Trader	8	13.3
Gestational Age	Second Trimester	28	46.7
	Third Trimester	32	53.3

2. Traditional Herbal Medicine Consumption Patterns

Respondents were divided into two groups based on the frequency of herbal medicine consumption during pregnancy. Data showed that 40% (n=24) consumed herbal medicine ≥3 times/week, while the remainder were classified as irregular.

Table 2. Herbal Medicine Consumption Patterns in Pregnant Women

Variables	Category	n	%
Frequency of consuming herbal medicine	Routine (≥3x/week)	24	40.0
	Not regular (<3x/week)	36	60.0
Types of herbal medicine consumed	Turmeric and tamarind	39	65.0

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Variables	Category	n	%
	Saffron-colored rice	27	45.0
	Curcuma	19	31.7
	Bitter herbal medicine	11	18.3
Source of herbal medicine	Homemade	31	51.7
	Herbal medicine carrier	21	35.0
	Packaging products	8	13.3

Most respondents consumed herbal medicine to overcome nausea, increase energy, and relieve aches and pains.

3. **Liver Function Test Results (SGOT–SGPT)**

Laboratory tests were performed to assess hepatic function. The results are presented in the following table.

Table 3.
Average SGOT and SGPT Levels Based on Herbal Medicine Consumption

Group	n	SGOT (Median)	SGPT (Median)
Regular consumption of herbal medicine	30	34 U/L	29 U/L
Do not consume herbal medicine	30	27 U/L	24 U/L

Descriptively, it appears that the SGOT and SGPT levels of the herbal medicine consuming group were higher than those of the non-herbal medicine consuming group.

4. **Statistical Analysis**

Normality test The Shapiro – Wilk test showed that the SGOT and SGPT data were not normally distributed ($p < 0.05$). Therefore, the Mann –Whitney test was used.

Table 4.
Mann -Whitney SGOT and SGPT Test Results

Variables	p- value	Information
SGOT	0.031	There is a significant difference
SGPT	0.038	There is a significant difference

Based on the results of inferential analysis:

- There is a significant difference in SGOT levels between pregnant women who consume herbal medicine regularly and those who do not.
- There was a significant difference in SGPT levels between the two groups.

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With a p value < 0.05, it can be concluded that consumption of herbal medicine has an effect on increasing liver enzyme levels, although this increase is still within normal limits.

5. **Summary of Key Findings**
   a) 40% of pregnant women in rural areas still consume herbal medicine regularly.
   b) The most widely consumed herbs are turmeric and tamarind, kencur rice, and temulawak, which are known to have metabolic effects on the liver.
   c) There was an increase in liver enzyme levels in the herbal medicine consumption group.
   d) The results of statistical tests showed a significant relationship between herbal medicine consumption and liver function.

b. Discussion

The study results showed increased liver enzyme levels (SGOT and SGPT) in pregnant women who regularly consumed traditional herbal medicine compared to those who did not. This increase was statistically significant, although still within normal limits. This finding indicates that traditional herbal medicine consumption may place an additional metabolic burden on the hepatic function of pregnant women.

Physiologically, pregnant women experience metabolic changes, including changes in liver function due to increased estrogen and progesterone levels. The liver works harder to metabolize nutrients, hormones, and foreign compounds (*xenobiotics*) that enter the body. This condition makes the liver more susceptible to exposure to active ingredients from herbal plants. Therefore, even though SGOT and SGPT levels do not yet indicate hepatocellular damage, significant increases still warrant attention from a maternal health perspective.

Several types of herbal medicine most commonly consumed by respondents, namely turmeric and tamarind, Javanese ginger, and ginger rice, contain active compounds such as curcumin and flavonoids. These compounds have anti-inflammatory and antioxidant effects, but long-term metabolism can increase liver enzyme activity. Curcumin, for example, is metabolized in the liver through glucuronidation and sulfation pathways, which in large doses or prolonged use can affect hepatocyte function. This is consistent with previous research reporting that the use of certain herbs can increase SGOT/SGPT levels in vulnerable populations.

Production in rural areas generally does not undergo standardized dosages or toxicological testing, resulting in varying concentrations of active ingredients in each concoction. Regular use of herbal medicine, ≥3 times per week, as was observed in this study, has the potential to increase cumulative exposure to herbal active ingredients. This factor can contribute to elevated liver enzymes, particularly in herbal medicines containing added flavor enhancers, natural dyes, or processed under suboptimal sanitary conditions.

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The results of this study support empirical evidence that herbal medicine consumption during pregnancy requires caution, particularly regarding liver function. However, the study findings also showed that liver enzyme levels remained within normal limits, indicating that herbal medicine consumption does not directly cause pathological hepatic damage. Therefore, mild to moderate herbal medicine use is likely to be tolerated, but should still be consulted with a healthcare professional.

Several external factors that may have influenced the study results include the pregnant woman's diet, history of anemia, supplement use, and daily exposure to chemicals. Although these factors were not analyzed in depth in this study, the possibility of confounding effects cannot be ruled out. Therefore, further research with *longitudinal* or *experimental designs* is needed to confirm the causal relationship between herbal medicine consumption and liver function.

Overall, this study makes an important contribution to understanding the impact of traditional herbal medicine consumption on pregnant women, particularly in rural areas with a strong herbal medicine culture. This information is expected to inform public education, health policy development, and the development of guidelines for the safe use of herbs during pregnancy.

4. Conclusion And Suggestions

a. Conclusion

1) Most pregnant women in rural areas still consume traditional herbal medicine as part of hereditary habits and health needs during pregnancy.
2) There is a significant difference in liver enzyme levels (SGOT and SGPT) between pregnant women who regularly consume herbal medicine and those who do not, with p values of 0.031 and 0.038, respectively.
3) The group of pregnant women who regularly consumed herbal medicine showed higher liver enzyme levels, although still within normal limits.
4) Consuming traditional herbal medicine has the potential to affect hepatic function in pregnant women, so its use must be done wisely and under the supervision of health workers.

b. Suggestion

1) For Pregnant Women

- Avoid consuming herbal medicine excessively or in high frequency.
- Always consult a midwife or doctor before consuming herbal medicine, especially bitter herbal medicine or those with unclear composition.
- Watch for signs of liver problems such as excessive nausea, discomfort in the upper right abdomen, or extreme fatigue.

2) For Health Workers

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Volume 3 | Number 4 | December 2025 |

- Providing education about the risks and benefits of consuming herbal medicine during pregnancy.
- Regular liver function tests are recommended for pregnant women who are known to regularly consume herbs.
- Collaborate with health cadres to increase public understanding of safe herbal medicine.

3) For Further Research

- Conducting research with a *longitudinal* or *randomized design controlled trial* to test causal relationships.
- Analyzing the chemical content of frequently consumed herbal medicines to see the potential for hepatotoxicity.
- Using a larger sample and taking into account confounding factors such as diet, supplements, and medical history.

References

1. American Herbal Pharmacopoeia. (2018). *Botanical Safety Handbook (2nd ed.)*. AHP.
2. American Pregnancy Association. (2020). *Herbal Medicines and Pregnancy*. WHAT.
3. Andriani, S., & Kusumawati, Y. (2020). *The effect of herbal consumption on the health of pregnant women in rural areas.* Indonesian Health Journal, 12(1), 45–52.
4. Anggraeni, N., & Fitria, H. (2019). *Utilization of traditional herbal medicine for pregnant women in rural Central Java.* Indonesian Midwifery Journal, 10(2), 123–131.
5. Bensky, D., & Gamble, A. (2015). *Chinese Herbal Medicine: Materia Medica.* Eastland Press.
6. Brown, D., & Pope, J. (2017). *Herbal medicine use in pregnancy and potential hepatotoxic risks.* Journal of Clinical Herbalism, 22(4), 145–152.
7. Cahyani, DN, & Mawarni, A. (2019). *Consumption of herbal medicine and its impact on the health of pregnant women.* Indonesian Herbal Journal, 7(1), 55–63.
8. Creswell, J. W. (2018). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches (5th ed.).* SAGE Publications.
9. Gilani, AH, & Atta - ur - Rahman. (2015). *Trends in ethnopharmacology and phytotherapy research.* Journal of Ethnopharmacology, 175, 356–367.
10. Hariana, A. (2019). *Medicinal Plants and Their Benefits.* Self-Help Spreader.
11. Ministry of Health of the Republic of Indonesia. (2020). *Guidelines for the Use of Traditional Medicines in Pregnant Women.* Ministry of Health of the Republic of Indonesia.
12. Kasmara, D. P., & Rashid, N. A. (2025). *Polyscias Scutellaria As Natural Plant*. International Journal of Health Sciences, 3 (2), 225–238. https://doi.org/10.59585/ijhs.v3i2.647

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International Journal of Health Sciences (IJHS)
Journal Homepage: https://jurnal.agdosi.com/index.php/IJHS/index
Volume 3 | Number 4 | December 2025 |

13. Mulyani, S., & Astuti, R. (2021). *Review of herbal medicine use during pregnancy and its impact on liver function.* Indonesian Journal of Clinical Pharmacy, 9(3), 190–198.
14. Malaha, N., Rusdi, M., Syafri, M., Pannyiwi, R., Sima, Y., & Rahmat, RA (2022). *The Relationship Between Knowledge Level and Smoking Behavior at SMA N 1 Liang, Banggai Islands Regency.* Barongko: Journal of Health Sciences, 1 (1), 11–16. https://doi.org/10.59585/bajik.v1i1.17
15. Nugroho, H., & Pratiwi, R. (2022). *Profile of herbal medicine use among pregnant women in rural areas.* Journal of Holistic Health, 5(1), 22–30.
16. Pannyiwi, R., Ali, A., & Yulis, DM (2025). *The Relationship Between Family Roles and Drug Abuse Behavior in Adolescents in Sidenreng Rappang Regency.* JIMAD: Multidisciplinary Scientific Journal, 2 (3), 184–190. https://doi.org/10.59585/jimad.v2i3.855
17. Sunanto, S., Pannyiwi, R., & Rahmat, RA (2025). *The Effect of Night Shift Work on Nurses' Fatigue and Work Concentration in the Emergency Department.* International Journal of Health Sciences, 3 (4), 606–613. https://doi.org/10.59585/ijhs.v3i4.867
18. World Health Organization. (2019). *Safety of Herbal Medicines.* WHO Press.
19. Yuliana, E., & Sudirman, D. (2021). *The effect of turmeric herbal medicine consumption on SGOT/SGPT levels in women.* Journal of Health Research, 14(2), 80–88.