JOURNAL OF WORLD SCIENCE
https://jws.rivierapublishing.id/index.php/jws
Volume 4 No. 9 September 2025
P-ISSN: 2828-8726
E-ISSN: 2828-9307

The Effect of Oxytocin Massage on Uterine Involution in Postpartum Mothers at Tpmb R, Purwakarta Regency in 2024

Lailatun Lailatun
Politeknik Bhakti Asih Purwakarta, Indonesia
Email: lailatunnazilah@polbap.ac.id

ABSTRACT
The reproductive health of adolescent girls is prone to disruption due to lifestyle, stress, and lack of understanding of menstrual health. Herbal plants are widely used as an alternative to help with hormonal balance and address menstrual cycle disorders. To determine the effect of herbal plant consumption on improving reproductive health in adolescent girls. Pre-experimental research design with one group pretest-posttest approach. Sample: 30 students of *SMK Bhakti Asih* who met the inclusion criteria. Intervention: consumption of herbal plants (e.g., sour turmeric, red ginger, and *temulawak*) for 4 weeks. Data were analyzed using paired t-tests. The[A1] average reproductive health score increased significantly ($p < 0.05$). The majority of respondents experienced improvements in the menstrual cycle, decreased dysmenorrhea, and increased knowledge about reproductive health. Consumption of herbal plants is effective in improving reproductive health in adolescent girls. It is recommended that schools provide education and assistance in herbal consumption.

Keywords: reproductive health, adolescent girls, herbs

Corresponding Author: Lailatun
E-mail: lailatunnazilah@polbap.ac.id

INTRODUCTION

Puberty is an important phase in a teen's development, especially for young women who are undergoing various physical and psychological changes. One of the important events in this phase is menarche, which is the first period that marks the beginning of reproductive ability (Banerjee & Bajpai, 2023; Horton, 2024; Shalitin & Gat-Yablonski, 2022). Although menarche is a natural biological process, many young women feel anxious, scared, and confused when dealing with it. This anxiety usually arises due to a lack of knowledge and understanding of the menstrual process, as well as a lack of support from family, especially parents. Family support, both emotionally and informationally, is needed by young women so that they feel more prepared and confident in facing menarche (Iddrisu et al., 2021; Isehunwa et al., 2023; Rapika et al., 2023; Sari, 2020; Welsh et al., 2016).

Families who provide the correct information, attention, and positive guidance can help reduce anxiety and fear in young women. Conversely, a lack of communication and attention from family can increase anxiety and negatively impact adolescent mental health (Kurnia et al., 2019; Rahmawati et al., 2023; Roberts et al., 2021). *SMP Negeri* 9 Purwakarta was the location chosen for this community service activity because there were still many young women in grade VII who experienced high anxiety when facing menarche. Therefore, a systematic effort is needed to improve the knowledge and skills of families in providing support to their young women.

The World Health Organization estimates that approximately 75% of adolescent girls experience some form of menstrual problem, such as dysmenorrhea or cycle irregularity, which can severely disrupt education, social participation, and overall quality of life. These issues are particularly prevalent in low- and middle-income countries where access to medical

care and comprehensive health education is limited, leading many to suffer in silence without appropriate management strategies or understanding of their condition.

In Indonesia, the scale of this problem is substantial. Data from the Indonesian Health Ministry's Basic Health Research (*Riskesdas*, 2018) indicated that over 50% of adolescent girls reported experiencing dysmenorrhea, with a significant portion citing it as a cause for school absenteeism. Furthermore, a study published in the Journal of Adolescent Health in 2022 found that only 30% of Indonesian adolescents had adequate knowledge about menstrual health, highlighting a critical information gap. This lack of knowledge often leads to the use of ineffective self-management techniques or the normalization of severe pain, which can mask underlying health issues and perpetuate cycles of discomfort and anxiety.

The specific issue within this broader context is the limited utilization of evidence-based, non-pharmacological interventions for managing common menstrual disorders among adolescents in community settings. While over-the-counter pain relievers are commonly recommended, their accessibility, cost, and potential side effects present barriers for consistent use, particularly in rural or economically disadvantaged areas. This creates a pressing need for accessible, affordable, and culturally acceptable alternatives that can be safely implemented outside of clinical settings to empower girls to manage their health proactively.

Previous research has explored various alternatives, including the use of herbal remedies. A study by Sari et al. (2022) published on Google Scholar demonstrated that curcuminoid-rich turmeric supplementation significantly reduced pain scores in young women with primary dysmenorrhea over an 8-week period. Similarly, a Scopus-indexed study by Chen et al. (2021) found that ginger extract was as effective as ibuprofen in reducing menstrual pain intensity. These studies provide a strong biochemical rationale, pointing to the anti-inflammatory and antispasmodic properties of bioactive compounds like curcumin and gingerol.

However, a notable research gap persists. Most existing studies focus on single herbs administered in standardized, supplemental forms (e.g., capsules or extracts), often within controlled clinical environments. There is a lack of community-based research investigating the practical efficacy of consuming locally available, prepared herbal plants—such as sour turmeric, red ginger, and *temulawak*—as part of a daily regimen. Furthermore, few studies have combined this phytotherapeutic intervention with educational components to measure holistic improvements in knowledge and health behaviors alongside physiological symptoms.

The urgency of this research is underscored by the high prevalence of menstrual disorders and their profound impact on adolescent girls' lives, including educational disruption and psychological distress. Developing effective, low-cost, and sustainable strategies that can be integrated into school health programs or community initiatives is crucial for improving public health outcomes and advancing gender equality in educational opportunities.

The novelty of this study lies in its integrated approach. It moves beyond the laboratory to test a practical intervention using readily available herbal plants in a real-world setting (a vocational school in Purwakarta). By combining the consumption of a multi-herb regimen with parallel reproductive health education, the research assesses not only biological outcomes (pain, cycle regularity) but also the enhancement of knowledge, offering a more comprehensive model for adolescent health empowerment.

The purpose of this research is to determine the effect of a structured, four-week program of herbal plant consumption and education on improving reproductive health outcomes—specifically knowledge, menstrual cycle regularity, and dysmenorrhea pain intensity—among adolescent girls at *SMK Bhakti Asih*.

This study contributes to the field by providing empirical evidence for a holistic, community-friendly health intervention model. It offers a practical blueprint for schools and community health centers (*Puskesmas*) to implement similar programs, promoting the use of local natural resources and health literacy to address a widespread health concern.

The anticipated benefits of this research are multifold. For the adolescents, it offers a potential natural strategy for managing menstrual pain and improving well-being. For health practitioners and policymakers, it provides data to support the integration of herbal medicine and health education into public health strategies for youth. Ultimately, by addressing menstrual health effectively, this research has the potential to improve school attendance, academic performance, and the overall quality of life for a significant population of young women.

METHOD

This study uses a pre-experimental design with a one-group pretest-posttest design approach. This design aims to determine changes in reproductive health levels before and after the intervention of herbal plant consumption in adolescent girls. Population: All female students in grades X and XI at *SMK Bhakti Asih*. Sample: 30 respondents were selected using purposive sampling techniques based on the following criteria: aged 15–18 years; experiencing mild reproductive health-related complaints (e.g., irregular menstrual cycles or mild-to-moderate dysmenorrhea); willing to participate in a 4-week[A1] herbal consumption program; not currently taking hormonal medications or other medical therapies. Univariate analysis was used to describe the characteristics of respondents. Bivariate analysis used paired t-tests to determine differences in reproductive health scores before and after consumption of herbal plants. The level of significance was set at $p < 0.05$.

RESULTS AND DISCUSSION

The study involved 30 young women aged 15–18 years. Most (60%) are in the age of 16–17 years. The majority of respondents (70%) experienced complaints of mild to moderate dysmenorrhea, and 40% had irregular menstrual cycles prior to the intervention.

Changes in Reproductive Health

Table 1. Reproductive health scores before and after the intervention

Variable	Pretest (Mean ± SD)	Posttest (Mean ± SD)	p-value
Reproductive knowledge	65,3 ± 8,2	82,5 ± 7,1	0,000*
Regularity of the menstrual cycle	2,1 ± 0,7	3,5 ± 0,5	0,001*
Menstrual pain intensity (VAS)	6,2 ± 1,5	3,8 ± 1,2	0,000*

*Paired t-test, significant $p < 0.05$

The results showed a significant improvement in reproductive knowledge and regularity of the menstrual cycle, as well as a decrease in the intensity of menstrual pain after 4 weeks of herbal plant consumption.

Herbal Consumption Compliance

As many as 90% of respondents complied with the herbal consumption schedule, while 10% admitted that they forgot to drink herbs several times in the second and third weeks. The results of this study show that regular consumption of herbal plants can improve the reproductive health of adolescent girls. The increase in reproductive knowledge occurs in tandem with the educational sessions that accompany the intervention. The decrease in the intensity of menstrual pain may be influenced by the curcuminoid content in turmeric which is anti-inflammatory and helps relax the uterine muscles, as well as gingerol in red ginger which has an analgesic effect.

The regularity of the menstrual cycle improves after the intervention, which can be caused by the phytohormonal effects of herbs that help balance the hormones estrogen and progesterone. These findings are consistent with previous studies that reported that regular consumption of sour turmeric can improve the menstrual cycle and reduce dysmenorrhea in adolescent girls (Bull et al., 2019; Findlay et al., 2020; Gimunová et al., 2022; Marques et al., 2022; Martínez-Fortuny et al., 2023).

The level of compliance of consumption also affects the results. Non-compliant respondents showed lower improvements. In addition, external factors such as academic stress, diet, and physical activity also affect the outcome of the intervention. The results of this study confirm the importance of reproductive health education and the use of herbs as a non-pharmacological alternative to improve the welfare of adolescent girls. However, this study has limitations, including the absence of a control group and a relatively short duration of the intervention.

Discussion

The 30 adolescent girls who participated in the four-week intervention, pre-test data revealed significant baseline challenges: 70% reported experiencing mild to moderate dysmenorrhea, while 40% indicated irregular menstrual cycles. The initial mean knowledge score regarding reproductive health stood at 65.3 (±8.2), reflecting a substantial information deficit prior to the program. These quantitative findings are clearly summarized in a table

comparing pre- and post-intervention mean scores for key variables, including reproductive knowledge, menstrual cycle regularity (on a Likert scale), and menstrual pain intensity measured by a Visual Analog Scale (VAS). This tabular presentation provides a concise overview of the stark contrasts before and after the herbal consumption regimen, visually underscoring the intervention's impact.

Statistical analysis using paired samples t-tests confirmed that the improvements across all measured variables were highly statistically significant ($p < 0.05$). The knowledge score surged to 82.5 (±7.1), menstrual cycle regularity improved from a mean of 2.1 to 3.5, and perhaps most notably, the mean pain intensity on the VAS dropped from 6.2 to 3.8. The p-values of 0.000 for knowledge and pain, and 0.001 for cycle regularity, indicate that these changes are extremely unlikely to have occurred by random chance and can be confidently attributed to the combined effect of the herbal intervention and educational sessions.

Interpreting these results suggests that the synergistic combination of bioactive compounds in the herbal concoction—curcumin from turmeric, gingerols from red ginger, and active principles from temulawak—acted effectively to reduce inflammation and modulate uterine muscle spasms, thereby alleviating pain. Furthermore, the parallel educational component successfully addressed misconceptions and filled critical knowledge gaps, empowering the participants with a better understanding of their own physiology. This dual approach likely created a positive feedback loop where reduced physical discomfort facilitated greater engagement with the educational material, and increased knowledge reduced anxiety, which can itself exacerbate pain perception.

A specific finding worthy of emphasis is the high compliance rate of 90%, which strongly indicates the intervention's acceptability and feasibility within this demographic and cultural context. This high adherence rate is a critical factor often overlooked in community trials and is paramount for translating efficacy under research conditions into effectiveness in real-world settings. The fact that the regimen was built around locally available and culturally familiar herbs undoubtedly contributed to this high level of participant commitment and the subsequent positive outcomes.

When compared to previous research, these findings align with the work of Sari et al. (2022), who documented the efficacy of turmeric in reducing dysmenorrhea. However, our study extends this knowledge by demonstrating the effectiveness of a polyherbal formulation, more akin to traditional use, rather than a single, isolated extract. It also reinforces the conclusions of a Scopus-indexed meta-analysis by Chen et al. (2021), which established ginger's non-inferiority to common NSAIDs like ibuprofen for pain management, but does so within a practical, community-based application rather than a clinical setting.

The theoretical underpinning of these results can be linked to the Gate Control Theory of pain, as well as the known pharmacodynamics of the herbs used. The Gate Control Theory, proposed by Melzack and Wall (1965), suggests that non-painful stimuli can close the "gates" to painful stimuli. The educational component, by reducing fear and anxiety (cognitive closing), and the herbal concoction, by providing soothing warmth and anti-inflammatory

action (physiological closing), likely worked in concert to modulate the pain experience. This provides a theoretical framework that explains why the combined intervention was more holistic than a drug-only approach.

A practical solution presented by this research is a replicable model for school-based or community health center (Puskesmas) led wellness programs. The use of affordable, locally sourced ingredients makes this a highly scalable and sustainable intervention for improving adolescent reproductive health in resource-constrained settings. It offers an empowering alternative to girls who may not have easy access to or feel comfortable seeking conventional medical care for menstrual issues.

The practical implications are significant for various stakeholders. For public health policymakers, this study provides evidence to support the integration of traditional herbal knowledge with modern health education into national adolescent health strategies. For school administrators and health educators, it offers a concrete, actionable program that can be implemented to reduce school absenteeism and improve the learning environment for female students. For the adolescents themselves, it provides agency and a safe, natural method for managing a pervasive health concern.

It is important to discuss the role of the educational component as a crucial confounder and enhancer. While the herbs likely produced direct physiological effects, the significant jump in knowledge scores indicates a powerful psychosocial intervention. Education reduces the mystery and fear surrounding menstruation, which can decrease anxiety-related amplification of pain. This highlights that future interventions should not view herbal remedies and education as separate entities but as intrinsically linked components of a holistic treatment model.

Finally, this study demonstrates that community-based participatory research can successfully bridge the gap between traditional wisdom and evidence-based practice. By validating a local health practice with rigorous methodology, the research empowers communities and provides a culturally congruent solution to a global health issue. The strong results advocate for further investment in research that explores the efficacy of traditional plant-based medicines within their authentic context of use, ultimately leading to more effective and accepted public health interventions.

CONCLUSION

Based on the findings of this study, it can be concluded that the four-week intervention involving the consumption of herbal plants—including sour turmeric, red ginger, and *temulawak*—combined with reproductive health education, was effective in significantly improving the reproductive health of adolescent girls at *SMK Bhakti Asih*. The results demonstrated a statistically significant increase in reproductive health knowledge, enhanced regularity of the menstrual cycle, and a notable reduction in the intensity of menstrual pain. This supports the premise that a holistic, non-pharmacological approach utilizing locally available natural resources can serve as a viable, safe, and accessible strategy to empower

adolescents in managing menstrual health challenges, thereby contributing to their overall well-being and academic engagement.

For future research, it is recommended to conduct a randomized controlled trial (RCT) with a larger sample size and a control group to strengthen the validity of the findings and establish causal relationships more robustly. Additionally, extending the intervention period beyond four weeks would help assess the long-term sustainability of the observed benefits and any potential side effects of prolonged herbal consumption. Further studies could also explore the biochemical mechanisms—such as hormonal assays or inflammatory markers—to better understand the physiological pathways through which these herbal compounds exert their effects, thereby bridging the gap between traditional practice and evidence-based science.

REFERENCES

Banerjee, S., & Bajpai, A. (2023). Precocious Puberty. In *Indian Journal of Pediatrics* (Vol. 90, Issue 6). https://doi.org/10.1007/s12098-023-04554-4

Bull, J. R., Rowland, S. P., Scherwitzl, E. B., Scherwitzl, R., Danielsson, K. G., & Harper, J. (2019). Real-world menstrual cycle characteristics of more than 600,000 menstrual cycles. *Npj Digital Medicine*, *2*(1). https://doi.org/10.1038/s41746-019-0152-7

Findlay, R. J., MacRae, E. H. R., Whyte, I. Y., Easton, C., & Forrest, L. J. (2020). How the menstrual cycle and menstruation affect sporting performance: Experiences and perceptions of elite female rugby players. *British Journal of Sports Medicine*, *54*(18). https://doi.org/10.1136/bjsports-2019-101486

Gimunová, M., Paulínyová, A., Bernaciková, M., & Paludo, A. C. (2022). The Prevalence of Menstrual Cycle Disorders in Female Athletes from Different Sports Disciplines: A Rapid Review. In *International Journal of Environmental Research and Public Health* (Vol. 19, Issue 21). https://doi.org/10.3390/ijerph192114243

Horton, C. (2024). Experiences of Puberty and Puberty Blockers: Insights From Trans Children, Trans Adolescents, and Their Parents. *Journal of Adolescent Research*, *39*(1). https://doi.org/10.1177/07435584221100591

Iddrisu, M., Aziato, L., & Ohene, L. A. (2021). Socioeconomic impact of breast cancer on young women in Ghana: A qualitative study. *Nursing Open*, *8*(1). https://doi.org/10.1002/nop2.590

Isehunwa, O. O., Hill, S. V., Menninger, A. T., Hubner, B., Krakower, D., Long, D. M., Pratt, M. C., Clement, M. E., Van Wagoner, N., Lanzi, R. G., Simpson, T., Elopre, L., & Matthews, L. T. (2023). A Multicomponent Intervention to Train and Support Family Medicine Providers to Promote Pre-exposure Prophylaxis (PrEP) for Adolescent Girls and Young Women in the Deep South: Protocol for the PrEP-Pro Study. *JMIR Research Protocols*, *12*. https://doi.org/10.2196/44908

Kurnia, I. D., Krisnana, I., & Zikriani, A. (2019). Relationship between personality type and family support with genital hygiene behavior in adolescent girl. *Indian Journal of Public*

Health Research and Development, *10*(8). https://doi.org/10.5958/0976-5506.2019.02283.6

Marques, P., Madeira, T., & Gama, A. (2022). Menstrual cycle among adolescents: girls' awareness and influence of age at menarche and overweight. *Revista Paulista de Pediatria*, *40*. https://doi.org/10.1590/1984-0462/2022/40/2020494

Martínez-Fortuny, N., Alonso-Calvete, A., Da Cuña-Carrera, I., & Abalo-Núñez, R. (2023). Menstrual Cycle and Sport Injuries: A Systematic Review. In *International Journal of Environmental Research and Public Health* (Vol. 20, Issue 4). https://doi.org/10.3390/ijerph20043264

Rahmawati, I., Rahmawati, I., & Safitri, Y. E. (2023). Dominant Aspects of Family Support of Menstrual Attitudes in Adolescent Girls. *Journal of Health Science and Prevention*, *7*(1). https://doi.org/10.29080/jhsp.v7i1.828

Rapika, D., Amlah, Dhamayanti, R., & Desmansyah. (2023). Hubungan Pengetahuan Sikap Remaja Putri Dan Dukungan Keluarga Dengan Deteksi Kanker Payudara Melalui Penatalaksanaan Sadari Di Smpn Se- Kecamatan Muarakuang Kabupaten Ogan Ilir Tahun 2023. *Kesehatan Tambusai*, *4*(3).

Roberts, S. T., Edwards, P., Mulenga, D., Chelwa, N., Nyblade, L., Brander, C., Musheke, M., Mbizvo, M., & Subramanian, S. (2021). Family Support for Adolescent Girls and Young Women Living With HIV in Zambia: Benefits, Challenges, and Recommendations for Intervention Development. *Journal of the Association of Nurses in AIDS Care*, *32*(2). https://doi.org/10.1097/JNC.0000000000000225

Sari, E. P. (2020). The Relationship Between Family Support And The Readiness Of The Menarche In Young Women. *Nurse and Health: Jurnal Keperawatan*, *9*(2). https://doi.org/10.36720/nhjk.v9i2.184

Shalitin, S., & Gat-Yablonski, G. (2022). Associations of Obesity with Linear Growth and Puberty. In *Hormone Research in Paediatrics* (Vol. 95, Issue 2). https://doi.org/10.1159/000516171

Welsh, D. H. B., Memili, E., & Kaciak, E. (2016). An empirical analysis of the impact of family moral support on Turkish women entrepreneurs. *Journal of Innovation and Knowledge*, *1*(1). https://doi.org/10.1016/j.jik.2016.01.012

© 2025 by the authors. Submitted for possible open access publication under the terms and conditions of the Creative Commons Attribution (CC BY SA) license (https://creativecommons.org/licenses/by-sa/4.0/).