

Makusam Yogurt and Child Pose Yoga for Dysmenorrhea Management

Antri Ariani¹, Yanyan Mulyani², Iceu Mulyati³, Intan Yusita⁴

^{1,2,3,4} Universitas Bhakti Kencana, Indonesia

* Correspondence e-mail; antriariani@bku.ac.id

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Abstract

Dysmenorrhea is a prevalent reproductive health concern among adolescent girls that may disrupt everyday activities, school participation, and concentration. This community service initiative sought to strengthen adolescents' understanding of non-pharmacological care for dysmenorrhea through Makusam Yogurt—prepared with yogurt, honey, turmeric, and tamarind—and Child's Pose yoga, while also reducing menstrual pain. A training-based community intervention with a one-group pretest–posttest design was conducted among 52 adolescent girls in the service area of Solokan Jeruk Public Health Center, Bandung Regency. Activities comprised reproductive health education, hands-on preparation of Makusam Yogurt, guided Child Pose practice, and outcome assessment using a knowledge questionnaire and the Numeric Rating Scale (NRS). Following the program, the proportion of participants classified as having good knowledge rose from 60% to 85%. Moderate menstrual pain declined from 68% before the intervention to 5% afterward, and participants were able to prepare Makusam Yogurt independently. The findings suggest that combining health education, an herbal functional-food innovation, and a simple yoga exercise offers a practical and potentially sustainable approach to improving reproductive health knowledge and alleviating dysmenorrhea among adolescent girls.

Keywords

dismenorea; yoga childpose; yogurt makusam



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1. INTRODUCTION

Adolescents are in the transition phase from childhood to adulthood, accompanied by physical and psychological changes. In adolescent girls, the maturation of reproductive function is marked by the onset of menstruation. This process involves endometrial decay, accompanied by the release of an ovum that does not undergo fertilization, through the reproductive tract. One of the reproductive health disorders that often accompanies menstruation is dysmenorrhea (Wirenviona & Wife Dalem Cinthya Riris, 2020). The complaint is characterized by severe abdominal pain, resembling cramps, and can radiate to the thighs and lower back. Primary dysmenorrhea generally appears from adolescence to early adulthood, especially in the age range of 15–25 years (Derseh et al., 2017).

The incidence of dysmenorrhea in adolescents in various countries shows a wide range, namely 16%–93%. About 2%–29% of adolescent girls reported severe pain; The characteristics of the population influence this variation, the diagnosis criteria, and the measurement instruments used (Goss, 2023). A systematic review of a group of female students in several countries found a combined prevalence of about 66%, so it is estimated that two out of every three adolescent girls have experienced menstrual pain of varying severity (Chen et al., 2020). Research on adolescents in China also found a link between academic stress and irregular menstrual cycles, with increased incidence of dysmenorrhea and school absenteeism (Zhang et al., 2025). The data show that dysmenorrhea is an adolescent reproductive health problem that requires serious attention.

The impact of dysmenorrhea is not limited to physical complaints, but is also related to the psychological condition of adolescents. Studies in school settings report that severe dysmenorrhea is more prevalent in adolescent girls with symptoms of depression, anxiety, and self-harm behaviors than in those who do not show these psychological symptoms (Gambadauro, 2025). Therefore, the management of dysmenorrhea needs to include the maintenance of physical health as well as the psychological well-being of adolescents.

Primary dysmenorrhea can impair learning, reduce concentration and motivation, and affect adolescents' academic achievement. Learning achievement reflects students' cognitive, emotional, and psychomotor abilities and can be assessed using a cumulative achievement index (GPA) (Rohima Ammar, 2016). Other evidence suggests that dysmenorrhea is one of the causes of repeated school absenteeism, reduced academic and social engagement, and decreased adolescent quality of life (Goss, 2023). Education on a healthy lifestyle is important to ensure that adolescents

understand appropriate physical activity and balanced nutrition to support their growth (Ulfa et al., 2024).

The Solokan Jeruk Health Center is a health service facility under the Bandung Regency Health Office, West Java. In this region, the incidence of dysmenorrhea was recorded at 54.9%, and some of them had primary dysmenorrhea. Data from target schools shows that 47% of adolescents have dysmenorrhea. Complaints that are often reported include menstrual pain, weak body, and not going to school on the first or second day of menstruation, so that daily activities are disrupted. The situation is in line with reports that dysmenorrhea causes a meaningful loss of learning and work time in adolescent populations in various countries. The use of analgesics still dominates the treatment carried out by adolescents. Of the 55 young women, only 10% knew that herbs and yoga could help reduce menstrual pain, and that information was generally obtained through articles on the internet. This shows that their exposure to complementary therapy options to reduce the use of chemical drugs is still limited.

Limited understanding of the management of dysmenorrhea without medication was also found in several studies in Indonesia. Studies on adolescent girls in North Sumatra show that reproductive health knowledge is still at a low to moderate level, so continuous education is needed (Stuart, 2018). Limited access to correct reproductive health information also influences adolescents' decisions to take care of their health, including when facing dysmenorrhea (Suryani et al., 2024). The use of reproductive health calendars and audiovisual media has been reported to be effective in increasing adolescents' knowledge of menstrual pain prevention (Dzihna Karima & Karjatin, 2021); (Umami et al., 2022).

Mulyani (2021) explained that medicinal plants can be used as complementary therapies for dysmenorrhea. Traditional herbs are made from herbal ingredients such as ginger, turmeric, and sigaduri, which are known to help relieve menstrual pain. Turmeric is widely used to reduce pain and help regulate menstruation. The curcumin it contains can inhibit the cyclooxygenase pathway, suppress inflammatory processes, and reduce uterine contractions associated with menstrual disorders. Because it is seen as having fewer side effects, herbal products such as sour turmeric are often chosen by women to overcome dysmenorrhea. Honey has long been used as a non-pharmacological therapy because of its nutritional content and ability to support the formation of new tissues (Mulyani & Rofiasari, 2021).

The benefits of turmeric and tamarind in reducing menstrual pain have been strengthened by recent research. A systematic review of curcumin from *Curcuma longa* in premenstrual syndrome and dysmenorrhea suggests that the compound may

inhibit the formation of prostaglandins as the main mediator of menstrual pain (Boroujeni et al., 2024). A quasi-experimental study on adolescent girls in Serang, Banten, reported a significant decrease in the intensity of dysmenorrhea after consumption of a decoction of sour turmeric (Sari, 2019). Similar results were found in MTs Al-Muqowamah students (Makiyah & Anggraini, 2023). At SMP Negeri 31 Semarang, a mixture of turmeric, tamarind, and palm sugar also significantly reduced menstrual pain (Pibryana et al., 2025). Kuaspadu herb, consisting of turmeric, tamarind, pegagan, and honey, is reported to act through flavonoids and triterpenoids, which help relieve uterine contractions and improve blood circulation (Umamy et al., 2025). The consistency of pain reduction is also observed when sour turmeric is combined with green coconut water or ginger (Sapira Cahya et al., 2024; Nisa, 2024).

The research by Mulyani (2021) developed Makusam drinks, formulations containing honey, turmeric, and acid that are effective in reducing menstrual pain. However, the bitter, uncomfortable taste makes the drink less popular among teenagers and more commonly consumed by adults. To better suit the preferences of the younger generation, Makusam was then developed into a more modern and attractive yogurt drink. In addition to potentially offering health benefits, herbal yogurt can be an entrepreneurial opportunity for teenagers in Youth Posyandu, as a wide range of age groups prefer yogurt. This formulation retains traditional herbal elements in a product that tastes better, is not bitter, and has functional value (Ramadani et al., 2022).

Processing herbs into functional foods that are easier for young people to accept aligns with other service programs that combine health and community entrepreneurship. The herbal yogurt product "You Got Jamu," for example, can increase health awareness while creating business opportunities for the target group. Similar empowerment principles are applied to adolescent health cadre programs, with active community involvement as an important element for the continuity of activities (Hasanah et al., 2025).

The results of Ariani's 2022 service show that Child's Pose, by lowering the lower back and opening the pelvic joint, can help reduce hip pain and provide a calming, relaxed sensation during dysmenorrhea (Ariani & Mulyati, 2024). Support for yoga as a nonpharmacological therapy also comes from randomized trials on female students; Cobra, cat, and fish pose exercises significantly reduced the intensity and duration of primary dysmenorrhea compared to the control group (Kho & Shields, 2011). A meta-analysis of four randomized clinical trials involving 230 participants found a large effect of a yoga program on reducing menstrual pain (Sharma et al., 2019). Narrative

studies of asana, pranayama, and yoga nidra have also concluded that there are benefits to the physical and psychological symptoms of dysmenorrhea (Sindhu & Rathi, 2024). In particular, Child Pose interventions in adolescent girls were reported to significantly reduce the degree of menstrual pain (Dina & Sulastri, 2025).

This service activity applies the results of research previously carried out by the proposing lecturer team. Teenagers are trained to process herbal ingredients into yogurt drink innovations that better align with the tastes of the younger generation. They are also trained in Child Poses so they can use these movements independently when experiencing menstrual pain. Such a community intervention model is relevant to adolescent reproductive health empowerment programs that are proven to be community-acceptable and help expand access to services (Eze et al., 2023). Various activities based on Youth Posyandu in Indonesia are also reported to be able to improve adolescents' knowledge and attitudes towards reproductive health (Noor et al., 2022) (Arisjulyanto & Suweni, 2023).

2. METHODS

The service activity is in partnership with the Solokan Jeruk Health Center, Bandung Regency. The participants were 52 young women living in the health center's work area. The assisted area of the Solokan Jeruk Health Center includes the Youth Posyandu in Solokan Jeruk and Langensari Villages. The service is held every month in the third week. Of the 133 adolescents registered, 55 were recorded as actively participating in health checks and educational counseling regarding complaints commonly experienced by adolescents. Posyandu Remaja is a form of community empowerment developed by the government to bring reproductive health services closer to adolescent groups (Noor et al., 2022). This program uses training-based participatory methods to improve the reproductive health of adolescent girls while creating business opportunities through the production of honey, turmeric, and acid herbal yogurt (Makusam), as well as through Child Pose exercises to reduce menstrual pain.

The program uses a training-based community intervention with a quasi-experimental one-pretest-posttest group design. These designs are often applied in community-based reproductive health activities because they allow changes in knowledge or behavior to be measured simply. The evaluation examined the influence of education, training in making Makusam Yogurt, and Child's Pose exercises on knowledge and pain associated with dysmenorrhea. A total of 52 young women with dysmenorrhea in the work area of the Solokan Jeruk Health Center in Bandung Regency participated in the activity. Implementation includes preparation,

intervention, evaluation, and follow-up. The intervention consisted of education on dysmenorrhea and complementary therapy; a demonstration of how to make Makusam Yogurt using yogurt, honey, turmeric, and tamarind; and the practice of Child's Pose under the facilitator's direction.

In the preparation stage, the team coordinated with the Solokan Jeruk Health Center and Youth Posyandu cadres to determine the activity's participants, time, and location. Cross-sectoral cooperation is needed because community stakeholders' support influences the success of adolescent reproductive health programs. The team also compiled learning modules, prepared materials and equipment for making Makusam Yogurt, and developed evaluation tools in the form of knowledge questionnaires and Numeric Rating Scale (NRS) sheets.

Changes in knowledge are assessed through pretests and posttests. The initial questionnaire contained 30 questions about dysmenorrhea, the benefits of Makusam Yogurt, and Child Pose exercises. Before being applied, the instrument was tested on 20 respondents with characteristics similar to those of participants. The validity of the item was analyzed using the Pearson Product-Moment correlation, yielding $r = 0.444$ at the 5% significance level. A total of 24 items obtained an r count above 0.444 and were declared valid, while six items with an r counted below the value were issued. Therefore, the final instrument consists of 24 valid questions. Internal consistency is further assessed using Cronbach's Alpha, with an acceptable limit of ≥ 0.70 .

The intensity of dysmenorrhea was assessed before and after the intervention using the Numeric Rating Scale (NRS) from 0 to 10. This instrument is widely used in adolescent dysmenorrhea research because it is simple and easy to apply in the field (Sapira Cahya et al., 2024). Descriptive analysis was used to present participant characteristics, knowledge values, and pain levels as frequencies, percentages, means, and standard deviations.

3. FINDINGS AND DISCUSSION

The series of activities began with socialization and reproductive health education for 52 young women in the Solokan Jeruk Health Center's work area. The material covers the concept and causes of dysmenorrhea, its effects on daily activities, and non-pharmacological management using Makusam Yogurt and Child's Pose. Initial knowledge is measured with a pretest before the material is delivered, and the same questionnaire is then used as a posttest. The proportion of participants in the good knowledge category increased from 60% to 85%, while the proportions in the sufficient and less categories decreased. These changes indicate that education

accompanied by interactive discussions can strengthen adolescents' understanding of reproductive health and options for treating dysmenorrhea without medication.

The improvement in knowledge is consistent with findings from various reproductive health education interventions. The Positive Youth Development-based program at Posyandu Remaja Tosari, Pasuruan, showed significant changes in knowledge and attitudes among participants after they completed the reproductive health module. The training of Youth Posyandu cadres at the Ibrahim Adjie Health Center also resulted in significant differences between pretest and posttest scores (Improving the Quality of Islamic Holistic Adolescent Reproductive Health in Adolescent Posyandu Cadres, 2023). These findings support the effectiveness of community-based participatory education in improving adolescent reproductive health literacy across a variety of regions.

Table 1. Frequency distribution of adolescent knowledge about Reproductive health

Category	Knowledge before being educated		Knowledge after being educated	
	n	f	n	f
Good	31	60 %	44	85 %
Enough	11	21 %	5	10 %
Less	10	19 %	3	5 %
	52	100%	52	100%

Table 1 shows the knowledge levels of 52 adolescents before and after reproductive health education. In the initial measurement, 31 participants (60%) were in the good category, 11 (21%) in the adequate category, and 10 (19%) in the poor category.

After education, the number of participants in the "good knowledge" category increased to 44 (85%), an increase of 13. At the same time, the number of participants with knowledge was significantly reduced from 11 people (21%) to 5 people (10%), while the less knowledgeable category decreased from 10 people (19%) to 3 people (5%).

The distribution showed a positive association between education and reproductive health knowledge. The good category increased by 25 percentage points, from 60% to 85%, while the fair and deficient categories decreased by 11 and 14 percentage points, respectively. Thus, the majority of participants can understand the material presented. The combination of education, the practice of making Makusam Yogurt, and Child's Pose exercises has the potential to increase understanding of non-pharmacological treatment for dysmenorrhea. The need to strengthen adolescents' early knowledge is also consistent with reports from other regions of Indonesia.

The next activity was a training session on making Makusam Yogurt and practicing Child's Pose. Participants studied the functions of each component: yogurt as a source of probiotics, honey as a natural antioxidant, curcumin in turmeric as an anti-inflammatory, and bioactive compounds in tamarind that can help relieve menstrual complaints. Recent systematic reviews support the role of curcumin in suppressing inflammatory pathways that contribute to dysmenorrhea (Boroujeni et al., 2024). After the demonstration, participants made Makusam Yogurt using prepared tools and ingredients. Child's Pose exercises are also performed on the mat under the facilitator's guidance. The hands-on experience helps participants understand the proper product manufacturing procedures and movement techniques, while also increasing their confidence to implement them themselves at home. Learning through practice provides a stronger opportunity to develop skills than the delivery of theory alone.



Figure 1. Training and Making of Makusam Yogurt

Figure 1 presents the stages of making Makusam Yogurt. One liter of UHT milk or whole milk is mixed with a yogurt starter, then put into a yogurt maker, covered, and fermented for 8–12 hours. Separately, the Makusam mixture is made by boiling a liter of water with mashed turmeric and tamarind, then filtering the mixture. The Makusam solution is then mixed into the formed yogurt and given honey to taste.

Child Pose is demonstrated by team members who have previously provided similar training to other partners. This movement stretches the abdomen to help relieve menstrual pain. The benefits of abdominal stretching as a complementary therapy were also reported in a study of young women who found a significant reduction in pain after the intervention (Dina & Sulastrri, 2025).

During the evaluation and mentoring stage, the team monitored Makusam Yogurt consumption and the implementation of Child's Pose throughout the intervention period. The intensity of menstrual pain was assessed before and after the program using the Numeric Rating Scale (NRS).

Table 2. Distribution of Frequency of Dysmenorrhea Pain Incidence in Adolescents

Category Nyeri Dismenore	Dysmenorrhea pain before the intervention		Dysmenorrhea pain after intervention	
	n	f	n	f
No Pain	0	0	36	70 %
Lightweight	16	30 %	5	10 %
Medium	35	68 %	3	5 %
Weight	1	2 %	0	0
	52	100%	52	100%

Referring to Table 2, before the intervention, the majority of participants experienced moderate dysmenorrhea (68%). Mild pain was experienced by 30% of participants, and severe pain by 2%, while none were in the painless category. The distribution showed that complaints at the beginning of the activity were mainly at moderate intensity. This picture is consistent with the high rates of moderate to severe dysmenorrhea reported in rural adolescents (cited in Prevalence and determinants of primary dysmenorrhea among rural adolescent girls, 2025) and urban adolescents in China (Zhang et al., 2025).

After the intervention, the level of pain changes noticeably. A total of 36 participants (70%) reported no longer experiencing pain. Participants with mild pain were reduced to 5 people (10%), moderate pain to 3 people (5%), and there were no more participants in the severe pain category.

The shift in pain distribution supports the benefits of combining Makusam Yogurt and Child's Pose in reducing dysmenorrhea. The proportion without pain increased from 0% to 70%, while moderate pain and severe pain were no longer found. These results are in line with a meta-analysis that found a large effect of yoga on the reduction of primary dysmenorrhea pain (Sharma et al., 2019). Randomized clinical trials also showed that yoga was able to reduce the intensity and duration of pain compared to no yoga practice (Kho & Shields, 2011). Therefore, the combination of functional foods made from herbs with yoga practices can be considered as a nonpharmacological alternative for adolescent girls.

The program at the Solokan Jeruk Health Center combines reproductive health education, Makusam Yogurt processing training, and Child Pose exercises to help control dysmenorrhea. Face-to-face socialization, educational materials, and practical sessions encourage adolescents to understand and become accustomed to nonpharmacological approaches. Initial surveys show that participants' knowledge of reproductive health is still limited, and pain management relies more heavily on pharmacological therapies. After the program lasted six months, knowledge of

managing dysmenorrhea without medication increased by 25%, as shown by the post-intervention measurement results.

The program's findings support the report of Mulyani and Rofiasari (2021) that ginger, turmeric, and sigaduri are traditional ingredients that can be used to reduce menstrual pain. Among these ingredients, turmeric is commonly used as a pain reliever and support for menstrual flow (Sapira Cahya et al., 2024). Curcumin is known to inhibit cyclooxygenase reactions, so the inflammatory and contraction processes of the uterus that trigger menstrual pain can be suppressed (Widowati et al., 2020). The use of turmeric with tamarind, ginger, or gotu kola also showed a consistent pattern of pain reduction through anti-inflammatory effects and relaxation of uterine smooth muscles (Astari, 2020); Umamy, Sitorus and Alni, 2025; (Pibryana et al., 2025).

Interactive discussions are also used to help participants share their experiences with dysmenorrhea. Information from participants helps the team offer options that are more contextual and easy to do in everyday life. This involvement supports understanding of reproductive health and mastery of the skills of making yogurt and performing Child Poses. In various community programs, participatory discussions also increase the acceptance of adolescents because they are placed as active actors, not just recipients of information (Eze et al., 2023). One of the obstacles to the program is the fermentation process for Makusam Yogurt, which requires basic equipment, precise temperature control, and timing. In the early stages, some participants were unable to control the temperature and fermentation time effectively. These obstacles are overcome using yogurt-making tools and direct assistance from the team within a limited time. Similar obstacles are also encountered in the development of other herbal functional foods, so intensive guidance at the beginning of production is important to support application at home (Ramadani et al., 2022)v. The achievement of the program can be seen from the ability of 90% of participants to make Makusam Yogurt independently. In addition, 70% of participants experienced a reduction in menstrual pain after participating in the combined Child Pose and Makusam Yogurt intervention. These results indicate the potential effectiveness of both approaches in reducing dysmenorrhea. The combination of herbal functional foods and light physical activity also supports the view that multicomponent interventions may be more beneficial than a single approach in the management of adolescent dysmenorrhea (Sindhu & Rath, 2024); (Boroujeni et al., 2024).

The sustainability of the activity is supported by Youth Posyandu cadres, who help ensure similar practices can be repeated in the next period. Assistance from health cadres is positively associated with adolescents' sustainable involvement in

reproductive health programs (Hasanah, Yulifah, and Kusmiwiyati, 2025). Joint support from health centers, schools, and families is also an important element in the success of community-based programs, as seen in similar activities in other areas (Arisjulyanto & Suweni, 2023); (Noor et al., 2022).

In general, this activity shows that reproductive health education, combined with innovations in herbal functional foods and simple yoga, is a practical and potentially sustainable strategy. This approach can increase knowledge while helping to reduce the intensity of dysmenorrhea in adolescent girls. The combination of educational, herbal, and physical activity components is also in accordance with studies that recommend multicomponent strategies for the management of primary dysmenorrhea in adolescents (Sindhu & Rathi, 2024).

4. CONCLUSION

Service activities at the Solokan Jeruk Health Center increase the knowledge of adolescent girls about reproductive health, especially about menstrual pain and non-pharmacological treatment options. After consuming Makusam Yogurt and practicing Child's Pose regularly, most participants reported no longer experiencing menstrual pain.

The program can be developed in Posyandu Remaja and other communities facing similar problems, including by increasing Makusam Yogurt's production capacity. Child Pose can also be incorporated into adolescent health activities in health centers and schools as a sustainable option to overcome menstrual pain without medication. The expansion aligns with the recommendations of a community-based reproductive health empowerment program that emphasizes continuity of activities and increased participant reach.

Follow-up research should use a stronger design, such as a randomized controlled trial with a comparison group, to more objectively test the effectiveness of the combination of Yogurt Makusam and Child Pose. The training of adolescent health cadres also needs to be continued so that activities can run independently and no longer depend on the service team. Findings on the importance of cadres for the sustainability of adolescent reproductive health programs support the recommendations.

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