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# Community Empowerment in Making Galactagogue Herbal for Breastfeeding Mothers

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**ABSTRAK**

*Rasa pahit uyup-uyup, ramuan herbal pelancar ASI, membuat ibu menyusui di Desa Jarum, Klaten enggan mengonsumsinya, meskipun uyup-uyup berpotensi mencegah stunting pada bayi. Penelitian ini bertujuan untuk memberdayakan masyarakat dengan meningkatkan pengetahuan mengenai manfaat uyup-uyup dalam menjaga kesehatan melalui penyuluhan dan pendampingan pembuatan produk UEENAK uyup-uyup yang lebih enak dan praktis. Penelitian ini menggunakan desain one group pre-post test yang dilaksanakan pada tahun 2024, melibatkan 45 subjek terdiri dari aparat Puskesmas, anggota PKK, kader kesehatan, dan ibu menyusui. Data pengetahuan dikumpulkan menggunakan kuesioner dan dianalisis menggunakan uji Wilcoxon untuk melihat perubahan pengetahuan sebelum dan sesudah intervensi. Hasil menunjukkan peningkatan signifikan dalam pengetahuan subjek dengan perbedaan skor pretest dan posttest (61,33(14,937) vs 75,78(10,333), p-value=0,001). Selain itu, subjek menyatakan bahwa produk UEENAK uyup-uyup lebih enak dan mudah dibuat. Penelitian ini menyimpulkan bahwa kegiatan penyuluhan dan pendampingan berhasil memberdayakan masyarakat, yang memotivasi mereka untuk mengeksplorasi herbal lain guna mencegah stunting dan meningkatkan produksi ASI. Produk UEENAK uyup-uyup memiliki potensi untuk dikembangkan sebagai komoditas bernilai ekonomi.*

***ABSTRACT***

The bitter taste of uyup-uyup, an herbal herb that promotes breast milk, makes breastfeeding mothers in Jarum Village, Klaten reluctant to consume it, even though uyup-uyup has the potential to prevent stunting in babies. This research aims to empower the community by increasing knowledge about the benefits of uyup-uyup in maintaining health through counseling and assistance in making UEENAK uyup-uyup products that are more delicious and practical. This study uses a one-group pre-post test design which will be carried out in 2024, involving 45 subjects consisting of health center officials, PKK members, health cadres, and breastfeeding mothers. Knowledge data were collected using questionnaires and analyzed using the Wilcoxon test to see changes in knowledge before and after the intervention. The results showed a significant improvement in the subject's knowledge with a difference in pretest and posttest scores (61.33(14,937) vs 75.78(10,333), p-value=0.001). In addition, the subject stated that UEENAK uyup-uyup products are tastier and easier to make. This study concluded that counseling and mentoring activities have succeeded in empowering the community, which motivates them to explore other herbs to prevent stunting and increase breast milk production. UEENAK uyup-uyup products have the potential to be developed as commodities of economic value.

## 1. INTRODUCTION

The Back to Nature lifestyle is developing into a trend that promotes using natural ingredients, including medicinal plants, for various treatments. The World Health Organization (WHO) recommended traditional medicine to prevent and treat chronic, degenerative diseases and cancer and promoted its use globally. Indonesians have used medicinal plants for health treatment before modern medicine because they are economical, have minimal side effects, and require a proper prescription for safety. However,

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treatment with traditional medicine must be used reasonably and based on evidence (Baequny & Hidayati, 2020; Rizvi et al., 2022).

The postpartum period is the period between 6 weeks until 52 weeks when a mother recovers after the birth of her baby, including the recovery of the reproductive organs. During this period, support is needed to improve the health of mothers and babies. This support must emphasize the importance of breastfeeding, contraception, and preventing depression in mothers (Kumarasinghe et al., 2024; Yang et al., 2021). Breast milk (ASI) is newborns' first, best, and most natural food, ASI contains various nutrients needed for the growth and development of babies (Anggraeni et al., 2022; M. Sari et al., 2022). Services for the health and nutrition of breastfeeding mothers can be done by providing herbal medicine such as a natural galactagogue (Ariyani et al., 2020; Ilmi et al., 2021). *Jamu* is a concoction of plants or medicinal plants used in traditional medicine for treatment. Traditional treatment of diseases with herbal plants, also known as phytotherapy, is a traditional Javanese treatment inherited from our ancestors (Abdul et al., 2021; Woerdenbag & Kayser, 2014). The production of *Jamu* now employs more sophisticated technology. The global market and younger generations have been successfully exposed to *Jamu* through inventive packaging and imaginative marketing initiatives. *Jamu* has also become an incredible pleasure and a healthful beverage thanks to partnerships with renowned chefs and nutritionists (Nurcholis & Arianti, 2024; Syahfitr & Asra, 2021).

Complementary medicine is organized based on the Decree of the Minister of Health No. 1109/ Menkes/ Per/IX/ 2007, Implementation of Complementary - Alternative Medicine in Health Service Facilities, stating that the scope of this biomedical-based treatment includes body and mind interventions, healing, alternative medicine services, pharmaceutical and biological medicine, diet and nutrition for prevention and treatment, as well as other diagnostic and treatment approaches. Midwives and breastfeeding mothers in Indonesia have used various complementary treatments, including hypnosis, spiritual therapy and prayer, yoga, acupressure, massage, healing, aromatherapy, and herbal medicine.

Aromatherapy and herbal medicine are closely related to the use of herbs. The use of herbs is increasing because herbs are generally considered non-toxic and do not cause side effects. Apart from that, the efficacy of herbal medicine has been researched objectively, proven based on experience, and influenced by social culture. These influences play an important role in achieving the highest level of health in herbal medicine (Salm et al., 2023; Tan et al., 2020). Herbal medicine is also widely used by breastfeeding mothers, as herbs are essential for both the mother and the infant. The efficacy of herbal medicine in alleviating indigestion, abdominal pain, birth canal pain, wrinkled skin, fear, and anxiety is crucial for mothers. The efficacy of herbal medicine, such as decreasing breastfeeding interference and non-fluent milk, is vital for babies (D'Arqom & Nasution, 2015; Sayuti & Atikah, 2023).

*Uyup-uyup* herbal medicine, or *gepyokan* herbal medicine, is an herbal medicine that can be used to smooth the supply of breast milk. The composition of the simple ingredients varies, but they generally include *kencur*, *bengle*, ginger, turmeric, galangal, *temulawak*, *katuk* leaves, *temugiring*, and *puyang* (Adriani & Pritasari, 2024; Setiawan et al., 2018). A new creation in the formulation of *uyup-uyup* herbal medicine containing black ginger, *kawak* ginger, turmeric, *kencur*, honey, lime, and tamarind. Due to its lactagogic properties, *Uyup-uyup* can be used to increase breast milk supply. The mechanism of lactagonic directly stimulates the activity of secretory cell protoplasm and secretory nerve terminals in the mammary glands, thereby increasing breast milk production. This method can also be done by increasing the prolactin hormone that works on alveolar epithelial cells. Prolactin is a lactagogic hormone active in the mammary glands (Ariyani et al., 2020; Demirci et al., 2017).

The statements above are the benefits and advantages of *uyup-uyup* for facilitating breast milk. However, breastfeeding mothers in Jarum Village, Klaten, did not know these benefits. The results of the initial study on breastfeeding mothers in Jarum Village only answered about herbal medicine consumed orally. They focused on herbal medicine that is effective in facilitating breast milk. However, the use of herbal medicine, especially *uyup-uyup*, among young mothers was decreasing. Many things have caused the decline in *uyup-uyup* use. The first is the need for more support from health workers when using *uyup-uyup*. The second is the bitter taste of *uyup-uyup*, which is not popular with young mothers.

On the other hand, the stunting condition in Jarum Klaten Village is still worrying. Stunting conditions can be prevented by giving exclusive breast milk to babies. Failure to breastfeed disrupts the baby's nutritional intake. *Uyup-uyup*, to facilitate breastfeeding, needs to be reintroduced to breastfeeding mothers or the community in Jarum Village, Klaten.

The unpleasant taste of *uyup-uyup* has indeed caused a decrease in young mothers' interest in consuming it. The bitter taste is caused by the organoleptic characteristics of the constituent simplicia, such as the bitter and tart taste of *kencur*, *bengle*, turmeric, galangal, *temulawak*, *temugiring*, and *puyang* (Adriani & Pritasari, 2024; Setiawan et al., 2018). The ingredients can be replaced by another ingredient

that equally functions as a galactagogue, for example, mung beans, *katuk* leaves (*Sauropus androgynous (L) Merr*), and moringa leaves (Moringa oleifera). Mung beans can produce more breast milk. The findings of a 2018 study conducted in the city of Bengkulu on postpartum mothers stated that the average amount of milk produced by these women when administered mung bean essence was 9.53. In postpartum moms who did not provide mung bean essence, the average amount of milk produced was 6.93. The difference in the average amount of breast milk produced by both groups was 2.60, with a p-value of less than 0.000 (ρ <0.05). Postpartum mothers who received mung bean essence showed a different amount of milk from breastfeeding than those who did not. It was hoped that additional studies would be carried out by other researchers using different kinds of fruits or vegetables that could influence breast milk production (Hayati et al., 2021; Mizawati, 2022). *Katuk* can also be used to increase prolactin secretion. Research conducted on breastfeeding mothers in the city of Bandung stated that 22 breastfeeding mothers who were given *katuk* experienced an increase in serum prolactin three times more than 23 breastfeeding mothers who were not given *katuk* (p-value t-test = 0.032) (Darmawati et al., 2023; Indrayani et al., 2020). Studies involving early postpartum patients given Moringa capsules revealed that the Moringa group produced 47% more breast milk than the control group. The WHO targets were met by the Moringa oleifera group's six-month exclusive breastfeeding rate. Thus, to enhance the amount of breast milk produced, Moringa oleifera leaf can be utilized as a galactagogue herb (Fungtammasan & Phupong, 2022; Sulistiawati et al., 2017).

The above is the reason why it is essential to carry out community service activities. The formula for herbal medicine *uyup-uyup* was improved to avoid the bitter taste. It was reintroduced to the Jarum village community and breastfeeding mothers, particularly in this community service activity. The knowledge of breastfeeding mothers also needs to be improved through counseling activities. Counseling activities will be carried out with a demonstration of how herbal medicine, especially *uyup-uyup*, helps maintain breastfeeding mothers' fitness. In addition, 70% of health cadres hope to make their own herbal medicine because it can be guaranteed to be clean, and the ingredients are easy and cheap because some are available in the garden.

This activity is carried out in the community service program, which the community service team will implement. The novelty of the community service program lies in the formulation of the new *uyup-uyup* concoction that is introduced to the community, the video as a medium for information and counseling, and the leaflets that were distributed to the community. The community service also targeted health workers, health cadres, and other community leaders as activity targets because of the need to reduce stunting rates by empowering human and natural resources in Jarum village, Bayat, Klaten. The community service aimed to empower the community through counseling and to make galactagogue herbs safe for breastfeeding mothers to improve public knowledge, skills, and health in making safe herbal concoctions and use them as an alternative to improve the economy.

## 2. METHOD

The activity was held in Djarum Bayat Village, Klaten Regency, and the implementation period started from June 2024 to November 2024. The implementation time coincided with the mother class at Village Health Pos (*Pos Kesehatan Desa* (PKD)) at Jarum Village. The target became an active listener, asked questions, and discussed knowledge about galactagogue herbal medicine (*uyup-uyup*) for breastfeeding mothers. It can allow the target to overcome the lack of breast milk production. The method used is demonstration. The community service activity used the PRA (Participatory Rural Appraisal) approach. The PRA approach to community service activities at Jarum Village emphasizes passive and informative participation. The process includes preparation, implementation, evaluation, and follow-up plans.

The impact of the activity on increasing participants' knowledge was measured using a one-group pre-post research design. The research subjects were the Jarum village community, consisting of breastfeeding mothers and community leaders, community health center staff, health workers or health cadres, village officials, members of Family Empowerment and Welfare (*Pemberdayaan dan Kesejahteraan Keluarga* (PKK)), representatives of breastfeeding mothers in Jarum village. Midwives and the cadres of the Integrated service post (*Pos Pelayanan Terpadu* (*Posyandu*)) facilitated the community, especially breastfeeding mothers. The form of partner participation is the main target for becoming a participant in the 2024 Jarum Bayat Village Community Service activity, Klaten Regency, as explained in Table 1.

**Table 1.** Forms of Participation of Target Partners in Community Service

| No | Participant | Amount (person) |
|---|---|---|
| 1 | Bayat Health Center Equipment | 2 |
| 2 | Jarum Village Device | 3 |
| 3 | Jarum Village Health Cadres | 10 |
| 4 | PKK Mother of Jarum Village | 10 |
| 5 | Breastfeeding mothers in the Jarum Village area | 20 |
| | **Total Participants** | **45** |

The problem was identified and addressed, with activities tailored to maintain community habits. Preparation began with a time contract with partners facilitated by village midwives and *Posyandu* cadres. The initial meeting aimed to identify problems, such as complaints or health problems during breastfeeding, and provide self-management strategies before seeking health services. Accurate data was collected, and problems were selected for direct handling, with an environment on the problem that was easy, cheap, and fast and did not pose a threat to the target. Activities were continued with scheduling that aligns with the *Posyandu* activity agenda so as not to interfere with local activities.

The implementation consisted of two parts: counseling and the practice of making galactagogue herbal medicine (*uyup-uyup*) for breastfeeding mothers. Health counseling was conducted using lecture and question-and-answer methods with PowerPoint and leaflet media we can see in Figure 1. The practice of making galactagogue herbal medicine was carried out by demonstration and video media (video link: https://drive.google.com/file/d/1hldYljzRV63_zGDw2zSz7-DH9a8Euv-Q/view?usp=drive_link )

Two formulas were used namely the *katuk* leaf and moringa leaf formulas. The ingredients for both formulas were 1.5 grams of *katuk* leaf simplicia, 1.5 grams of leaf simplicia, 30 grams of mung beans made into sprouts, and 10 grams of palm sugar we can see in Figure 2. These ingredients were also given to the activity target in the form of samples so that the target could try making *uyup-uyup* herbal medicine at their respective homes we can see in Figure 3.


**Figure 1.** Leaflet about galactagogue called UEENAK (*uyup uyup enak*) for Breastfeeding Mothers

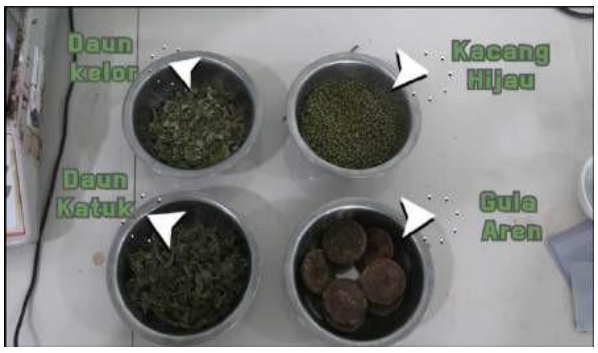


**Figure 2** Ingredients for Making Galactagogue *Uyup-Uyup* Herbal Medicine for Breastfeeding Mothers


**Figure 3.** Product Packaging for the *UEENAK* Galactagogue *Uyup-Uyup* Concoction for Breastfeeding Mothers

The evaluation was conducted on the counseling and practice activities of making galactagogue herbal medicine (*uyup-uyup*), aimed at determining the increase in knowledge and ability to practice galactagogue herbal medicine (*uyup-uyup*) through a comparison of pretest and posttest results. Data analysis was in the form of distribution and frequency. Differential test analysis was conducted to determine the increase in knowledge before and after counseling. The results were expected to be input for the community and can be followed up by partners.

The instruments used in this activity are the health status of breastfeeding mothers and a knowledge questionnaire about traditional herbal medicine for breastfeeding mothers. The health status of breastfeeding mothers is in the form of a profile, namely age, name, education, occupation, smoothness of breast milk, level of herbal medicine consumption, and level of knowledge. The results of this data were analyzed by frequency distribution in the form of a percentage.

The knowledge questionnaire consists of 10 questions about knowledge and how to make galactagogue herbal medicine (*uyup-uyup*) for breastfeeding mothers. The instrument was distributed before and after the counseling. The assessment results were in the form of knowledge scores. The knowledge score was categorized into good, sufficient, and poor knowledge levels, then analyzed with a difference test to determine the possible value of increasing the pre- and posttest averages.

Data analysis was carried out univariate and bivariate. Univariate analysis used the frequency distribution of respondent characteristics and knowledge categories and the minimum, maximum, median, average, and standard deviation of pretest and posttest scores. Knowledge is categorized as good if the respondent answered 76 - 100% of the questions correctly and sufficient knowledge if the respondent answered correctly 60-75%. Knowledge is poor if the respondent answered correctly less than the same 60% of the questions. Bivariate analysis was used, and the Wilcoxon test was used to test differences in values. pretest and posttest.

## 3. RESULT AND DISCUSSION

### Result

The profile of community service partners describes the condition of partners when community service activities are carried out, we can see in Figure 4. Table 2 shows that the age of partners is mostly young and middle-aged at 93.3%, the most education is high school graduates at 40%, and the most work is not working or as a housewife at 64.4%. The partner profile structure shows that the condition of the Jarum Village community is mature and educated. So, it supports the smooth running of counseling activities and training in making galactagogue *Jamu uyup-uyup*.

The level of knowledge of community service partners about galactagogue herbal medicine based on Table 3 shows a change from poor to sufficient and good. It shows an increase in knowledge and skills about making galactagogue herbal medicine after counseling and training in making herbal medicine. The condition can explain that community service partners carry out activities according to the schedule and direction of the service implementer. The targets were willing to be respondents, present during the counseling and training activities, do the pretest and posttest, listen, and be active. Although one target had not experienced increased knowledge, it is still within reasonable limits because every human being has a different perception of every piece of information that enters them.


**Figure 4.** Implement Counseling and Training Activities on the Galactagogue Herbal Concoction Uyup Uyup for Breastfeeding Mothers

**Table 2** Profile of community Service Partners in the Frequency Distribution of Age, Education, and Occupation in Jarum Bayat Village, Klaten, in 2024.

| Sub Variable | Frequency | Percentage |
|---|---|---|
| **Age Category (WHO)** | | |
| Young (25 – 44 years old) | 24 | 53.3 |
| Middle age (45 – 64 years) | 18 | 40.0 |
| Old (65 – 79 years old) | 3 | 6.7 |
| **Education** | | |
| Elementary School | 10 | 22.2 |
| Junior High School | 12 | 26.7 |
| Senior High School | 18 | 40.0 |
| Academic/University | 5 | 11.1 |
| **Work** | | |
| Not working | 29 | 64.4 |
| Work | 16 | 35.6 |

Description: frequency distribution, n=45

**Table 3.** Description of the Level of Knowledge Of Community Service Partners Regarding Galactagogue Herbal Medicine in Jarum Bayat Village, Klaten, in 2024

| Knowledge Category | Pretest | | Posttest | |
|---|---|---|---|---|
| | F | % | F | % |
| Poor | 4 | 8.9 | 0 | 0 |
| Sufficient | 9 | 20.0 | 1 | 2.2 |
| Good | 32 | 71.1 | 44 | 97.8 |
| Total | 45 | 100 | 45 | 100 |

Based on Table 4 statistical test results show a p-value of 0.001. It can be interpreted as a significant difference in the average before and after being given counseling and training in making *uyup-uyup* galactagogue herbal medicine to target partners. This result was expected to result in partners practicing making *uyup-uyup* herbal medicine again at home after getting samples of *uyup-uyup* herbal medicine ingredients.

**Table 4**.Results of Increasing Knowledge of Community Service Partners About Galactagogue Herbal Medicine in Jarum Bayat Village, Klaten, in 2024

| Knowledge | n | Median (min-max) | Average± SD | p |
|---|---|---|---|---|
| Knowledge before counseling | 45 | 60(30 – 90) | 61.33 ±14.937 | 0.001 |
| Knowledge after counseling | 45 | 80(50 – 90) | 75.78 ± 10.333 | |

The response of the target partners to the Community Service activities was excellent. The response from the participants was excellent when they felt UEENAk *uyup-uyup*. They said the concoction had a better taste and could be enjoyed because it had no bitter taste. Making the concoction was also very easy with

their ingredients and tools. Breastfeeding mothers felt helped by this activity through the explanation about making *uyup-uyup* concoction that is tastier and easier to make at home. Health center officers, health cadres, and PKK members will use the concoction as a nutritional supplement for breastfeeding mothers in mother and toddler classes. PKK members who were members of the Farmers Women Group (*Kelompok Wanita Tani* (KWT)) of Jarum Village were interested in using UUENAK *uyup-uyup* as a product to be sold through village-owned enterprises (*Badan Usaha Milik Desa* (BUMDES)). They suggested that at the next meeting, this concoction be made into a more practical form to be used as a commodity product that can be sold. The product will later be classified as functional food, requiring registration with the local Health Office and intensive assistance to enter the market.

**Discussion**

The partners in the community service activity were breastfeeding mothers from Jarum village, Bayat health center staff, village staff, village health cadres, and PKK members from Jarum village. It proves that the activity was enjoyable for Jarum village. Jarum village has the highest number of stunting sufferers in the Bayat District. Village leaders and health professionals have actively increased community support programs, especially for toddlers and pregnant women, to ensure they receive adequate nutrition and minimize stunting rates. The community and leaders are very serious about improving maternal and child health. They know maternal and child health is a source of family happiness. Health services for breastfeeding mothers are the beginning of the health of breastfed babies. These health services include information support for breastfeeding mothers about exclusive breastfeeding (Gyamfi et al., 2021; Rhodes et al., 2021).

Nutrition is one factor that influences a mother's success in breastfeeding (Balogun et al., 2015; Sriraman & Kellams, 2016). Nutrition can affect the quality and quantity of breast milk. The nutritional needs of breastfeeding mothers include energy, protein, fat, carbohydrates, folic acid, and vitamin C (Marangoni et al., 2016; Segura et al., 2016). These nutrients can be sourced from herbal medicine, especially *Jamu uyup-uyup*. The original *uyup-uyup* concoction has variations depending on the region that produces it; for example, the Bantul region has a *uyup-uyup* concoction consisting of rice, *kencur*, papaya leaves, *temulawak*, and palm sugar. The Madura version of *uyup-uyup* consists of *kencur*, turmeric, *lempuyang*, *temu giring*, ginger, and *katuk* leaves. The Banyumas version of *uyup-uyup* is made from winged bean seeds and turmeric. All ingredients benefit from facilitating breast milk (galactagogue) and are a source of nutrition (Sim et al., 2015; Virgian, 2022).

The *uyup-uyup* concoction above tastes bitter and sour, so breastfeeding mothers do not like it. Searching for a new formula with ingredients with the same properties but a taste and aroma the community likes is essential. *Katuk* leaves are chosen because they have a lactogenic effect (Buntuchai et al., 2017; Ngadiarti et al., 2021). *Katuk* leaves affect the prolactin hormone in breastfeeding mothers. In addition, *katuk* also has various nutrients pregnant women need, such as protein, vitamins, and minerals, so the macronutrient needs of breastfeeding mothers are met by consuming *katuk* (Hutahayan & Herawati, 2023; Nu'man & Bahar, 2021; Sayuti & Atikah, 2022).

Other plant materials used for *uyup-uyup* concoctions are moringa leaves. Moringa leaves are also one of the plants that can be used as galactagogues. Moringa leaves contain lactagogum in the form of polyphenols, alkaloids, flavonoids, steroids, and other compounds that can stimulate the hormones prolactin and oxytocin so that they facilitate and increase breast milk production. Moringa leaves are also rich in phytosterol chemicals, which can increase estrogen levels and encourage the proliferation of breast milk-producing mammary gland ducts. Plant sterols, also known as phytosterols, are cholesterol homologs found in plant foods like nuts, fruits, vegetables, grains, legumes, and seeds, with the highest concentration in unrefined plant oils. Phytosterols, or functional sterols, significantly influence the modification of gut microbiota and are thus regarded as potential functional sterols due to the health above benefits. Phytosterols as functional meals in lactating moms enhance breast milk quality by regulating gut microbiota. The intake of phytosterol esters may also elevate levels of both monounsaturated and polyunsaturated fatty acids. The conversion of unabsorbed plant sterols, comparable to the metabolism of cholesterols, significantly influences various biological processes associated with health by controlling gut microbiota and the resultant metabolites. Dietary behaviors are closely linked to the composition and function of gut bacteria, directly influencing human health. Functional food contains functional sterols, similar to moringa leaves, which possess cholesterol-lowering properties and can be ingested alongside regular meals. Incorporating functional sterols into regular meals reduced the incidence of cholesterol-related illnesses. It enhanced the control of gut microbiota and its metabolites. Furthermore, maternal cholesterol profile levels correlated with breast milk cholesterol concentrations, indicating significant consequences for the growth and health of the offspring. Functional sterol is favored as the substrate for gut bacteria. Functional sterols, demonstrating prebiotic qualities, may be an alternative to probiotics in

enhancing breast milk quality due to their shared gut modulation activity (Cuevas-Tena et al., 2018; Nu'man & Bahar, 2021).

Moringa oleifera starts to work around twenty-four hours later after it is taken. Animal studies have taken part in several safety experiments utilizing leaf water extract, and the findings indicate a high degree of safety. Studies conducted on humans revealed no adverse effects. According to a study, mothers of premature babies produced more breast milk on days 4 and 5 after giving birth when they consumed moringa leaves. Furthermore, a study indicated that on days 3–10 postpartum, mothers who took Moringa oleifera capsules produced more breast milk daily than women who took a placebo. However, this difference was insignificant (Fungtammasan & Phupong, 2022; Sulistiawati et al., 2017). Experimental research employing a quasi-experimental design compared a Moringa leaves group with a control group, utilizing a sample of 42 breastfeeding mothers with infants aged 0-2 years (21 in the Moringa group and 21 in the control group). The findings indicated a statistically significant effect of Moringa leaves on breastmilk, with a significance level of P = 0.000, less than 0.05 (Yasin, 2021; Zakaria et al., 2018).

Mung beans are chosen as an ingredient in the *uyup-uyup* concoction because mung beans are a cheaper protein source than animal protein. Breast milk production requires a high source of protein because protein contributes 1.63% (w/v) of breast milk. Protein is also needed to help mothers recover from pregnancy and childbirth. Mung beans are rich in lysine and aromatic amino acids in S-containing amino acids. The protein in mung bean seeds is approximately 26.64% w/w. Mung beans sprouted by soaking them in water for 12 hours have a protein content of 28.50% (Oghbaei & Prakash, 2020; Zhou et al., 2018). Mung bean sprout's protein is higher than mung bean seeds. That is why *uyup-uyup* herbal medicine is made. Mung beans are made into sprouts to increase their protein content. The three ingredients are mixed into *uyup-uyup* with palm sugar as a natural sweetener. The resulting *uyup-uyup* is disseminated to target partners through counseling with PowerPoint (PPT) media, videos, and leaflets.

PowerPoint is chosen as an information media because it is practical, can be used in small and large classes, stimulates learners to understand the information provided, and is not dull because of the play of colors, letters, and animations. Its presentation can be combined between images, colors, animations, and sounds, and educators can quickly summarize all teaching materials as essential points. It makes the learning process more manageable. Educators or learners can use ppt to present teaching materials, reports, and their work. PowerPoint also has disadvantages, such as the need for special skills to convey good messages or ideas in designing Microsoft PowerPoint computer programs so that they are readily accepted by the recipient of the message and thorough preparation when using various types and complex presentation techniques (animations) (Mamonto et al., 2023; Syah et al., 2023).

Leaflets are used because learning media can motivate learners' spirits, so learners' knowledge is expected to increase. Leaflets have various images with attractive colors and unique designs. They contain a summary of learning materials so learners can learn according to their speed in capturing knowledge. Their small shape can be folded so learners can read them while listening to the explanation from the informant. Leaflets have the advantages of long-term storage, ease of retrieval, reliability, and extensive distribution. They remind students of the lessons' objectives following a lecture or class. However, they can also be undesirable, hard to store, and inappropriate for people who cannot read or write (E. P. Sari et al., 2021; Utami et al., 2019).

Video is essential in education because it can enhance technical skills and observational learning. Video-based media has become a popular education platform, providing numerous advantages over traditional methods. Short videos with visual representation and audio components can overcome literacy and hearing impairment barriers (Farwana et al., 2020; Kalra et al., 2020). Research showed that educational videos improve student comprehension, accommodate diverse learning styles, increase motivation, and improve learning effectiveness. Observation and practice are effective for skill learning because they allow learners to control the practice conditions (Nughroho et al., 2022; Udomkhwamsuk et al., 2024).

The partners were middle-aged (40%). Middle-aged adults, aged 40-59, make up 21% of the general population and are expected to start old age sooner. The situation is concerning in developed countries, where changes have already occurred. However, in developing countries, not all adults age positively, leading to inequality and imbalances that negatively impact their quality of life and social well-being. Someone at that age may experience a decline in understanding knowledge, but they are more active in social activities. Middle age is often faced with various responsibilities, and signs of physical and cognitive aging appear. Someone at this age may experience much stress while trying to handle various things. However, middle age can also peak in everything in life, including income, position at work, leadership in the family, decision-making ability, self-confidence, and contribution to society. Middle-aged persons consider themselves to have a well-lived life when they can fulfill their spiritual and familial aspirations. Taking care

of a sick loved one while satisfying the needs of the family and other important people are also shared duties and commitments (Cotrina et al., 2020; Silvestre, 2023).

Most target partners' education was senior high school (40%). Academic characteristics include education objectives, prior knowledge, type, and level. In contrast, cognitive characteristics involve attention span, memory, mental procedures, and intellectual skills, influencing perception, memory, thinking, problem-solving, and information organization. A person's level of education affects the way they think and behave. Education helps a person think and apply knowledge; the better a person's education, the easier it will be to receive information and have a broader understanding (Mustafa, 2022; Nisa & Merben, 2023; Yu, 2021).

The majority of target partners were unemployed or housewives (64.4%). Housewives fulfill the caretaker function within the family throughout nearly all societies. Housewifery constitutes a significant gender role that all women are compelled to fulfill, regardless of their employment status, especially in patriarchal societies. A housewife must improve her knowledge in the health sector. The knowledge includes knowledge about self-medication. Mothers play an important role in determining the quality of health and welfare for their families. It is because women are more sensitive and play a significant role in decision-making in the family, including choosing the medicine to be used when a family member experiences health problems (Al-Krenawi & Kanat-Maymon, 2017; Kaplan, 2023)).

This community service activity increased partners' knowledge about the modified *uyup-uyup* by 23.56%. Video tutorial media effectively improved student learning outcomes by making teaching more interesting and attractive. The visual appearance is eye-catching and exciting, making the learning process more effective in achieving learning objectives (Wright et al., 2014; Yang et al., 2021). These results are appropriate to previous research on using videos and leaflets for breastfeeding mothers to increase knowledge and skills about exclusive breastfeeding. This research compared the leaflet and video group, the leaflet-only group, the video-only group, and the group without educational media. The results stated that there were significant differences in all groups in pretest scores and posttest scores. However, there was a more significant increase in posttest scores in the group that used educational media than in the group that did not (E. P. Sari et al., 2021; Utami et al., 2019).

The increase in knowledge is expected to overcome the stunting situation in Jarum Village, Bayat, because the socialized herbal medicine is made with ingredients readily available in Jarum Village, Bayat. Leaflets and videos have also been distributed to target partners to be used as reminders or as a medium to re-learn the material given in community service activities. Suggestions from target partners need to be followed up to facilitate the use of herbal medicine by changing it into a more practical herbal medicine preparation form that can be sold with permission from the health office as a functional food.

The advantage of the activity for the people of Jarum village, who are partners in the community service activities, is that they can learn more about the quality, benefits, and safety of the newly introduced *uyup-uyup* concoction. They were also interested in producing *uyup-uyup* concoction commercially as one of the local business ventures from Jarum village, Bayat, Klaten. The results of the activity will likely contribute to preventing stunting in the villages of Jarum, Bayat, Klaten by utilizing natural resources in the form of herbal medicine and functional food. It is also hoped that the results of the activity will become role models in educating the public about the use of herbal medicine for the health of breastfeeding mothers. The impact of this activity is that the public is more aware of stunting management using herbal medicine. Nursing mothers in Jarum Village, Bayat, were trying to obtain more information about plants or ingredients that are economically valuable and easy to obtain to increase breast milk production. Participants were also interested in making UEENAK *uyup-uyup* a commodity that can be traded in BUMDES.

The limitation of the research in the community service activity is that measurements are only carried out on knowledge before and after the extension activity. Measurements were carried out without a control group. In future research, it is hoped that it will be carried out in other villages using a control group, such as a group that was educated without educational media. Measurements regarding changes in attitudes, motivation, and behavior in using *uyup-uyup* have also not been carried out, so in future research, researchers will measure attitudes, motivation, and behavior.

## 4. CONCLUSION

Community service activities in the villages of Jarum, Bayat, Klaten were able to empower the community of Jarum village by activating the participation of Bayat Community Health Center officers, village officials, health cadres, PKK mothers, and breastfeeding mothers in the Jarum Village work area. Counseling and practice making of the galactagogue concoction '*UEENAK uyup uyup*' could increase the participants' knowledge and skills so that they could better maintain health by using traditional concoctions for breastfeeding mothers. The results of the *UEENAK uyup uyup* herbal product for breastfeeding mothers

in single-drink packaging received a good response from participants. Breastfeeding mothers in Jarum Village, Bayat, were encouraged to seek information on the types of plants or ingredients that are economical and easy to obtain to increase breast milk production. Participants were also interested in using ingredients to produce and market them to increase the economic value of the ingredients. *UEENAK uyup uyup* is recommended as an economical and simple alternative for *Posyandu* cadres and village midwives in providing services to breastfeeding mothers. In contrast, village officials are encouraged to develop *UEENAK* herbal medicine as a functional packaged food product.

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