International Journal of Holistic and Spiritual Care
Vol. 1 No. 1 ISSN: xxx-xxx

Case Study on Application of Turmeric and Tamarind Herbal Drink Therapy for Dismenorrhea

Etty Komariah Sambas[1], Enok Nurliawati[1], Ayu Herliana Putri[1]
[1]Universitas Bakti Tunas Husada, West Java, Indonesia

Correspondence author: Etty Komariah Sambas
Email: ettykomariah@universitas-bth.ac.id
Address: Jl. Letjend Mashudi No. 20, Tasikmalaya, West Java, Indonesia
DOI: https://doi.org/10.56359/ijhsc.v1i1.619

ABSTRACT

Introduction: Dysmenorrhea is a menstrual disorder frequently experienced by adolescent girls and female students, characterized by lower abdominal pain during menstruation. This pain can disrupt daily activities and reduce quality of life.
Objective: This study aimed to determine reponses before and after the application of turmeric and tamarind herbal therapy on reducing menstrual pain.
Method: The study design used a case study method with one subject who was selected from Bakti Tunas Husada University students who experienced primary dysmenorrhea and fulfilled the inclusion criteria. The intervention was the application of turmeric and tamarind herbal drink as much as 200 ml twice a day for three consecutive days. Data were collected through observation of non-verbal responses, interviews regarding verbal responses, and biophysiological examinations before and after the intervention. Data analysis was conducted by narrating the information and interpreting the data obtained from the research findings
Result: The results showed that after applying tumeric an tamarind herbal drink therapy for three consecutive days, both subjects experienced a decrease in pain levels from moderate to mild, as well as improvements in blood pressure, pulse rate, and breathing patterns.
Conclusion: Turmeric and tamarind drink can be used as an effective non-pharmacological therapy to reduce menstrual pain in female students. This intervention is recommended to be implemented in adolescent nursing services as an effort to improve the quality of life.

Keywords: Dysmenorrhea, turmeric and tamarind drink, herbal therapy

Introduction

Menstruation is the period during which a woman experiences natural bleeding caused by the shedding of the uterine lining (endometrium). The blood from this shedding flows through the cervix and exits via the vagina. Menstruation occurs due to the shedding of the thickened endometrial layer, which develops each month in preparation for pregnancy. If fertilization does not occur, this blood vessel–rich lining detaches and is expelled through the vagina along with blood. This process is a normal part of the female reproductive cycle.

The menstrual cycle is influenced by various factors, including age, physical activity, nutritional status, hormonal changes, and other environmental influences. Hormonal fluctuations associated with the menstrual cycle can affect appetite control and eating behavior. If nutritional intake is insufficient, it can lead to inadequate nutritional status. Conversely, excessive intake can result in overnutrition and obesity. Women who are undernourished or obese are at risk of hypothalamic dysfunction, which can disrupt the menstrual cycle. Research has shown that women with poor or excessive nutritional status have a higher risk of experiencing menstrual cycle disorders. If such disturbances are not promptly addressed, they may cause excessive blood loss and increase the risk of anemia (Suleman et al., 2023).

Women may experience various menstrual problems, such as dysmenorrhea (severe menstrual pain), menorrhagia (excessive bleeding), amenorrhea (absence of menstruation), and premenstrual dysphoric disorder (PMDD), which causes physical and psychological symptoms prior to menstruation. Dysmenorrhea can occur as early as menarche (the first menstruation). It is characterized by pain during menstruation, usually felt as cramping in the lower abdomen. The severity of the pain can vary, ranging from mild to severely disruptive. The intensity of menstrual cramps is often closely related to the duration of menstruation and the volume of blood loss during the period. Pain or discomfort generally accompanies menstruation.

Etymologically, the term *dysmenorrhea* comes from Ancient Greek: *dys* meaning pain or difficulty, *meno* meaning month, and *rhea* meaning flow. Thus, dysmenorrhea refers to a disorder characterized by pain due to the monthly menstrual flow (Kusuma et al., 2023).

Dysmenorrhea is one of the most common complaints among adolescents and adult women. It is often accompanied by various physical symptoms, including headache, dizziness, fatigue, diarrhea, abdominal cramps, and sweating. Symptoms may also include premenstrual complaints such as mood changes, abdominal cramps, headache, back pain, nausea, and vomiting (Safitri & Gustina, 2022). Dysmenorrhea is categorized into primary and secondary types. Primary dysmenorrhea is caused by prostaglandin activity unrelated to reproductive system pathology, whereas secondary dysmenorrhea results from other medical conditions or disorders of the reproductive system, which may cause infertility. If not managed properly, dysmenorrhea can cause pain radiating to the lower back and symptoms such as fatigue, weakness, and headache, which can affect mood (Kusuma et al., 2023).

The pain caused by dysmenorrhea begins a few days before menstruation and lasts for 48 to 72 hours. It is typically felt in the abdominal area and often radiates to the thighs. Hormonal imbalance, particularly involving prostaglandins, plays a role in increasing uterine contractions, ultimately causing dysmenorrhea. Prostaglandins (PG) are autacoid lipid compounds derived from arachidonic acid that help maintain homeostasis and are involved in pathological processes such as inflammatory responses. PGs regulate uterine muscle contraction and relaxation, which are crucial for endometrial shedding during the luteal phase. Pain arises from myometrial muscle contractions triggered by prostaglandins, especially PGF2α, produced by the endometrium during the secretory phase. High prostaglandin levels can lead to stronger uterine contractions, resulting in pain.

The impact of dysmenorrhea can affect various aspects of a woman's life, such as daily activities, academic achievement, and mental health. While its effects may be temporary, unmanaged dysmenorrhea can have long-term consequences, including an increased risk of infertility, polycystic ovary syndrome, and endometriosis (Safitri & Gustina, 2022). Therefore, efforts to address dysmenorrhea are necessary, involving both pharmacological and non-pharmacological therapies.

Pharmacological treatments for dysmenorrhea include analgesics and non-steroidal anti-inflammatory drugs (NSAIDs) such as ibuprofen, mefenamic acid, and celecoxib. Non-pharmacological therapies include herbal remedies, yoga, relaxation techniques, psychotherapy, massage, hypnosis, acupressure, and acupuncture. Commonly used herbal plants for relieving menstrual pain include turmeric, ginger, fennel, cinnamon, and aloe vera. Many adolescents manage dysmenorrhea by resting or sleeping, taking medications or traditional herbal drinks, and using warm compresses. Some still prefer alternative methods such as drinking *jamu* (herbal tonics) or placing warm water bottles on the abdomen. Herbal drinks are believed by many adolescents to be an effective way to relieve dysmenorrhea. One popular herbal remedy among young women is turmeric and tamarind, considered a safe, easily accessible, and low-risk non-pharmacological method (Safitri & Gustina, 2022).

Turmeric (*Curcuma domestica* Val.) is a native Indonesian medicinal plant known to contain natural compounds called curcuminoids, which give it its distinctive yellow color. Curcuminoids are important phytochemicals that benefit the body due to their antioxidant, hepatoprotective, anti-inflammatory, and antirheumatic properties. The rhizome of turmeric is known to have the highest antioxidant activity compared to other parts of the plant.

Turmeric offers various health benefits, both as a cooking spice and as an herbal medicine. One of its benefits is reducing dysmenorrhea pain, thanks to its curcumin and anthocyanin content, which help facilitate menstruation and relieve abdominal cramps. Curcumin also works by inhibiting the cyclooxygenase (COX) reaction, which can prevent uterine contractions and reduce inflammation, thereby alleviating menstrual pain.

Tamarind (*Tamarindus indica*) has many uses, including as a cooking ingredient and as an herbal remedy for relieving dysmenorrhea. Tamarind contains anthocyanins with anti-

inflammatory and antipyretic properties. These compounds also inhibit the cyclooxygenase (COX) enzyme, reducing prostaglandin release. In addition, tamarind contains tannins and saponins, which help calm the mind and reduce stress (Agustina et al., 2023). In making turmeric and tamarind drinks, the tamarind portion usually comes from its fruit. A turmeric-tamarind drink with 5% turmeric extract has been shown to have relatively high antioxidant activity (0.123%) and contains 0.688 mg of vitamin C per 100 grams (Safitri & Gustina, 2022).

Previous studies on turmeric-tamarind drinks have been widely conducted. Agustina et al. (2023) demonstrated their effectiveness in reducing dysmenorrhea pain scale with a p-value of 0.050. Azrah & Masthura (2022) reported that the average pain scale before consuming the drink was 5 (0.65; range 4–6), while on the third day after consumption, it decreased to 1.06 (0.45; range 0–2), with a significant effect on primary dysmenorrhea reduction (p-value = 0.000, $p < 0.05$). A preliminary study was conducted in May 2025 at Bakti Tunas Husada University reported a total of 595 female students. Interviews with 49 students revealed that 27 (55.1%) experienced dysmenorrhea every menstruation, 20 (40.8%) occasionally experienced it, and 2 (4.1%) never experienced dysmenorrhea.

Objective

The purpose of this study was to identify the characteristics and factors influencing dysmenorrhea, as well as the responses before and after the administration of turmeric-tamarind drinks.

Method

Design and setting

This study employed a case study design with a nursing care approach, utilizing the nursing process framework to guide data collection, analysis, and intervention. The approach encompassed systematic patient assessment, identification of nursing diagnoses, formulation of individualized care plans, implementation of targeted nursing interventions, and evaluation of patient outcomes, ensuring that care delivery was holistic, evidence-based, and patient-centered. The research was conducted at Bakti Tunas Husada University in June 2025.

Population and sampling

The subject was one female student who met the inclusion criteria, namely reported complaints of primary dysmenorrhea with mild pain and not consuming any medicine and herbal drinks to reduce pain. Students who had gynecological disease, were allergic to turmeric and tamarind, or did not tolerate the sour taste were excluded.

Instrument and measurement

The research instruments consisted of the Standard Operating Procedure (SOP) for preparing turmeric-tamarind drinks adopted from Mudarris et al. (2020), the SOP for food and beverage administration (turmeric-tamarind) adopted from Hidayat & Uliyah (2015), interview guides, and observation sheets. The intervention involved administering 200 cc of turmeric-tamarind herbal drink twice a day after meal for three consecutive days.

Data collection and analysis

Data collection techniques included interviews, observations, and biophysiological measurements (blood pressure, pulse rate, and respiratory rate) before administration of turmeric and tamarind drinks on the first day and 30 minutes after administration of turmeric and tamarind drinks from the first day to the third day. Data analysis was carried out by describing the information and interpreting the results from interviews and observations. Aspects to be interviewed and observed, as well as response categories, were based on the Indonesian Nursing Outcome Standards (*Standar Luaran Keperawatan Indonesia*, PPNI, 2019) and presented in tabular form.

Results

The subject was Ms. G, a 21-year-old female, experienced menarche at the age corresponding to the sixth grade of elementary school, with a history of primary dysmenorrhea lasting approximately six days per cycle. Her menstrual cycle occurs every 30 days with a duration of seven days, requiring 3–4 sanitary pad changes per day. The pain is described as pulling in nature, often radiating from the lower back to the lower abdomen, and is aggravated by stress. The patient has a positive family history of dysmenorrhea (mother) but no history of gynecological disorders such as endometriosis or myoma. Pain is usually managed with a warm compress. Physical measurements showed a height of 155 cm, weight of 52 kg, and a BMI of 21.5 kg/m² (normal range). The patient reported no allergies to herbal medicines. On nursing assessment, the primary complaint was lower back pain, with the nursing diagnosis of acute pain due to physiological injury (increased uterine contractility).

The subject's responses before and after administration of turmeric-tamarind herbal drink are presented in the table below.

Table 1. Responses Before and After Administration of Turmeric-Tamarind Herbal Drink

Responses	**Before Administration of Turmeric-Tamarind Drink**	**After Administration of Turmeric-Tamarind Drink**		
		Day 1	**Day II**	**Day III**
Pain complaint	Pain scale 5	Pain scale 5	Pain scale 3	Pain scale 2
Appetite	Not disturbed	Not disturbed	Not disturbed	Not disturbed (Improved)
Sleep pattern	Sleep pattern changes	Sleep pattern changes	No sleep pattern change	No sleep pattern change (Improved)
Diaphoresis	Excessive sweating	Sweating (Improved)	No sweating (Improved)	No sweating (Improved)

Responses	Before Administration of Turmeric-Tamarind Drink	After Administration of Turmeric-Tamarind Drink		
		Day 1	Day II	Day III
Grimacing	Visible grimace	Visible grimace	Reduced grimacing	No grimacing (Decreased)
Restlessness	Frequently changing sitting positions	Sitting comfortably	Speaking calmly	More relaxed and calm
Protective posture over painful area	Holding the painful area	Comfortable with painful area	Comfortable with painful area	Comfortable with painful area
Blood pressure	120/70 mmHg	120/70 mmHg	120/80 mmHg	110/80 mmHg (Improved)
Pulse	95 bpm	90 bpm	91 bpm	91 bpm (Improved)
Respiration	21 breaths/min	21 breaths/min	20 breaths/min	18 breaths/min (Improved)

Table 1 shows that before administration of turmeric and tamarind drink, subject reported a pain scale of 5 (out of 10), describing the menstrual pain as pulling in nature. Appetite was unaffected, but there were sleep disturbances, excessive sweating, visible grimacing, restlessness, and a protective posture over the painful area. Physiological examination showed BP: 120/70 mmHg (elevated), pulse: 95 bpm (elevated), RR: 20 breaths/min (within normal range). After three consecutive days of turmeric-tamarind drink administration, pain scale decreased from moderate (pain scale 5) to mild (pain scale 2), appetite remained normal, sleep pattern normalized, reduce sweating , and there was a marked reduction in grimacing, restlessness, and protective posture. Physiological parameters showed improved blood pressure (110/80 mmHg), pulse: 91 bpm and RR: 18 breaths/min.

Discussion

Subject was 20 years old, experienced menstrual pain since menarche and had no history of using medications or herbal remedies during menstruation. Symptoms included lower abdominal pain, dizziness, sleep disturbances, and muscle tension. Prior to receiving the turmeric-tamarind drink intervention, she solely on rest or warm compresses to relieve the pain. This indicates that age, stress level, and lack of appropriate management are contributing factors to dysmenorrhea.

These results are consistent with Putri et al. (2023), who stated that factors influencing dysmenorrhea include young age, family history, nutritional status, and psychological factors such as stress and anxiety. Early menarche, academic pressure, and unpreparedness for hormonal changes can increase prostaglandin production, resulting in excessive uterine contractions and pain. Environmental and psychological factors also play a significant role in shaping individual pain perception.

The findings also showed that subjects were in late adolescence. According to Kusuma et al. (2023), the prevalence of dysmenorrhea among adolescents is relatively high, with pain intensity increasing among those with high stress levels and those unfamiliar with their menstrual cycle. Veronica et al. (2020) noted that young age and the habit of not taking analgesics or herbal therapies may prolong menstrual pain. This highlights the importance of identifying characteristics and risk factors to enable effective intervention.

In terms of nutritional status, subject had a normal BMI. Ariesthi et al. (2020) reported that overweight adolescent girls may experience hormonal disturbances that increase the risk of dysmenorrhea, although most respondents in their study had a normal BMI, emphasizing the importance of nutritional status among adolescent girls.

The study also aligns with Diana et al. (2023), who found that 50% of students with dysmenorrhea had a family history of the condition. However, statistical tests showed no significant relationship between family history and dysmenorrhea ($p = 0.194$). Nevertheless, genetic factors and shared lifestyle patterns within families may still influence the occurrence of dysmenorrhea. Furthermore, both subjects had no history of gynecological diseases such as endometriosis. According to Syariah Tamara Dasantos et al. (2022), endometriosis is a chronic, estrogen-dependent, inflammatory disease that requires long-term management. Recurrence can occur due to residual or de novo endometriotic lesions through retrograde menstruation. Immunological factors such as NF-κB pathway activation and increased COX-2 enzyme expression exacerbate inflammation and accelerate recurrence. This supports the long-term medical management approach after surgery, including the use of combined oral contraceptives (COC), dienogest, and levonorgestrel-releasing intrauterine systems (LNG-IUS) to suppress ovulation and reduce endometrial tissue proliferation. The findings also concur with Nasution et al. (2022), who showed that stress levels significantly contribute to dysmenorrhea ($p = 0.005$). Stress may increase prostaglandin levels, causing excessive uterine contractions and pain.

Discuss the Limitations

This study has certain limitations that should be acknowledged. Pain measurement relied on subjective self-reporting, which is inherently influenced by individual perceptions and pain tolerance. Such variability may affect the precision and consistency of pain level assessment, potentially introducing response bias. Furthermore, the absence of objective physiological measurements, such as biomarkers or imaging, limits the ability to triangulate findings and fully validate the reported outcomes.

Suggest Future Research

The findings of this study provide preliminary evidence that can inform and guide future investigations on the use of (intervention/herbal formulation) for managing primary dysmenorrhea. Subsequent research is recommended to employ larger and more diverse sample populations, alongside robust quantitative designs, to enable precise statistical evaluation of the intervention's effectiveness. Further exploration into optimal dosage, appropriate frequency of administration, and potential synergistic effects when combined with other herbal ingredients could enhance the therapeutic potential and applicability of the intervention. Additionally, longitudinal studies are warranted to assess the sustainability of the observed benefits and to identify any long-term effects, thereby strengthening the evidence base for integrating such interventions into nursing practice and women's health care protocols.

Conclusion

Administration of turmeric-tamarind drink to female students with dysmenorrhea resulted in positive outcomes, including a reduction in pain intensity from moderate to mild, improvement in physiological parameters such as blood pressure, pulse rate, and respiratory rate, and relief from associated symptoms including sleep disturbances, grimacing, and restlessness. These findings indicate that turmeric-tamarind drink can be used as an effective non-pharmacological alternative for managing menstrual pain.

Ethical Clearance

This stydy has Ethical Clearance from Bakti Tunas Husada University Ethics Committee which ensure compliance with ethical standards (Certificate No. 207-01/E.01/KEPK-BTH/VII/2025).

References

Agustina, W., Arma, N., Sayekti, P. H., Farmasi, F., Kesehatan, D., & Kesehatan Helvetia, I. (2023a). Efektifitas Pemberian Kunyit Asam Terhadap Penurunan Skala Nyeri Dismenore Pada Remaja Putri Di SMA Negri 9 Medan Tahun 2022. *Jurnal Maternitas Kebidanan*, *8*.

Anggraini, M. A., Lasiaprillianty, I. W., & Danianto, A. (n.d.). *Diagnosis dan Tata Laksana Dismenore Primer* (Vol. 49, Issue 4).

Ariesthi, K. D., Fitri, H. N., & Paulus, A. Y. (2020). *Pengaruh Indeks Massa Tubuh (IMT) Dan Aktifitas Fisik Terhadap Kejadian Dismenore Pada Remaja Putri Di Kota Kupang* (Vol. 4).

Azrah, K., & Masthura, S. (n.d.). Pengaruh Pemberian Minuman Kunyit Asam Terhadap Penurunan Dismenore Primer Pada Mahasiswi Program Studi Ilmu Keperawatan Fakultas Kedokteran Universitas Abulyatama Aceh Besar The Effect of Turmeric Acid Drink to Reduce Primary Dysmenorrhea on Nursing Students Medical Faculty, Abulyatama University, Aceh Besar. In *Journal of Healtcare Technology and Medicine* (Vol. 8, Issue 2).

Diana, S., Herdiana, H., & Prima, E. (2023). *Pengaruh Menarche Dini, Stres Dan Perilaku Konsumsi Fast-Food Dengan Dismenore Primer Pada Remaja Putri Di SMPN 01 Sukalarang* (Vol. 2, Issue 4).

Elsera, C., Wulan Agustina, N., & Nur'aini, A. (n.d.). *Pengetahuan Penatalaksanaan Dismenore Remaja Putri* (Vol. 12, Issue 2).

Elsera, C., Wulan Agustina, N., Sat, S., H3, T., & Nur'aini, A. (2022). *Pengetahuan Pelaksanaan Dismenore Remaja Putri*. *12*(2).

Kusuma, T. A., Hikmanti, A., & Yanti, L. (2023). Penerapan Senam Dismenore untuk Meringankan Nyeri Dismenore. *Jurnal Kreativitas Pengabdian Kepada Masyarakat (PKM)*, *6*(9), 3896–3909 https://doi.org/10.33024/jkpm.v6i9.11447

Medika, N., Jamal, F., Andika, D., Adhiany, E., Anestesi, B., Universitas, K., Kuala, S., Sakit, R., Abidin, Z., & Aceh, B. (2022). Tinjuan Pustaka Penilaian dan Modalitas Tatalaksana Nyeri. *Ked. N. Med |*, *5*(3).

Mudarris, K., Stai, M., & Hikmah Bangkalan, D. (n.d.). Olahan Kunyit Asam Menjadi Minuman Herbal Sinom Untuk Meningkat Perekonomian Desa Kajuanak Galis Bangkalan. In *Jurnal Pengabdian Masyarakat*.

Nasution, A. S., Jayanti, R., Munir, R., & Ariandini, S. (2022). Determinan Kejadian Dismenore pada Mahasiswi. *Jurnal Kesehatan Vokasional*, *7*(2), 79. https://doi.org/10.22146/jkesvo.72218

Nur Baiti, C., Evrianasari, N., Yuliasari, D., & DIV Kebidanan Universitas Malahayati, P. (n.d.). *Kunyit Asam Mengurangi Nyeri Haid Pada Remaja Putri*. http://ejurnalmalahayati.ac.id/index.php/kebidanan

Nur Fahima, S. S., Hayati, A., & Zayadi, H. (2022). Ethnobotanical Study of Tamarind (Tamarindus indica L.) in Lebakrejo Village, Purwodadi District, Pasuruan Regency. *Berkala Ilmiah Biologi*, *13*(1), 24–33. https://doi.org/10.22146/bib.v13i1.4073

PPNI. (2017). Standar Diagnosis Keperawatan Indonesia : Definisi dan Indikator Diagnostik, Edisi 1. Jakarta: DPP PPNI.

PPNI. (2018). Standar Intervensi Keperawatan Indonesia : Definisi dan Tindakan Keperawatan, Edisi 1. Jakarta : DPP PPNI.

PPNI. (2019). Standar Luaran Keperawatan Indonesia : Definisi dan Kriteria Hasil keperawatan, Edisi 1. Jakarta: DPP PPNI.

Putra, S., Syahran Jailani, M., & Hakim Nasution, F. (2021). Penerapan Prinsip Dasar Etika Penelitian Ilmiah. *Jurnal Pendidikan Tambusai*, *7*(3), 27876–27881.

Resty Hermawahyuni, Handayani, S., & Alnur, R. D. (2022). Faktor Risiko Kejadian Dismenore Primer Pada Siswi di SMK PGRI 1 Jakarta Timur. *Jurnal Kesehatan Komunitas*, *8*(1), 97–101. https://doi.org/10.25311/keskom.vol8.iss1.1079

Rijal Fadli, M. (2021). *Memahami desain metode penelitian kualitatif*. *21*(1), 33–54. https://doi.org/10.21831/hum.v21i1

Safitri, S., & Gustina, G. (2022). Edukasi Kunyit Asam Pereda Dismenorea. *Jurnal Abdimas Kesehatan (JAK)*, *4*(2), 178. https://doi.org/10.36565/jak.v4i2.306

Salsabila Putri, J., Triana Nugraheni, W., Tri Ningsih, W., Studi, P. D., & Tuban Poltekkes Kemenkes Surabaya, K. (2023). *Faktor Risiko Yang Mempengaruhi Kejadian Dismenore Pada Siswi Di MTS Muhammadiyah 2 Palang Kabupaten Tuban*. https://jmi.rivierapublishing.id/index.php/rp

Sapira Cahya, I., Kamillah, S., & Daeli, W. (n.d.). *Pengaruh Pemberian Minuman Kunyit Asam Dan Jahe Terhadap Penurunan Dismenore Pada Remaja Putri Di SMP Negeri 1 Bojongpicung Tahun 2024 The Effect of Giving Turmeric Tamarind and Ginger Drinks on Reducing Dysmenorrhea in Adolescent Girls at SMP Negeri 1 Bojongpicung in 2024*. https://jicnusantara.com/index.php/jiic

Silalahi, M. (2020). Bioaktifitas Asam Jawa (Tamarindus indica) Dan Pemanfaatannya. *Florea : Jurnal Biologi Dan Pembelajarannya*, *7*(2), 85. https://doi.org/10.25273/florea.v7i2.7323

Suleman, N. A., Hadju, V. A., Aulia, U., Masyarakat, J. K., Olahraga, F., Kesehatan, D., Gorontalo, U. N., Avianti, V., & Negeri, U. (2023). Hubungan Status Gizi Dengan Siklus Mensruasi Pada Remaja Putri The Relationship Between Nutritional Status And Menstrual Cycle In Adolescent Girls. *Jambura Journal of Epidemiology*, *2*(2), 43. https://doi.org/10.37905/jje.v2i2.24490

Suryana, R., Amirul Rasyid, M., Nurjannah, I., & Harjanto, D. (n.d.). *Rika Suryana: Perbandingan Nyeri dan Tekanan Darah pada Pasien Hipertensi Perbandingan Nyeri dan Tekanan Darah pada Pasien Hipertensi Sebelum dan Setelah Diberikan Terapi Sujok*.

Syariah Tamara Dasantos, P., Kedokteran Universitas Syiah Kuala, F., & Aceh, B. (n.d.). *Endometriosis Rekurens*. *22*(4), 358–363. https://doi.org/10.24815/jks.v22i4.24732

Tsamara, G., Raharjo, W., & Ardiani Putri, E. (2020). *Hubungan Gaya Hidup Dengan Kejadian Dismenore Primer Pada Mahasiswi Program Studi The Relationship Between Lifestyle with The Incident of Primary Dysmenorrhea in Medical Faculty Female Students of Tanjungpura University* (Vol. 2).

Veronica, Y., Worung, F., Wungouw, H. I. S., & Renteng, S. (n.d.). Faktor-Faktor Yang Berhubungan Dengan Persepsi Nyeri Haid Pada Remaja Putri Di SMA Frater Don Bosco Manado. In *Jurnal Keperawatan (JKp)* (Vol. 8, Issue 2).

Wiralodra Jurnal Pengabdian Kepada Masyarakat, A., Produk Olahan Minuman Dan Manisan di Desa Krangkeng Lissa, M., Hamidah, I., Mewah Rizqiah, K., & Studi Pendidikan Biologi, P. (n.d.). Diterbitkan oleh Universitas Wiralodra Pemanfaatan Asam Jawa (Tamarindus indica) Untuk. *Maret*, *5*(1), 114–124.