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A Qualitative Study on the Perceived Effect of Ginger Tea Consumption on Menstrual Pain

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Abstract
Menstrual pain, or primary dysmenorrhea, is a prevalent condition affecting approximately 80% of the surveyed demographic, often disrupting concentration and daily academic activities. This study investigates the perceived effectiveness of boiled ginger water as a non-pharmacological intervention among convinience sample of 25 women, the first-semester Public Health students. The therapeutic benefits of ginger are attributed to gingerol, an active compound that inhibits the production of prostaglandins—the chemicals responsible for uterine contractions and pain. Using a qualitative approach supported by descriptive-quantitative data, the research found that individual pain reduction varied based on physiological absorption; however, 64% of respondents preferred ginger tea over chemical pharmaceuticals due to its efficacy and minimal side effects. Additionally, participants noted that combining ginger tea with physical exercise enhanced its analgesic effects. These findings suggest that ginger tea serves as a viable, natural alternative for managing menstrual discomfort and maintaining productivity in a public health context.

Keywords:
Ginger tea (*Zingiber officinale*),
Menstrual pain;
Primary dysmenorrhea;
Non-pharmacological therapy

1. Introduction

Menarche, the onset of menstruation, represents a pivotal milestone in female reproductive development. Defined as the cyclical shedding of the uterine lining, menstruation signifies the maturation of the reproductive system (Kusmiran, 2012). While the average age of menarche is 13 years, the timeline can vary significantly, with early onset occurring before age 9 and late onset after age 20 (RISKESDAS, 2010). Following menarche, many women encounter menstrual disorders, most notably dysmenorrhea. This condition, characterized by painful cramping, affects approximately 50% of women globally (Hu et al., 2020) and can severely diminish quality of life by hindering daily activities.

Data from the National Health and Nutrition Examination Survey (NHANES) indicates that dysmenorrhea is exceptionally prevalent among adolescents, with incidence rates ranging from 43% to 93% (Chen et al., 2020). In Indonesia, the prevalence is approximately 64.25%, consisting of 54.89% primary and 9.36% secondary dysmenorrhea (Amin & Purnamasari, 2020). Research by Trisna (2021) corroborates that both adolescents and women of childbearing age often limit their daily routines due to the severity of these symptoms.

Non-pharmacological interventions, such as the consumption of ginger tea, serve as viable options for managing menstrual pain. Ginger contains bioactive compounds, specifically gingerol and shogaol, which possess potent anti-inflammatory properties. These compounds function by inhibiting pro-inflammatory cytokines and NF-kB signaling pathways. Historically used in traditional medicine, modern studies suggest that ginger effectively reduces both the severity and duration of menstrual cramps (Hartinah et al., 2016; Zella et al., 2024).

Red ginger (Zingiber officinale) is believed to relieve menstrual pain. This red ginger drink has warming, antirheumatic, anti-inflammatory, and analgesic properties. The aleoresin content is effective in reducing pain during dysmenorrhea. Red ginger acts as an anti-inflammatory by inhibiting the enzyme in the cyclooxygenase (COX) cycle, thereby inhibiting the release of this enzyme into prostaglandins, which cause inflammation. Furthermore, red ginger also inhibits uterine contractions, which can cause menstrual pain Marliani (2024).

The framework suggests that when a woman experiences dysmenorrhea, her body produces excess prostaglandins which cause uterine contractions and pain. By introducing Ginger Tea, the bioactive compounds $C_{15}\ H_{26}$ dan $C_{15}H_{26}O$ act as natural non-steroidal anti-inflammatory agents. These compounds inhibit the enzymes responsible for pain, leading to a measurable decrease on the Numerical Rating Scale (NRS). As the pain score drops, the "Functional Impairment" (the inability to work or study) also decreases, restoring the woman's quality of life.

Figure 1

Conceptual Framework : Ginger Tea & Dysmenorrema Relief

A preliminary study conducted by the researcher via interviews with 25 close associates revealed that over 50% experienced significant menstrual pain. Given the high prevalence and its restrictive impact on daily life, further research is essential to evaluate effective methods for minimizing the burden of dysmenorrhea on women. The research question in this study is "How do respondents perceive the effectiveness of ginger-based drinks in reducing the severity of dysmenorrhea symptoms and improving their ability to perform daily activities?" The primary objective of this study is to analyze the prevalence of dysmenorrhea and evaluate the perceived effectiveness of ginger-based interventions in mitigating menstrual pain and its impact on the daily activities of women.

2. Method

This study employs a descriptive qualitative method serving as the initial phase. Data collection, interpretation, and presentation of results are conducted within this qualitative phase. Quantitative research presents data in numerical form of percentage. The descriptive research method is used to systematically and accurately depict existing phenomena related to a group of people, objects, situations, thoughts, or events.

Research Design

This study utilizes a Cross-sectional Survey Design with a descriptive qualitative-analytical approach. It aims to capture of the prevalence of dysmenorrhea and the perceived efficacy of ginger consumption as a self-management strategy among women.

Participants

The participants in this study were 25 convinience women aged 18 to 21 years. They are scholars majoring in Public Health. Inclusion Criteria**:** Women aged 18–21 who have experienced menstruation in the last 3 months and have used ginger (tea, extract, or herbal drinks) to manage menstrual pain.

Sampling
A Non-probability Purposive Sampling method was used. This allows the researcher to select respondents who specifically meet the criteria of having experienced menstrual pain and having used ginger, ensuring the data is relevant to the research aims.

Survey Protocol
In this survey, the intervention is the respondent's recalled experience. The survey asked respondents to (1) Recall their typical pain level before consuming ginger. (2) Identify the form of ginger consumed Rate their pain level and ability to function after consumption.

Instruments
The research instrument is an Online Questionnaire consisting of: Respondent Characteristics: Age, age of menarche, and duration of menstruation. Pain Intensity Scale: A digital Numerical Rating Scale (NRS-10). Ginger Usage Profile: Frequency of use, method of preparation, and perceived time until relief. Activity Impact Scale: A 5-point Likert scale measuring productivity

Data Collection
Data will be collected over a period of 2 weeks. The survey link will be distributed via social media and community groups to reach women who fit the inclusion criteria. A "Screening Question" at the start will filter out those who do not experience dysmenorrhea.

Data Analysis
Univariate Analysis**:** Used to describe the distribution of age, menarche, and pain severity using percentages and frequency tables.

Ethical Considerations
Ethical integrity was maintained by ensuring all respondents were adequately informed of the study's purpose and procedures. The introductory section of the questionnaire explicitly stated that voluntary participation and the subsequent completion of the survey served as implied informed consent. Furthermore, participants were notified of their right to withdraw from the research at any point without penalty or the need for justification, ensuring the principle of autonomy was upheld throughout the data collection process.

There are studies shown that both ginger tea and cinnamon tea may be effective in reducing the severity and duration of menstrual cramps in young adults with primary dysmenorrhea. Ginger contains compounds that have anti-inflammatory and pain-relieving properties. Studies suggest that ginger may help to relax uterine muscles and reduce the production of prostaglandins, which are hormones that can cause menstrual cramps (Ueda et al. 2010). Cinnamon also has anti-inflammatory properties and may help to improve blood flow, which can help to reduce menstrual pain (Swathi et. al.). While the specific ingredients and proportions varied among respondents, the ginger tea concoctions generally included the following

Ingredients:
1. Fresh ginger: 20-30 grams, peeled and crushed
2. Water: 2 cups (about 500 ml)
3. Honey: 1-2 tablespoons (optional, to provide a sweet taste, respondents have various variations in this section, some use granulated sugar, palm sugar and milk).
4. Lemon or lime juice: 1 tablespoon (optional, to add freshness and vitamin C).
5. Tea: all respondents did not use special tea, and used tea that is usually sold in stores.

How to make Ginger tea:
1. Boil water, boil 2 cups of water in a pan.
2. Add ginger after the water boils, put the ginger in the pan.
3. Cook and let the ginger boil in water for 10-15 minutes to extract its active compounds.
4. Remove the boiled ginger water and add the tea.
5. Add sweetener if desired, add honey and lemon or lime juice to the tea.
6. Stir well and serve while warm.

Ameade & Mohammed (2016) suggest that the instrument may consisted of a structured questionnaire incorporating two validated pain assessment tools. To ensure data relevance, only respondents who reported experiencing dysmenorrhea were directed to the pain assessment section. Consequently, a 3-point Verbal Rating Scale (VRS) was utilized, employing the descriptors "mild,"

"moderate," and "severe." The "no pain" category was intentionally omitted as the target sub-sample was restricted to those currently or previously experiencing symptoms. Additionally, a 10-point Numerical Rating Scale (NRS-11) was implemented to quantify pain intensity with greater precision. On this scale, a value of 1 represented the mildest discomfort, while 10 signified the most severe pain imaginable. Respondents provided their assessment by entering the corresponding numerical value in the designated field within the questionnaire.

3. Results and Discussion

The survey was conducted with a sample of respondents aged 18 to 21 years, with the majority aged 18 years (64%). The data collected focused on respondents who experienced menstrual pain and had consumed ginger tea. It is in the following description.

3.1 Data analysis

Table 1
The scale of pain before drinking ginger tea

Indicator	1	2	3	4	5	6	7	8	9	10
On a scale of 1-10, how bad did your menstrual pain feel before consuming ginger tea?	4%	0%	8%	0%	32%	8%	20%	12%	8%	8%

Table 2
The scale of pain after drinking ginger tea

Indicator	1	2	3	4	5	6	7	8	9	10
After consuming ginger tea, on a scale of 1-10, how bad is your menstrual pain now?	12%	12%	20%	12%	28%	4%	4%	4%	0%	4%

The Scale:
***** 0: No Pain
1–3: Mild Pain (nagging, annoying, but doesn't interfere with most activities)
4–6: Moderate Pain (interferes significantly with daily activities)
7–10: Severe Pain (disabling; unable to perform activities)

Table 3
Responses from the questionnaire

No	Question	Results
1.	Respondents often experience pain during menstruation	87%
2.	Respondents experienced menstrual pain in the range of 5 before drinking ginger tea	35%
3.	Respondents have drunk ginger tea	70%
4.	Respondents did not experience changes after drinking ginger tea but 20% of respondents experienced changes in pain range	30%
5.	Respondents felt warmer and more comfortable when drinking ginger tea, the rest did not feel much difference and had to combine it with other activities such as exercise.	80%
6.	Respondents feel that menstrual pain really affects their daily activities 35% of respondents feel that menstrual pain interferes with concentration when studying	87%
7.	Respondents prefer ginger tea as a menstrual pain reliever	61%
8.	Respondents did not feel any side effects from consuming ginger tea	70%
9.	The body response of each respondent is different to feel the difference in pain after drinking ginger tea	40% of respondents took 3 minutes and 40% took 5 minutes
10.	Respondents feel that menstrual pain interferes with concentration when studying	35%

3.2. Discussion

Age based on characteristics of the responden

The data indicates that the majority of respondents were young adults, with most being 18 years old (72%), followed by 19 years old (20%). A very small percentage were aged 20 or 21 (4% each). This suggests that the study or survey primarily targeted young adults. It's important to consider this age distribution when interpreting the findings, as the experiences and preferences of young adults regarding menstrual pain and its management might differ from those of older age groups. These findings align with data from the Indonesian Ministry of Health (2016), which reported that approximately 55% of adolescent girls in Indonesia experience menstrual pain. The peak incidence of primary dysmenorrhea occurs during late adolescence and early adulthood. Notably, the incidence among adolescents can be as high as 92%. Dysmenorrhea is a widespread global health concern. On average, over 50% of women in various countries experience menstrual pain. For instance, the prevalence is estimated at 60% in the United States and 72% in Sweden. In Indonesia, research by Yelmi Reni Putri (2019) indicates that dysmenorrhea affects an estimated 55% of women of reproductive age.

Experience of menstrual pain

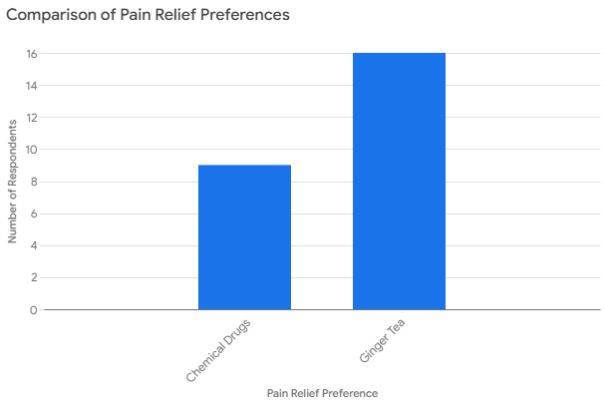
That out of 25 respondents, 20 people (80%) often experience menstrual pain and 5 people (20%) of respondents rarely experience menstrual pain. According to WHO, the number of dysmenorrhea in the world is very large, on average more than 50% of women in each country experience dysmenorrhea. In Sweden around 72%. While in Indonesia the figure is estimated at 55% of productive women who are tormented by dysmenorrhea. In the Journal of Occupation and Environmental Medicine, 2008 it was stated that dysmenorrhea is experienced by many women. In the United States, it is estimated that almost 90% of women experience dysmenorrhea, and 10-15% of them experience severe dysmenorrhea, which causes them to be unable to do any activities. It is estimated that more than 140 million working hours are lost each year in the United States due to primary damage.

Chemical drugs and ginger tea as menstrual pain relievers

The data analysis reveals a notable preference for natural remedies like ginger tea among those who have tried it for managing menstrual pain. A significant majority (64%) of respondents who had used ginger tea preferred it over chemical drugs for pain relief. This suggests potential benefits of exploring ginger tea as a pain management option for individuals seeking alternatives to traditional medications.

Figure 2

Comparison of pain relief preference between chemical drug and gingger tea



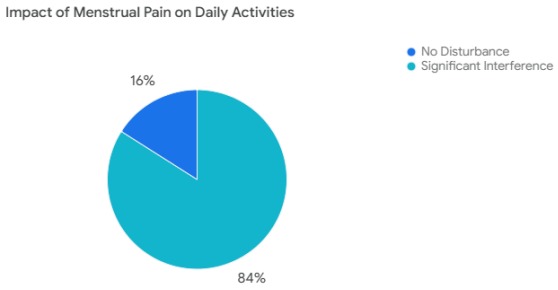
Ginger contains compounds like gingerols, shogaols, and zingerone, which have potent antioxidant effects. These compounds help protect the body's cells from damage caused by free radicals, unstable molecules that can contribute to inflammation and various health problems (Stephen et.al, 2024). Sprott (2020) also reported that ginger is effective in reducing the severity and duration of menstrual cramps in adolescents. This is possibly due to its anti-inflammatory properties and ability to relax uterine muscles.

The impact of menstrual pain on daily activities

Additionally, the data highlights the substantial impact of menstrual pain on daily activities. A large proportion (84%) of respondents reported that menstrual pain significantly interferes with their daily routines. This emphasizes the need for effective pain management strategies to improve the quality of life for those experiencing significant discomfort during menstruation.

Figure 3

Impact of menstrual pain on daily activity



Dysmenorrhea is pain during menstruation that attacks the lower abdomen accompanied by abnormalities or diseases in the pelvis. This condition interferes with daily activities running smoothly. Menstrual pain can cause other problems such as anxiety. Anxiety is experienced by adolescent girls who are not ready to face menstruation which causes menstrual pain to become chronic. The survey results (84%) stated that menstrual pain greatly affects their daily activities. This indicates that this high percentage shows that menstrual pain is not just a mild discomfort, but a fairly serious health problem for many women. When daily activities are disrupted, individual productivity, especially in the work or school environment, is also affected. Intense menstrual pain can cause stress, depression, and sleep disorders. This significantly reduces a person's quality of life (Nurwahyuni, 2018).

While this data provides valuable insights, it is important to acknowledge its limitations. The sample size is small and may not accurately represent the broader population. Further research with larger and more diverse groups is needed to confirm these findings and explore additional factors that may influence pain relief preferences and the impact of menstrual pain on daily activities.

Menstrual pain affects concentration in studying or working.

Out of 25 respondents, the frequency of menstrual pain affecting concentration in studying or working was as follows. 1 respondent reported that their concentration was affected 1 time during their menstrual cycle (4%). 11 respondents reported that their concentration was affected 3 times during their menstrual cycle (44%). 3 respondents reported that their concentration was affected 4 times during their menstrual cycle (12%). 10 respondents reported that their concentration was affected 5 times during their menstrual cycle (40%).”**This rephrased version clearly states that the numbers (1, 3, 4, 5) represent the *frequency* of how often menstrual pain affected the respondents' concentration.

Around 10%–15% of these women experience severe menstrual pain every month, severe enough to interfere with normal daily activities at work, home, or school. Primary dysmenorrhea is not actually life-threatening, but it affects a woman's quality of life, and if it becomes severe, it can cause inefficiency. Dysmenorrhea can also cause mental problems that result in loneliness and reduced participation in social activities (Valencia et.al, 2018).

Approximately 10-15% of women experience severe menstrual pain each month, impacting their daily activities at work, home, or school. While not life-threatening, primary dysmenorrhea can significantly diminish a woman's quality of life and productivity. Moreover, severe dysmenorrhea can have detrimental psychological effects, leading to feelings of loneliness and reduced social participation. From the survey results, an average of 44% of respondents felt that their concentration in studying or working was disturbed by menstrual pain. Lower abdominal pain that is typical during menstruation can distract attention from the task at hand and prolonged pain can cause physical and mental fatigue, making it difficult to maintain focus. One percentage from Table 3, shows that 44% respondents who get menstrual pain is not just a mild discomfort, but a fairly serious health problem that has a direct

impact on individual productivity. Disturbances in concentration are not only limited to the learning environment, but also affect productivity in the workplace (Rohit et.al 2018). This shows that menstrual pain has wider implications for everyday life (Pohan, 2022).

Menstrual pain before and after drinking ginger tea for each respondent

It can be seen in table 1 from 1-10 levels of pain felt by respondents before drinking ginger tea, the level of pain felt by most respondents is at number seven (7), a value of seven (7) is the maximum pain based on Mc-Bill Melzack 1965, after respondents drank ginger tea, an average result of 5 was obtained which is included in moderate pain with a comparison of 2 numbers.

According to Gunathilake et al. (2015) in their systematic review on the effectiveness of Zingiber officinale (ginger) for primary dysmenorrhea, ginger has been traditionally used in China and Asia-India for various medicinal purposes. Scientifically, ginger has been shown to possess anti-inflammatory and antioxidant properties, making it effective in alleviating conditions such as osteoarthritis, rheumatoid arthritis, menstrual pain, migraines, and nausea associated with pregnancy and chemotherapy (Gurung, 2022). It also plays a crucial role in managing cardiovascular diseases, metabolic disorders, and type II diabetes. Several studies have compared ginger's analgesic effects with those of conventional pain medications like paracetamol, mefenamic acid, and transdermal iron flakes, demonstrating comparable pain relief with fewer side effects for primary dysmenorrhea (Kavuluru, 2017). While empirical evidence supports the use of ginger and complementary therapies for dysmenorrhea compared to NSAIDs alone, the optimal dosage for managing dysmenorrhea remains to be determined (Ramli et. al. 2017).

Drugs that are consumed orally (drinking) need to go through the drug metabolism process in the digestive system, both in the liver and stomach and intestines. According to Alodok, compared to chemical drugs, herbal medicines generally have a slower reaction in the treatment process. According to the book Drug Metabolism (2022), the rate of metabolism of this drug is influenced by the work of enzymes, drug interactions, dosage, and type of drug consumed.

The effects of ginger tea on menstrual pain among different individuals in this study are vary. The comparison scale, which measures the difference in pain experienced, ranges from 1 to 6 indicating a significant variability in pain reduction. This variation is attributed to individual differences in drug absorption and metabolism, as not all drugs are absorbed and released into the bloodstream at the same rate (Sari et.al. 2019). Consequently, the effects of ginger tea on menstrual pain are not uniform across all individuals. Some respondents experienced a substantial reduction in pain, while others experienced a minimal effect, and one respondent reported no effect at all. This highlights the importance of considering individual factors when evaluating the effectiveness of ginger tea for managing menstrual pain.

Due to the limited data we have, this report is due to the menstrual pain that usually experienced by teenagers around the age of 18-21 years. However, it can also be experienced by minors from the data we get. Ages 15-25 are the ages when primary dysmenorrhea reaches its peak and as a consequence, sufferers must leave their work for hours to rest (Andira, 2013). According to the reviews we got, women can experience menstrual pain at various ages, but several factors can increase the risk of menstrual pain, such as:Age under 30 years early puberty, namely at the age of less than 11 years. Some studies suggest that ginger may be effective in reducing the severity and duration of menstrual cramps in college students (Crasta, 2019). This is possibly due to its anti-inflammatory properties and ability to relax uterine muscles (Amutha, 2016). There are people who feel menstrual pain and then after marriage, there is a risk of having difficulty getting pregnant. This is what causes menstrual pain more often felt by young women aged 18-25 years who have never been pregnant.

4. Conclusion

This study, based on a survey of 25 young women (primarily 18 years old), found that ginger tea effectively alleviated menstrual pain (dysmenorrhea). Before consuming ginger tea, the average pain level was high. However, a significant reduction in pain intensity was observed after its consumption. Individual pain reduction varied due to differences in how each individual's body absorbed and utilized the ginger tea. Some respondents reported that combining ginger tea with activities like exercise enhanced its effectiveness. The benefits of ginger tea are attributed to its gingerol content, which possesses anti-inflammatory and antioxidant properties. These properties inhibit the production of

prostaglandins, the compounds responsible for menstrual pain. The survey revealed that 64% of respondents preferred ginger tea over chemical drugs due to its greater efficacy and minimal side effects. Most respondents acknowledged that menstrual pain negatively impacted their concentration and daily activities. Consuming ginger tea significantly improved their productivity and overall quality of life. This study supports the use of ginger tea as a safe and non-pharmacological alternative for managing dysmenorrhea.

The primary limitation of this study is its reliance on self-reported data from a limited size of sample. Since pain is a subjective experience and respondents are asked to recall their symptoms and the effects of ginger retrospectively, there is a risk of recall bias. Respondents may overstate or understate the intensity of their pain or the effectiveness of the ginger treatment based on their memory or personal beliefs about traditional medicine. Because this is a survey of existing practices rather than a controlled clinical trial, there is a lack of standardization in the dosage and preparation of the ginger. Respondents may consume different varieties of ginger (fresh rhizome vs. powder), different concentrations, or varying preparation methods (boiling time, added sweeteners). This makes it difficult to pinpoint the exact therapeutic dose required for pain relief.

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