CHAPTER I
INTRODUCTION

1.1 Research Background

Dysmenorrhea is one of the most prevalent issues among women of reproductive age[1]. World Health Organization (WHO) data in 2018 shows that more than 50% of women in every country experience dysmenorrhea[2]. In Indonesia, the prevalence of dysmenorrhea is 64.25%, with 55% of women in their productive age experiencing it, and 15% of them reporting significant disruptions to daily activities due to dysmenorrhea[3]. The incidence of dysmenorrhea in East Java among fertile women aged 15-35 years is 71.30%[4]. Based on research conducted by Salsabila (2024), at Universitas Darussalam Gontor 80.4% of female students experience dysmenorrhea during menstruation[5]. Dysmenorrhea in women can be uncomfortable. It can interfere with all daily activities including college and work, so it can hamper daily activities[6]. If left untreated, dysmenorrhea can lead to further complications, potentially resulting in infertility[7].

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[1] Axel Mbvoumi Nloh et al., "Prevalence and Factors Associated with Dysmenorrhea in Women at Child Bearing Age in the Dschang Health District, West-Cameroon," *Pan African Medical Journal* 37, no. 178 (2020).

[2] Umi Salamah, "Hubungan Pengetahuan dan Sikap Remaja Putri terhadap Perilaku Penanganan Dismenore," *Jurnal Ilmiah Kebidanan Indonesia* 9, no. 03 (October 11, 2019): 123–27, https://doi.org/10.33221/jiki.v9i03.382.

[3] Nancy H. Kojo, Theresia M. D. Kaunang, and Angelheart J. M. Rattu, "Hubungan Faktor-Faktor Yang Berperan Untuk Terjadinya Dismenore Pada Remaja Putri Di Era Normal Baru," *e-CliniC* 9, no. 2 (2021): 429.

[4] Yusuf Adi Saputra, Anggraini Dwi Kurnia, and Nur Aini, "Pengaruh Pendidikan Kesehatan Terhadap Upaya Remaja Untuk Menurunkan Nyeri Saat Menstruasi (dismenore Primer)," *Jurnal Kesehatan Reproduksi* 7, no. 3 (January 22, 2021): 177.

[5] Salsabila Khoirun Nisa, "Analisis Hubungan Tingkat Pengetahuan Terhadap Penggunaan Obat Anti Inflamasi Non-Steroid Untuk Dismenore Pada Mahasiswi Universitas Darussalam Gontor" (Ponorogo, Universitas Darussalam Gontor, 2024).

[6] Arvelina Novia Damayanti, Bagus Setyoboedi, and Widati Fatmaningrum, "Correlation Between Dietary Habbits with Severity of Dysmenorrhea Among Aldolescent Girl," *Indonesian Midwifery and Health Sciences Journal* 6, no. 1 (2022): 83–95.

[7] Rindasari Munir et al., "Analisa Faktor Yang Mempengaruhi Nyeri Haid (Dismenorhea) Pada Mahasiswa Akademi Kebidanan Prima Husada Bogor," *Detector: Jurnal Inovasi Riset Ilmu Kesehatan* 2, no. 1 (December 14, 2023): 62–70, https://doi.org/10.55606/detector.v2i1.3133.

Risk factors for dysmenorrhea include sleep quality, nutritional status, and anemia[8]. Variations in sleep schedules among individuals are referred to as chronotypes, which reflect differences in circadian rhythms. Circadian rhythms regulate various hormones in the body such as reproductive hormones, when these rhythms are disrupted it can increase the risk of health problems because the human body's internal clock is designed to be active during the day and sleep at night[9].

Individuals with an evening chronotype are more susceptible to circadian rhythm disturbances due to irregular sleep patterns and insufficient sleep. This condition can affect hormonal balance and increase prostaglandin levels, leading to excessive uterine contractions that cause pain. According to the National Sleep Foundation, the recommended sleep time for early adult women is around 7-9 hours[10]. Reducing sleep time to 4 hours can increase prostaglandins as pain mediators and the bioavailability of inflammatory agents such as interleukin-6 (IL-6) and tumor necrosis factor-alpha (TNF-α) that trigger pain. Continued sleep disturbance can impair endogenous pain inhibitory function and increase spontaneous pain[11].

Another factor contributing to dysmenorrhea is nutritional status. Abnormal nutritional status (both overweight and underweight) can interfere with organ function and developmental processes, potentially causing reproductive disorders due to the hyperplasia of blood vessels in

[8] Kartika Pibriyanti et al., "Hubungan Status Gizi, Anemia, Faktor Stress Dan Kualitas Tidur Dengan Siklus Menstruasi Remaja Di Pesantren," *Journal of Pharmaceutical and Health Research* 4, no. 1 (2023): 14–19.

[9] Fatin Hanani Mazri et al., "The Association between Chronotype and Dietary Pattern among Adults: A Scoping Review," *International Journal of Environmental Research and Public Health* 17, no. 1 (December 20, 2019): 68, https://doi.org/10.3390/ijerph17010068.

[10] Muhammad Athaya Zain and Muhammad Irfan Hanif, "Optimalisasi Manajemen Waktu Tidur Demi Meningkatkan Produktivitas Remaja Dengan Pendekatan Kesehatan Dan Nilai-Nilai Islam," *Jurnal Bintang Manajemen* 1, no. 4 (November 1, 2023): 153–61.

[11] Lan Duo et al., "Sleep Disorders in Chronic Pain and Its Neurochemical Mechanisms: A Narrative Review," *Frontiers in Psychiatry* 14 (June 1, 2023): 1157790, https://doi.org/10.3389/fpsyt.2023.1157790.

the female reproductive system[12]. Menstrual disorders often occur, but they can be prevented by paying attention to proper nutritional intake[13].

One of the nutrients that are important for reproduction in women of reproductive age is iron.[14]Iron is a mineral that plays an important role in the formation of red blood cells or hemoglobin. Hemoglobin binds and distributes oxygen throughout the body[15]. Insufficient oxygen supply will result in ischemia and cause dysmenorrhea during menstruation. This ischemia leads to the release of phospholipids, arachidonic acid, and calcium ions, along with the production of prostaglandins and vasopressin. Prostaglandins and vasopressin can cause vasoconstriction of the spiral artery, ischemia of the upper endometrial layer, and can secrete a large number of phospholipids, thereby triggering the release of more prostaglandins, which ultimately causes dysmenorrhea[16].

Islam emphasizes the importance of maintaining the health of its followers. With a healthy state, activities will not be hampered, especially worship activities can be done solemnly, but not a few people neglect the blessings of health. As explained in one of the hadiths which means "Two pleasures that are often forgotten by most people are health and free time" (HR. Al-Bukhari: 6412, at-Tirmidzi: 2304, Ibn Majah: 4170)[17]. Thus, identifying the factors that contribute to dysmenorrhea is one of the efforts to minimize menstrual disorders.

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[12] Sara Herlina, Siti Qomariah, and Wiwi Sartika, "Pengaruh Status Gizi Terhadap Disminorea Pada Remaja Di Kota Pekanbaru" 6 (2022).

[13] Nura Suciati Fauzia et al., "Dampak Status Gizi Terhadap Kejadian Dismenorea," *Jurnal Ilmiah Keperawatan STIKES Hang Tuah Surabaya* 18, no. 1 (April 1, 2023): 71–75, https://doi.org/10.30643/jiksht.v18i1.252.

[14] Nurul Husnul Lail, "Hubungan Status Gizi, Usia Menarche dengan Dismenorea pada Remaja Putri Di SMK K Tahun 2017," *Jurnal Ilmiah Kebidanan Indonesia* 9, no. 02 (July 16, 2019): 88–95, https://doi.org/10.33221/jiki.v9i02.225.

[15] Nur Masruroh and Nur Aini Fitri, "Hubungan Kejadian Dismenore dengan Asupan Fe (zat Besi) pada Remaja Putri," *Jurnal Dunia Gizi* 2, no. 1 (July 6, 2019): 23, https://doi.org/10.33085/jdg.v2i1.4344.

[16] Asnafia Cindy Rahmawati, "Hubungan Asupan Zat Besi Dengan Derajat Dismenorea Pada Remaja Putri Di Smk N 1 Jenar Kabupaten Sragen" (Universitas Muhammadiyah Surakarta, 2022).

[17] Kartika Pibriyanti et al., "Hubungan Status Gizi, Anemia, Faktor Stress Dan Kualitas Tidur Dengan Siklus Menstruasi Remaja Di Pesantren."

Based on the aforementioned background, the researcher is interested in further examining the relationship between chronotype, nutritional status, and iron intake and their association with the incidence of dysmenorrhea among female students at a pesantren-based university.

1.2 Research Problems

Is there an relationship between chronotype, nutritional status, and iron intake and the incidence of dysmenorrhea in female students at a pesantren-based university?

1.3 Research Objectives

1. General Objective

To analyzing the relationship between chronotype, nutritional status, and iron intake and the incidence of dysmenorrhea in female students at a pesantren-based university.

2. Specific Purpose

a. To Analyze the relationship between chronotype and the incidence of dysmenorrhea in female students at a pesantren-based university.

b. To Analyze the relationship between nutritional status and the incidence of dysmenorrhea in female students at a pesantren-based university.

c. To Analyze the relationship between iron intake and dysmenorrhea incidence in female students at a pesantren-based university.

1.4 Research Benefits

1. Theoretical Benefits

It is hoped that this study can contribute to understanding the factors that influence dysmenorrhea and can be the basis for further research on factors that can influence the occurrence of dysmenorrhea in women of childbearing age.

2. **Practical Benefits**

   a. **For students**

   It is hoped that this research can be a source of information for female students about the importance of maintaining a lifestyle and diet and knowing the factors that can influence the occurrence of dysmenorrhea in women of reproductive age.

   b. **For Institutions**

   This research may also serve as valuable input for institutions, particularly pesantren-based universities, to enhance facilities and services that support the health of female students, such as providing nutritious food and an environment that promotes good sleep patterns.

1.5 Authenticity Research

Tabel. 1 Authenticity of Research

Research Title	Type of Research	Variable	Results	Research Differences
Relationship between chronotype and the degree of pain of dysmenorrhea in adolescent girls[18]	*Cross-sectional*	Independent Variable: Chronotype Dependent Variable: Degree of dysmenorrhea pain	There is a significant relationship between chronotype and the degree of dysmenorrhea pain.	Independent variables: Nutritional status and iron intake Eligibility: Women of reproductive age (19-24 years old)
The Relationship between Nutritional Status and the Incidence of Dysmenorrhea in Nutrition Students of	*Cross-sectional*	Independent Variable: Nutritional Status Dependent variable: degree of	There is a relationship between nutritional status and dysmenorrhea, the results	Independent variables: iron intake, chronotype Target: Women of reproductive

[18] Ardina.S.C., Widyaningsih.V., Lestari.A. 2023. Hubungan Kronotipe Dengan Derajat Nyeri *Disminorea* Pada Remaja Putri. Jurnal Media Penelitian Dan Pengembangan Kesehatan Vol 33 No 4.

the Riau Health Ministry Polytechnic in 2022[19]		dysmenorrhea pain	showed a p-value of 0.000.	age (19-24 years)
The Relationship between Calcium, Iron, and Vitamin E Intake with the Incidence of Primary Dysmenorrhea in Undergraduate Students of the Faculty of Medicine, University of Lampung, Class of 2020[20]	Observational quantitative research with a cross-sectional approach	Independent variables: calcium, iron, and vitamin E intake Dependent variable: Incidence of dysmenorrhea	There is an association between calcium and iron intake and the incidence of primary dysmenorrhea. College students with insufficient iron intake and experiencing dysmenorrhea as much as 89,7%.	Independent variables: chronotype and nutritional status
Relationship between diet and severity of dysmenorrhea in adolescent girls[21]	*Cross-sectional*	Independent Variable: Chronotype and dietary pattern	There is an association between dietary patterns according to the intake of fat, Fe, and Ca, inappropriate amount of intake, and the severity of dysmenorrhea.	Independent variables: chronotype, nutritional status, and iron intake

[19] Pirta Kumala Dewi, "Hubungan Status Gizi Dengan Kejadian *Disminorea* Pada Mahasiswi Gizi Politeknik Kesehatan Kemenkes Riau Tahun 2022" (Politeknik Kesehatan Kemenkes Riau, 2022).

[20] Wigati. 2023. Hubungan Asupan Kalsium, Zat Besi, Dan Vitamin E Dengan Kejadian *Disminorea* Primer Pada Mahasiswi Strata 1 Fakultas Kedokteran Universitas Lampung Angkatan 2020. Skripsi. Universitas Lampung

[21] Damayanti, Setyoboedi, and Fatmaningrum, "Correlation Between Dietary Habbits with Severity of Dysmenorrhea Among Aldolescent Girl."

Relationship between Physical Activity, Nutritional Status, and Stress Level with the Incidence of Dysmenorrhea in College Students in Bogor City[22]	*Cross-sectional*	Independent variables: physical activity, nutritional status, stress level Dependent variable: dysmenorrhea	There is an association between physical activity (p-value = 0.000), nutritional status (p-value = 0.038), and stress level (p-value = 0.030) with the incidence of dysmenorrhea.	Independent variables: chronotype and iron intake Target: Women of reproductive age (19-24 years)

[22] Tazkyatunnisa Adinda Aprilia, Tika Noor Prastia, and Ade Saputra Nasution, "Hubungan Aktivitas Fisik, Status Gizi Dan Tingkat Stres Dengan Kejadian *Disminorea* Pada Mahasiswi Di Kota Bogor," *PROMOTOR Jurnal Mahasiswa Kesehatan Masyarakat* 5, no. 3 (2022).