The Intensity of Dysmenorrhea in High School Students

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Abstract---Background: Morbidity dysmenorrhea has a significant impact on public health as it is one of the first causes of absence in school and work, and can therefore lead to higher health costs and reduced academic effectiveness, plus a large decrease in the quality of life they are affected. Purpose: to know description of dysmenorrhea intensity in high school students. Methode: this study is descriptive research, with a total sample of 105 respondents obtained through purposive sampling techniques. Each respondent filled out a questionnaire containing data on the characteristics of respondents and the NRS pain scale instumen. Analyze data using descriptive tests with SPSS 26. Results: The level of dismenor pain in high school students belongs to the category of moderate pain (48.6%) with ik (95%) 39.0-57.9. Conclusion High school students experience dysmenorrhoea with pain scale 5 (NRS) that falls into the category of moderate pain.

Keywords---dysmenorrhea, Numeric Rating Scale.

Introduction

The beginning of puberty in a young girl's life is hormonal, psychological, cognitive and physical changes that change the girl from a child to a sexually mature woman. Menstruation is controlled by the hormone hypothalamus, pituitary and is one of the milestones of puberty in girls (Ameade, Amalba, &Mohammed, 2018). Previous studies have shown the prevalence of dysmenorrhoea is 34% in Egypt, 64% in Nigeria and Mexico, 84% in Thailand 88% in Turkey and 93% (Karanth &Liya, 2018) in Taiwan, 74.5% in Malaysia, 70% in Italy, 80% in Australia, 85% among Hispanics, in Northern Ghana 83.6%

and the lowest prevalence has been reported in Japan (16%) (Sanctis et al., 2015), while in Indonesia precisely in Denpasar about 74.42% (Silaen, R. Ani, L. Putri, 2019). The prevalence rate of dysmenorrhea in coeds more than half illustrates the scale of moderate pain that lasts less than 3 days. Dysmenorrhea during menstruation affects daily activities up to 61.2% (Ameade, Amalba, &Mohammed, 2018).

Dysmenorrhea can be classified as primary, when the transfer pain is not related to previous pelvic diseases and is related to a normal, or secondary ovulation cycle, when there are signs of pelvic pathology (Fernández-Martínez, Onieva-Zafra, &Parra-Fernández, 2018).

The average age of menarche is 12.89 ± 1.34 years, the prevalence of dysmenorrhea is 78% and 58.1% of them suffer from severe dysmenorrhea which increases significantly. Dysmenorrhea is the cause of skipping school among 13% of girls and the most common symptoms associated with it are back pain, fatigue, irritability and anxiety. Gynecological age found to be the only predictive factor of dysmenorrhea among students (Lghoul, Loukid, &Hilali, 2020).

Morbidity dysmenorrhea has a significant impact on public health as it is one of the first causes of absence in school and work, and can therefore lead to higher health costs and reduced work/academic effectiveness, plus a large decrease in the quality of life they are affected. Despite its high prevalence, many studies have reported that women suffering from dysmenorrhea do not seek medical treatment and/or consult with other health workers, and do not know how to apply alternative therapies (Fernández-Martínez et al., 2018). Reported risk factors for dysmenorrhea include early menarche age, menstrual periods, heavier menstrual flow, a family history of dysmenorrhea, and reduced frequency of breakfast foods per week and low BMI.

It can be concluded that dysmenorrhea events affect student activity. From the data above taken from various places, in this study researchers want to see a picture of dysmenorrhea in high school students whose data will be taken from 8 schools from 7 different regions. The purpose of this study is to find out the picture of the intensity of dysmenorrhea in high school students.

Methods

This research is descriptive research, with a total sample of 105 respondents obtained through purposive sampling techniques. Each respondent filled out a questionnaire containing data on the characteristics of respondents and the NRS pain scale instumen. Questionnaires are created in the form of google form. Analyze data using descriptive tests on numerical and categorical data groups using SPSS 26**.** Ethical consideration, each respondent signed informed consent before data collection. Before signing the informed consent, the researchers first explained the purpose of the study and the confidentiality of the data

Results

In table 1. the majority of students in this study came from east Luwu from 8 provinces, the majority of high school students were 16 years old (39.0%), had their first menstruation at the age of 13 years, for 7 days in each menstrual cycle and the activity that many do when the student has dysmenorrhoea is sleeping. The other activities that students do to ignore pain are abdominat streaching, drinking warm water, compressing warm in the pain area, trying to be patient and ignore pain while tetap activity

Table 1. Characteristics of respondents

Characteristic	F (%)
School origin (n=105)	
SMA Neg. 1 Makassar	19 (18.1%)
SMA Negeri 8 Luwu Timur	20 (19.0 %)
SMA Neg. 9 Maros	12 (11.4%)
SMA Neg. 15 Makassar	10 (9.5%)
SMA Neg. 8 Bulukumba	14 (13.3%)
SMA Neg. 5 Samarinda	14 (13.3%)
SMA Neg. 1 Parepare	6 (5.7%)
SMA Neg. 5 Soppeng	10 (9.5%)
Age (years) (n=105)	
13	1 (1.0%)
15	19 (18.1%)
16	41 (39.0%)
17	37 (35.2%)
18	5 (4.8%)
19	2 (1.9%)
Age of first menstruation (years) (n=105)	
11	4 (3.8%)
12	18 (17.1%)
13	27 (25.7%)
14	24 (22.9%)
15	8 (7.6%)
16	20 (19.0%)
17	2 (1.9%)
19	2 (1.9%)
Menstruation duration (days) (n=105)	
3	1 (1.0%)
4	3 (2.9%)
5	14 (13.3%)
6	19 (18.1%)
7	59 (56.2%)
8	8 (7.6%)
10	1 (1.0%)
Activity during dysmenorrhea (n=105)	
sleep	73 (69.5%)
Whitewood oil smear	9 (8.6%)
Left alone	3 (2.9%)
Consumption of pain relievers	11 (10.5%)

Other	9 (8.6%)
Menstrual cycle (n=105)	
orderly	87 (82.9%)
Irregular	18 (17.1%)

In table 2. below obtained the median value of the pain scale of dysmenorrhoea after high school students are 5 with a minimum skal nyei 1 and a maximum of 10. And the level of pain in the dismenor after high school students belongs to the category of moderate pain (48.6%) with ik (95%) 39.0-57.9.

Table 2. Description of the intensity of dysmenorrhoea in high school students

	Median (min-max)	F (%)	IK (95%)
Dysmenorrhoea pain scale (NRS) (n=105)	5 (1-10)		
Pain level (NRS) (n=105)		30 (28.6%)	19,9 - 37,2
light		51 (48.6%)	39.0 - 57.9
keep		24 (22.95)	14.8 – 30.9
heavy			

Descriptive test

Discussion

Respondents to this study were high school students from several different regions with the age of 13 -19 years, the majority of students experience the first menstruation at the age of 13 years and menstruation for about 7 days in each menstrual period. (1) found that women experienced menarche at the age of 10, 11, and 12 years respectively in Bangladest, 13 years in Iran(Tiyuri et al., 2019),and in Indonesia the onset of menarche decreased significantly for 40 years before 2010. There was a significant decrease in the age of menarche, which changed from 14.43 years to 13.63 years. The findings show a significant decline in the age of menarche in Indonesian girls that continues as a predictable trend over time to date, in line with recent socioeconomic changes. These predictions provide a key indicator of a girl's future healthy transition from childhood to young adulthood (Wahab, Wilopo, Hakimi, &Ismail, 2018).

Risk factors associated with early menarche are physical activity, sleep deprivation, absence of biological fathers, exposure to sexual material, inadequate breastfeeding, use of hormonal contraceptives by the mother, low-weight birth, exposure to chemicals during pregnancy, maternal age when menarche is associated with early age menarche, modern lifestyle changes, and higher BMI (Bhattarai, Subedi, &Acharya, 2018; Malitha et al., 2020; Tiyuri et al., 2019). Menstruation length ranges from 3-7 days (Kafaei-Atrian et al., 2019). In this study, the majority of high school students from several different regions experienced dysmenorrhoea with a pain scale of 5 (NRS) that falls into the category of moderate pain. Several other studies have also found that dysmenorrhoea experienced by adolescent women is on a pain scale of 5-6 that belongs to the moderate pain category using both VAS and NRS pain scale instruments (Armour et al., 2020; Juniar, 2015; Kamel, Tantawy, &Abdelsamea,

2017; Kural, Noor, Pandit, &Joshi, 2015). In another study, it was found that 15.8% - 16.5% of women did not experience dysmenorrhea (Bahrami et al., 2017; Kural et al., 2015).

Dysmenorrhea patomechanism is not fully understood. Dysmenorrhea is a complex process that depends on many factors. It is known that the menstrual cycle relies on cyclic changes in the concentration of ovarian hormones and cyclic changes in prostaglandin levels as well as contractile activity of the uterus. One of the factors that contribute to dysmenorrhea is an increase in the concentration of prostaglandins before menstruation. Prostaglandins are over-produced during dysmenorrhea. It is also indicated by symptoms that occur simultaneously with dysmenorrhea during menstruation. Prostaglandins cause narrowing of the blood vessels supplying the uterus, abnormal contractile activity of the uterus, which causes ischemia, uterine hypoxia and increased sensitivity of the nerve endings. In addition to hormonal changes that occur in the body, other factors, including diet, early age of menarche, stress, length, and severity of menstrual periods, and the occurrence of premenstrual syndrome (PMS) can contribute to dysmenorrhoea patomechanism. Menstruation can be considered an inflammation, because during menstruation there is an invasion of leukocytes and the production of inflammatory mediators (Barcikowska, Rajkowska-Labon, Grzybowska, Hansdorfer-Korzon, &Zorena, 2020).

Most respondents (84.01%) reported feeling pain in the abdomen and back(9). In addition to pain, adolescent women experience mood swings, dizziness, depression, tendencies in aggressive behavior and sleep disorders that can limit daily activities (Bahrami et al., 2017; Kamel et al., 2017). This negatively impacted the academic performance of adolescent women, nearly half of women reported losing at least one class/lecture in the previous three menstrual cycles due to class concentration problems during menstruation (8). Higher menstrual pain scores correlated strongly with increased absence and decreased classroom performance in schools and in higher education. To reduce the negative impact of dysmenorrhoea several studies have been conducted to find effective therapies in overcoming dysmenorrhoea.

Primary dysmenorrhea management in students at the University of Southern Spain. Approximately 76.8% of participants took analgesics and the majority self-medicated with nonsteroidal anti-inflammatory drugs (NSAIDs) without the consultation of a health professional(12). Other methods used in reducing dysmenorrhea pain intensistas are complementary and alternative treatments (CAM) in the form of massage, local heat therapy, physical activity, using bio-based drugs such as herbal products, using manipulative and body-based systems such as exercise and physiotherapy (Barcikowska et al., 2020; Conney, Kretchy, Asiedu-Danso, &Allotey-Babington, 2019; Parra-Fernández et al., 2020). The Whibley et al. research area, promises to inform the development of multimodal pain management programs and, through the use of future data collected in the context of RCT, investigates how sleep improvement interventions can affect pain intensity over time(14). In addition, collaborative efforts from healthcare providers, program coordinators, and parents should focus on raising awareness and improving management strategies for treating dysmenorrhea (Kamel et al., 2017). A better understanding of the causes of

dysmenorrhea can result in effective therapies and thus improve the comfort of the lives of thousands of women around the world (Barcikowska et al., 2020).

Conclusion

The first time menstruating high school students from some areas are 13 years with a period of 7 days. High school students experience dysmenorrhoea with pain scale 5 (NRS) that falls into the category of moderate pain.

References

Ameade, E. P. K., Amalba, A., & Mohammed, B. S. (2018). Prevalence of dysmenorrhea among University students in Northern Ghana; its impact and management strategies. *BMC Women's Health*, *18*(1), 1–9. https://doi.org/10.1186/s12905-018-0532-1

Armour, M., Ferfolja, T., Curry, C., Hyman, M. S., Parry, K., Chalmers, K. J., … Holmes, K. (2020). The Prevalence and Educational Impact of Pelvic and Menstrual Pain in Australia: A National Online Survey of 4202 Young Women Aged 13-25 Years. *Journal of Pediatric and Adolescent Gynecology*, *33*(5), 511–518. https://doi.org/10.1016/j.jpag.2020.06.007

Bahrami, A., Sadeghnia, H., Avan, A., Mirmousavi, S. J., Moslem, A., Eslami, S., … Ghayour-Mobarhan, M. (2017). Neuropsychological function in relation to dysmenorrhea in adolescents. *European Journal of Obstetrics and Gynecology and Reproductive Biology*, *215*, 224–229. https://doi.org/10.1016/j.ejogrb.2017.06.030

Barcikowska, Z., Rajkowska-Labon, E., Grzybowska, M. E., Hansdorfer-Korzon, R., & Zorena, K. (2020). Inflammatory markers in dysmenorrhea and therapeutic options. *International Journal of Environmental Research and Public Health*, *17*(4), 1–14. https://doi.org/10.3390/ijerph17041191

Bhattarai, S., Subedi, S., & Acharya, S. R. (2018). Factors Associated With Early Menarche among Adolescents Girls : A Study from Nepal. *SM Journal Of Coummunity Medicine*, *4*(1), 2–12. Retrieved from https://smjournals.com/community-medicine/download.php?file=fulltext/smcm-v4-1028.pdf

Conney, C. S., Kretchy, I. A., Asiedu-Danso, M., & Allotey-Babington, G. L. (2019). Complementary and Alternative Medicine Use for Primary Dysmenorrhea among Senior High School Students in the Western Region of Ghana. *Obstetrics and Gynecology International*, *2019*. https://doi.org/10.1155/2019/8059471

Ferna ́ndez-Marti ́nez, E., Onieva-Zafra, M. D., & Parra-Ferna ́ndez, M. L. (2018). Dysmenorrhea in adolescents and young adults: a review in different country. *PLoS ONE*, *13*(8), 1–11. https://doi.org/https://doi.org/10.1371/journal.pone.0201894

Juniar, D. (2015). Epidemiology of Dysmenorrhea among Female Adolescents in Central Jakarta. *Makara Journal of Health Research*, *19*(1), 21–26. https://doi.org/10.7454/msk.v19i1.4596

Kafaei-Atrian, M., Mohebbi-Dehnavi, Z., Sayadi, L., Asghari-Jafarabadi, M., Karimian-Taheri, Z., & Afshar, M. (2019). The relationship between the duration of menstrual bleeding and obesity-related anthropometric indices in students. *J Educ Health Promot*, *8*(81). https://doi.org/10.4103/jehp.jehp_24_18. eCollection 2019.

Kamel, D. M., Tantawy, S. A., & Abdelsamea, G. A. (2017). Experience of dysmenorrhea among a group of physical therapy students from Cairo University: An exploratory study. *Journal of Pain Research*, *10*, 1079–1085. https://doi.org/10.2147/JPR.S132544

Karanth, S., & Liya, S. R. (2018). Prevalence and risk factors for dysmenorrhoea among nursing student and its impact on their quality of life. *International Journal of Reproduction, Contraception, Obstetrics and Gynecology*, *7*(7), 2661. https://doi.org/10.18203/2320-1770.ijrcog20182483

Kural, M., Noor, N. N., Pandit, D., & Joshi, T. (2015). Menstrual characteristics and prevalence of dysmenorrhea in college going girls. *Journal of Family Medicine and Primary Care*, *4*(3), 426. https://doi.org/10.4103/2249-4863.161345

Lghoul, S., Loukid, M., & Hilali, M. K. (2020). Prevalence and predictors of dysmenorrhea among a population of adolescent's schoolgirls (Morocco). *Saudi Journal of Biological Sciences*, *27*(7), 1737–1742. https://doi.org/10.1016/j.sjbs.2020.05.022

Malitha, J. M., Islam, M. A., Islam, S., Al Mamun, A. S. M., Chakrabarty, S., & Hossain, M. G. (2020). Early age at menarche and its associated factors in school girls (age, 10 to 12 years) in Bangladesh: A cross-section survey in Rajshahi District, Bangladesh. *Journal of Physiological Anthropology*. https://doi.org/10.1186/s40101-020-00218-w

Parra-Fernández, M. L., Onieva-Zafra, M. D., Abreu-Sánchez, A., Ramos-Pichardo, J. D., Iglesias-López, M. T., & Fernández-Martínez, E. (2020). Management of primary dysmenorrhea among university students in the south of spain and family influence. *International Journal of Environmental Research and Public Health*, *17*(15), 1–13. https://doi.org/10.3390/ijerph17155570

Sanctis, V., Soliman, A., Bernasconi, S., Bianchin, L., Bona, G., Bozzola, M., … Chieti-Pescara Italy, A. (2015). Primary Dysmenorrhea in Adolescents: Prevalence, Impact and Recent Knowledge. *Pediatric Endocrine Review*, *13*(2), 465.

Silaen, R. Ani, L. Putri, W. (2019). Prevalensi Dysmenorrhea Dan Karakteristiknya Pada Remaja Putri Di Denpasar. *Jurnal Medika Udayana*, *8*(11), 1–6.

Tiyuri, A., Ghannadkafi, M., Tiyuri, A., & Bahramian, N. (2019). Age at menarche and its related factors among students of Qaen, Eastern Iran: A school-based cross-sectional study. *Journal of Comprehensive Pediatrics*, *10*(3). https://doi.org/10.5812/compreped.84247

Wahab, A., Wilopo, S. A., Hakimi, M., & Ismail, D. (2018). Declining age at menarche in Indonesia: A systematic review and meta-analysis. *International Journal of Adolescent Medicine and Health*, 1–9. https://doi.org/10.1515/ijamh-2018-0021

Whibley, D., Alkandari, N., Kristensen, K., Barnish, M., Rzewuska, M., Druce, K. L., & Tang, N. K. Y. (2019). Sleep and Pain: A Systematic Review of Studies of Mediation. *Clinical Journal of Pain*, *35*(6), 544–558. https://doi.org/10.1097/AJP.0000000000000697