



## The Relationship Between Knowledge Level and Anxiety Level in Facing Menarche A Systematic Review of Cross Sectional Studies

Dwi Mulyati Ningsih<sup>1</sup>, Mizwar Taufiq Firmansyah<sup>2</sup>, Balbina Antonelda M Wawo<sup>3</sup>

<sup>1</sup> Sekolah Tinggi Ilmu Kesehatan Faathir Husada Tangerang, Indonesia

<sup>2</sup> Sekolah Tinggi Ilmu Kesehatan Faathir Husada Tangerang, Indonesia

<sup>3</sup> Sekolah Tinggi Ilmu Kesehatan Faathir Husada Tangerang, Indonesia

**Corresponding Author:** Dwi Mulyati Ningsih, E-mail; [mulyatiningsihdwi@gmail.com](mailto:mulyatiningsihdwi@gmail.com)

### Article Information:

Received April 10, 2023

Revised April 19, 2023

Accepted April 35, 2023

### ABSTRACT

Menarche is the first menstruation in young women. In society, the issue of menstruation is still considered very taboo to discuss, so that young women lack good knowledge and attitudes about physical and psychological changes related to menarche problems. Usually young women will experience anxiety, worry, fear and anxiety when facing menarche. Articles searched via database from 2018-2022. Searches were obtained from the PUBMED and Google Scholar databases. The keywords used are "Knowledge AND Menarche" OR "Anxiety AND Menarche" "Knowledge and Menarche and Anxiety". Free full text in English or Indonesian. The subjects used were young women aged 10-14 years. The study design used was Cross-Sectional. Based on the results of the study, it shows that knowledge has an impact on anxiety in facing menarche in young women.

**Keywords:** Anxiety, Knowledge, Menarche

Journal Homepage <https://journal.ypidathu.or.id/index.php/jnhl>

This is an open access article under the CC BY SA license

<https://creativecommons.org/licenses/by-sa/4.0/>

How to cite:

Ningsih, M, D., Firmansyah, T, M., Wawo, M, A, B. (2023). The Relationship Between Knowledge Level and Anxiety Level in Facing Menarche A Systematic Review of Cross Sectional Studies. *Journal of World Future Medicine, Health and Nursing*, 1(2), 63-72. <https://doi.org/10.55849/health.v1i1.431>

Published by:

Yayasan Pendidikan Islam Daarut Thufulah

## INTRODUCTION

Menarche is an important event that marks the beginning of sexual and reproductive maturation in girls (Guan dkk., 2020). It is the last in a series of events involved in the process of normal pubertal development (Wang dkk., 2020). Menarche is characterized by the onset of menstrual flow in the life of a developing young girl and is accompanied by many signs of fertility and reproductive implications (G. Chen dkk., 2020). The average age of menarche varies from population to population and reflects

various characteristics of the population including nutritional status, geographic location, environmental conditions, and socioeconomic status in the community.

For example, the mean age at menarche in the African racial population of Pasquet et al. using the "status quo" method in 1999 averaged  $13.18 \pm 1.08$  years in urban areas,  $13.98 \pm 1.55$  years in suburban areas, and  $14.27 \pm 1.65$  years in rural areas (J. Chen dkk., 2020). Early age of menarche has been associated with several adverse effects during childhood including eating disorders, depression, type 2 diabetes mellitus, metabolic syndrome, breast cancer, cardiovascular disease (Powles dkk., 2020), and overall mortality (Garg dkk., 2020). Establishing the age of menarche is also important for patient education and can guide the clinical evaluation of such patients to identify normal deviations (Murthy dkk., 2020). The last study on this topic in Abakaliki was nine years ago which reported a mean age of menarche of 15 years which was a community-based study with a study population of less than 19 years to above 50 years.

Over the past three decades, the age of menarche has experienced a very consistent decline (Shibeshi dkk., 2021). Epidemiological evidence reveals various psychosocial and public health challenges caused by the declining age of menarche (Rinott dkk., 2020). Early menarche has been associated with early marriage, premature parenthood, breast cancer, myoma development (Manson dkk., 2019), psychosocial disorders, metabolic syndrome (diabetes, hypertension and obesity), short stature, preeclampsia (Wisnu dkk., 2021), poor academic performance and substance abuse (Ashina dkk., 2021). A large body of evidence from both developed and developing countries agrees that early menarche (commonly defined as menarche before age 12) increases the likelihood of adverse sexual and reproductive health outcomes including early pregnancy and childbearing (Yustikasari dkk., 2021), sexually transmitted diseases (Gnocchi dkk., 2022), and early sexual intercourse.

## **RESEARCH METHODOLOGY**

### **Search Strategy**

Articles were searched through data access from January 2018-2022. Searches were obtained from various databases such as: PUBMED and Google Scholar. No attempt was made by the authors to specifically search for unpublished articles (De Santiago-Martín dkk., 2020). The keywords used were "Knowledge AND Menarche" OR "Anxiety AND Menarche" "Knowledge and Menarche and Anxiety".

### **Inclusion Criteria**

Articles published in English or Indonesian. Free full text or open access articles. Subjects are adolescent girls aged 10-14 years (Barbagallo & Sacerdote, 2018). The study design used is Cross-Sectional.

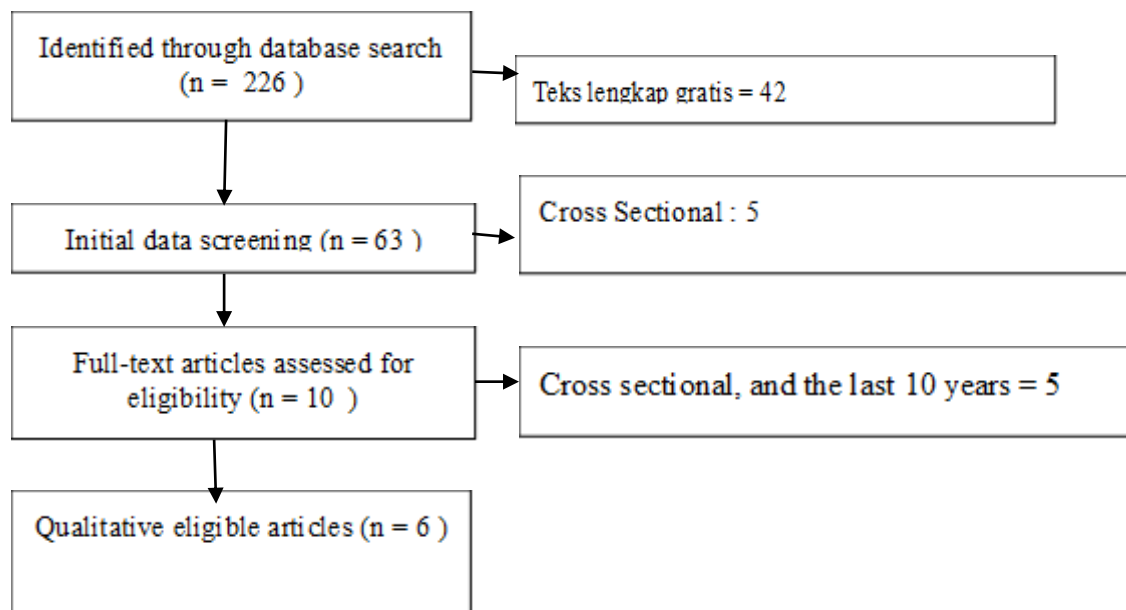
### **Exclusion Criteria**

Articles published in Chinese, Japanese, Spanish and Arabic. Articles with case study, quasi-experimental, RCT, and observational designs such as COHORT Retrospective, case report, and case control.

### **Quality assessment strategy and data synthesis**

All identified studies were independently assessed by all authors for relevance based on title and abstract. Then, full-text versions of all possible relevance, disagreements among authors were resolved through a discussion forum (Hajek dkk., 2019). Filtered data were presented in flowcharts according to PRISMA (preferred items of systematic review and meta-analysis) item (Black dkk., 2019). The quality assessment of studies using articles that did not meet the qualitative criteria, most of which will be discussed in this article and used as literature sources.

### **RESULT AND DISCUSSION**



PRISMA flow diagram for article selection in a systematic review

Table 1 Case Study Assessment

Criteria	(Ajong dkk., 2020)	(Nora, 2020)	(Manoppo dkk., 2022)	(Anggraeni & Sari, 2018)	(Deade dkk., 2022)	(Simon dkk., 2021)
1. Does the cross sectional study clearly address the clinical problem?	YES	YES	YES	YES	YES	YES
2. Are the subjects selected in the right way?	YES	YES	YES	YES	YES	YES
3. Is the exposure measured correctly?	YES	YES	YES	YES	YES	YES
4. Was the outcome measured accurately?	YES	YES	YES	YES	YES	YES
	YES	YES	YES	YES	YES	YES
	NO	YES	NO	YES	YES	NO
5. Did the researchers identify important confounding factors?	YES	YES	YES	YES	YES	YES
6. Did the research subjects complete the full study time?	Lack of trust	YES	Lack of confidence	Lack of trust	YES	YES
7. Did the main results of the study report effects or complete analysis?	YES	YES	YES	YES	YES	YES

Table 2: Result Summary Table

Study	Subject	Location	Results
(Ajong dkk., 2020)	1157 female students aged	Cameroon	The level of knowledge of research subjects in rural areas is 67.20% good knowledge, while urban subjects only

	9 to 16 years		46% have good knowledge about menarche.
(Nora, 2020)	32 girls in grades V and VI	Lubang Buaya Padang	The results showed that respondents had low knowledge (59.4%) with severe anxiety level (43.8%). After statistical tests there is a significant relationship between knowledge and anxiety level, namely with $P < 0.05$ , namely $P = 0.003$ .
(Manoppo dkk., 2022)	96 girls in grades IV, V, and VI	SD Inpres Sukur and SDN Kolongan	This research shows that the majority of adolescent girls have knowledge in the less category as many as 61.5% of respondents. There is a strong and significant negative relationship with a negative direction of $p \text{ value} = 0.000 \leq 0.05$ with a co-relation coefficient value of $r = -0.662$ .
(Anggraeni & Sari, 2018)	41 girls in grades IV and V	SDI Darul Hikmah Krian Sidoarjo	This study shows that most respondents with good knowledge experience mild anxiety, namely 17 students (44.73%), moderate knowledge experience moderate anxiety as many as 8 students (18.42%), and those with less knowledge experience mild anxiety as many as 3 students (7.89%). Based on data analysis, it is known that $\rho = 0.009$ significance value $\alpha = 0.05$ , which means that $H_1$ is accepted, there is a relationship between knowledge of adolescent girls about menstruation and anxiety level in facing menarche SDI Darul Hikmah Krian Sidoarjo.
(Deade dkk., 2022)	20 adolescent girls	Aisyiyah Orphanage Bukittinggi	The results showed that most had high knowledge as many as 12 people (60.0%) and those with low knowledge were 8 people (40.0%).
(Simon dkk., 2021)	34 girls in grades V and VI	SD Islam Guppi Sorong city	The results showed that out of 34 respondents where respondents who had good knowledge amounted to 20 respondents (58.8%) while respondents who had sufficient

			knowledge were 14 respondents (41.2%).
--	--	--	--

A study conducted by (Ajong et al., 2020) showed that there was a highly statistically significant difference in the level of knowledge in urban and rural areas (p-value <0.001) (Critchley dkk., 2020). Most participants (80.58% in rural areas and 63.00% in urban areas) had good knowledge about menarche (Jain dkk., 2019). The proportion of participants with good knowledge was higher in this study. A total of 67.20% of participants from rural areas had good knowledge, while only 46.00% had good knowledge in urban areas.

Research from (Nora, 2020) found that respondents had low knowledge (59.4%) with severe anxiety levels (43.8%) (Bilal dkk., 2019). After statistical testing, there is a significant relationship between knowledge and anxiety level, namely with  $P < 0.05$ , namely  $P = 0.003$  (Klok dkk., 2020). The anxiety experienced by female students in facing menarche is a process of their own form of reaction to an event, due to the lack of knowledge of students about the changes that occur when students face menarche, so that students feel embarrassed because of physical changes in their bodies.

This is in line with research conducted by found the results of more than half of the female students have insufficient knowledge about menstruation, namely the majority of adolescent girls have knowledge in the insufficient category as many as 61.5% of respondents (Middeldorp dkk., 2020). There is a strong and significant negative relationship with a negative direction of p value =  $0.000 \leq 0.05$  with a correlation coefficient value of  $r = -0.662$  (Karavani dkk., 2019). Knowledge about menstruation is needed for adolescent girls so that they can prepare themselves in facing menarche (Nazariana, 2017).

Research from found that the majority of respondents with good knowledge experienced mild anxiety, namely 17 students (44.73%) (Lumley dkk., 2021), with sufficient knowledge experienced moderate anxiety as many as 8 students (18.42%), and those with less knowledge experienced mild anxiety as many as 3 students (7.89%). This shows that the better the knowledge of adolescent girls about menstruation, especially in recognizing the early signs of menstruation, will make the adolescent girls have a low level of anxiety.

In a study conducted by after conducting research on 20 adolescent girls, the majority had high knowledge as many as 12 people (60.0%) and those with low knowledge were 8 people (40.0%) (Rubin dkk., 2020). Adolescent girls who have good knowledge about menstruation will easily understand about physiological changes that can cause psychological stability, so that they can anticipate the anxiety experienced.

This is in line with research conducted by (Dobson & Giovannoni, 2019). This research was conducted on 34 female students in grades V and VI. Knowledge is very important to be given to female students before experiencing menarche because if an adolescent is not given an understanding of menarche and is not prepared to face menarche (Villar dkk., 2020), there will be a feeling or desire to reject this physiological

process, adolescents will have the wrong assumption about menstruation, they will think that menstruation is something dirty (Shah dkk., 2019), impure, unclean, stained and threatening that situation can continue in a more negative direction (Turner dkk., 2019). Different for those who have a positive attitude in dealing with menarche, they will feel happy and proud (Rodriguez-Wallberg dkk., 2023), because they consider themselves biologically mature.

## CONCLUSION

Various cross-sectional studies have shown that knowledge has an impact on anxiety in facing menarche in adolescent girls. It is expected that health workers always provide counseling - counseling to schools - schools to increase children's knowledge and the need for an active role of health workers to increase early adolescent girls about menarche so as not to be too anxious.

## REFERENCES

- Ajong, A. B., Tankala, N. N., Yakum, M. N., Azenoi, I. S., & Kenfack, B. (2020). Knowledge of peri-menarcheal changes and a comparative analysis of the age at menarche among young adolescent school girls in urban and rural Cameroon. *BMC Public Health*, 20(1), 1–10. <https://doi.org/10.1186/s12889-020-09787-y>
- Anggraeni, W., & Sari, K. I. P. (2018). Hubungan Pengetahuan Remaja Tentang Menstruasi Dengan Tingkat Kecemasan Dalam Menghadapi Menarche Pada Siswi Kelas Iv Dan V Sdi Darul Hikmah Krian Sidoarjo. *Nurse and Health: Jurnal Keperawatan*, 7(1), 80–85. <https://doi.org/10.36720/nhjk.v7i1.36>
- Ashina, M., Buse, D. C., Ashina, H., Pozo-Rosich, P., Peres, M. F. P., Lee, M. J., Terwindt, G. M., Halker Singh, R., Tassorelli, C., Do, T. P., Mitsikostas, D. D., & Dodick, D. W. (2021). Migraine: Integrated approaches to clinical management and emerging treatments. *The Lancet*, 397(10283), 1505–1518. [https://doi.org/10.1016/S0140-6736\(20\)32342-4](https://doi.org/10.1016/S0140-6736(20)32342-4)
- Barbagallo, M., & Sacerdote, P. (2018). Ibuprofen in the treatment of children's inflammatory pain: A clinical and pharmacological overview. *Minerva Pediatrica*, 71(1). <https://doi.org/10.23736/S0026-4946.18.05453-1>
- Bilal, M., Adeel, M., Rasheed, T., Zhao, Y., & Iqbal, H. M. N. (2019). Emerging contaminants of high concern and their enzyme-assisted biodegradation – A review. *Environment International*, 124, 336–353. <https://doi.org/10.1016/j.envint.2019.01.011>
- Black, E., Khor, K. E., Kennedy, D., Chutatape, A., Sharma, S., Vancaillie, T., & Demirkol, A. (2019). Medication Use and Pain Management in Pregnancy: A Critical Review. *Pain Practice*, 19(8), 875–899. <https://doi.org/10.1111/papr.12814>
- Chen, G., Wu, D., Guo, W., Cao, Y., Huang, D., Wang, H., Wang, T., Zhang, X., Chen, H., Yu, H., Zhang, X., Zhang, M., Wu, S., Song, J., Chen, T., Han, M., Li, S., Luo, X., Zhao, J., & Ning, Q. (2020). Clinical and immunological features of severe and moderate coronavirus disease 2019. *Journal of Clinical Investigation*, 130(5), 2620–2629. <https://doi.org/10.1172/JCI137244>
- Chen, J., Qi, T., Liu, L., Ling, Y., Qian, Z., Li, T., Li, F., Xu, Q., Zhang, Y., Xu, S., Song, Z., Zeng, Y., Shen, Y., Shi, Y., Zhu, T., & Lu, H. (2020). Clinical



- progression of patients with COVID-19 in Shanghai, China. *Journal of Infection*, 80(5), e1–e6. <https://doi.org/10.1016/j.jinf.2020.03.004>
- Critchley, H. O. D., Babayev, E., Bulun, S. E., Clark, S., Garcia-Grau, I., Gregersen, P. K., Kilcoyne, A., Kim, J.-Y. J., Lavender, M., Marsh, E. E., Matteson, K. A., Maybin, J. A., Metz, C. N., Moreno, I., Silk, K., Sommer, M., Simon, C., Tariyal, R., Taylor, H. S., ... Griffith, L. G. (2020). Menstruation: Science and society. *American Journal of Obstetrics and Gynecology*, 223(5), 624–664. <https://doi.org/10.1016/j.ajog.2020.06.004>
- De Santiago-Martín, A., Meffe, R., Teijón, G., Martínez Hernández, V., López-Heras, I., Alonso Alonso, C., Arenas Romasanta, M., & De Bustamante, I. (2020). Pharmaceuticals and trace metals in the surface water used for crop irrigation: Risk to health or natural attenuation? *Science of The Total Environment*, 705, 135825. <https://doi.org/10.1016/j.scitotenv.2019.135825>
- Dobson, R., & Giovannoni, G. (2019). Multiple sclerosis – a review. *European Journal of Neurology*, 26(1), 27–40. <https://doi.org/10.1111/ene.13819>
- Garg, S., Kim, L., Whitaker, M., O'Halloran, A., Cummings, C., Holstein, R., Prill, M., Chai, S. J., Kirley, P. D., Alden, N. B., Kawasaki, B., Yousey-Hindes, K., Niccolai, L., Anderson, E. J., Openo, K. P., Weigel, A., Monroe, M. L., Ryan, P., Henderson, J., ... Fry, A. (2020). Hospitalization Rates and Characteristics of Patients Hospitalized with Laboratory-Confirmed Coronavirus Disease 2019—COVID-NET, 14 States, March 1–30, 2020. *MMWR. Morbidity and Mortality Weekly Report*, 69(15), 458–464. <https://doi.org/10.15585/mmwr.mm6915e3>
- Gnocchi, M., D'Alvano, T., Lattanzi, C., Messina, G., Petraroli, M., Patianna, V. D., Esposito, S., & Street, M. E. (2022). Current evidence on the impact of the COVID-19 pandemic on paediatric endocrine conditions. *Frontiers in Endocrinology*, 13, 913334. <https://doi.org/10.3389/fendo.2022.913334>
- Guan, W., Ni, Z., Hu, Y., Liang, W., Ou, C., He, J., Liu, L., Shan, H., Lei, C., Hui, D. S. C., Du, B., Li, L., Zeng, G., Yuen, K.-Y., Chen, R., Tang, C., Wang, T., Chen, P., Xiang, J., ... Zhong, N. (2020). Clinical Characteristics of Coronavirus Disease 2019 in China. *New England Journal of Medicine*, 382(18), 1708–1720. <https://doi.org/10.1056/NEJMoa2002032>
- Hajek, P., Phillips-Waller, A., Przulj, D., Pesola, F., Myers Smith, K., Bisal, N., Li, J., Parrott, S., Sasieni, P., Dawkins, L., Ross, L., Goniewicz, M., Wu, Q., & McRobbie, H. J. (2019). A Randomized Trial of E-Cigarettes versus Nicotine-Replacement Therapy. *New England Journal of Medicine*, 380(7), 629–637. <https://doi.org/10.1056/NEJMoa1808779>
- Jain, N., Brock, J. L., Malik, A. T., Phillips, F. M., & Khan, S. N. (2019). Prediction of Complications, Readmission, and Revision Surgery Based on Duration of Preoperative Opioid Use: Analysis of Major Joint Replacement and Lumbar Fusion. *Journal of Bone and Joint Surgery*, 101(5), 384–391. <https://doi.org/10.2106/JBJS.18.00502>
- Karavani, G., Schachter-Safrai, N., Revel, A., Mordechai-Daniel, T., Bauman, D., & Imbar, T. (2019). In vitro maturation rates in young premenarche patients. *Fertility and Sterility*, 112(2), 315–322. <https://doi.org/10.1016/j.fertnstert.2019.03.026>
- Klok, F. A., Kruip, M. J. H. A., Van Der Meer, N. J. M., Arbous, M. S., Gommers, D. A. M. P. J., Kant, K. M., Kaptein, F. H. J., Van Paassen, J., Stals, M. A. M., Huisman, M. V., & Endeman, H. (2020). Incidence of thrombotic complications



- in critically ill ICU patients with COVID-19. *Thrombosis Research*, 191, 145–147. <https://doi.org/10.1016/j.thromres.2020.04.013>
- Lumley, S. F., O'Donnell, D., Stoesser, N. E., Matthews, P. C., Howarth, A., Hatch, S. B., Marsden, B. D., Cox, S., James, T., Warren, F., Peck, L. J., Ritter, T. G., De Toledo, Z., Warren, L., Axten, D., Cornall, R. J., Jones, E. Y., Stuart, D. I., Screaton, G., ... Eyre, D. W. (2021). Antibody Status and Incidence of SARS-CoV-2 Infection in Health Care Workers. *New England Journal of Medicine*, 384(6), 533–540. <https://doi.org/10.1056/NEJMoa2034545>
- Manson, J. E., Cook, N. R., Lee, I.-M., Christen, W., Bassuk, S. S., Mora, S., Gibson, H., Albert, C. M., Gordon, D., Copeland, T., D'Agostino, D., Friedenberg, G., Ridge, C., Bubes, V., Giovannucci, E. L., Willett, W. C., & Buring, J. E. (2019). Marine n-3 Fatty Acids and Prevention of Cardiovascular Disease and Cancer. *New England Journal of Medicine*, 380(1), 23–32. <https://doi.org/10.1056/NEJMoa1811403>
- Middeldorp, S., Coppens, M., Van Haaps, T. F., Foppen, M., Vlaar, A. P., Müller, M. C. A., Bouman, C. C. S., Beenen, L. F. M., Kootte, R. S., Heijmans, J., Smits, L. P., Bonta, P. I., & Van Es, N. (2020). Incidence of venous thromboembolism in hospitalized patients with COVID-19. *Journal of Thrombosis and Haemostasis*, 18(8), 1995–2002. <https://doi.org/10.1111/jth.14888>
- Murthy, R. K., Loi, S., Okines, A., Paplomata, E., Hamilton, E., Hurvitz, S. A., Lin, N. U., Borges, V., Abramson, V., Anders, C., Bedard, P. L., Oliveira, M., Jakobsen, E., Bachelot, T., Shachar, S. S., Müller, V., Braga, S., Duhoux, F. P., Greil, R., ... Winer, E. P. (2020). Tucatinib, Trastuzumab, and Capecitabine for HER2-Positive Metastatic Breast Cancer. *New England Journal of Medicine*, 382(7), 597–609. <https://doi.org/10.1056/NEJMoa1914609>
- Powles, T., Park, S. H., Voog, E., Caserta, C., Valderrama, B. P., Gurney, H., Kalofonos, H., Radulović, S., Demey, W., Ullén, A., Loriot, Y., Sridhar, S. S., Tsuchiya, N., Kopyltsov, E., Sternberg, C. N., Bellmunt, J., Aragon-Ching, J. B., Petrylak, D. P., Laliberte, R., ... Grivas, P. (2020). Avelumab Maintenance Therapy for Advanced or Metastatic Urothelial Carcinoma. *New England Journal of Medicine*, 383(13), 1218–1230. <https://doi.org/10.1056/NEJMoa2002788>
- Rinott, E., Kozer, E., Shapira, Y., Bar-Haim, A., & Youngster, I. (2020). Ibuprofen use and clinical outcomes in COVID-19 patients. *Clinical Microbiology and Infection*, 26(9), 1259.e5-1259.e7. <https://doi.org/10.1016/j.cmi.2020.06.003>
- Rodriguez-Wallberg, K. A., Sergouniotis, F., Nilsson, H. P., & Lundberg, F. E. (2023). Trends and outcomes of fertility preservation for girls, adolescents and young adults with Turner syndrome: A prospective cohort study. *Frontiers in Endocrinology*, 14, 1135249. <https://doi.org/10.3389/fendo.2023.1135249>
- Rubin, G. D., Ryerson, C. J., Haramati, L. B., Sverzellati, N., Kanne, J. P., Raoof, S., Schluger, N. W., Volpi, A., Yim, J.-J., Martin, I. B. K., Anderson, D. J., Kong, C., Altes, T., Bush, A., Desai, S. R., Goldin, O., Goo, J. M., Humbert, M., Inoue, Y., ... Leung, A. N. (2020). The Role of Chest Imaging in Patient Management during the COVID-19 Pandemic: A Multinational Consensus Statement from the Fleischner Society. *Radiology*, 296(1), 172–180. <https://doi.org/10.1148/radiol.2020201365>
- Shah, V., Nabwera, H. M., Sosseh, F., Jallow, Y., Comma, E., Keita, O., & Torondel, B. (2019). A rite of passage: A mixed methodology study about knowledge,

- perceptions and practices of menstrual hygiene management in rural Gambia. *BMC Public Health*, 19(1), 277. <https://doi.org/10.1186/s12889-019-6599-2>
- Shibeshi, B. Y., Emiru, A. A., & Asresie, M. B. (2021). Disparities in menstrual hygiene management between urban and rural schoolgirls in Northeast, Ethiopia. *PLOS ONE*, 16(9), e0257853. <https://doi.org/10.1371/journal.pone.0257853>
- Turner, N. A., Sharma-Kuinkel, B. K., Maskarinec, S. A., Eichenberger, E. M., Shah, P. P., Carugati, M., Holland, T. L., & Fowler, V. G. (2019). Methicillin-resistant *Staphylococcus aureus*: An overview of basic and clinical research. *Nature Reviews Microbiology*, 17(4), 203–218. <https://doi.org/10.1038/s41579-018-0147-4>
- Villar, J., Ferrando, C., Martínez, D., Ambrós, A., Muñoz, T., Soler, J. A., Aguilar, G., Alba, F., González-Higueras, E., Conesa, L. A., Martín-Rodríguez, C., Díaz-Domínguez, F. J., Serna-Grande, P., Rivas, R., Ferreres, J., Belda, J., Capilla, L., Tallet, A., Añón, J. M., ... Villar, J. (2020). Dexamethasone treatment for the acute respiratory distress syndrome: A multicentre, randomised controlled trial. *The Lancet Respiratory Medicine*, 8(3), 267–276. [https://doi.org/10.1016/S2213-2600\(19\)30417-5](https://doi.org/10.1016/S2213-2600(19)30417-5)
- Wang, Z., Yang, B., Li, Q., Wen, L., & Zhang, R. (2020). Clinical Features of 69 Cases With Coronavirus Disease 2019 in Wuhan, China. *Clinical Infectious Diseases*, 71(15), 769–777. <https://doi.org/10.1093/cid/ciaa272>
- Wisnu, N. T., Tutik, H., & Handayani, T. E. (2021). Early Detection Instruments for Children with Special Needs. *Open Access Macedonian Journal of Medical Sciences*, 9(E), 1261–1266. <https://doi.org/10.3889/oamjms.2021.7206>
- Yustikasari, Y., Gemiharto, I., & Ayuningtyas, F. (2021). The Development of Communication Model for the Empowerment of Highly Poor Villages in Pangandaran Regency, West Java, Indonesia. *IOP Conference Series: Earth and Environmental Science*, 819(1), 012038. <https://doi.org/10.1088/1755-1315/819/1/012038>

---

**Copyright Holder :**

© Dwi Mulyati Ningsih et al. (2023)

**First Publication Right :**

© Journal of World Future Medicine, Health and Nursing

**This article is under:**

