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Knowledge and Perception of Premarital Screening within Young Adults : Study at STIKES Bhakti Husada Mulia

Kunawati Tungga Dewi[1*], Novi Paramitasari MS[2], Rochmanita Sandya Afindaningrum[3]
[1-3]STIKES Bhakti Husada Mulia
Email : kunawatitunggade@gmail.com[1✉]

Abstrak

Premarital screening (PMS) merupakan program skrining untuk pasangan yang akan menikah, meliputi pemeriksaan penyakit genetik dan penyakit menular guna mencegah risiko penularan penyakit kepada keturunannya. Tindakan pencegahan ini akan berkontribusi pada pengurangan prevalensi kelainan genetik spesifik yang terkait dengan pernikahan. Tujuan dari penelitian ini adalah untuk menggambarkan pengetahuan dan persepsi dewasa muda tentang skrining pranikah di lingkungan Universitas. Metode Penelitian menggunakan pendekatan *cross-sectional* yang dilakukan dengan metode *survey online*. Responden dalam penelitian ini adalah mahasiswa kebidanan di STIKES Bhakti Husada Mulia. Analisa data menggunakan chi-square. Hasil penelitian menunjukkan hubungan yang signifikan antara tingkat pengetahuan dan kelompok usia (p<0,018). 37% responden memperoleh pengetahuan tentang PMS melalui pendidikan akademik, 33% dari media sosial, 24% memperoleh pengetahuan dari layanan kesehatan dan sisanya dari TV dan teman. Hasil analisis statistik menggunakan chi-square menunjukkan hubungan yang signifikan antara tingkat persepsi dengan usia (p = 0,045). Kesimpulan penelitian ini menunjukkan bahwa sebagian besar mahasiswa kebidanan memiliki tingkat pengetahuan dan persepsi yang baik tentang PMS

Kata Kunci: Kebidanan, Pengetahuan, Persepsi, Skrining Pranikah

Abstract

Premarital screening (PMS) is a screening procedure offered to couples planning to marry to check for genetic and infectious disorders in order to reduce the risk of disease transmission to their offspring. This preventative intervention will help to reduce the incidence of specific genetic illnesses related with marriage. The primary objective of this study was to describe young adults' knowledge and perceptions about premarital screening in a university setting. Method This study used a cross-sectional design with an online survey method. The respondents to this study were midwifery students at STIKES Bhakti Husada Mulia. Chi-square was utilized in the data analysis. The study found a significant association between knowledge level and age group ($p < 0.018$). 37% of respondents learned about PMS through formal education, 33% from social media, 24% from health services, and the others from television and friends. Statistical study with chi-square revealed a significant association between perception level and age ($p = 0.045$). Conclusions from the research indicate that the majority of midwifery students have good knowledge and perception of PMS.

Keywords: Knowledge, Midwifery, Perception, Premarital Screening

INTRODUCTION

Premarital Screening (PMS) refers to a program that is provided to couples who are planning to get married. The purpose of this program is to screen for genetic diseases, infectious diseases such as hepatitis B, hepatitis C, and HIV/AIDS, as well as common genetic blood diseases like sickle cell disease and thalassemia. The goal is to prevent the possibility of passing on these diseases to their children. Individuals who are carriers of this disease typically do not exhibit symptoms, but they can pass on the condition to their kids if both spouses are carriers (Alkalbani et al., 2022; Al-Shafai et al., 2022). However, while PMS aims to reduce the transmission of these diseases, it also raises critical questions regarding its implementation and efficacy across different regions and populations.

PMS have been adopted in numerous nations globally. Cyprus was the pioneer in enforcing compulsory premarital screening for sexually transmitted diseases (STDs) in 1973, specifically focusing on screening for thalassemia. In recent years, PMS has been increasingly adopted in countries with elevated rates of consanguinity, such as those in the Middle East. The implementation of PMS in Iran took place in 1997, and it became a mandatory prerequisite for

processing marriage documents in the country. Starting in 2004, PMS were imposed in Saudi Arabia and Jordan. In 2009, Qatar followed suit, and in 2011, the United Arab Emirates did the same. While the adoption of PMS is widespread, the specific disorders screened for vary significantly across countries. In Saudi Arabia, PMS includes screening for sickle cell disease, thalassemia, HIV, and hepatitis B and C. In contrast, Italy only mandates screening for thalassemia, while Egypt requires hemoglobinopathy screening (Al-Shafai et al., 2022).

However, PMS is not obligatory in Indonesia for marriage documents (Kemenkes, 2018), despite the growing awareness of its benefits. While PMS is still recommended, the only mandatory requirement for marriage in Indonesia is the tetanus toxoid (TT) immunization certificate, which has resulted in a lack of widespread PMS implementation among the population (Shodikin & Garfes, 2020). Over the past 11 years, there has been a consistent upward trend in the number of reported instances of individuals who are HIV positive. The number of positive HIV and AIDS cases reported in Indonesia in 2021 was 36,902, and it grew to 52,955 in 2022 (Kementerian Kesehatan RI, 2023). Meanwhile, the occurrence rate of individuals carrying the β-thalassemia gene in Indonesia is approximately 3-10%, whereas the occurrence rate of individuals carrying the α-thalassemia gene is around 2.6-11%. Assuming that 5% of the Indonesian population is thalassemia carrier, approximately 2,500 new cases of thalassemia major will arise each year (Susanah et al., 2022). This highlights a significant gap in preventive health measures that could be addressed through the widespread implementation of PMS.

PMS is a highly effective solution for the prevention of inherited diseases and other health issues. Genetic diseases have a profound impact on individuals' quality of life (AlOtaiby et al., 2023), and PMS serves as a crucial tool in identifying and mitigating the risks associated with genetic blood abnormalities and other related complications. By identifying potential genetic risks before marriage, PMS provides couples with the opportunity to make informed decisions about their health and the health of their future children. In this context, PMS plays a role not only in preventing medical issues but also in reducing the psychological and social complications that can arise from genetic disorders within marriage (Natarajan & Joseph, 2021). Furthermore, by implementing preventive measures, the incidence of certain genetic diseases linked to marriage will likely decrease, reducing the chance of genetic issues affecting the health of future generations (Alhusseini et al., 2023).

While much of the existing research on PMS has focused on its medical and policy implications, limited attention has been paid to the understanding and attitudes of the populations most likely to benefit from it, such as young adults. For instance, a study by AlOtaiby et al. (2023) explored the knowledge of premarital genetic screening among the population of Riyadh and found The population of Riyadh's knowledge and attitudes toward premarital screening need to be enhanced through nationwide awareness initiatives. These findings highlight a need for more targeted education and awareness programs. Despite the widespread adoption of PMS in various countries, studies examining how young adults, especially university students, understand and perceive PMS are scarce. This is concerning, as the knowledge and awareness of PMS are critical for making informed decisions about health and marriage. Young adults, particularly those in a university setting, are at an ideal stage to acquire this knowledge, which may significantly influence their health choices in the future.

This study aims to fill this gap by exploring young adults' knowledge and perceptions of PMS in a university setting. By concentrating on this group, the study hopes to provide light on how well-informed young adults are about PMS and its significance in preventing transmitted and genetic illnesses. Ultimately, the research will provide insights into how educational interventions could improve awareness and uptake of PMS, potentially influencing health behaviors and decision-making in young adults.

METHODS

This study used a cross-sectional, quantitative design to assess knowledge and perceptions of premarital screening (PMS) among midwifery students at STIKES Bhakti Husada Mulia. The study was conducted online with data collected in July and August 2024. Using total sampling, all 79 female midwifery students who were 18 years or older, currently enrolled in the midwifery program, and not married were invited to participate. All eligible students were included in the study, ensuring comprehensive representation without sampling bias.

An online questionnaire was used to measure participants' knowledge and attitudes toward PMS. It included closed-ended and Likert scale questions. The questionnaire was content validated. Pearson Product Moment correlation confirmed construct validity with an r-value greater than 0.632. Cronbach’s Alpha was used to assess reliability, with a coefficient of 0.769,

indicating good internal consistency. Data were analyzed using the Chi-square test.

IBM SPSS Statistics v25 was used, with a significance level set at $\alpha = 0.05$. Ethical approval was obtained from the STIKES Bhakti Husada Mulia Health Research Ethics Commission (approval number 010/E-KEPK/STIKES/BHM/VIII/2024). Informed consent was collected from all participants.

RESULT AND DISCUSSION

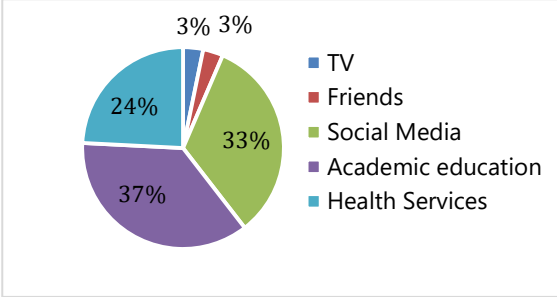
Table 1. Demographic characteristics of the respondents

Characteristics	Frequency	Percentage (%)
Age		
18 – 21 years	63	79.7
22 – 25 years	16	20.3
Year of study		
1st years	19	24
2nd years	30	38
3rd years	30	38
History of Genetic / Hereditary Diseases		
Yes	0	0
No	79	100
Family history with Genetic/Hereditary Diseases		
Yes	6	7.6
No	73	92.4

Knowledge

A total of 67 respondents (84.8%) had heard of Premarital Screening (PMS). Regarding their primary source of information on premarital screening, respondents indicated that they learned about it mostly via academic education (school or university) (37%), social media (33%), health services (24%), friends (3%), and TV (3%). An overwhelming majority of respondents indicated that premarital screening has the potential to lower the incidence of genetic illnesses and sexually transmitted diseases (73.4% and 82.3%, respectively). On average, respondents were aware of a variety of options for locations where premarital screening tests might be performed (58.2%).

Figure 1. Sources of information regarding the premarital screening program



A total of 35 respondents (44.3%) were aware of the examinations performed in the Premarital Screening program, with 54 respondents (68.4%) claiming that physical examinations were included. According to 40 respondents (50.6%), the presence of a genetic disease in a family is a clear indication that all members of the family are also affected by the disease (Table 2).

Table 2. Respondent Knowledge of Premarital Screening

Questions	Yes (%)	No (%)
Have you ever heard of Premarital Screening?	67 (84.8%)	12 (15.2%)
Premarital Screening can reduce the occurrence of genetic diseases	58 (73.4%)	21 (26.6%)
Premarital Screening can reduce the occurrence of sexually transmitted diseases	65 (82.3%)	14 (17.7%)
I know various choices of places that can do Premarital Screening.	46 (58.2%)	33 (41.8%)
I know what examinations are carried out in the Premarital Screening Test	35 (44.3%)	44 (55.7%)
Physical examination is included in the Premarital Screening Test	54 (68.4%)	25 (31.6%)
If a family has a genetic disease, then this certainly means that every member of the family also has the genetic disease	40 (50.6%)	39 (49.4%)

The data collected from 79 respondents who answered 7 questions about their knowledge of Premarital Screening (PMS) show that 54 respondents (68.4%) demonstrated good knowledge, while 25 respondents (31.6%) exhibited poor knowledge. To examine the relationship between knowledge level and age group, a chi-square test was performed. The

results indicated a significant association between knowledge level and age group (p = 0.018), suggesting that age is an important factor influencing PMS knowledge. The Cramér's V value was 0.26, indicating a moderate effect size, meaning that while the association is statistically significant, the strength of the relationship is moderate, implying that age does have an impact. The age group that has the highest level of knowledge is between 18 and 21 years old, with 47 out of 63 respondents (87%) achieving a 'good' score in terms of their knowledge of PMS. Conversely, the age group of 22 to 25 years old exhibits lower levels of knowledge, with only 7 out of 16 respondents (13%) scoring 'good' in their knowledge of PMS. The data revealed that students in 2nd years and 3rd year had greater knowledge than students in 1st year, with a total of 21 students (38.9%), however there was no significant correlation between knowledge and the year of study on campus (p=0.855). The level of knowledge was not significantly related to a history of genetic or hereditary diseases in the group of individuals who had a history of genetic or hereditary diseases (p = 0.949). However, the data revealed that respondents who did not have a history of genetic or hereditary diseases had a good understanding of premarital screening (PMS), with a total of 54 of 79 respondents having this level of knowledge. The data showed that the group that did not have a family history of genetic or hereditary diseases had a 'good' level of knowledge of 49 (90.7%) of 73 respondents when compared with other groups. This was in contrast to the relationships that were found between the level of knowledge and the family history of genetic or hereditary diseases, which were found to be insignificant (p = 0.412) (Table 3).

Table 3. Knowledge Level and Respondent Characteristics in Relationship

Respondent Characteristics	Knowledge		Total Number (%)	P value
	Good	Poor		
Age				
18 – 21 years	47 (87%)	16 (64%)	63 (79.7%)	0.018
22 – 25 years	7(13%)	9 (36%)	16 (20.3%)	
Year of study				
1st years	12 (22.2%)	7 (28%)	19 (24.1%)	0.855
2nd years	21 (38.9%)	9 (36%)	30 (38%)	
3rd years	21 (38.9%)	9 (36%)	30 (38%)	
History of Genetic / Hereditary Diseases				
Yes	0	0	0	0.949

No	54 (100%)	25 (100%)	79 (100%)	
Family history with Genetic/Hereditary Diseases				
Yes	5 (9.3%)	1 (4%)	6 (7.6%)	0.412
No	49 (90.7%)	24 (96%)	73 (92.3%)	

Perception

Table 4 shows that, out of the 79 respondents, 46 (58.2%) strongly agreed and 10 (12.7%) agreed that premarital screening is important before getting married. The majority of participants (63.3%) firmly felt that premarital screening would lower the rate of STDs. Premarital screening could strain a family's finances, according to 38 out of 79 responders (48.1%) who strongly disagreed. 26 respondents (32.9%) disagreed and 34 respondents (43%) strongly disagreed that premarital screening will benefit society more than it harm it. It is strongly disagreed by 31 respondents, which accounts for 39.2% of the total, that premarital screening can cause psychological problems for couples. The majority of respondents (65.8%) strongly agreed that any ailment detected in one of the partners should be treated before marriage. There were 27 respondents (34.2%) who selected neutral regarding the possibility that Premarital Screening may result in marital failure for couples if the results are unfavourable. 39 respondents (49.4%) strongly agreed that consanguinity (marriage between family members) can make it more likely to have children with genetic diseases. After learning the findings of the premarital screening, 29 respondents (36.7%) firmly believed that medical counselling was crucial. A total of 39 respondents, or 49.3%, were in agreement that laws and regulations ought to restrict marriage in situations where there is a potential of having children impacted by genetic diseases.

Table 4. Respondent Perceptions of Premarital Screening

Questions	Strongly agree	Agree	Neutral	Disagree	Strongly Disagree
	(%)	(%)	(%)	(%)	(%)
The importance of awareness about Premarital Screening before marriage	46 (58.2%)	10 (12.7%)	12 (15.2%)	0	11 (13.9%)
Premarital Screening will reduce the prevalence of sexually transmitted diseases (STDs)	50 (63.3%)	15 (19%)	8 (10.1%)	1 (1.3%)	5 (6.3%)
Premarital Screening can burden the family's	11 (13.9%)	4	11 (13.9)	15	38

economy		(5.1%)		(19%)	(48.1%)
Premarital Screening will cause more harm than benefit to society	15 (19%)	4 (5.1%)	0	26 (32.9%)	34 (43%)
Premarital Screening can cause psychological problems for couples	15 (19%)	15 (19%)	12 (15.2%)	6 (7.6%)	31 (39.2%)
Any disease that appears in one of the partners must be treated before marriage	52 (65.8%)	17 (21.5%)	3 (3.8%)	3 (3.8%)	4 (5.1%)
Premarital Screening can cause marital failure for couples if the results are bad	16 (20.3%)	18 (22.8%)	27 (34.2%)	11 (13.9%)	7 (8.9%)
Consanguinity (marriage between family members) can increase the risk of having a child with a genetic disease	39 (49.4%)	14 (17.7%)	11 (13.9%)	11 (13.9%)	4 (5.1%)
Medical counseling is important to do after getting the results of Premarital Screening	29 (36.7%)	13 (16.5%)	19 (24.1%)	14 (17.7%)	4 (5.1%)
Laws and regulations should prohibit marriage if there is a possibility of having children affected by genetic diseases	28 (35.4%)	11 (13.9%)	20 (25.3%)	15 (19%)	5 (6.3%)

Among the 79 respondents, 47 individuals (59.5%) had a good perception of PMS, while 32 individuals (40.5%) had a poor perception. A chi-square test was also conducted to assess whether there was an association between perception level and age group. The analysis revealed a significant correlation ($p = 0.045$), indicating that age group is significantly related to how respondents perceive PMS. The Cramér's V value was 0.21, suggesting a moderate effect. This implies that, while there is a meaningful relationship between age and perception. 38 respondents (80.9%) in the 18–21 age range had good perception scores, making this, the age group with the highest awareness score. There was no significant correlation found with other research variables. On the other hand, year of study variable reveals that the number of students in 3rd year had the highest level of positive perception, specifically 19 respondents, which accounts for 40.4% of the total (Table 5).

Table 5. Perception Level and Respondent Characteristics Correspondence

Characteristics of Respondents	Perception	Total number	P value

	Good	Poor	(%)	
Age				
18 – 21 years	38 (80.9%)	25 (78.1%)	63 (79.7%)	0.045
22 – 25 years	9 (19.1%)	7 (21.9%)	16 (20.3%)	
Year of study				
1st years	11 (23.4%)	8 (25%)	19 (24%)	0.859
2nd years	17 (36.2%)	13 (40.6%)	30 (38%)	
3rd years	19 (40.4%)	11 (34.4%)	30 (38%)	
History of Genetic / Hereditary Diseases				
Yes	0	0	0	0.796
No	47 (100%)	32 (100%)	79 (100%)	
Family history with Genetic/Hereditary Diseases				
Yes	5 (10.6%)	1 (3.1%)	6 (7.6%)	0.216
No	42 (89.4%)	31 (96.9)	73 (92.4%)	

DISCUSSION

The findings of this study indicate that a subset of young adults from the STIKES Bhakti Husada Mulia Midwifery Program has a strong knowledge of premarital screening (PMS). This is in line with the theory that an individual's knowledge is continuously shaped and reorganized over time as they encounter new information (Dewi et al., 2022). Given that most participants were midwifery students, it is not surprising that they exhibited a solid understanding of PMS. This aligns with findings from a study conducted in Saudi Arabia, where students also demonstrated a strong understanding of premarital examinations (Aga et al., 2021).

Moreover, consistent with previous research, students in the second and third years displayed higher levels of knowledge compared to first-year students. Specifically, third-year students in this study had a better grasp of premarital screenings than their first-year counterparts, reflecting the progressive acquisition of knowledge through their education (Aga et al., 2021). Similarly, a study in Saudi Arabia found that individuals with higher educational attainment were more likely to attend premarital screening (Sidabutar & Hadi, 2024). Additionally, research by Al-Shroby et al. (2021) further supports the conclusion that education is a key factor in increasing PMS knowledge.

Interestingly, despite the fact that several participants reported a family history of genetic or hereditary diseases, none of the respondents themselves had a personal history of these conditions. Individuals with such histories are often more motivated to seek information and

testing due to their awareness of potential risks for themselves, their families, and future offspring (Al-Shafai et al., 2022). Furthermore, the study found that participants with a medical history of certain health conditions demonstrated superior understanding of PMS compared to those without such a history. This is consistent with the idea that individuals who have experienced or been exposed to health issues may be more aware of their own health and its potential implications for future reproductive decisions (Al-Shroby et al., 2021).

In terms of the sources of knowledge, the majority of participants reported gaining information about PMS through formal education, while nearly one-third obtained information from social media. A smaller proportion relied on healthcare providers, television, or friends. These findings are consistent with a study by Saleh et al. (2022), which also found that formal education was the primary source of PMS information, followed by family and media. However, the role of social media in disseminating health information has grown significantly in recent years. A study by Al-Shroby et al. (2021) found that social media was the third most common source of information for PMS, which highlights the increasing influence of online platforms on public health education. The role of media, both traditional and digital, underscores the importance of critical information filtering.

This study also shows that many young adults in the Midwifery Program have a positive perception of PMS. A recent study among young Jordanians found that nearly 90% of participants held a favorable view of premarital examinations, believing they could reduce the likelihood of having a child with health issues (Altaany et al., 2021). Similarly, medical students at King Saud Bin Abdulaziz University for Health Sciences also held a favorable perception of PMS (Aga et al., 2021). These findings suggest a general trend among students, especially those in health-related fields, to view premarital screening as a beneficial practice for both individual and societal well-being.

Furthermore, the majority of respondents in this study agreed that any illness detected in a partner should be addressed before marriage. They also expressed the belief that if one partner is a carrier of a genetic disorder, the marriage process should not proceed. This finding resonates with research indicating that children born with genetic diseases can impose substantial financial and psychological burdens on families and governments (Alasmari, 2024).

This reflects a clear understanding among participants of the broader implications of genetic conditions for both individual health and societal welfare.

While the findings provide valuable insights, there are several limitations to this study that must be acknowledged. The sample was limited to students from a single midwifery program at STIKES Bhakti Husada Mulia Madiun, which may not be representative of the broader population of young adults or students from other disciplines. The homogeneity of the sample in terms of educational background and program focus could limit the generalizability of the results. Future studies could benefit from including a more diverse sample that spans multiple fields of study and regions to provide a more comprehensive understanding of PMS knowledge and perceptions.

CONCLUSION

This study demonstrates that a significant number of midwifery students possess a high level of knowledge and positive perceptions regarding premarital screening (PMS It underscores the vital role of health education, especially within health-related academic programs, in shaping individuals' knowledge of preventive health practices like PMS. The findings suggest that integrating PMS education into health curricula, not just for midwifery students but across a wide range of health disciplines, can better prepare future healthcare professionals to advise individuals on reproductive health. Additionally, the study points to the importance of enhancing public health initiatives to raise awareness about PMS among young adults, particularly those outside the healthcare sector. Healthcare providers, particularly those in primary care, can play a key role in promoting PMS.

REFERENCES

Aga, S. S., Alghamdi, Y. A., Alghamdi, A. A., & Khan, M. A. (2021). Knowledge, awareness, and attitude of medical students concerning genetics and premarital screening. Journal of Nature and Science of Medicine, 4(4), 356–365. https://doi.org/10.4103/jnsm.jnsm_47_21

Alasmari, S. Z. (2024). Premarital screening programme in Saudi Arabia: Insights into men's awareness and perceptions. African Journal of Reproductive Health, 28(3), 63–73. https://doi.org/10.29063/ajrh2024/v28i3.7

Alhusseini, N., Farhan, H., Yaseen, L., Abid, S., Imad, S. S., & Ramadan, M. (2023). Premarital mental health screening among the Saudi population. Journal of Taibah University Medical Sciences, 18(1), 154–161. https://doi.org/10.1016/j.jtumed.2022.06.013

Alkalbani, A., Alharrasi, M., Achura, S., Al Badi, A., Al Rumhi, A., Alqassabi, K., Almamari, R., & Alomari, O. (2022). Factors Affecting the Willingness to Undertake Premarital Screening Test Among Prospective Marital Individuals. SAGE Open Nursing, 8. https://doi.org/10.1177/23779608221078156

AlOtaiby, S., Alqahtani, A., Saleh, R., Mazyad, A., Albohigan, A., & Kutbi, E. (2023). Comprehension of premarital screening and genetic disorders among the population of Riyadh. Journal of Taibah University Medical Sciences, 18(4), 822–830. https://doi.org/10.1016/j.jtumed.2023.01.006

Al-Qahtani, F., Alfahad, M., Alshahrani, A. M., Almalih, H., Al-Malki, A. Q., Alshehri, T., Alqhtani, A. N., Al-Qahtani, A., Alfaifi, S., Alasmari, R. A., Bharti, R., & Chaudhary, S. (2019). Perception of premarital counseling among King Khalid University students. Journal of Family Medicine and Primary Care, 8(8), 2607. https://doi.org/10.4103/jfmpc.jfmpc_364_19

Al-Shafai, M., Al-Romaihi, A., Al-Hajri, N., Islam, N., & Adawi, K. (2022). Knowledge and Perception of and Attitude toward a Premarital Screening Program in Qatar: A Cross-Sectional Study. International Journal of Environmental Research and Public Health, 19(7). https://doi.org/10.3390/ijerph19074418

Al-Shroby, W. A., Sulimani, S. M., Alhurishi, S. A., Dayel, M. E. B., Alsanie, N. A., & Alhraiwil, N. J. (2021). Awareness of premarital screening and genetic counseling among saudis and its association with sociodemographic factors: A national study. Journal of Multidisciplinary Healthcare, 14, 389–399. https://doi.org/10.2147/JMDH.S296221

Altaany, Z., Khabour, O. F., Alzoubi, K. H., Alkaraki, A. K., & Al-Taani, G. (2021). The Perception of Premarital Genetic Screening within Young Jordanian Individuals. Public Health Genomics, 24(3–4), 182–188. https://doi.org/10.1159/000517162

Dewi, A. T. A., Susanti, A. I., Rinawan, F. R., Gondodiputro, S., & Martini, N. (2022). Knowledge and Attitudes towards Premarital Screening among Adolescents: A study in a University Setting. Althea Medical Journal, 9(2), 80–85. https://doi.org/10.15850/amj.v9n2.2502

Kemenkes. (2018, August 18). Pentingnya Pemeriksaan Kesehatan Pra Nikah. Kemenkes. https://ayosehat.kemkes.go.id/pentingnya-pemeriksaan-kesehatan-pra-nikah

Kementerian Kesehatan RI. (2023). PROFIL KESEHATAN INDONESIA 2022. Kementerian Kesehatan RI.

Natarajan, J., & Joseph, M. A. (2021). Premarital screening for genetic blood disorders — an integrated review on the knowledge and attitudes of Middle Eastern university students. In Middle East Fertility Society Journal (Vol. 26, Issue 1). Springer Science and Business Media Deutschland GmbH. https://doi.org/10.1186/s43043-021-00065-4

Saeedi, M. G., Brnawi, O. M., Basmool, S. O., Almalki, Y. A., Zamzami, M. M., Yateem, N. O., Yateem, N. O., Fallatah, D. A., Altoum, A. A., Alsunbul, F. O., Sonni, E. M., Alghamdi, A. S., Alghamdi, F. A., Alkhader, N. K., Aqassab, N. H., Alruwaili, A. M., Alohali, A. O., Abushaheen, A. J., Alsadiq, S. A., & Alhammad, H. M. (2023). The Importance of Pre-Marital Examinations. 7(3), 524–527. http://journalppw.com

Saleh, L. M., El–Kader, R. G. A., & Jadaan, O. Al. (2022). Knowledge of the University students toward premarital screening program. International Journal of Health Sciences, 2945–2955. https://doi.org/10.53730/ijhs.v6ns3.6316

Sidabutar, N. H. T., & Hadi, E. N. (2024). Premarital Screening: A Catalyst for Achieving Good Health and Well-Being. Jurnal Promkes : The Indonesian Journal of Health Promotion and Health Education, 12(1).

Susanah, S., Sari, N. M., Prihatni, D., Sinaga, P., Trisaputra, J. O., Rakhmilla, L. E., & Sribudiani, Y. (2022). Extended family thalassemia screening as a feasible alternative method to be implemented in identifying carriers in West Java, Indonesia. Journal of Community Genetics, 13(1), 103–112. https://doi.org/10.1007/s12687-021-00565-w