

AWARENESS, VIEWS, AND ATTITUDES REGARDING A PREMARITAL SCREENING PROGRAM

**Najwa Saud Alonazi, Saleh Hadi Al Qirad, Ahmed Abdullah Saad Aljouan, Mashaal Badai
Alsahli, Turkey Hamoud Almohaisen, Ahmed Radwan Mohamed Ashiya, Bassam Abdullah
Alyousef, Ibrahim Ahmed Alshelhuob, Dr.Saeed Ali Alshehri, Fawaz Nafei Alshammari**

ABSTRACT

Background: A thorough examination known as premarital screening is required prior to marriage and includes tests for blood-borne infections, infectious diseases, genetic disorders, and reproductive organs. The goal of the screening is to protect couples and their offspring from the danger of chronic illnesses. Because risk factors can be identified and treated early in the life of the mother and unborn child, this screening can help avoid stunting, birth abnormalities, and maternal and infant mortality. Premarital screening practices are not culturally established, despite their significance.

Objective: The purpose of this study was to identify the variables linked to premarital screening behavior.

Methods: The design of this study is a comprehensive examination of the Google Scholar and Scopus databases that address the factors influencing premarital screening behavior using quantitative techniques. The terms "premarital" and "screening" were used to gather articles that were published between 2018 and 2023, or within the previous five years.

Results: 1,151 items were found by the researchers. Ten publications were further reviewed after meeting the study's criteria and goal. The following criteria are linked to premarital screening behavior: older age, female, higher education level, consanguineous relationship between parents, history of genetic illnesses, positive attitude and good information, and the implementation of government rules. **Conclusion:** To increase public knowledge of the importance of premarital health screening, health promotion could be broadened. Future researchers are also expected to use a variety of research methodologies, including cross-sectional or qualitative research, to examine premarital health screening behavior.

Keywords: premarital; screening; marriage; SDGs

INTRODUCTION

Around 40,618 children worldwide are born with thalassemia each year, according to a 2021 World Health Organization (WHO) report, and 62.8% of these infants will need blood transfusions at some point in their lives (WHO, 2021). In Southeast Asia, where the incidence of carriers varies from 3% to 20% and about 2,500 children are born with thalassemia annually, WHO has identified 11 countries in the sub-region with a high prevalence of thalassemia, including Indonesia (WHO, 2021). An estimated 258,347 Indonesians with thalassemia are expected to have continuous blood transfusions throughout their lives in 2021 (BPJS Kesehatan, 2021). In 2021, catastrophic or

expensive diseases would account for the largest portion of Indonesia's health spending (about IDR 90.33 trillion), according to data from Badan Penyelenggara Jaminan Sosial (BPJS). Since 2014, this represents a 25–31% rise in the overall amount of health financing. Heart disease, cancer, stroke, kidney failure, thalassemia, hemophilia, leukemia, and liver cirrhosis are the catastrophic diseases that are classified in order of the amount of money spent on medical care (BPJS Kesehatan, 2021). Thalassemia and hemophilia are the only two of the eight disorders that are brought on exclusively by a genetic component acquired from one's parents (Al-Kindi et al., 2019).

Many people regard marriage to be a significant life milestone and an important stage in their lives. From a health standpoint, two people need more care when they get married, especially when it comes to their health and medical background. According to Suresh et al. (2023), premarital screening is one of the preventive steps that may be implemented to avoid various health issues that can arise from marriage. One issue is premarital screening behavior, which is seven years closer to the 2030 Sustainable Development Goals (SDGs), which seek to guarantee universal access to sexual and reproductive health care services, such as family planning, information and education, and integration of reproductive health into national strategies and programs (United Nations, 2023).

Testing for common genetic disorders including thalassemia, hemophilia, and sickle cell anemia, as well as infectious diseases like hepatitis B, hepatitis C, and HIV/AIDS, is known as premarital screening (Alhosain, 2018). According to Al-Balushi and Al-Hinai (2018), it can lessen the chance of birth abnormalities and maternal and newborn mortality. Premarital screening can help avoid the birth of stunted babies by detecting the condition early in pregnant moms (Shojaiefar et al., 2021). Furthermore, it can lessen the spread of the aforementioned illnesses, which will lower the cost of treating each one separately as well as the nation's overall health burden (Natarajan & Joseph, 2021). According to AlOtaiby et al. (2023), premarital screening can also be used as a tool by medical experts to educate couples and give them the information they need to create healthy families and have high-quality children.

Premarital screening is now a need for marriage and has been made required in several nations (Al-Shroby et al., 2021). For instance, in Saudi Arabia, couples are progressively adopting the program to guarantee a disease-free life and healthy children (Alhusseini et al., 2023). Additionally, Indonesia has adopted the program (Kemenkes RI, 2019). The participation of several marriage-related parties, including as the Ministry of Health, BKKBN, Ministry of Religious Affairs, and Puskesmas, is essential to the program's success. Nevertheless, the program's implementation was deemed to be less than ideal (Fitriani, 2020). There are presently no particular regulations governing the implementation of health examinations for individuals who are considering marriage, despite the fact that a number of policies promote the program's implementation. Most people don't have a health checkup before getting married since they don't know enough about it (BKKBN, 2020). In Indonesia, getting checked before marriage is relatively uncommon, despite its significance. Numerous long-term health issues for both partners and their

future children could be avoided if all couples were informed of the advantages of premarital screening (Saffi & Howard, 2015). As a result, it is crucial to look into the factors that influence premarital screening as a component of reproductive health initiatives and public health prevention strategies.

METHODS

A cross-sectional methodology was used to choose research publications that used quantitative methodologies and were published between 2018 and 2023 for additional analysis. This systematic review offers a thorough examination of various search engines for scholarly publications. 'premarital' AND 'screening' in English and Bahasa Indonesia were the keywords the researchers used to search the Google Scholar and Scopus databases for articles. Title, abstract, research year, and methodology were used to choose the articles. Additionally, the previously set inclusion and exclusion criteria were modified in order to choose the articles. Publication in non-accredited journals and articles authored in languages other than English or Indonesian were the two disqualification criteria. Research findings on factors influencing premarital screening behavior, quantitative research using primary data, research published during the recent five years (2018–2023), and full-text accessibility were the study's inclusion criteria. Several search engines were used to gather 1,151 articles in total. Thirty papers were found after the titles and abstracts were filtered. Nineteen articles that satisfied all the requirements were chosen based on the year and the inclusion criteria. Lastly, ten articles that cover the topic in the most detail.

Figure 1 presents the PRISMA framework, adapted from Tricco et al. (2018), which serves as a selection guide for the articles to be reviewed in this study.

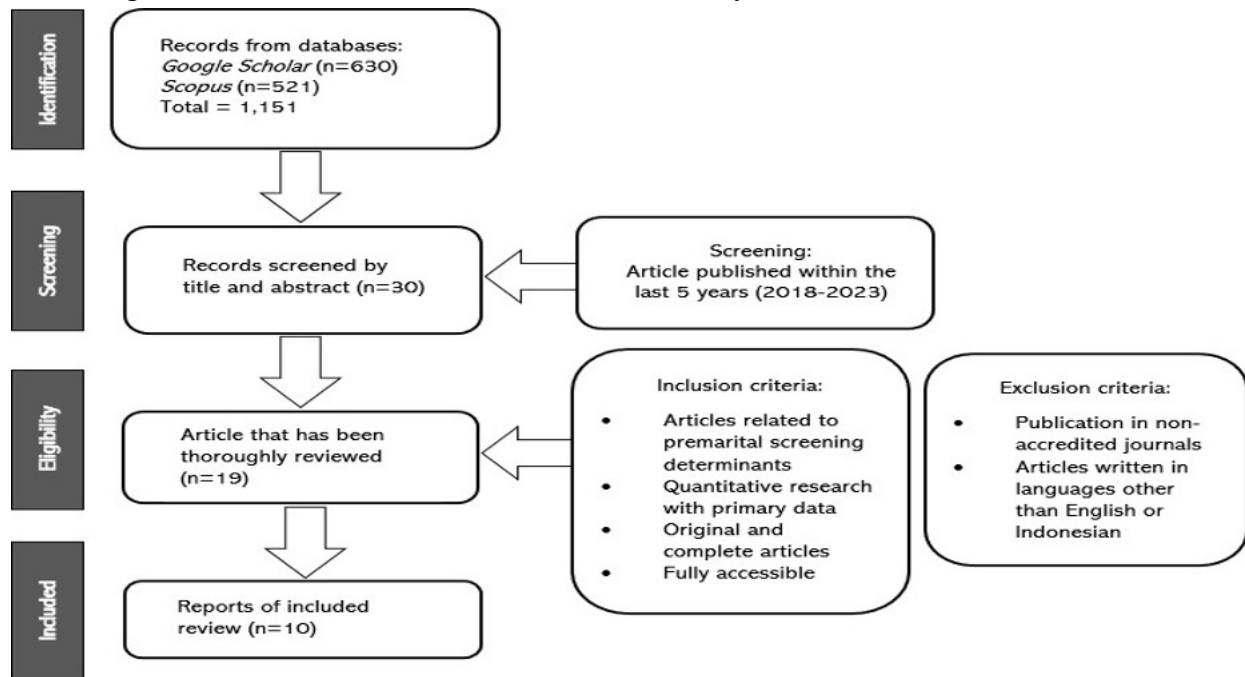


Figure 1. PRISMA Flowchart

RESULTS

Seven factors—age, sex, education level, parental endogamous marriage, history of genetic illnesses, knowledge and attitude, and government regulations—were linked to premarital screening behavior after the 10 publications that satisfied the study's requirements were analyzed. Additional information about the papers is given in Table 1.

Table 1. Article Review of the Findings Determinants of Premarital Screening Behavior

No	Author	Title	Participants, Sample Size	Methods	Results
1	Rahma M. Al- Kindi, Saraswathi Kannekanti, Jansi Natarajan, Lina Shakman, Zeinab Al-Azri, Naifain I. Al-Kalbani (2019)	Awareness and Attitude Towards the Premarital Screening Programme Among High School Students in Muscat, Oman	1,541 high school seniors from 10 public schools	A study using questionnaires to collect quantitative data	Endogamous marriage in parents, family history of genetic disease, and being female were all significantly associated with premarital health screening behavior ($p=0.018$, 0.001 , and 0.016 , respectively)
2	Mokhtar abdo Almoliky, Heba Abdulrhman, Showqi Hasan Safe, Malak Galal, Heba Abdu, Basma Towfiq, Shatha Abdullah, Mohammed Waleed, Mujeeb A. Sultan (2022)	Knowledge and attitude of Engaged and Recently Married Couples Toward Premarital Screening: A Cross- Sectional Study	189 participants	A study using questionnaires to collect quantitative data	Premarital screening behavior is associated with being a woman, having good knowledge about genetic diseases, and displaying positive attitudes toward the consequences of health screening
3	Syed Sameer Aga, Yara Abdulaziz Alghamdi, Amal Abdullah Alghamdi, Muhammad Anwar Khan (2021)	Knowledge, Awareness, and Attitude of Medical Students Concerning Genetics and Premarital Screening	302 medical students	A study using questionnaires to collect quantitative data	Higher levels of education, higher costs of health screening, the presence of consanguineous relationships between parents, enacted government regulations, and gender have been found to influence premarital screening behavior

4	Ali Alkalbani, Maryam Alharrasi, Susan Achura, Ammar Al Badi, Amjad Al Rumhi, Khalid Alqassabi, Raya Almamari, Omar Alomari (2022)	Factors Affecting the Willingness to Undertake Premarital Screening Test Among Prospective Marital Individuals	400 students between the ages of 20 and 30 from various departments at a state university	A study using questionnaires to collect quantitative data	Female (p=0.016), being married (p=0.009), and having a parental relationship (p=0.007) were significantly correlated with the adoption of premarital screening behavior
5	Walid A. Al- Shroby, Suha M. Sulimani, Sultana A. Alhurishi, Maram E. Bin Dayel, Nora A. Alsanie, Najla J. Alhraiwil (2021)	Awareness of Premarital Screening and Genetic Counseling among Saudis and its Association with Sociodemographic Factors: a National Study	6,263 participants were randomly selected from 20 regions utilizing the stratification method	A study using questionnaires to collect quantitative data	Women who are over 18 years old, have a bachelor's degree or higher education, are married, and earn a high income are more likely to undergo premarital screening
N o	Author	Title	Participants, Sample Size	Method s	Results
6	Shahad AlOtaiby, Abdulhadi Alqahtani, Ruba Saleh, Abeer Mazyad, Abdulrazaq Albohigan, Emad Kutbi (2023)	Comprehension of premarital screening and genetic disorders among the population of Riyadh	A random sample of 652 participants aged 16-60 was selected from the general population	A study using questionnaires to collect quantitative data	Premarital screening behavior is associated with women, college graduates, and the presence of government regulations
7	Abdulbari Bener, Mariam Al-Mulla, Angus Clarke (2018)	Premarital Screening and Genetic Counseling Program: Studies from an Endogamous Population	873 participants aged 18-40 years from primary healthcare facilities	A study using questionnaires to collect quantitative data	The main factors associated with premarital screening are older age, higher level of education, awareness of genetic diseases, parental approval of marrying a relative, high- income level, employment status, and strong relationship with partner

8	Safia M. Binshihon, Manal O. Alsulami, Wed M. Alogaibi, Asmaa H. Mohammedsaleh, Hayfa N. Mandourah, Bushra S. Albaity, Mohamad H. Qari (2018)	Knowledge and attitude toward hemoglobinopathies premarital screening program among the unmarried population in Western Saudi Arabia	1,039 single individuals in the general population	A study using questionnaires to collect quantitative data	University graduates or those with a higher level of education (p=0.001), individuals over the age of 25 (p=0.005), and those with a family history of genetic disease (p=0.001) were found to be more likely to undergo premarital screening.
9	Zaid Altaany, Omar F. Khabour, Kareem H. Alzoubi, Almuthanna K. Alkaraki, Ghaith Al-Taani (2021)	The Perception of Premarital Genetic Screening within Young Jordanian Individuals	432 participants over the age of 18 were surveyed at shopping centers or universities	A study using questionnaires to collect quantitative data	Female gender, higher education, government mandates, and history of genetic conditions affect health screening attitudes before marriage
10	Maha Ali, Norelhoua Elshabory, Hanan Elzeblawy Hassan, Nehad Zahra, Hayam Alrefai (2018)	Perception about Premarital Screening and Genetic Counseling Among Males And Females Nursing Students	203 students in the third year of nursing program	A study using questionnaire s to collect quantitative data	Females (p=0.005), those with consanguineous parental relationships (p=0.019), and those with a personal (p=0.001) or family (p=0.035) history of genetic disease were associated with premarital screening behaviors

DISCUSSION

Age

Our decision-making process usually matures with age, which can affect our behavior, especially when it comes to health-related actions. The results of Oluwole et al. (2022) with a significance level of $p < 0.001$ indicate that older people typically take into account more criteria while performing premarital screening. Zedan Zaien et al.'s research supports this conclusion as well (2022). Age and the use of premarital health screening have a significant correlation, according to multiple regression analysis ($p=0.007$). According to a Saudi Arabian study, respondents over 20 are more likely than younger respondents to have premarital health screenings (Zedan Zaien et al., 2022).

Sex

The decision to get screened before marriage is heavily influenced by sex. According to a study conducted on Qatari university students, women know a lot more about premarital health screening than males do ($p<0.01$) (Al-Shafai et al., 2022). Conversely, another study from the same year by

Alkalbani et al. (2022) reveals that men in Oman have a larger desire to attend premarital health screening than women, suggesting potential cultural differences on premarital screening.

Educational Level

According to Notoatmodjo (2007), formal education is the process through which teachers impart knowledge in order to accomplish learning goals and modify behavior. Higher education and healthier habits are positively correlated, according to research. According to Aga et al. (2021), third-year college students agreed with premarital health screening at higher rates than first-year students ($p < 0.001$). Furthermore, research from Saudi Arabia shows that a person's educational attainment has a significant impact on whether or not they choose to have a premarital health screening ($p = 0.019$) (Zedan Zaien et al., 2022).

Parental Endogamous Marriage

The practice of marrying inside one's social group, including family, is known as endogamy, according to the Indonesian Dictionary (KBBI, 2023). These kinds of weddings usually occur between maternal or paternal relatives. Family relationships often influence how their children behave when it comes to premarital screening. This is due to the fact that genetic diseases including hemophilia, thalassemia, epilepsy, and sickle cell anemia are usually 20 times more common in groups whose cousins marry. In order to reduce the risk of inherited disorders, premarital screening procedures are frequently used (Bener et al., 2019). Nonetheless, Gosadi et al.'s research from 2021 shows that consanguineous couples are hesitant to get screened before marriage for a number of reasons. They are prepared to take on all the hazards of having children without first undergoing a premarital health test because they believe that marriage is a predestined fate (Gosadi et al., 2021).

History of Genetic Diseases

Personal or family history of genetic disease is one of the characteristics linked to premarital screening behavior. The findings of a study by Al-Shafai et al. (2022) support this, demonstrating that people or family members with a history of genetic illnesses are more likely to decide to have a premarital health screening. Their prior exposure to knowledge or their increased interest in learning more about the condition due to its effects on them and their families, both now and for their future children, may be the reason for this (Al-Shafai et al., 2022).

Knowledge and Attitude

Positivity and good information about premarital screening programs can influence premarital screening behavior. These characteristics increase the likelihood ($p < 0.001$) that a person will select premarital screening before to marriage (Bindhani et al., 2020). This is supported by data showing that, despite premarital screening being required in Qatar, some couples choose not to get screened before marriage because they are unaware of the program (Al-Shafai et al., 2022).

Government Regulations

Premarital screening behavior is linked to government rules that mandate health screening as a requirement before marriage documents may be submitted. Research from Nigeria indicates that the creation of policies can enhance community access to screening programs and promote premarital screening practices (Oluwole et al., 2022). Government restrictions increase public

acceptance and encourage people to get health examinations before to marriage, according to research done in India (Bindhani et al., 2020).

CONCLUSION

Age, sex, education level, parental endogamous marriage, history of genetic illnesses, knowledge and attitude, and government restrictions are some of the characteristics that the study discovered to influence premarital screening behavior. The creation of premarital screening programs in Indonesia to reduce the wider public health burden, such as genetic abnormalities, STDs, and the risk of child handicap and mortality, will benefit greatly from this comprehensive study. Additionally, more public education and promotion by health professionals may raise awareness of the value of premarital health examinations. Other research techniques, such as cross-sectional approaches to measure the most important factors influencing premarital screening behavior and qualitative research techniques to examine the causes of reluctance to undergo premarital screening, should be used to further investigate premarital screening behavior. These methods might be helpful to future researchers in developing a more thorough grasp of this subject.

REFERENCES

- Aga, S., Alghamdi, Y., Alghamdi, A., & Khan, M. (2021). Knowledge, awareness, and attitude of medical students concerning genetics and premarital screening. *Journal of Nature and Science of Medicine*, 4(4), 356. https://doi.org/10.4103/jnsm.jnsm_47_21
- Al-Balushi, A. A., & Al-Hinai, B. (2018). Should Premarital Screening for Blood Disorders be an Obligatory Measure in Oman? *Sultan Qaboos University Medical Journal [SQUMJ]*, 18(1), 24. <https://doi.org/10.18295/squmj.2018.18.01.004>
- Al-Kindi, R. M., Kannekanti, S., Natarajan, J., Shakman, L., Al-Azri, Z., & Al-Kalbani, N. I. (2019). Awareness and Attitude Towards the Premarital Screening Programme Among High School Students in Muscat, Oman. *Sultan Qaboos University Medical Journal [SQUMJ]*, 19(3), 217. <https://doi.org/10.18295/squmj.2019.19.03.007>
- 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), 4418. <https://doi.org/10.3390/ijerph19074418>
- Al-Shroby, W. A., Sulimani, S. M., Alhurishi, S. A., Bin Dayel, M. E., 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* Volume 14, 389–399. <https://doi.org/10.2147/JMDH.S296221>
- Alhosain, A. (2018). Premarital Screening Programs in the Middle East, from a Human Right's Perspective. *Diversity & Equality in Health and Care*, 15(2). <https://doi.org/10.21767/2049-5471.1000154>
- 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, 237796082210781. <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>
- Bener, A., Al-Mulla, M., & Clarke, A. (2019). Premarital screening and genetic counseling program: Studies from an endogamous population. *International Journal of Applied and Basic Medical Research*, 9(1), 20. https://doi.org/10.4103/ijabmr.IJABM_R_42_18
- Bindhani, B. K., Devi, N. K., & Nayak, J. K. (2020). Knowledge, awareness, and attitude of premarital screening with special focus on sickle cell disease: a study from Odisha. *Journal of Community Genetics*, 11(4), 445–449. <https://doi.org/10.1007/s12687-020-00471-7>
- BKKBN. (2020). RENCANA STRATEGIS BKKBN 2020-2024.
- BPJS Kesehatan. (2021). PENYAKIT KATASTROPIK BERBIAYA MAHAL. In *Media Info BPJS Kesehatan* (104th ed.).
- Fitriani, R. K. (2020). ANALISIS KEBIJAKAN DAN IMPLEMENTASI PROGRAM PREMARITAL CHECK UP DI INDONESIA. <https://doi.org/10.13140/RG.2.2.33931.52000>
- Gosadi, I. M., Gohal, G. A., Dalak, A. E., Alnami, A. A., Aljabri, N. A., & Zurayyir, A. J. (2021). Assessment of Factors Associated with the Effectiveness of Premarital Screening for Hemoglobinopathies in the South of Saudi Arabia. *International Journal of General Medicine*, Volume 14, 3079–3086. <https://doi.org/10.2147/IJGM.S321046>
- KBBI. (2023). Endogami. <https://kbbi.kemdikbud.go.id/entri/endogami>
- Kemenkes RI. (2019). Sedang Gencar Dikenalkan, Inilah 4 Fakta Seputar Pre- Marital Check Up. <https://ayosehat.kemkes.go.id/sedang-gencar-dikenalkan-inilah-4-fakta-seputar-pre-marital-check-up>
- 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. *Middle East Fertility Society Journal*, 26(1), 19. <https://doi.org/10.1186/s43043-021-00065-4>
- Notoatmodjo, S. (2007). *Promosi Kesehatan dan Ilmu Perilaku*. PT. Rineka Cipta.
- Oluwole, E. O., Okoye, C. D., Ogunyemi, A. O., Olowoselu, O. F., & Oyedeji, O. A. (2022). Knowledge, attitude and premarital screening practices for sickle cell disease among young unmarried adults in an urban community in Lagos, Nigeria. *Pan African Medical Journal*, 42. <https://doi.org/10.11604/pamj.2022.42.8.27705>

- Saffi, M., & Howard, N. (2015). Exploring the Effectiveness of Mandatory Premarital Screening and Genetic Counselling Programmes for β -Thalassaemia in the Middle East: A Scoping Review. *Public Health Genomics*, 18(4), 193–203. <https://doi.org/10.1159/000430837>
- Shojaiefar, S., Jamilian, H., Hasani, S., Shojaiefar, H., & Vakilian, K. (2021). Motivational Interviewing on Couples' Attitude Toward Premarital Genetic Testing. *Gazi Medical Journal*, 32(3). <https://doi.org/10.12996/gmj.2021.95>
- Suresh, H., Jamil, S., Padhi, B. K., & Hossain, M. J. (2023). Thalassaemia prevention: Religious and cultural barriers to premarital screening in Bangladesh. *Health Science Reports*, 6(4). <https://doi.org/10.1002/hsr2.1176>
- Tricco, A. C., Lillie, E., Zarin, W., O'Brien, K. K., Colquhoun, H., Levac, D., Moher, D., Peters, M. D. J., Horsley, T., Weeks, L., Hempel, S., Akl, E. A., Chang, C., McGowan, J., Stewart, L., Hartling, L., Aldcroft, A., Wilson, M. G., Garritty, C., ... Straus, S. E. (2018). PRISMA Extension for Scoping Reviews (PRISMA-ScR): Checklist and Explanation. *Annals of Internal Medicine*, 169(7), 467–473. <https://doi.org/10.7326/M18-0850>
- WHO. (2021). Regional desk review of haemoglobinopathies with an emphasis on thalassaemia and accessibility and availability of safe blood and blood products as per these patients' requirement in South-East Asia under universal health coverage. <https://iris.who.int/bitstream/handle/10665/344889/9789290228516-eng.pdf?sequence=1>
- Zedan Zaien, S., Abdallah El-Houfey, A., Alqahtani, H., Abd Elwahab El Sayed, H., Taha Elgzar, W., Mohamed Essa, R., Bayomy, H., & Abdel-Fatah Ibrahim, H. (2022). Predictors of premarital screening and genetic counseling knowledge and attitude among deaf and hard hearing females in Tabuk, Saudi Arabia. *Journal of Medicine and Life*, 15(3), 379–386. <https://doi.org/10.25122/jml-2021-0165>