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# Reproductive health issues: knowledge and attitudes among Saudi women over 40 years

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**In Saudi Arabia, an open discussion about reproductive health is limited due to cultural and religious norms, affecting awareness and access to care. Existing researches mainly focus on adolescents, highlighting the need for further studies on older women.**
***The objective:*** **to analyze the knowledge and attitude of Saudi women aged 40 years or above towards reproductive health.**
***Materials and methods*****. Survey-based, cross-sectional study conducted from May to June 2023. The total number of participants was 1,025 women. The Chi-square test ($\chi^2$) assessed associations between sociodemographic variables (age, residence) and reproductive health behaviors.**
***Results*****. Most of the participants were within the age group of more than 50 years old (n = 500, 48.9%), residents of Makkah (n = 410, 40.0%), had a bachelor's degree or higher educational level (n = 720, 70.2%), and were married (n = 870, 85.0%). The results of reproductive health analysis showed that 16.8% of women had a family history of breast cancer, 65% of participants had mammography examination, and 16% – monthly doctor's examinations. 4.7% of woman had a family history of cervical cancer, and 22.4% of participants had a Papanicolaou (PAP) smear. Menopausal symptoms were reported by 43.5% of women, and 29.2% of persons did not have menstruations for over a year. No statistically significant association was found between place of residence and reproductive health-related behavior ($p > 0.05$). At the same time, a significant association was found between age and mammography screening in the last 5 years ($p = 0.000$), as well as between age and bone density scan ($p = 0.000$), while media awareness of mammography was observed in older women ($p = 0.035$).**
***Conclusions*****. The results of the study highlight the need to increase breast health awareness, mammography screening, regular cervical PAP smears, and family history to reduce cancer prevalence among women over 40 years of age. This will also help to understand the demand for targeted health initiatives and educate about routine screening. Further research is needed to consider socioeconomic status, cultural barriers, and healthcare access.**
***Keywords:*** *reproductive health, cultural barriers, health literacy, menopause, breast cancer.*

## Питання репродуктивного здоров'я: обізнаність і ставлення жінок віком понад 40 років у Саудівській Аравії

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У Саудівській Аравії відкрите обговорення питань репродуктивного здоров'я обмежене через культурні й релігійні норми, що впливають на рівень обізнаності населення та доступ до медичної допомоги. Наявні дослідження переважно зосереджені на підлітках, що підкреслює необхідність подальших досліджень, орієнтованих на жінок старшого віку.
***Мета дослідження:*** аналіз рівня обізнаності та ставлення жінок віком від 40 років у Саудівській Аравії до питань репродуктивного здоров'я.
***Матеріали та методи.*** Проведено перехресне дослідження на основі опитування, що тривало з травня по червень 2023 року. Загальна кількість учасниць становила 1025 осіб. За допомогою тесту $\chi^2$ оцінювалися зв'язки між соціально-демографічними змінними (вік, місце проживання) та поведінкою, пов'язаною з репродуктивним здоров'ям.
***Результати.*** Більшість жінок були віком понад 50 років (n = 500, 48,9%), мешканками Мекки (n = 410, 40,0%), мали освіту і ступінь бакалавра або вище (n = 720, 70,2%) та перебували у шлюбі (n = 870, 85,0%). Результати аналізу репродуктивного здоров'я свідчать, що 16,8% учасниць дослідження мали в сімейному анамнезі випадки раку молочної залози, 65% жінок проходили мамографію, а 16% – щомісячні огляди. У 4,7% жінок зафіксовано сімейний анамнез раку шийки матки, а 22,4% пройшли обстеження шийки матки за Папаніколау (ПАП-тест) протягом останніх 5 років. Симптоми менопаузи відзначали 43,5% респонденток, а у 29,2% жінок менструації не спостерігалися понад рік. Не встановлено статистично значущого зв'язку між місцем проживання та поведінкою, пов'язаною з репродуктивним здоров'ям ($p > 0,05$). Водночас виявлено значущий зв'язок між віком й обстеженням за допомогою мамографії протягом останніх 5 років ($p = 0,000$), а також між віком і проходженням сканування щільності кісток ($p = 0,000$), тоді як обізнаність за допомогою засобів масової інформації щодо мамографії спостерігалася у жінок старшого віку ($p = 0,035$).
***Висновки.*** Отримані дані підкреслюють необхідність підвищення рівня обізнаності щодо здоров'я молочних залоз, обстеження за допомогою мамографії, регулярних обстежень шийки матки методом Папаніколау, вивчення сімейного анамнезу з метою зниження рівня поширеності раку серед жінок віком понад 40 років. Це також допоможе зрозуміти попит на цільові ініціативи у сфері охорони здоров'я та поінформувати жінок про необхідність регулярних скринінгів. Подальші дослідження мають враховувати соціально-економічний статус, культурні бар'єри та доступ до медичних послуг.
***Ключові слова:*** *репродуктивне здоров'я, культурні бар'єри, медична грамотність, менопауза, рак молочної залози.*

Reproductive health is an essential issue to overall well-being, including physical, mental, and social aspects connected with the reproductive system [1]. The importance of reproductive health was first formally highlighted by the World Health Organization (WHO) Special Program on Human Reproductive Research in 1988, with the program's objectives being finalized in 1994 [2]. According to the WHO, reproductive health refers to "a state of complete physical, mental, and social well-being in all matters relating to the reproductive system" [3]. Global health initiatives have traditionally emphasized reproductive health. However, there is an increasing awareness that non-communicable diseases, such as cardiovascular disease, cancer, and diabetes, are now the leading causes of death and disability among women [4, 5]. Reproductive health issues for women over 40 years are associated with an increased risk of disorders like osteoporosis [6], and cardiovascular diseases [7]. Additionally, we will discuss how healthcare prevention contributes to promoting long-term health.

The impact of aging on women's health is significant. Research has shown that osteoporosis in elderly women has a severe effect on health [8]. Menopause causes less production of estrogen, which increases the risk of osteoporosis in women as compared to men [8]. Women experience physiological and psycho-social changes that impact their reproductive health [9]. A review study highlights the presence of cardiovascular diseases in older women. Hormones, especially estrogen, play a crucial role in the normal functioning of several organs, including the brain, heart, and bones. During reproductive years, higher levels of estrogen help to protect cardiovascular health. However, as estrogen levels decline during the transition to menopause and in the postmenopausal phase, the risk of developing cardiovascular diseases increases [10, 11].

In today's world, women must be well-informed about their reproductive health [8]. Knowledge about menopause, bone health, and cardiovascular disorders is considered to be significant [12, 13]. In Pakistan, a survey-based study conducted at Isra University Hospital (2005–2006) with 863 women (42–80 years old) found that most of the participants had limited knowledge about menopause [14]. Specifically, while 78.79% of women were aware of it, only 15.87% of women knew symptoms of menopause and health implications [14]. A study suggests that female adolescents have poor knowledge related to osteoporosis risk factors, adopting a healthy lifestyle is crucial in preventing osteoporosis. This includes ensuring adequate calcium intake and engaging in regular weight-bearing exercise [15]. By implementing these practices, women can strengthen their bone mass and significantly reduce the risk of bone loss as they are going into the postmenopausal period. Another research study emphasizes that to lower cardiovascular risk among women, focused educational initiatives and better access to healthcare are required [13]. Furthermore, a systematic review emphasizes the significance of health literacy, its knowledge, and its impact on women's reproductive health [16].

Saudi Arabia is an Islamic country, and sociocultural norms limit women's access to reproductive health services and education [17, 18]. Several studies revealed that there is a lack of awareness among Saudi women related to sex education, menstruation, and sexually transmitted diseases [19–21]. According to a systematic review, there are a lot of misconceptions and knowledge gaps regarding contraception in Saudi Arabia, which are often influenced by cultural and religious factors [22]. A qualitative study on Saudi women's sexual and reproductive health indicates that inadequate knowledge and negative attitudes significantly affect their physical and psychological well-being [1]. Moreover, these significant life stages require informed independent direction and a comprehensive understanding of accessible healthcare options.

The majority of researches on sexual and reproductive health focuses on the knowledge, perceptions, experiences, and barriers among adolescents or young girls in Saudi Arabia [1, 23]. However, there is also a lack of research on reproductive health risks and related issues. Further research is needed to address reproductive health concerns of women aged 40 or above.

**The objective:** to determine the knowledge and attitude of elderly women toward reproductive health.

This can offer valuable insights for healthcare providers, policymakers, and educators to enhance communication strategies and improve health outcomes for this demographic group.

## MATERIALS AND METHODS

The present investigation employed an anonymous, self-rating, survey-based, cross-sectional study conducted from May to June 2023. Participants were selected using convenience sampling. The inclusion criteria consisted of all 1,025 female individuals of age (40–50 and more years) living in Saudi Arabia with complete survey responses. The exclusion criteria comprised, female individuals of age less than 40 years, and incomplete survey responses.

To examine the surveyed participants' knowledge of reproductive health risks, an electronic survey was formulated using Google Forms, which was then administered online and anonymously. The survey was developed on an existing validated instrument through a comprehensive literature review on the relevant reproductive topics to ensure the validity of the content [24, 25]. The survey was modified according to the Saudi cultural values while addressing the study aims. To reduce the risk of bias, the questions were placed in an organized manner. The survey was translated into Arabic and back-translated to English for verification. A pilot study was conducted using the Arabic version while introducing some changes to adapt to the Saudi context. However, no changes were made to the initial scales employed for scoring knowledge and attitudes.

Ethical approval of research was acquired from the Institutional review board of Umm Al-Qura University. Collectively, the survey covered two sections. The first section comprised the baseline social and demographic characteristics of the surveyed participants. The second section comprised knowledge of respondents about reproductive health risks using the answer "yes" or "no". The survey assessed responses related to breast cancer screenings, cervical screenings, menopausal symptoms, and other health conditions. The two sociodemographic variables of interest were age group (categorized as 40–45, 46–50, and more than 50 years) and residence (categorized as Makkah, Jeddah, Taif, and Qunfudah/Leith).



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Chi-square tests ($\chi^2$) of independence were used to assess the relationship between sociodemographic variables (age group and residence) and various reproductive health behaviors. The Chi-square statistics and p-values, were calculated using Python. A significance level of 0.05 was adopted for all tests.

## RESULTS AND DISCUSSION

Overall, 1,025 participants were included in the current study. Table 1 summarizes the sociodemographic characteristics of the participants. Most participants were within the age group of more than 50 years old (n = 500, 48.9%), residents of Makkah (n = 410, 40.0%), educated with a bachelor's degree or higher (n = 720, 70.2%), and married (n = 870, 85.0%). Table 2 summarizes the respondents' knowledge about reproductive health risks and related healthcare services.

The Chi-square analysis showed that age group was not significantly related to important reproductive health practices such as breast self-examination, having cervical cancer education, or passing a PAP smear (all p-values > 0.05) as indicated in Table 3. Likewise, as indicated in Table 4, no significant association was found between residence and reproductive health behaviors (such as performing monthly breast exams, receiving information about mammograms, and undergoing cervical screening) as p-values greater than 0.05. These results suggest that age and residence alone are not significantly correlated to reproductive health behaviors among Saudi women. This lack of association may be affected by sociocultural factors that impact reproductive health behaviors in Saudi Arabia. Despite age being a known factor in many populations for influencing health behaviors, the influence of sociocultural barriers, limited access to healthcare services, and gaps in education may overshadow this effect [17, 19, 20]. Studies have shown that Saudi women face significant challenges in accessing reproductive health services due to cultural and religious constraints, leading to a lack of awareness and engagement in preventive health measures, regardless of age [1, 22].

*Table 1*

**Sociodemographic characteristics of the participants (n = 1,025)**

| Variable | Categories | Frequency | Percentage |
|---|---|---|---|
| Age groups (years) | 40–45 | 333 | 32.4 |
| | 46–50 | 192 | 18.7 |
| | > 50 | 500 | 48.9 |
| Residence | Makkah | 410 | 40.0 |
| | Jeddah | 325 | 31.7 |
| | Taif | 120 | 11.7 |
| | Qunfudah/Leith | 170 | 16.6 |
| Educational level | Primary/Intermediate | 69 | 6.8 |
| | Secondary | 236 | 23.0 |
| | Bachelor's degree or higher level | 720 | 70.2 |
| Marital status | Single | 29 | 2.7 |
| | Married | 870 | 85.0 |
| | Divorced | 59 | 5.8 |
| | Widow | 67 | 6.5 |

*Table 2*

**Respondents' knowledge about reproductive health and related healthcare services (n = 1,025)**

| Reproductive health risk | Yes, n (%) | No, n (%) |
|---|---|---|
| Do you perform monthly breast exams? | 164 (16.0) | 861 (84.0) |
| Have you received any information regarding mammograms through social media or regular media? | 616 (60.1) | 409 (39.9) |
| Have you had a mammogram examination over the last 5 years? | 666 (65.0) | 359 (35.0) |
| Were you or any of your first-degree family members diagnosed with breast cancer? | 172 (16.8) | 853 (83.2) |
| Have you received any education regarding cervical screening for precancerous cells (PAP smear) through social; media or regular media? | 354 (34.5) | 671 (65.5) |
| Have you had a PAP smear examination over the last 5 years? | 230 (22.4) | 795 (77.6) |
| Have you or any first-degree family members been diagnosed with cervical cancer? | 48 (4.7) | 977 (95.3) |
| Have you or any first-degree family members been diagnosed with endometrial (the lining of the womb) cancer? | 63 (6.1) | 962 (93.9) |
| Have you stopped having menstrual periods for more than a year? | 299 (29.2) | 726 (70.8) |
| Do you suffer from menopausal symptoms of hot flush, irritability, mood swings, or loss of libido? | 446 (43.5) | 579 (56.5) |
| Have you had bone density scans to assess your bones? | 236 (23.0) | 789 (77.0) |
| Do you consider having urinary incontinence is a natural occurrence with aging and no need for treatment? | 303 (29.5) | 722 (70.5) |
| Have you sought medical consultation for urinary incontinence? | 117 (11.4) | 908 (88.6) |
| Do you suffer from high blood pressure or cardiac diseases? | 260 (25.4) | 765 (74.6) |


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*Table 3*

**Association between health behavior and age group, abs. (%)**

| Health behavior | | Age, years | | | p-value |
|---|---|---|---|---|---|
| | | 40–45 n = 333 | 46–50 n = 192 | Above 50 n = 500 | |
| Do you perform monthly breast self-exams? | No | 285 (85.6) | 154 (80.2) | 405 (81.0) | 0.1388 |
| | Yes | 48 (14.4) | 38 (19.8) | 95 (19.0) | |
| Have you received any education regarding mammograms through social media or regular media? | No | 148 (44.4) | 69 (35.9) | 180 (36.0) | 0.035 |
| | Yes | 185 (55.6) | 123 (64.1) | 320 (64.0) | |
| Have you had a mammogram examination over the last 5 years? | No | 263 (79.0) | 124 (64.6) | 265 (53.0) | 0.000 |
| | Yes | 70 (21.0) | 68 (35.4) | 235 (47.0) | |
| Were you or any of your first-degree family members diagnosed with breast cancer? | No | 278 (83.5) | 167 (87.0) | 391 (78.2) | 0.018 |
| | Yes | 55 (16.5) | 25 (13.0) | 109 (21.8) | |
| Have you received any education regarding cervical screening for precancerous cells (PAP smear) through social media or regular media? | No | 220 (66.1) | 117 (60.9) | 316 (63.2) | 0.480 |
| | Yes | 113 (33.9) | 75 (39.1) | 184 (36.8) | |
| Have you had a PAP smear examination over the last 5 years? | No | 261 (78.4) | 145 (75.5) | 370 (74.0) | 0.376 |
| | Yes | 72 (21.6) | 47 (24.5) | 130 (26.0) | |
| Have you or any first-degree family members been diagnosed with cervical cancer? | No | 315 (94.6) | 180 (93.7) | 460 (92.0) | 0.322 |
| | Yes | 18 (5.4) | 12 (6.3) | 40 (8.0) | |
| Have you or any first-degree family members been diagnosed with endometrial (the lining of the womb) cancer? | No | 312 (93.7) | 181 (94.3) | 443 (88.6) | 0.013 |
| | Yes | 21 (6.3) | 11 (5.7) | 57 (11.4) | |
| Have you stopped having a menstrual period for more than a year? | No | 317 (95.2) | 161 (83.8) | 268 (53.6) | 0.000 |
| | Yes | 16 (4.8) | 31 (16.2) | 232 (46.4) | |
| Do you suffer from menopausal symptoms of hot flush, irritability, mood swings, or loss of libido? | No | 243 (73.0) | 105 (54.7) | 210 (42.0) | 0.000 |
| | Yes | 90 (27.0) | 87 (45.3) | 290 (58.0) | |
| Have you had a bone density scan to assess your bones? | No | 305 (91.6) | 165 (85.9) | 300 (60.0) | 0.000 |
| | Yes | 28 (8.4) | 27 (14.1) | 200 (40.0) | |
| Do you consider having urinary incontinence is a natural occurrence with aging and no need for treatment? | No | 261 (78.4) | 142 (74.0) | 285 (57.0) | 0.000 |
| | Yes | 72 (21.6) | 50 (26.0) | 215 (43.0) | |
| Have you sought medical consultation for urinary incontinence? | No | 295 (88.6) | 165 (85.9) | 405 (81.0) | 0.012 |
| | Yes | 38 (11.4) | 27 (14.1) | 95 (19.0) | |
| Do you suffer from high blood pressure or other cardiac diseases? | No | 283 (85.0) | 152 (79.2) | 308 (61.6) | 0.000 |
| | Yes | 50 (15.0) | 40 (20.8) | 192 (38.4) | |

*Table 4*

**Association between health behavior and residence, abs. (%)**

| Health behavior | | Residence | | | | p-value |
|---|---|---|---|---|---|---|
| | | Makkah n = 410 | Jeddah n = 325 | Taif n = 120 | Qunfudah/Leith n = 170 | |
| Do you perform monthly breast self-exams? | No | 330 (80.5) | 266 (81.8) | 106 (88.3) | 142 (83.5) | 0.246 |
| | Yes | 80 (19.5) | 59 (18.2) | 14 (11.7) | 28 (16.5) | |
| Have you received any education regarding mammograms through social media or regular media? | No | 156 (38.1) | 116 (35.7) | 53 (44.2) | 72 (42.4) | 0.286 |
| | Yes | 254 (61.9) | 209 (64.3) | 67 (55.8) | 98 (57.6) | |
| Have you had a mammogram examination over the last 5 years? | No | 262 (63.9) | 197 (60.6) | 81 (67.5) | 112 (65.8) | 0.488 |
| | Yes | 148 (36.1) | 128 (39.4) | 39 (32.5) | 58 (34.2) | |
| Were you or any of your first-degree family members diagnosed with breast cancer? | No | 325 (79.3) | 270 (83.1) | 94 (78.3) | 147 (86.5) | 0.140 |
| | Yes | 85 (20.7) | 55 (16.9) | 26 (21.7) | 23 (13.5) | |
| Have you received any education regarding cervical screening for precancerous cells (PAP smear) through social media or regular media? | No | 267 (65.1) | 195 (60.0) | 80 (66.7) | 111 (65.3) | 0.403 |
| | Yes | 143 (34.9) | 130 (40.0) | 40 (33.3) | 59 (34.7) | |



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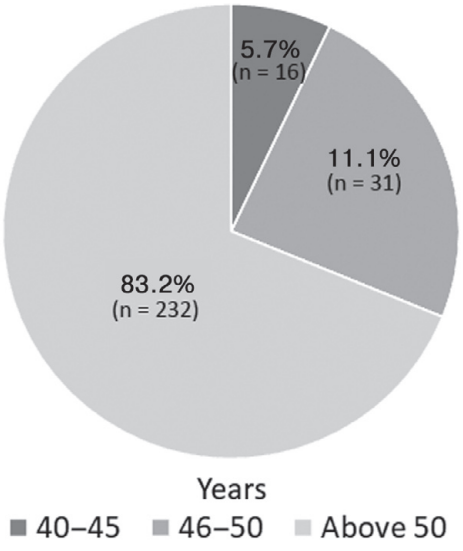
| Health behavior | | Residence | | | | p-value |
|---|---|---|---|---|---|---|
| | | Makkah n = 410 | Jeddah n = 325 | Taif n = 120 | Qunfudah/Leith n = 170 | |
| Have you had a PAP smear examination over the last 5 years? | No | 314 (76.6) | 233 (71.7) | 91 (75.8) | 138 (81.2) | 0.122 |
| | Yes | 96 (23.4) | 92 (28.3) | 29 (24.2) | 32 (18.8) | |
| Have you or any first-degree family members been diagnosed with cervical cancer? | No | 385 (93.9) | 300 (92.3) | 107 (89.2) | 162 (95.3) | 0.181 |
| | Yes | 25 (6.1) | 25 (7.7) | 13 (10.8) | 8 (4.7) | |
| Have you or any first-degree family members been diagnosed with endometrial (the lining of the womb) cancer? | No | 373 (91.0) | 294 (90.5) | 109 (90.8) | 160 (94.1) | 0.557 |
| | Yes | 37 (9.0) | 31 (9.5) | 11 (9.2) | 10 (5.9) | |
| Have you stopped having a menstrual period for more than a year? | No | 302 (73.7) | 234 (72.0) | 91 (75.8) | 120 (70.6) | 0.745 |
| | Yes | 108 (26.3) | 91 (28.0) | 29 (24.2) | 50 (29.4) | |
| Do you suffer from menopausal symptoms of hot flush, irritability, mood swings, or loss of libido? | No | 229 (55.8) | 166 (51.1) | 73 (60.8) | 90 (52.9) | 0.268 |
| | Yes | 181 (44.2) | 159 (48.9) | 47 (39.2) | 80 (47.1) | |
| Have you had a bone density scan to assess your bones? | No | 311 (75.8) | 235 (72.3) | 92 (76.7) | 130 (76.5) | 0.619 |
| | Yes | 99 (24.2) | 90 (27.7) | 28 (23.3) | 40 (23.5) | |
| Do you consider having urinary incontinence is a natural occurrence with aging and no need for treatment? | No | 265 (64.6) | 233 (71.7) | 80 (66.7) | 109 (64.1) | 0.178 |
| | Yes | 145 (35.4) | 92 (28.3) | 40 (33.3) | 61 (35.9) | |
| Have you sought medical consultation for urinary incontinence? | No | 355 (86.6) | 266 (81.8) | 99 (82.5) | 145 (85.3) | 0.317 |
| | Yes | 55 (13.4) | 59 (18.2) | 21 (17.5) | 25 (14.7) | |
| Do you suffer from high blood pressure or other cardiac diseases? | No | 292 (71.2) | 232 (71.4) | 89 (74.2) | 131 (77.1) | 0.479 |
| | Yes | 118 (28.8) | 93 (28.6) | 31 (25.8) | 39 (22.9) | |

However, a strong association (p = 0.000) was found between age and past five-year history of having a mammogram with increased participation being reported by older women (over 50 years of age). This result is consistent with global trends in which older age is associated with higher probabilities of screening. Similarly, a significant correlation between age and mammogram education through media (p = 0.035) was found in older age women. Overall, low engagement in reproductive health practices may be influenced more by geographic location and sociocultural limitations than by age itself.

Moreover, the lack of significant findings across age groups may reflect a general gap in reproductive health knowledge and behaviors, where women of all ages experience similar barriers to access and education. These factors underline the need for a more comprehensive approach to reproductive health education and healthcare access in Saudi Arabia [26], where addressing cultural norms and providing tailored interventions could lead to more age-specific improvements in reproductive health behaviors.

The study found that among the 279 respondents who reported having stopped menstruation for more than a year, the majority (232 women, 83.2%) were aged over 50 at the time of menopause, followed by 31 women (11.1%) aged 46–50, and 16 women (5.7%) aged 40–45. These results suggest that the most common age range for menopause in this sample is above 50 years, as shown in the Figure. This demographic group is particularly important as it includes women undergoing transitions in their reproductive health, which may require awareness and interventions for conditions like osteoporosis and cardiovascular disease, which are more prevalent in this group. The Ministry of Health, Saudi Arabia, recognizes the growing




**Distribution of menopause age**

prevalence of chronic conditions in women over 40 [26], emphasizing the need for comprehensive healthcare strategies that address these age-related health challenges.

According to the American Cancer Society, women between the ages of 40 and 44 years should be given the option to start annual mammograms, while women aged 45 to 54 years should undergo yearly mammograms, and women 55 years and older may opt for every other year screening [27]. In our study, only 16.0% of participants reported performing monthly breast self-examinations. This low rate suggests the need for interventions aimed at increasing awareness and encouraging proactive health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practices in Saudi women. While the majority of women (60.10%) said that they had received education regarding mammograms, the examination rate (65.0%) reveals that knowledge doesn't necessarily convert into action. This aligns with previous studies conducted in Saudi Arabia, where barriers to regular breast cancer screening have also been identified. For example, a Madinah study revealed that despite awareness of breast cancer, many women struggle with self-examination due to limited access to resources, cultural barriers, and lack of awareness [28]. Similarly, research conducted in Jeddah highlighted that while there is some awareness of breast cancer, many Saudi women remain reluctant to perform regular breast self-examinations. The study identified significant barriers, including cultural taboos surrounding breast health discussions, lack of knowledge, and perceived stigma, all of which contribute to the low rates of screening practices [29]. This is consistent with a current study, where only a small percentage of women reported engaging in routine self-examinations [30].

This underscores the need for comprehensive educational initiatives and public health campaigns aimed at increasing awareness and encouraging regular screening among Saudi women. Moreover, several studies mention shyness as an obstacle to breast screening along with the costly test of mammography [28]. All of these studies emphasize the importance of overcoming the barriers through culturally sensitive health education programs, which could potentially improve adherence to breast cancer screening recommendations. Public health initiatives should focus not only on promoting the availability and importance of mammograms but also on addressing sociocultural barriers that may prevent women from seeking routine screenings [17].

In terms of cervical health, 34.5% of women reported receiving education about cervical screening (PAP smear), yet only 22.4% had undergone a PAP smear in the past five years. Despite awareness of cervical cancer screening, the gap between knowledge and actual participation highlights the importance of addressing barriers to screening and increasing access to preventive services [31]. According to a study in Saudi Arabia, only 44.6% of the women knew about the PAP smear screening tool for cervical cancers [32]. This urgently calls for health initiatives to focus on educating women about the importance of regular PAP smear testing and encourage timely participation to reduce the incidence of cervical cancer in Saudi Arabia.

Family history played a role in shaping awareness, with 16.8% of women reporting a first-degree relative diagnosed with breast cancer, while 4.7% of participants had a family history of cervical cancer. These figures suggest that genetic predispositions may influence the awareness of reproductive health risks, but many women remain unaware or inactive in taking preventive measures. For example, according to the National Cancer Institute, having a first-degree relative with breast cancer significantly raises a woman's risk of developing the disease [33]. Understanding family health history is critical for effective clinical navigation and ensuring the well-being of individuals at higher genetic risk.

As for menopause and bone health, 29.2% of women reported having stopped menstruating for more than a year, indicating a significant portion of the sample was experiencing menopausal transitions. This finding is consistent with previous research that highlights the importance of understanding menopausal transitions, which are linked to increased risk of cardiovascular and musculoskeletal issues during this period of life. It suggests estrogen replacement therapy could potentially mitigate these risks, alleviate symptoms, and reduce long-term health impacts [10]. In addition, 43.5% of women reported suffering from menopausal symptoms such as hot flashes and mood swings, which are often associated with hormonal changes during this phase. Despite these symptoms, only 23.0% of participants had undergone bone density scans. These results are consistent with the National Osteoporosis Risk Assessment research, which discovered that 7.2% of postmenopausal women had osteoporosis and 39.6% had osteopenia [6]. Our findings also indicate that bone density has a significant role in predicting postmenopausal women's risk of fracture, highlighting a gap in preventive care and the need for better education and support around menopause and bone health.

Cardiovascular health also emerged as a pressing issue, with 25.4% of women reporting high blood pressure or heart disease. This statistic highlights the importance of addressing cardiovascular risks with reproductive health concerns for women over 40 years [13]. The overall results underscore the urgent need for targeted educational programs and public health interventions to bridge the significant gap in women's knowledge and utilization of healthcare services related to reproductive and overall health as they age.

Urinary health emerged as another area of concern, with nearly 29.5% of women perceiving urinary incontinence as a natural part of aging. However, only 11.4% sought medical consultation for the issue, suggesting significant underreporting and undertreatment of urinary incontinence among the participants. Previous studies have also demonstrated that urinary incontinence becomes more frequent in women after menopause with levels ranging from 13.6 to 84.4% thus impacting the women's quality of life [34]. This indicates the need for greater awareness and more open discussions regarding urinary health.

This study highlights the need for targeted educational campaigns and implementation of health policies to assess the needs of women, to increase awareness of breast health, mammograms, and cervical cancer screenings among Saudi women over age 40 years while addressing the cultural and access barriers. However, there are several limitations to consider. The sample was limited to specific regions, which may not represent the broader demographic diversity of Saudi women, and self-reported data could introduce bias. Furthermore, the study did not account for factors such as health literacy, social and economic status, and healthcare access, which may influence health behaviors. Given these limitations, it is recommended to implement culturally sensitive education campaigns, enhance access to screening services, and consider family history in routine health assessments. Mobile clinics and outreach programs could improve accessibility, especially in underserved areas. Additionally, further research should explore the role of cultural and social factors in healthcare access and the evolving reproductive health needs of women over 40 years in Saudi Arabia. Besides that, the


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role of male partners and family support also needs to be evaluated in shaping the reproductive health decisions of women. Long-term studies with diverse samples and more comprehensive data would help better understand these issues and improve reproductive health outcomes.

## CONCLUSIONS

This comprehensive study offers valuable insights regarding the knowledge of Saudi women about reproductive health issues including breast examination, mammograms, menopause symptoms, and PAP smears while showing an association between the sociodemographic factors of age and residence. However, the results displayed that as women get older, they are more prone to health issues and have reproductive literacy regarding certain topics. Perhaps a knowledge gap exists and the engagement in reproductive health behaviors is quite low. This emphasizes the need for targeted interventions and education on reproductive health. To lower the prevalence of cervical cancer in women over 40 years, routine PAP smear exams are also essential. The lack of a significant correlation between age and reproductive health behaviors may indicate that attitudes and knowledge do not change significantly with age, but other factors like socioeconomic status, cultural barriers, and health access may be more important in determining women's reproductive health outcomes.

Encouraging open discussions on sexual health can notably improve reproductive health outcomes. This will pave the way for women to break the taboo, to be able to make informed decisions while being equipped with accurate knowledge regarding reproductive health. This can serve as a catalyst, particularly in the context of Saudi Arabia. Future research should explore these factors in more depth to understand the complex determinants of reproductive health issues among older women.

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