

Received Date: September 14, 2024 **Accepted Date:** October 12, 2024 **Published Date:** November 13, 2024

Available Online at <https://www.ijsrjournal.com/index.php/ojsfiles/article/view/201>

<https://doi.org/10.5281/zenodo.14114348>

Menarche and Spermarche in the Saudi Population: A Review

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ABSTRACT

This review examines the onset of menarche and spermarche, the developmental milestones marking reproductive capability in girls and boys, within the Saudi population. Menarche and spermarche are influenced by genetic, environmental, and socio-economic factors, making them valuable indicators of broader health and lifestyle trends. In Saudi Arabia, the average age for menarche is approximately 12–13 years, while spermarche typically occurs around 13–14 years. Improved nutrition and socio-economic status,

alongside urbanization, have contributed to a gradual decline in the age of onset for these milestones. However, early puberty has also been associated with various psychosocial and health challenges, including increased risk of obesity, cardiovascular disease, and mental health concerns, particularly in girls. This review synthesizes the literature on factors influencing menarche and spermarche in Saudi Arabia, such as nutritional status, socio-economic background, and regional differences. It also discusses public health implications, emphasizing the need for supportive educational and healthcare programs tailored to the cultural context. Ultimately, this review aims to enhance understanding of

puberty trends in Saudi Arabia and inform public health policies and initiatives that address the physical and emotional needs of adolescents.

Keywords: Menarche, Spermarche, socio-economic and health changes.

Introduction

Menarche (the onset of menstruation) and spermarche (the onset of sperm production) are significant events in puberty, marking the beginning of reproductive capability in girls and boys, respectively. Age at menarche-the appearance of first menstruation-a stage in female maturation, is an indicator of female physiological development, health and nutritional status(1).¹ Several studies have reported that the age of menarche may relate to subsequent reproductive performance, such as the age of first intercourse, age of first pregnancy, and risk of subsequent miscarriage and pregnancy (2,3). There is also a strong evidence of a downward secular trend for the age of menarche in Western countries during the nineteenth century. Numerous studies have shown that a trend towards an earlier menarche is occurring among girls (4,5), but the data for evaluating secular trends in male pubertal development are still limited .(6) Because gonadal maturation in boys is not characterized by a critical visible event as in menarche in girls, few studies of secular trends in age at spermarche have been reported worldwide (7). The spermarche menarche reflect various genetic, environmental, and socio-economic factors, and studying their trends offers insight into broader health and lifestyle changes. In Saudi Arabia, recent shifts in the age of menarche and spermarche align with global patterns, indicating improvements in nutrition and health but also posing potential challenges for public health. This review synthesizes available literature on menarche and spermarche trends in the Saudi population, exploring factors that influence these milestones and the implications for adolescent health and education.

1. Menarche in the Saudi Population

Menarche generally occurs between ages 10 and 16 worldwide, with the timing influenced by health, nutrition, and socio-economic status. In Saudi Arabia, studies suggest that the average age of menarche has decreased, mirroring global trends linked to improved living standards (8).

2. Key Findings on Menarche in Saudi Arabia:

- **Average Age of Menarche:** Research reports that Saudi girls experience menarche between 12 and 13 years on average, with variations depending on region and socio-economic background (9).
- **Nutritional Impact:** Higher BMI and better nutrition are associated with earlier menarche, likely due to body fat's role in hormone regulation (9).
- **Cultural and Socioeconomic Factors:** Girls from urban or higher-income families tend to experience menarche slightly earlier than their rural or lower-income counterparts, reflecting disparities in healthcare access and nutritional quality (9).

3. Spermarche in the Saudi Population

Spermarche, typically occurring around ages 13–14, is less documented than menarche but reflects similar socio-economic and nutritional influences. In Saudi Arabia, available data show trends similar to international averages (10).

4. Key Findings on Spermarche in Saudi Arabia:

- **Average Age of Spermarche:** Saudi boys generally experience spermarche around 13–14 years, with slight regional variations based on lifestyle and health factors (9).
- **Influence of Nutrition and Lifestyle:** Better nutrition, increased body weight, and other lifestyle factors have led to earlier puberty among Saudi boys(9)(10).
- **Psychosocial Implications:** Early spermarche can have implications for self-esteem and social interactions, with boys experiencing either early or late spermarche potentially facing social challenges (10).

5. Trends and Implications for Public Health

The trend of earlier menarche and spermarche in Saudi Arabia is generally associated with better living conditions and nutrition. However, early puberty has been linked to increased risks of certain adult health conditions, including obesity and cardiovascular issues, and psychosocial concerns such as anxiety and depression(10). These trends underscore the need for culturally tailored educational programs that support adolescents and address the psychological and physical impacts of early puberty.

Conclusion

The trends in menarche and spermarche in Saudi Arabia reflect broader socio-economic and health changes, with a gradual decline in age at onset for both milestones. While this trend is indicative of improved living standards, it also poses public health challenges, emphasizing the need for supportive interventions to address the unique needs of Saudi adolescents. Continued research into the physical and psychosocial impacts of early puberty will help inform culturally sensitive public health strategies.

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