

## Age at menarche in Jordanian girls

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The most important event in the whole process of female puberty is the onset of cyclic menses (menarche). The age of the menarche varies in different part of the world and is known to be influenced by genetic, socio-economic status, and environmental conditions, body status and level of education,<sup>1</sup> age at menarche was first calculated in mid 19th century in Denmark,<sup>2</sup> since then, many authors have used different methods to calculate age at menarche in different parts of the world. Since age of menarche is an important factor in health planning, we reported here the distribution of age at menarche among Jordanian students and compare it to Jordanian women who was born 40 years ago, to look for secular trend on any difference between menarche age now and 20 years ago.

Female university students and their female relatives were haphazardly invited from first of June until 30th December 2001 to participate in this study. The student population of the 3 major universities; University of Jordan, Jordan University of Science and Technology and Yarmouk University, Jordan roughly represent the population in Jordan with the exception of the age. The system for university admissions provides allocation for each district according to its population density, and all socio-economic stratum are represented. Those who participated in the study, filled in a self-administered questionnaire that includes date of birth and date of the first menstrual period. We chose only girls who were between 18 and 24 years of age, (born between 1977 - 1983). For comparison, we also chose women above 40 years of age born before 1960, to find out if there is any

difference at age of menarche between both group. In this study, 1823 girls aged between 18 - 24 (born between 1977 - 1983) responded to the questionnaire. The mean age of menarche for these girls was  $13.79 \pm 1.23$  years. Minimum age of menarche was 9 years old and maximum age was 17 years old, only 0.1% having their menarche at age of 9 years and 1.2% having at age of 17 years approximately 60% of this group having their menarche at the age of 13 and 14 years (Table 1). Seven hundred eighty-nine women with the age of 40 years and above, has the mean menarche age of  $13.64 \pm 1.32$  years and a menarche age of 10-17 years. Only 0.9% having their menarche age at 10 years and 2% at age of 17 years, and approximately 60% at age of 13 and 14 years (Table 1). These results was not statistically significant and indicating that there are no change in menarche age in Jordanian girls now and 20 years ago. The calculated age at menarche in this study is comparable to the age at menarche reported on countries of similar culture and geographical location.<sup>3-5</sup> However, it is higher than the age at menarche reported from European and North American societies. The age at menarche for the 2 groups is not different, indicating that there is a trend toward a decrease in the age at menarche in the last few decades. The sampling procedure allow some bias to occur. The invited haphazard participation allows bias due to non-responders. In the second group, a bias due to recall could occur due to a longer period. The aim of this study was to determine the average age at menarche in Jordan, which is an important issue in school health planning among females. The presence of a decreasing trend with time is an important observation that require periodic revision of health plan. However, this was not demonstrated in this study.

**Table 1** - Cumulative percentage of girls reporting onset of menarche presently aged between 18-24 and above the age of 40.

Age	N of girls having menarche each year										Mean Age
	9 y (%)	10 y (%)	11 y (%)	12 y (%)	13 y (%)	14 y (%)	15 y (%)	16 y (%)	17 y (%)	Total (%)	
No. of girls with menarche age of 18-22 years	2 (0.1)	17 (0.9)	48 (2.6)	175 (9.5)	413 (22.6)	727 (39.8)	305 (16.7)	114 (6.2)	22 (1.2)	1823 (100)	13.79
No. of girls with menarche age of 40 years and above	0 (0.0)	7 (0.9)	26 (3.2)	99 (12.5)	256 (32.4)	214 (27.1)	116 (14.7)	55 (6.9)	16 (2)	789 (100)	13.64

Y - years

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