Age at Menarche among Iraqi Teenagers

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Abstract

Objective: To determine the age at menarche among teenagers in Baghdad

Methods: A total of 658 adolescent girls were included in this study from Baghdad city. Full information including age, residential area, weight, height, date of menstruation, practicing sport (exercise), father's occupation and education, age at menarche of mother, and mother's occupation and education were collected. Multiple regression was used to examine the association between the age of menarche and independent variables.

Results: The mean age at menarche was 12.1 ± 2.2 years. Age of menarche was associated with mother's age at menarche, socioeconomic status, BMI, and practicing exercise.

Conclusion: Age at menarche was similar to that reported in other communities.

Key words: Age, Menarche, Iraq

Introduction:

Early maturation in girls is a well established risk factor for breast cancer[1,2] and overweight[3]. Further more, early maturation is of a public health interest because of its association with early initiation of sexual activity [4], which, in turn, has numerous health demographic and social consequences.

Several studies [5,6] demonstrated that perinatal events and postnatal pattern affect age of pubertal timing. Lumey and Stein [7] reported no effect in the age of menarche among women exposed to famine, despite the low birth weight associated with such exposure. In developing countries a pattern of delayed maturation associated with a history of malnutrition throughout childhood was shown [8,9].

This work was carried out to determine age of menarche and some of its determinants in Baghdad, Iraq, during the 1990s.

Materials & methods:

A total of 658 adolescent girls were selected from all districts in Baghdad for the period October 20th 1998 to April 20th 1999. Adolescence period is considered between 12 to 21 years [10,11].

Information about the adolescents was collected by direct interview. The data requested included demographic data (age and residential area), weight and height, date of first menstruation, practicing exercise, father's occupation and education. Body mass index (BMI) was calculated as weight (Kg)/ height [2] (m).

Information about mothers was collected by questionnaires forms were filled by the mothers or their daughters at homes. Data requested included mother's age at menarche, occupation and education.

Socioeconomic status (SES) was determined using income of family and parent's education according to Weber's view of social class [12].

Multiple logistic regression [13] was done to find out which factors (variables) are significantly and independently associated with age at menarche.

Results:

The mean age at menarche was 12.2 ± 2.2 years. It was 12.3 ± 2.3 years in urban area while it was 12.17 ± 2.1years in rural area. It is obviously no statistical significant difference was detected in menarche between urban and rural areas.

Age of menarche was significantly associated with mother's age at menarche, SES, BMI, and practicing exercise ($p < 0.05$). These findings are shown in Table 1. Age of menarche was not significantly associated with residency of teenagers.

Table1. Studied determinants of age at menarche

Variables	β	SE	P value
Residential area	0.01	0.002	NS
Mother's age at menarche	0.09	0.012	< 0.05
SES	- 0.05	0.03	< 0.05
BMI	- 0.067	0.05	< 0.05
Practicing exercise	0.027	0.05	< 0.05

Discussion:

This study revealed that the mean age at menarche was 12.2 ± 2.2 years. It is in agreement with that of Whincup et al [14] who reported a median menarcheal age of 12 years 10 months among British teenagers. Adair [15] reported a median age of 13 years among Filipino girls.

In agreement with other studies [16,17], this study revealed that BMI was associated with age at menarche. Growth in Iraq was affected by the imposed economic sanctions during 1990 – 2003 [18] and, in turn, anthropometric measures were affected [18,19]. However, no previous study on age at menarche was carried out in Baghdad prior to sanctions to compare with the result of this study. Although, Lumey and Stein [7] found no effect for famine on age at menarche in their study in Holland, recently, several investigators [5,6,and 15] demonstrated epidemiological evidence relating intrauterine and postnatal growth to pubertal maturation. Intrauterine and postnatal growth was affected in Iraq [18-20].

The finding that practicing exercise was associated with age at menarche is similar to that of Merzenich et al [16]. They reported that sport activity was associated with delay in menarche.

Age at menarche was associated with mother's age at menarche. Huen et al [21] reported a secular trend in the sexual maturation of Southern Chinese girls. Whincup et al [14] reported a decrease in average age of menarche by less than six months in many European countries between late 19th and 20th centuries.

This study revealed that socioeconomic status was significantly associated with age at menarche. It is consistent with other studies [22,23].

More needs to be learned about the interaction of intrauterine and early postnatal growth and independent effect of early childhood growth velocities as determinants of later development and health outcome in Iraq in those born during sanctions.

References:

1-Magusson CM, Person IR, Baron JA, Ekborn A, Bergstrom R, Adami HO. The role of reproductive factors and use of oral contraceptives in the etiology of breast cancer in women aged 50 – 74 years. Int J Cancer 1999;80:231-236.

2-Rockhill B, Moorman PG, Newman B. Age at menarche, time to regular cycling and breast cancer (North Carolina, United States). Cancer Causes Control 1998; 9: m447 – 453.

3-Wattigeny WA, Srinivasan SR, Cenw W, Greenlund KJ, Bereson GS. Secular trend of earlier onset of menarche with an increasing obesity in black and white girls: the Bogalusen Heart Study. Ethn Dis 1999; 9: 181 – 189.

4-Wyatt G, Durvasula RS, Guthrie D, LeFrance E, Froge N. Correlate of first intercourse among women in Jamica. Arch Sex Behav 1999; 28: 139 – 157.

5-Person I, Ahlsson F, Fwald U. Influence of perinatal factors on onset of puberty in boys and girls. Am J Epidemiol 1999; 50: 747 – 755.

6-Cooper C, Kuh D, Egger P, Wadsworth M, Barker D. Childhood growth and age at menarche. Br J Obstet Gynecol 1996; 103: 814 – 817.

7-Lumy LH, Stein AD. In utero exposure to Famine and subsequent fertility: the Dutch Famine Birth Control Study. Am J Public Health 1997; 87:1962-1966.

8-Khan AD, Schrocher DG, Martorell R, Haos JD, Rivera J. Early childhood determinants of age of menarche in rural Guatemala. Am J Human Biol 1996; 8: 717-723.

9- Simondon KB, Simondon F, Simon I. Preschool stunting, age at menarche and adolescents height:

a longitudinal study in rural Senegal. Eur J Clin Nutrition 1998; 52: 412-418.
10-Paxaman JM, Zuckerman RP. Laws and polices affecting adolescents health. WHO, editors. Geneva. 1987. pp. 4-10.
11-WHO technical report series. (Health problems of adolescents: a report of WHO Expert Committee), No. 308, 1965.
12-Liberatos P, Link Bg, Kelsey JL. The measurement of social class in epidemiology. Epidemiologic Reviews 1988;10 :87-121.
13-Daniel WW. Biostatistics: A foundation for analysis in health sciences. 7th edition, Wiley 1999.
14-Whincup PH, Gilag JA, Odoli K. age of menarche in contemporary British teenagers: Survey of girls born between 1982 and 1986. BMJ 2001;322:1095-1096.
15-Adair LS. Size at birth predict age at menarche. Paediatrics 2001;10759.
16-Merzenich H, Boeing H, Wahrendof J. Dietary fat and sport activity as determinants for age at menarche. Am J Epidemiol 1993;138:217-224.
17-Khan D, Schroeder G, Martorell R, Rivera A. Age at menarche and nutrition supplementation. J Nutr 1995;125:L10905-10965.
18-UNICEF Iraq: The situation of children in Iraq 2002. Geneva
19-Naoush SA. Height and weight in first primary schools children of Baghdad (after economic sanctions of 1990). 1993, Diploma dissertation, College of Medicine, Baghdad University.
20-Latif AB, Al-Diwan JK, Al-Hadithi TS, Al-Hadi A. Low birth weight and prematurity in the neonatal unit of a maternity and pediatrics hospital in Iraq. J Tropic Pediatr. Accepted for publication.
21-Huen KF, Leung SS, Lan JT, cheung AY, Leung NK, chin MC. Secular trend in sexual maturation of Southern Chinese girls. Acta Paediatr 1997;86:1121-1124.
22-Perbeg Z. Changes in growth pattern in Zagreb school children related to socioeconomic background over period 1973-1991. Ann Hum Biol 1998;25:524-539.
23-Attalah N, Sharkawi N, Campbell J. Age at menarche of school girls in Asir region of Saudi Arabia, with a note on heights and weights. Saudi Med J 1990;11:59-63.

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