

## Age of Menarche in Females of Al-Ramadi City/Iraq

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### ABSTRACT

**Aim of the study:** Estimate the age of menarche in females of Al-Ramadi city/Iraq. **Methodology:** This is a retrospective descriptive cross sectional study carried out in Al Ramadi city from the 1<sup>st</sup> of March to the 1<sup>st</sup> of May 2017. Data were collected from 404 secondary school girls selected randomly from different secondary schools according to the population density of Ramadi city areas. Age of menarche divided in to early menarche (8-<11 years age), normal menarche (11-14 years), and late menarche (14-16 years). Questionnaire was filled by the family and included female's age, age of onset of her menarche, father and mother's job, education, residency, economic, psychological status and the level of stress the family during onset of menarche. **Results:** The age range of the studied females was 12 to 18 years. Their mean age of menarche was 13.25 years. About 89% of the respondents were found to be within normal age of menarche, 10.3% of late menarche, and 0.5% had early menarche. The most frequent age of starting menarche was at 13 years (39.1%) followed by 14 years. Normal age menarche was found to be more prevalent among urban dwellers, females of house wife mothers, employed fathers, educated parents, living in their owned houses, and of less life stress. **Conclusion:** The mean age of menarche in Ramadi city was 13.25 and was higher than age recorded in Baghdad and consistent with ages recoded in many other neighboring and far countries.

**Keyword:** Menarche, Ramadi; Females.

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### INTRODUCTION

Menarche is the 1<sup>st</sup> menstrual cycle experienced by the females and it is an important event in the life-the female. Menarche is the first step of transformation of a girl to a woman<sup>1</sup> and an important event for each female as it marks the beginning of her adulthood with all its known biological and psychological consequences<sup>2</sup>. The normal mean age of menarche varies substantially between women across different countries and ethnic groups<sup>3</sup>. The recorded mean menarche age in Jordan was 13.1 years; 14.8 years in Ethiopia; 12.5 years in Ghana, and 12.31 years in Croatia<sup>4</sup>. In Turkey it was 13.12 years<sup>5</sup> and in the white American girls of the north America ranged from 12.55 to 12.88 years<sup>5</sup>. Recently, the age of puberty become important due to the increased recognition of the association between early menarche and the future development of the breast cancer and cardiovascular diseases in adulthood<sup>2</sup>. There is a change of the trend of menarche in different parts of the world. It tends to occur earlier among the girls in united states and Europe than the past decades<sup>4</sup>. In these regions, the age of menarche decreased approximately to about four months for every decade and now stabilized at an around 13 years<sup>4</sup>. This trend of decreasing age of menarche is still ongoing in countries of the Asian continent<sup>2</sup>.

There is no available data from Iraq in regards to the mean age of menarche. Such data would be considered as the benchmark to predict the occurrence of disease in adulthood. Thus, the aim of this research is to determine

the age of menarche among a representative sample of females of Al-Ramadi city in Al-Anbar Governorate.

### METHODOLOGY

This is a descriptive cross sectional retrospective study was carried out in Al Ramadi city from 1<sup>st</sup> of March to the 1<sup>st</sup> of May 2017. Data was obtained from the secondary school girls in Al-Ramadi city using pretested questionnaire The purpose of the study and method of filling the questionnaire were explained to all participants. Informed consent was then obtained for participants before administering the questionnaire. Female who disagreed for participating in the research, those with chronic disease or endocrine disease were excluded from the study. It was estimated that 404 female is an adequate sample size to be selected randomly from the different schools according to the population density of Al-Ramadi city areas. Menarche age divided in to early (8 - <11 years), normal (11-14 years), and late age menarche (14-16 years). The Questionnaire was designed to be filled by the student's family which included the female's age, age of onset of her menarche, the parental job, education, residency, economic and psychological status and the level of stress the family that was prevailing during the onset of her menarche.

The study was approved by the Scientific Committee of the College of Medicine in Anbar University. Permission was taken from the school authority through the General Education Director of Anbar Governorate

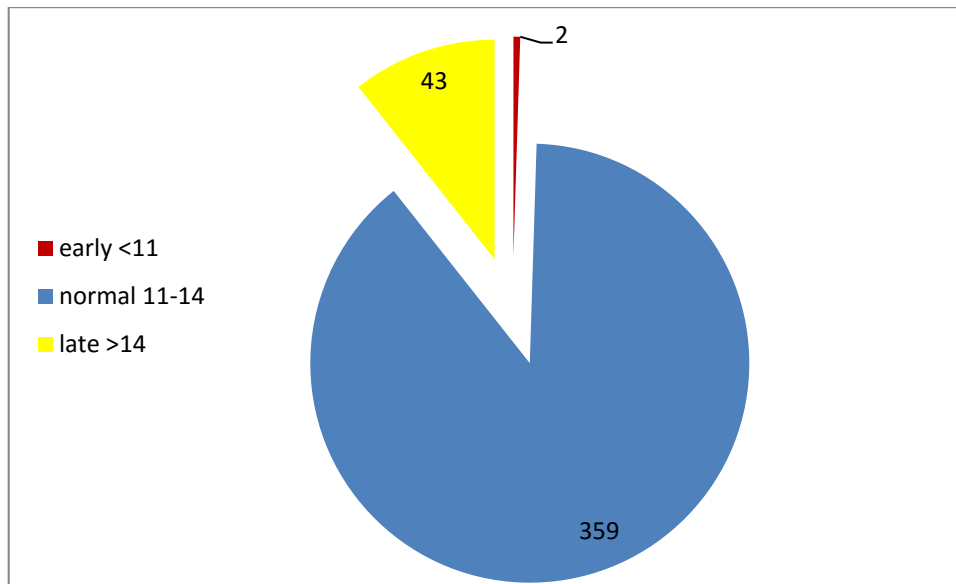


Figure 1: Distribution of the 404 studied females according to their age of menarche.

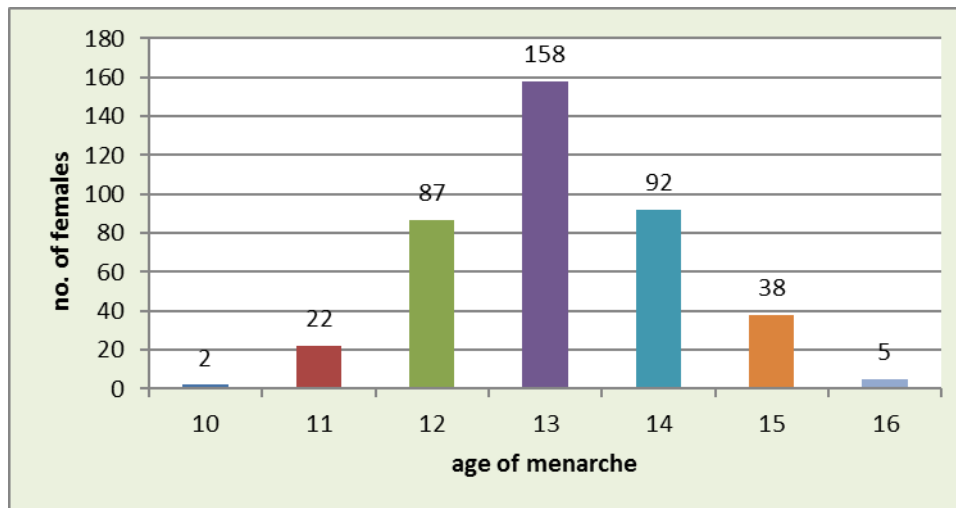


Figure 2: The distribution of number of females according to the age of menarche.

## RESULTS

The mean age of menarche was 13.25 years. The age of the respondents were ranged between 12 and 18 years. The earliest recorded age of menarche was at 10 years and the latest age was at 16 years.

Figure (1) shows the distribution of the age of menarche sample. About 89% of the respondents were found of normal age menarche (11-14 years); 10.3% of late type menarche (>14 years); and only 0.5% were of early menarche (<11 years).

Figure (2) shows the distribution of females according to the age of menarche. The highest recorded number of females was for those who started their menarche at 13 years age (39%) followed by the age of 14 years (22.8%) while the least recorded age of menarche was at 10 years which recorded in about 0.5% of the respondents.

Table (1) shows the distribution of socioeconomic variables of the respondents. The vast majority of females with normal menarche were found to be of urban residence; of house wife mothers; employed fathers;

educated parents; of less life stress at time of their menarche; and living in their own houses.

## DISCUSSION

It has been suggested that the difference in the mean age of menarche in different countries was due to the genetic inheritance and environmental factors as the type of residence, the nutrition, and socioeconomic status<sup>6</sup>. Identifying age of menarche has important public health implications of females since it has been noticed that girls with early age of menarche are at increased risk of breast cancer and cardiovascular diseases in the future<sup>7</sup>, they are more prone to psychosocial problems as depression, eating disorders, poor academic achievements and even substance abuse<sup>8</sup>.

The current study showed the mean age of menarche was 13.25 years. In USA, the mean age of menarche had decreased to a rate of 3-4 months per decade over the past 100 years. Now it is around 13 years. This change is postulated to be due to improved nutrition and socioeconomic status<sup>7</sup>. The estimated age of menarche in

Table 1: The socioeconomic variables of the sample.

Risk factor	Age of Menarche			Total	
	<11	11-14	>14		
Mother's work	Employed	0	60	7	67
	Housewife	2	299	36	337
Father's work	Employed	1	290	32	323
	non- employed	1	69	11	81
Mother's education	Illiterate	0	20	2	22
	Primary	2	148	15	165
	Secondary	0	153	20	173
	higher- education	0	38	6	44
Father's education	Illiterate	0	9	0	9
	Primary	0	32	6	38
	Secondary	1	193	23	217
	higher- education	1	125	14	140
Residence.	Urban	2	294	41	337
	Rural	0	65	2	67
Types of housing	Owned	2	293	33	328
	Rented	0	66	10	76
Family stress	Yes	1	148	16	165
	No	1	211	27	239
Total		2	359	43	404

our study was consistent with menarche age reported from Saudi Arabia (13.08 years)<sup>1</sup>, but was higher than age recorded in Baghdad (12.61)<sup>3</sup>, Kuwait (12.41 years)<sup>9</sup>, Egypt (12.44 years)<sup>10</sup>, Canada (12.72 years)<sup>11</sup>, Argentina (12.84 years)<sup>12</sup>, and UK (12.5 years)<sup>13</sup>. In poor income countries the age of menarche seemed to be higher and was 16.9 years in Ethiopia<sup>14</sup>, 13.22 years in India<sup>15</sup>, and 15.26 years in Nigeria<sup>16</sup>.

This study showed the vast majority of normal menarche females were found of house wife mothers and this was in contrast with results in other study in Baghdad that showed an association between early menarche and maternal work<sup>17</sup>. The present study showed the majority of normal menarche females have employed fathers. This result was in contrast with other results which show no association between age of menarche and father work<sup>17,18</sup>. In this study, most of normal menarche females were found associated with educated parents. This was in agreement with result from other studies in Iraq<sup>17,19</sup> and Nigeria<sup>20</sup>. The present study showed the majority of the normal females with normal age menarche were from urban residence, living in their own houses, and with no stress than others menarche types. This was consistent with results recorded in Baghdad<sup>17,21</sup> and China<sup>22</sup>.

#### Limitations

The absence of medical records of the age of menarche of each female in Al-Anbar governorate will make the study subjected for recall bias and may over or underestimate the age of menarche since it depends on the recall ability of the mother or the girl of the date of menarche.

This study missed the assessment of the trend of menarche in females of Al-Ramadi city through missing of the simultaneous study of the age of menarche in mothers of the females under the study to compare these both age of menarche and determine if there is any increasing or decreasing trend in the menarche's age. Additionally, lack of previous study in Al-Ramadi city of

the age of menarche, hindered monitoring any change in the trend of the age of menarche of females of Al-Ramadi city.

#### CONCLUSION

The age of menarche in Al-Ramadi city was more than that reported in Baghdad and in many neighboring countries but was lower than ages in many other poor countries.

#### REFERENCES

- Mihm, M., S. Gangooly, and S. Muttukrishna. The normal menstrual cycle in women. *AnimReprodSci* 2011;124(3): 229-236.
- Al Alwan I, Ibrahim A., Badri M., Al Dubayee M., Bin-Abbas B. Decline in menarcheal age among Saudi girls. *Saudi Medical Journal*2015; 36(11), pp.1324-1328.
- Al-Qadhi M N, Al-Bayatti N M, Dhia Al-Deen L, Al-Jassar N F. Age of Menarche in a Sample of Iraqi Girls and Associated Factors. *Iraqi Journal of Community Medicine*2006;19 (2): 108-112.
- BahaeldinELkhair E. Age and menarche in girls in Saudi Arabia: An anthropometric study. *Global Journal of Biological and Biomedical sciences* 2016;vol 4(1):137-142.
- Uludag A, Ertekin YH, Tekin M, Yildirim S, Gungor A. Menarche age in Western Turkey. *J Family Med Community Health*2014;1(4):1019.
- World Health Organization (1995): The use and interpretation of anthropometry, Tech. Rep Series., Report of WHO Expert Committee, No. 845, pp 1-8.
- Golub MS, Collman GW, Foster PM, Kimmel CA, Rajpert-De Meyts E, Reiter EO, et al. Public health implications of altered puberty timing. *Pediatrics* 2008; 121 Suppl 3: S218-S230

8. Mendle J, Turkheimer E, Emery RE. Detrimental Psychological Outcomes Associated with Early Pubertal Timing in Adolescent Girls. *Dev Rev* 2007; 27: 151-171.
9. Al-Awadhi N, Al-Kandari N, Al-Hasan T, Almurjan D, Ali S, Al-Taiar A. Age at menarche and its relationship to body mass index among adolescent girls in Kuwait. *BMC Public Health* 2013; 13: 29.
10. Ghaly I, Hussein FH, Abdelghaffar S, Anwar G, Seirvogel RM. Optimal age of sexual maturation in Egyptian children. *East Mediterr Health J* 2008; 14: 1391-1399.
11. Al-Sahab B, Ardern CI, Hamadeh MJ, Tamim H. Age at menarche in Canada: results from the National Longitudinal Survey of Children & Youth. *BMC Public Health* 2010; 10: 736.
12. Orden AB, Vericat A, Apezteguia MC. Age at menarche in urban Argentinian girls: association with biological and socioeconomic factors. *Anthropol Anz* 2011; 68: 309-322.
13. Joinson C, Heron J, Lewis G, Croudace T, Araya R. Timing of menarche and depressive symptoms in adolescent girls from a UK cohort. *Br J Psychiatry* 2011; 198: 17-23, sup 1-2.
14. Zegeye DT, Megabiaw B, Mulu A. Age at menarche and the menstrual pattern of secondary school adolescents in northwest Ethiopia. *BMC Women's Health* 2009; 9: 29.
15. Deb R. Age at menarche in adolescent Khasi girls, Meghalaya. *Indian Pediatr* 2011; 48: 69.
16. Tunau KA, Adamu AN, Hassan MA, Ahmed Y, Ekele BA. Age at menarche among school girls in Sokoto, Northern Nigeria. *Ann Afr Med* 2012; 11: 103-107.
17. Sahar M, Wadi, Khalida A, Abdul Jabbar. Impact of socio-economic status on the age of menarche among secondary school students at AL- Dora region in Baghdad governorate. *Iraqi National Journal of Nursing Specialties* 2014; vol. 27(2).
18. Delavar M A, Hajan-Tilaki K. O. Age at menarche in girls born from 1985 to 1989 in Mazandaran, Islamic Republic of Iran. *La Revue de santé de la Méditerranée orientale* 2008; Vol.14 (1).
19. Mohammed Elshiekh, Ammar Mohammed, Ali Mohammed. influence of socioeconomic status in the Age at Menarche and Duration of Menstrual Bleeding. *Mat Soc Med* 2011; 23(4):195-199.
20. Alphonsus Ndidi Onyiriuka, Eruke Elizabeth Egbagba. Anthropometry and menarcheal status of Adolescent Nigerian urban senior-secondary school girls. *Int J Endocrinol Metab.* 2013; 11(2).
21. Aysin Kamal. Assesment of factors affecting the determination of menarche among adolescent girls in Baghdad government. Thesis in University of Baghdad, 2000.
22. Fang-Fang Chen, You-Fa Wang, Jie Mi. Timing and secular trend of pubertal development in Beijing girls. *World J Pediatric* 2014; 10(1):74-79.