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AGE AT MENARCHE IN TUZLA CANTON

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Abstract. A study of the age at menarche was conducted in Tuzla Canton on a sample which included 7047 girls between the ages of 9 and 17 years. Data were collected using the status quo method. Median age at menarche estimated by Probit analysis was 13.07±0,05 years with a standard deviation of 1,05 years. Girls in rural places had a delay in their menstruation, with a mean age at menarche of 13,19 years, compared to those who lived in urban places, with a mean age at menarche of 12,84 years ($P < 0.0001$). As no previous information is available about the age at menarche in Tuzla Canton, the present results will afford a basis for future studies which should aim at analysing the secular trend in menarche while attempting to define the differences between the various socio-economic levels.
Key words: Menarche, age, girls

Introduction

The most important event in the whole process of female puberty is the onset of menstruation. The age of the menarche varies in different part of the world and is known to be influenced by genetic, socio-economic satatus, and environmental conditions, body status and level of education (1). In the same way age of menarche has important implications in the biology of reproduction and for gynecological health particulary in the developing countries.

At present no published data is available on age at menarche in Tuzla Canton. Therefore, the purpose of this study was to determinate menarcheal age in Tuzla Canton girls.

Subjects and methods

The study was carried out from september 2002 to june 2003 in Tuzla Canton. 7047 girls between the ages of 9 and 17 years from primary and secondary schools were chosen at random from a stratified cross-sectional sample. The data used in the present study were obtained by questionnaires which provided: date and place of birth, place of residence, decimal age calculated from the birth, examination date, and data about menarche. Information concerning age at menarche was collected by the status quo method by a investigator who asked the girls whether or not their menarche had occurred. Probit analysis (2) was performed to estimate mean menarcheal age using the Probit procedure of SAS package.

Results and discussion

Table 1 sets out the collected status quo data for the whole sample of girls within quarter-year age groups in which menstruating girls were found on the day of questioning. None of the girls in the quarter-year groups with age centres below 9,58 years had reached menarche.

Table 1. Number and percentage of menstruating girls in each age group

Age group	Total number of girls	Number of menstruating girls	Percentage of menstruating girls
9,08	5	-	-
9,33	10	-	-
9,58	32	1	3,125
9,83	111	1	0,900
10,08	190	2	1,052
10,33	184	1	0,543
10,58	210	2	0,952
10,83	196	5	2,551
11,08	270	7	2,592
11,33	239	14	5,857
11,58	246	17	6,910
11,83	264	33	12,5
12,08	295	50	16,94
12,33	265	61	23,018
12,58	229	62	27,07
12,83	235	100	42,55
13,08	240	124	51,66
13,33	251	144	57,37
13,58	230	156	67,82
13,83	220	156	70,90
14,08	267	224	83,89
14,33	275	239	86,90
14,58	254	230	90,55
14,83	258	239	92,63
15,08	291	282	96,90
15,33	321	315	98,13
15,58	271	262	96,67
15,83	260	258	99,23
16,08	268	264	98,5
16,33	197	195	98,98
16,58	463	450	97,19

Median age at menarche estimated by Probit analysis was 13,07±0,05 years with a standard deviation of 1,05 years. The age that corresponded to the 3rd percentile was 11,01 years and to the 97th percentile was 15,53 years. Mean age at menarche in Tuzla Canton (13,07 years) is comparable to the values reported in many populations of developed countries (3).

Table 2 summarizes the descriptive statistics on the age at menarche in the rural and the urban samples. There is significant difference ($P < 0.0001$) between mean menarcheal ages of urban (12,84 years) and rural girls (13,19 years). The finding is in agreement with the accepted view of rural delay. At present, the majority of populations from developed countries did not show any significant effect of degree of urbanisation, as the works of Martuzzi Veronesi and Gueresi (4) in Italy and in Spain (5) showed. Some populations, for example, in Poland (6) showed a significant effect of urbanisation in age at menarche. However, the effect of places of residence on age at menarche is greatest in developing countries. The urban-rural differences are probably related to the fact that various important parameters of the quality of the socio-economic environment are positevely correlated with the size of the town or city. Larger urban centers tend to have much better health-care facilities, better sanitary standards of dwellings, and better schools, among several other characteristics.

Table 2. Age at menarche in girls of different place of residence

Girls	N	Mean	SD	SE
Urban	2475	12,84	1,05	0,08
Rural	4572	13,19	1,05	0,06
Total	7047	13,07	1,05	0,05

N= sample size, SD= standard deviation, SE= standard error

Menarcheal age is recognised as an important indicator of pubertal development in females. In addition, mean menarcheal age for groups of girls is an important indicator of population health, well-bing, and socioeconomic stratification and progressively declines when subjected to improving environmental conditions.

Future studies should aim at analysing the secular trend in menarche for Bosnien girls while attempting to define the differences between the various socio-economic levels.

As no previous information is available about the age at menarche in Tuzla Canton, the present results will afford a basis for future studies as well as a valuable guide in the clinical and other work of physicians and others concerned with children's development and health.

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Apstrakt

DOB NASTUPANJA MENARHA U TUZLANSKOM KANTONU

Ispitivanje dobi u kojoj nastupa menarha provedeno je u Tuzlanskom kantonu na reprezentativnom uzorku koji je obuhvatio 7047 djevojčica od 9 do 17 godina. Srednja dob menarhe, procijenjena metodom status quo uz primjenu probit analize, iznosi 13.07±0,05 godina sa standardnom devijacijom 1,05 godina. Prva menstruacija učenica koje žive na selu nastupa u prosjeku kasnije, sa srednjom dobi menarhe od 13,19 godina, u odnosu na one u gradu gdje iznosi 12,84 godina. Kako srednja dob pojave menarhe u djevojčica u Tuzlanskom kantonu do sada nije ispitivana, rezultati ovog istraživanja će poslužiti kao temelj za buduće studije koje će imati za cilj i praćenje sekularnog trenda ovog biološkog fenomena. S obzirom da smo zemlja u razvoju, za očekivati je evidentne razlike u srednjoj dobi pojave menarhe izmedju različitih socioekonomskih klasa, što će biti interesantno za praćenje u budućim ispitivanjima, kada bi se usljed generalnog poboljšanja standarda življenja očekivalo smanjenje navedenih razlika.

Ključne riječi: menarha, dob, djevojčice

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