MENARCHEAL AGE OF GIRLS FROM DYSFUNCTIONAL FAMILIES

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Abstract

The objective of the present study was to determine median age at menarche and the influence of familial instability on maturation. The sample included 7047 girls between the ages of 9 and 17 years from Tuzla Canton. The girls were divided into two groups. Group A (N=5230) comprised girls who lived in families free of strong traumatic events. Group B (N=1817) included girls whose family dysfunction exposed them to prolonged distress. Probit analysis was performed to estimate mean menarcheal age using the Probit procedure of SAS package. The mean menarcheal age calculated by probit analysis for all the girls studied was 13.07 years. In girls from dysfunctional families a very clear shift toward earlier maturation was observed. The mean age at menarche for group B was 13.0 years, which was significantly lower that that for group A, 13.11 years ($t=2.92$, $P<0.01$).
The results surveyed here lead to the conslusion that girls from dysfunctional families mature not later but even earlier than girls from normal families. This supports the hypothesis that stressful childhood life events accelerate maturation of girls.
Key words: Menarcheal age, girls, dysfunctional families

Introduction

Age at menarche, the first menstrual period, is an important maturity indicator to assess the developmental status of a pubertal female. This biological event is the outcome of a number of social and biological factors, and the mean menarcheal age appears to be a particularly sensitive indicator of the biosocial status of a population (1).
There is growing interest in the potential role of psychological factors in growth and maturation. In particular, the influence of familial stress upon growth and maturation has been studied somewhat extensively (2). According to the theory Belsky et al. (3), individuals who grow under conditions of family stress are predisposed to respond to the stress situation by maturing early. The process of human development and maturation is determined to a very large extent by genetic factors. On the basis of twin studies, it has been asserted that genetic factors accont for some 80% of the variability of menarcheal age. Consequently, to detect and assess the accelerating role of such factors as familial stress, sufficiently large genetically homogeneous groups have to be selected for study.
At present no published data is available on age at menarche in Tuzla Canton. Therefore, the purpose of this study was to establish menarcheal age in Tuzla Canton girls and to assess the role of familial distress on the maturity of a large sample of girls.

Subjects and Methods

The study was carried out from september 2002 to june 2003 in Tuzla Canton. Tuzla Canton is one of the ten administrative territorial units of the Federation of Bosnia and Herzegovina, situated in North-Eastern Bosnia with the area of 2,649 km^2 and a population of 538,376.
A total of 7047 girls aged 9-17 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, examination date, data about menarche and data about dysfunction of family. 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. Family disintergration was assessed taking into account the following factors (4): death of one or both parents, separation or dovorce of the parents, a singlemother family, prolonged illness of a member of the family, alcocholism of one or both parents.
On the basis of the data from the questionnaires, the girls were divided into two groups. Group A (N=5230) comprised girls who lived in families free of traumatic experiences. Girls whose families underwent one or more of these trauma were included in group B (N=1817). The girls in group B lived their childhood in families that created an abnormal environment that increased the risk for emotional stability and that increased opportunities for severe distress of the children.
Probit analysis (5) was performed to estimate mean menarcheal age using the Probit procedure of SAS package. The statistical significance of the differences between groups was evaluated by the Student's t-test. A difference was considered significant when $P<0.01$.

Results and Discussion

Table 1 gives the number and percentage of menstruating girls in each age group. 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 (6).
Menarcheal age for the girls in both groups is shown in Table 2. In girls from dysfunctional families a very clear shift toward earlier maturation was observed. The mean age at menarche for group B was 13.0 years, which was significantly lower than that for group A, 13.11 years (t=2.92, P<0.01). Our result for the girls from dysfunctional families is in concordance with that obtained by other authors (7,8). Earlier matuation of girls from disturbed families may be the outcome of frequent stresses, which are in such situations inevitable. Several reports indicate accelerated sexual maturation in association with a stressful family environment (4,9). These observations have been placed in the context of a theory (3) concerning the role of early childhood experience in timing of sexual maturation and female reproductive strategies. The present study shows that early childhood experiences affect sexual maturity. 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. Following studies should aim at analysing the secular trend in menarche for Bosnien girls while attempting to define the differences between the various socioeconomic levels.

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

Table 2. Age at menarche of girls from normal and dysfunctional families

Group of families	N	Mean	SD
Normal families	5230	13.11	1.04*
Dysfunctional families	1817	13.00	1.05

*P<0.01, N = sample size, SD = standard deviation

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