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Age at Menarche: Accuracy of Recall After Thirty-Nine Years

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ABSTRACT

Among 143 women whose menarcheal age was documented during a longitudinal growth study, recall 39 years after the event gave the following results: menarche was recalled as 0.2 years earlier than the actual date ($p < 0.05$), the standard deviation of recalled age was 0.3 years larger ($p < 0.01$), and the coefficient of correlation, r, between actual and recalled age was 0.60 ± s.e. 0.05.

Accuracy of recalled age at menarche is of considerable clinical and scientific moment. There have been two reports to date of women whose ages at menarche were documented during the course of a longitudinal growth study, and who were queried some years thereafter. Livson and McNeill (1962) found, among 43 women questioned after 17 years, no differences in the means or variances of recalled and actual ages at menarche, which were correlated with an r of 0.75. Damon et al. (1969) obtained similar results for 60 women questioned some 19 years after menarche, with an r of 0.78.

We report here the accuracy of recall for 143 white women whose menarcheal ages were documented during a growth study between 1922 and 1934, and who were queried, on the average, 39 years after menarche.

Subjects and Methods

In 1922, W. F. Dearborn of Harvard Graduate School of Education began a study of all children entering the first grade of three Boston suburbs. Each September for the next 12 years, or as long as they remained in these school systems, standard physical and mental exami-

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nations were performed on the children. The data have been published in detail, including ages at menarche (in months) for some of the girls in two of the three towns (Dearborn et al. 1938). In 1967 and 1968 we followed up, by questionnaire, as many of the survivors as possible. Women were asked, among other things, the age in months at which menarche had occurred. This question was answered by 143 women whose menarchael ages had been recorded at a mean age of 12.98 ± s.e. 0.08 years (S.D. = 1.0 ± s.e. 0.06 years). Their mean age at the time of query was 52.0 ± s.e. 0.07 years.

Table 1

Accuracy of Age of Menarche, Recalled after 39 Years. Difference Between Recalled Age and Actual Age at Menarche of 143 Females in the Third Harvard Growth Study

Difference in Years (recalled age minus actual age)*	Number Reporting Such a Difference	Per Cent of Sample
−4	1	0.7
−3	3	2.1
−2	11	7.7
−1	29	20.3
0	72	50.4
+1	22	15.4
+2	2	1.4
+3	3	2.1
Total	143	100.0

* The integral row headings represent the midpoints of the class intervals −3.50 to −4.49, −2.50 to −3.49, etc.

The data base from which the present subjects were drawn was as follows. Of 3,592 participants in the study, we tried to locate 3,198 who had been observed annually for as long as they remained in the school systems, up to a maximum of 12 years. Of these, 1,222 were alive in 1968 and returned questionnaires; 204 were deceased; 849 did not respond; and 923 could not be traced with the limited time and funds available. Of the 1,222 persons returning questionnaires, 613 were

women; 486 were from the two towns where age at menarche had been recorded; and of these, 143 of the recorded ages had been published (Dearborn et al. 1938). This ascertainment involves bias of many kinds, possibly affecting accuracy of recall. Results cannot be generalized beyond the particular group involved.

Results

The mean recalled age at menarche for the 143 women was 12.81 ± s.e. 0.11 years (S.D. = 1.3 ± s.e. 0.08 years). Table 1 gives the distribution of the differences between recalled age and actual age at menarche. The mean of the differences was −0.20 ± s.e. 0.09 years indicating that in this sample the age at menarche was recalled, on the average, as 0.2 years earlier than the actual event. This is a very small difference, but statistically significant ($p < 0.05$). The standard deviation of recalled age was likewise slightly but significantly increased (0.3 years, $p < 0.01$). The r between actual and recalled age was 0.60 ± 0.05. Of the recalled ages, 50% were within ±0.5 years, 86% within ±1.5 years, 95% within 2.5 years, and over 99% within 3.5 years of the actual date.

Discussion

As might be expected, recall is significantly less accurate 39 years than 19 years after menarche. The mean was recalled as earlier, and the variance of recall was larger than for the actual event. The coefficient of correlation between actual and recalled ages was significantly smaller than has been previously reported among younger women, and the percentages of recalled dates falling within specified time intervals around the actual date were not as closely bunched around the zero-interval.

While these inaccuracies impair the validity of recall for clinical purposes—an r of 0.60 removing only 36% of chance (r^2) from the estimate, whereas one of 0.78 removes 61% of chance—it seems to us that memory has been remarkably accurate. A mean error of 0.2 years (2.4 months) after 39 years is negligible in practical terms, if one is dealing with groups rather than individuals. We conclude that in this group of women, recalled age at menarche is accurate enough for anthropological or epidemiologic purposes involving group comparisons.

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