

TEMPORARY VARIATION OF PHYSIOLOGICAL CHARACTERISTICS IN VENEZUELAN WOMEN. A COMPARISON WITH SPANISH POPULATION

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Abstract: Sexual maturation of Venezuelan female has been investigated considering secular trend in the last five decades and the reproductive period. Sample was composed of 400 women from 16 to 60 years of age, living in Caracas and belonging mainly to a middle-low socio-economic status. The recalled age method has been used. Menarche ranges are between 8 and 17 years ($x=13.14 \pm 1.71$). Data show a secular trend from 13.32 to 12.76 in the youngest group, corresponding with the highest welfare period in the country. In women over 45 years, 25% have menopause due to operation. The average age of menopause is 50.8 ± 2.47 year. Comparing Spanish female population of same age, the last has late menarcheal age. Blood pressure values increased with age.

Key words: Menarche; Menopause; Secular trend; Blood pressure.

Introduction

Menarche is an amply treated trait by physical anthropologists, because even if the onset age is genetically determined for each population, its variability depends on the dissimilar environmental conditions and it may reflect socio-economical conditions and quality of life which a determined human group is facing (Tanner 1962, Eiben 1970-71, Brief 1972, Prado 1982, Fundacredesa 1985).

Studies on the biological and social level of menopause and variability of blood pressure carried out at a population level in our country are scarce.

In Venezuela important changes have occurred that place this country as a transitional one, between the underdeveloped and developed countries. Its population is characterized by a biological cross of races, product of migrations and social mobility, and it became an urban country at the expense of a continuous diminishing of its rural population. The cross of races has been a continuous process up to the present time. Therefore, it is necessary to make periodical studies in order to note the changes that these physiological traits have produced, and that reflect the situation of the country. The aim of this study is to analyze aspects of feminine sexual maturity and its variation in the last decades, and the results obtained are compared with the Spanish female population. This is a chapter of the later and more profound study, which will treat the characteristics and health aspects specifically feminine, and their possible relation to pathology of the gynecological system with emphasis in the cervix.

Material and Methods

Morphophysiological data have been gathered on 400 women, between the ages of 18 and 69 working at the TGextile Industry. They all live in Caracas, even though some are from other areas, rural as well as urban.

This study has been possible thanks to the cooperation of Enterprise "Confecciones Ararat, C. A." and the Clinic for Cancer Prevention of the Venezuelan Cancer Society.

Physiological variables measured in each woman and its abbreviations are: menarcheal age (MEN), systolic blood pressure (PRS), diastolic blood pressure (PRD). With these data the difference between systolic and diastolic pressure (DPR) has been calculated and the pressure index (ITE) and menarcheal age determined in a retrospective manner. Data have been gathered about menopause applying the method of the recalled age and the useful reproductive period has been calculated, in such women that have already gone through menopause.

Besides physiological data, socio-economical situation has been classified considering salary (daily income) and professional occupational level, establishing the following categories: First category: university professionals or higher level. Second category: technical personnel, including assistants to the presidency or management, computer operators and nurses on medium level. Third category: commerce personnel, which includes sales ladies and similar. Fourth category: textile operators, which include dressmakers, apprentices and finishers. Categories three and four correspond to the basic level.

Data has been collected during the first three months of 1988 according to the standards of IBP and processed using the statistic packages of BMDP.

Results

In Table 1 we present a summary of the *socio-economical characteristics* of the sample based upon two facts: occupation of these women within the Enterprise and daily income level (in Venezuelan bolívares). Based upon those results, we may imply that our sample is located in a low medium socio-economical level and a salary increase is evidenced according to the increase in the average age of women. Educational level reflects lack of professional university women (1.3%), being the maximum percentage among the workers without specialization with a basic education. We have inferred by the results obtained, that this sample is representative of the socio-economical characteristics of the workers of Venezuelan industries.

Table 1. Socio-economical characteristics of the sample

AGE (year)	N	(Income bolívares daily) (%)					Groups of occupation (%)			
		60-80	81-100	100-200	200-300	300-400	1	2	3	4
> -20	30	66.7	33.3	0.0	0.0	0.0	0.0	3.3	3.3	93.3
21 - 30	145	26.9	55.9	15.8	1.4	0.0	0.0	7.6	2.1	90.3
31 - 40	131	4.6	54.9	38.2	1.5	0.8	1.3	5.3	0.0	93.1
41 - 50	63	3.2	44.4	50.8	1.6	0.0	0.0	3.2	3.2	93.7
50 and over	28	0.0	35.7	60.7	3.6	0.0	0.0	0.0	0.0	100.0

In Table 2, we observe that the age at menarche of female included in the sample obeys to a variation each two decades. So, we find similar maturity ages among the age

groups from 41–50 and between the ages of 50 years and over. We find another similar maturity age in women between the ages of 21–40 and a more precocious age in women younger than 20 years. The variation range between the maximum and minimum values seem to shorten in younger women.

Table 2. Menarcheal age in Venezuela (year)

AGE (year)	N	x	SD	V _{max}	V _{min}
6 > - 20	30	12.76	1.72	15	8
21 - 30	145	13.13	1.59	16	8
31 - 40	131	13.10	1.82	16	8
41 - 50	63	13.42	1.72	17	9
50 and over	28	13.32	1.82	16	8

It is observed that the secular trend is diminishing and its estimate is near the statistic significance ($t=1.73$) to a level of $\alpha = 0.1$. The lowering noticed in sexual maturity of our Venezuelan sample has been of 7.9 approximately, i.e. 8 months. There is also a variation in the maximum values of age while the minimum values seem to remain unchanged in the two decades studied, therefore, we think that the age of 8 years corresponds to the minimum age, non pathological of sexual maturity in women of our country.

We compared our results with those obtained by C. Prado (1982) in an urban sample of Madrid, which values are summarized in Table 3. Comparing both populations, an earlier menarche is observed in the Venezuelan sample which explains a greater precociousness of Venezuelan women. The secular trend recorded in these decades is lower than that observed in Spanish women, which has been of twelve (12) months in the latter (Fig. 1).

Table 3. Menarcheal age in Spain (year)

AGE (year)	N	x	DS
> - 20	97	13.02	1.17
21 - 30	13	13.11	0.73
31 - 40	523	13.54	0.96
41 - 50	249	13.90	1.19
50 and over	22	14.04	0.72

We studied the duration of the *feminine reproductive cycle* in which only women over 45 years of age were included. The average age of *menopause* is 50.8 ± 2.47 years. In this group, only those women are included, who have had a natural menopause. Those that evidenced menopause due to operation were excluded. However, we calculated within this age group a 25% percentage of menopause due to operation.

Once the measures of menarche and menopause were established it was calculated in each woman the useful reproductive period, with a result of a mean of 37.4 ± 2.9 years. Comparing this sample with that of Madrid, we observe similar results in the measure of menopause and that of the useful reproductive period. According to Pérez G. B. (1986), this feature seems to be less dependent of the environment than the age of the first menstruation.

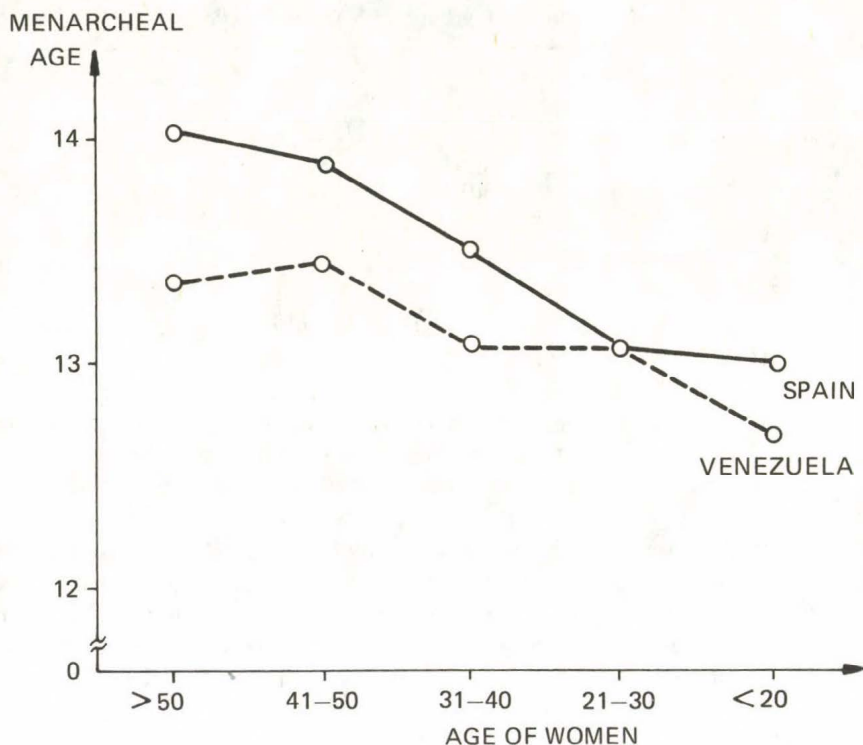


Fig. 1: Secular trend in age at menarche in Spanish and in Venezuelan women

According to the *blood pressure values*, it is important to know the normal variation of this feature in women, since it is a variable that falls into the viability of individuals and allows to detect pathological cases. Some studies have shown how blood pressure increases with age, thus it is interesting to note this feature in females from juvenile stages to the peri-menopausal cycles.

Table 4. Values of blood pressure by age in Venezuela (Hgmm)

AGE (year)	N	\bar{x}_{PRS}	\bar{x}_{PRD}	DPR	ITE
> -20	30	113.6 ± 1.13	64.3 ± 0.77	49.7 ± 1.06	77.98 ± 21.20
21 - 30	145	120.0 ± 0.93	67.0 ± 0.75	53.0 ± 0.79	80.56 ± 15.91
31 - 40	131	125.1 ± 0.89	72.3 ± 0.76	52.8 ± 0.76	74.52 ± 14.80
41 - 50	63	129.8 ± 0.99	76.6 ± 0.75	53.2 ± 0.84	70.23 ± 14.40
50 and over	28	132.1 ± 0.95	77.6 ± 0.68	54.5 ± 1.06	71.17 ± 6.70

Table 4 shows the values of systolic and diastolic blood pressure, the differences between maximum and minimum values and tension index of each one of the age groups studied. From it, it is evident to note a continuous increase of the systolic values as well as of the diastolic ones with age; increasing from 113.6 to 132.1 Hgmm the systolic, while the diastolic fluctuates from 64.3 to 76.6 Hgmm. An increase is evident between values of maximum and minimum blood pressure, showing lower values with age. The difference found in blood pressures between younger and older women is highly significant ($t=6.85$ for $\alpha=0.001$) showing how the disappearance of menstruation may cause a risk factor in the increase of her blood pressure. Compared to the Spanish sample, similar results are obtained, passing from a systolic blood pressure of 115.9 ± 14.4 Hgmm among women of 40 to 44 to a systolic blood pressure of 145.8 ± 20.4 among women of 60–64 years. In relation to diastolic blood pressure values, they fluctuate between 77.6 ± 8.9 and 89.1 ± 9.5 Hgmm for the aforementioned groups (Marrodan and Cols 1982). An increase in the difference of blood pressure and a diminishing in the index of blood pressure with age was also evident.

Conclusions

The results obtained show a precociousness in regard to the onset of menarche in women of Caracas. Similar results are observed in the average age of menopause and that of the reproductive useful period between Venezuelan and Spanish women and similar values of blood pressure between both samples.

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