

# WEIGHTS AND BLOOD PRESSURES OF WOMEN WHO ATTEND FAMILY PLANNING CLINICS IN SARAWAK

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## INTRODUCTION

A knowledge of the weight of women in a community is of practical importance for two main reasons. First, this knowledge is necessary when estimations have to be made of the amount of food needed by that community. Second, the mean weight of an adequate sample of women can be used as an indicator of the amount of food being consumed; if supplies become inadequate the mean weight of adults decreases.

A few measurements are on record of the weights of women in Sarawak, but the numbers involved have been small and the results are probably not representative of the whole population. There is apparently no published information about the blood pressure of women in the State.

During the past few years records have been accumulating in the Medical Department in Kuching of the weights and blood pressures of large numbers of women from all parts of Sarawak who have attended family planning clinics. The present paper is an analysis of some of these records.

## MATERIAL AND METHODS

The blood pressure and weight of each woman who attends a family planning clinic in the government health service are recorded. The measurements are made by members of the nursing staff who have been appro-

priately trained. Use is made of a mercury sphygmomanometer and a counter-balance weighing machine. Personal observation in many of the clinics showed that the apparatus and its use were satisfactory.

The sample consisted of *seriatim* records as they became available. No selection was made and, simply by chance, the women on whom measurements had been made lived mainly in the First, Second and Sixth Divisions of Sarawak. Almost all of them probably lived in rural areas. Because the women had attended clinics primarily to obtain advice about family planning the assumptions were made that they were in a normal state of health and that they were not pregnant.

A total of 1966 records of weight and 500 records of blood pressure were analysed.

## RESULTS

The mean weight of the first 1000 women in the series belonging to different ethnic groups was 47.3 kg (St. dev., 7.68; range, 29 to 88.8 kg). The mean age of the women was 28.5 years (St. dev., 7.09; range, 15 to 54 years). The mean weight of the first 500 women in the series was 47.5 kg (St. dev., 8.06) and that of the second 500 was 47.1 kg (St. dev., 7.28). The ethnic compositions of the groups are shown in Table I.

The weights of women of different ethnic groups are given in the Table II.

An analysis of the weights of women from the Second and Sixth Divisions, different from the subjects involved in the analysis given in Table I, is shown in Table III.

The mean diastolic blood pressure of 500 women of

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**TABLE I**  
**THE ETHNIC COMPOSITION OF THE GROUP OF 1000 WOMEN WHO WERE**  
**THE SUBJECTS OF THE ANALYSIS**

|            | Iban |      | Bidayuh |      | Malay |      | Chinese |      | Others * |     |
|------------|------|------|---------|------|-------|------|---------|------|----------|-----|
|            | No.  | %    | No.     | %    | No.   | %    | No.     | %    | No.      | %   |
| First 500  | 193  | 38.6 | 96      | 19.2 | 136   | 27.2 | 59      | 11.8 | 16       | 3.2 |
| Second 500 | 170  | 34.0 | 168     | 33.6 | 113   | 22.6 | 25      | 5.0  | 24       | 4.8 |
| 1000       | 363  | 36.3 | 264     | 26.4 | 249   | 24.9 | 84      | 8.4  | 40       | 4.0 |

\* Mainly of Melanau and Indonesians

**TABLE II**  
**THE MEAN WEIGHTS OF WOMEN OF DIFFERENT**  
**ETHNIC GROUPS**

| Group   | No. | Mean Wt. Kg. | St. dev. | % of total |
|---------|-----|--------------|----------|------------|
| Iban    | 416 | 46.6         | 7.23     | 34.3       |
| Bidayuh | 386 | 45.7         | 6.46     | 31.9       |
| Malay   | 285 | 49.1         | 8.30     | 23.5       |
| Chinese | 125 | 51.8         | 9.28     | 10.3       |

**TABLE III**  
**THE MEAN WEIGHTS OF WOMEN FROM TWO**  
**DIFFERENT DIVISIONS OF SARAWAK**

| Division | No. | Mean Wt. Kg. | St. dev. | Comment          |
|----------|-----|--------------|----------|------------------|
| Second   | 415 | 46.8         | 6.76     | 64% were Bidayuh |
| Sixth    | 339 | 43.1         | 5.94     | 92% were Iban    |

different ethnic groups was 72.4 mm (St. dev., 7.59; range, 60 to 90 mm). The mean systolic pressure was 112.1 mm (St. dev., 8.99; range, 90 to 150 mm). The average age of the women was 28.3 years (St. dev., 7.00; range, 15 to 46 years).

## DISCUSSION

The mean weights of groups of women found by the present analysis were greater than those quoted by Anderson (1978) which are shown in Table IV. An exception was the weight of the women from the Sixth

**TABLE IV**  
**THE MEAN WEIGHTS OF DIFFERENT GROUPS OF**  
**WOMEN QUOTED BY ANDERSON (1978)**

| Group                   | No. | Mean Wt. Kg. |
|-------------------------|-----|--------------|
| Penan (Eastern)         | 49  | 40.6         |
| Punan Busang            | 22  | 38.0         |
| Iban (Batang Ai)        | 164 | 43.1         |
| Bidayuh (Tebankang)     | 56  | 42.3         |
| Wives of Malay soldiers | 606 | 48.2         |

Division who were mainly Iban (Table III).

In a survey of the population of Kampong Pichin undertaken in 1979 by the Medical Department (unpublished) the mean weight of 260 women was also relatively small, namely, 40.7 kg (St. dev., 5.77). These results suggest that in some areas of Sarawak supplies of food may be relatively low.

There is normally a wide variation between the weights of different individuals. Therefore, to obtain a stable and representative mean for a population the size of the sample analysed must be of adequate size. This is especially so in the present instance because as the number increased there were possible changes in the relative proportions of different ethnic groups and of women from different locations and socioeconomic circumstances. Each of these factors might influence body weight. To obtain an idea of the minimal number required to obtain a stable mean an analysis was made of the first, second and third 100, 200, 300 and 400 records in the series. The results are given in Table V.

**TABLE V**  
**MEAN WEIGHTS OF WOMEN IN SERIAL RECORDS**  
**ACCORDING TO THE SIZE OF THE GROUP**

| Size of Group | First     |         | Second    |         | Third     |         |
|---------------|-----------|---------|-----------|---------|-----------|---------|
|               | Mean (Kg) | St.dev. | Mean (Kg) | St.dev. | Mean (Kg) | St.dev. |
| 100           | 44.8      | 7.51    | 46.9      | 7.87    | 48.9      | 8.13    |
| 200           | 45.9      | 7.74    | 48.6      | 8.18    | 47.7      | 7.81    |
| 300           | 46.9      | 7.99    | 48.0      | 7.97    | 46.7      | 7.25    |
| 400           | 47.3      | 8.07    | 46.8      | 7.33    | 48.2      | 8.16    |

The conclusion was made that the number required is at least 500.

A mean weight of 47.3 kg found in the present analysis is based on a large sample which consisted of women of different ethnic groups and is probably the best available estimate of the normal weight of women throughout Sarawak. At the same time this mean weight applies mainly to rural women and, in particular, excludes a large number of Chinese women who live mainly in towns. Taking the State as a whole the mean weight of women is probably somewhat higher than that revealed in the present analysis. When assessments were made of the food requirements of all the people of Malaysia a mean weight of women of 50 kg was assumed (Chong, 1969; Teoh, 1975). Using this weight, Teoh (1975) estimated that women of child-bearing age would need an amount of food equivalent to almost 2000 Kcal a day. Using similar criteria to those used by Teoh (1975) and a mean weight of rural women as 47.3 kg, and a mean weight of women throughout all areas as somewhat higher, the food requirements of the women of Sarawak would also be close to 2000 Kcal a day.

In the family planning clinics the weight of women continues to be recorded as they repeatedly attend, usually every two to three months. Analysis of these records would provide information of trends in the mean weight of the same women over an appreciable length of time. These trends would be most valuable as indicators of fluctuations with season and over longer periods in the

availability of food. Unlike the weight of children that of adults is less likely to be affected by episodes of infective disease and is, therefore, probably a better indicator of levels of food consumption. Furthermore, any errors in recording weights would be proportionately less in adults than in children.

As in other tropical communities the mean blood pressure of the women of the present analysis was low compared with that found in western communities. Wadsworth (1969), for example, found that the mean blood pressure of young women in Manila, Philippines, was 112.8/70.8, whereas Miall (1959), for example, found a mean blood pressure of 121.4/75.7 in young women in Britain.

Again, as in the case of body weight, analysis of serial records from family planning clinics would be valuable in monitoring any trends in blood pressure of women in Sarawak which might occur with changes in conditions of life.

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