Health Profile of Balhareth area in Taif Region

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Objective: To describe demographic, socio-economic, environmental factors and general health status of one of the rural and semi-urban areas around Taif city at the western province of the Kingdom.

Methodology: A cross-sectional multipurpose survey for 2 weeks composed of household and school surveys using questionnaires, anthropometric measurements and physical and dental examinations.

Results: 340 houses and 14 schools were surveyed. A higher percentage of young age population was found. Findings indicated a high illiteracy rate especially among females. Environmental status of the area was not optimum with a need for better services. Maternal data indicated a high fertility rate with high rate of unattended deliveries. Breast feeding was a common practice and children pattern of feeding was satisfactory. School survey revealed a lower weight and height compared to NCHS population and a high rate of dental caries.

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Conclusion: The area was not underprivileged and did not show specific endemic disease pattern. Improvements in the areas of sanitation, female education and school dental education is recommended based on the findings.

Key Words: Rural area, Saudi Arabia, Community Survey, Multipurpose survey.

INTRODUCTION

The Kingdom of Saudi Arabia is a vast wide spread country composed of various types of landscape, variety of cultures and various maps of rural, urban and semi-urban regions. The health status of each area will be shaped according to many determinants of illness and health which will be the resultant of many environmental conditions, socioeconomic factors and health practices and services. The need for field surveys as tools to describe these determinants and to visualize the health status of any part of the country cannot be over emphasized in the field of community diagnosis. This field survey conducted for 2 weeks in August 1992 was meant to yield some information on the health status of one of the rural and semi-urban areas around Taif city at the western province of the Kingdom. This cross sectional survey was part of the training course of medical students in King Abdulaziz University medical school.

The Area

Taif region is a wide spread region in the western part of the kingdom and is made of high altitude mountains, hills and vastly spread valleys. Taif city, which is the summer resort of the Kingdom, is considered to be its summer capital. Balhareth area, the homeland of Balhareth tribe, 80 km south of the City, which extends 50 Km in width and 40 Km in length was chosen for the survey. It is made of many wide valleys and high altitude mountains (Fig. 1) and has a lot of small towns, villages and vastly deserted areas. Its main valleys are Missan, Boa, Alsour and Almoraifiq and the main towns are Missan and Alsour. With the increasing influx of migration from the area to Taif city, the inhabitants of the whole Balhareth area (estimated before to be 40-50 thousands) are decreasing to < 20000. Most of the population are Saudis and they work in agriculture, sheep breeding and small business trade.

METHODOLOGY

This survey was aimed to describe demographic, socioeconomic, environmental and health status of the region. Hence, it was made of a household survey and a school health survey. The study, being a cross-sectional type, was meant to include the maximum population as the survey period would allow in order to yield the required information. After extensive review of the area through field visits, Missan area with its populated towns and villages was found to be the most suitable and convenient area for this activity. All large accessible and populated villages around the area were picked for the household survey. A sample of 340 families (32.4% of 1047 families registered in the PHC records) and the largest 14 boys schools of all educational levels from all villages (51.8% of all 27 schools) were selected for the household and school health survey in Missan area. This sample was collected over the
time allowed for the survey and exceeded the already planned 25% sample of population. For technical reasons the survey did not include evaluation of the health centers or hospitals in the area.

THE PROCEDURE OF THE SURVEY

The actual conduct of the survey was preceded by a preparatory phase in which the selection of the study area, the calculation of the required samples, the formulation of the questionnaire forms needed in each part of the survey and the pilot testing of the questionnaire were arranged. This was followed by a phase of administrative arrangements with the local Amarah and school authorities of the area for approval. Frequent visits to the selected villages and schools for arrangement of the activity and local leaders were approached to ease the conduct of the survey.

The survey team was formed of six from the teaching staff from the medical college and 60 fourth year medical students. Technical support of one technician and 4 local drivers were available. The medical students were trained during the preparatory phase on interviewing skills, measurement taking and other various survey activities. The team was divided into four task groups to cover this multipurpose survey in the assigned time. It was quite suitable to conduct the school survey in the morning and to keep the afternoons for the household survey.

School survey included interviewing of school students for personal data, anthropometric measurement, visual acuity tests (Snellen test), dental and physical examination. Weight and height were taken to the nearest 0.1 Kg and 0.1 cm respectively with the student standing lightly clothed without shoes or head covers on the platform of the measuring scale (Health-O-meter). Scales were calibrated periodically to assure accurate measurements. Students found to have any abnormalities were referred to the regional hospital. Additionally, a group of the survey team gave health education talks in classes about various health issues such as personal hygiene, dental care, smoking and car accidents.

Home visits were done during the afternoons to ascertain the presence of the head of the household to fill the questionnaire about personal and social data, disease pattern, home environment, water source, sewage and refuse disposal. A maternal and children questionnaire was directed to mothers through their husbands to gather information on the pattern of maternal and children health in areas of pregnancy, labor history and problems, breast feeding and childhood diseases. Health education to family members was performed by the interviewer on health issues such as safety at home and child immunization.

RESULTS & DISCUSSION

General characteristics of the population

A total of 340 houses were surveyed in Missan area, of which 79.3% were nuclear type of families and the rest (20.7%) were extended in which grandfathers and grand sons were in the same house. The average family size was 8 persons (SD=3.6) with a minimum of 2 and a maximum of 21.

The total number of surveyed population in the household visits was 2647 persons, of whom 1327 (50.1%) were males. Table 1 shows the population structure of the area with 30% of the population < 10 years of age, and only 7% of the population at

| Age group | Male | Female | Total | %  |
|-----------|------|--------|-------|----|
| 0-5       | 207  | 180    | 387   | 14.7|
| 6-9       | 221  | 179    | 400   | 15.1|
| 10-19     | 454  | 435    | 889   | 33.7|
| 20-29     | 97   | 163    | 260   | 9.8 |
| 30-39     | 68   | 134    | 202   | 7.6 |
| 40-49     | 74   | 112    | 186   | 7.0 |
| 50-59     | 77   | 52     | 129   | 4.9 |
| 60-69     | 63   | 36     | 99    | 3.8 |
| Over 70   | 62   | 28     | 90    | 3.4 |
| Total     | 1323 | 1319   | 2642  | 100 |

Table 1

Distribution of population by age and sex

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Almost one third (30.3%) of the surveyed population were illiterate, another third (34.6%) had 1-6 years of school education and 9.2% only completed 12 years or more of education. Males were found to have a higher level of education in all grades (P<0.05).

Occupations of the surveyed population showed the majority of females to be housewives and students, while most males were teachers, students or unemployed but engaged in agriculture, sheep breeding and small business trade.

Environmental conditions

A total of 340 houses were visited and they were built of bricks (79.7%), rock/stones (15.5%) and two houses only were built with mud. The majority of the houses had tiles (66.9%) or cement (30.7%) as the floor material. Most of the houses (98%) possess kitchens where food is prepared, and have refrigerators for storage of food.

Since the area is characterized by agriculture and sheep breeding, about 42% of the families kept animals in their properties.

While 71.2% of the families use well's water for washing purposes, 38% of the families use this source of water for drinking and cooking purposes. The usual source of drinking water for most of the families (61.2%) was either purified (Tahlia) or bottled water. For sewage drainage most of the houses (88.3%) had either cess-pool or septic tank.

More than 95% of the families collect their domestic refuse in either plastic bags, plastic boxes or metal boxes, and few (3%) reported to throw it to the street. However, city service for refuse collection reaches only 21% of the houses and, therefore, more than 50% of the families get rid of refuse by burning it at certain sites outside the villages. These data show the need for municipality services to reach most of the houses in the area.

Disease pattern

Information on a past history or current presence of some common illnesses as diagnosed by a physician in the > 5 years population were obtained directly from the head of the family or attendants in household. Table 2 shows the frequencies of these illnesses. Although ascertainment of disease occurrence for some of the listed diseases was not based on specific screening tests, the reported occurrence indicates that the area is not apparently endemic to major infectious and noninfectious illnesses. The relatively higher percentages for brucellosis and bronchial asthma may reflect the sheep breeding characteristic of the area and the high level of

| Disease            | Freq | %  |
|--------------------|------|----|
| Brucellosis        | 41   | 2.1|
| Bilharziasis       | 33   | 1.7|
| Malaria            | 28   | 1.4|
| Tuberculosis       | 5    | 0.3|
| Bronchial asthma   | 50   | 2.6|
| Diabetes Mellitus  | 32   | 1.6|
| Hypertension       | 28   | 1.4|

N = 1951

Maternal data

A total of 379 mothers with an average age of 39.1 years (SD=11.7) were interviewed in 340 houses and their age groups are described in table 3. Most of the mothers were housewives (92.4%) and their level of education were mostly low as only 19.2% completed the first year of primary school and 13.2% finished their primary education. A similar survey in Qatif region has documented an illiteracy rate of 73.9% in house wives in 1983. These low rates do not reflect the literacy rate in the Kingdom which had risen to 62% in the Kingdom.
Table 3
Distribution of mothers according to their age groups

| Age group | No | %  |
|-----------|----|----|
| - 15 Y    |  1 |  0.3|
| 16 - 20   | 13 |  3.4|
| 21 - 30   | 90 | 23.8|
| 31 - 40   |140 | 36.9|
| Over 40   |135 | 35.6|
| **Total** |379 |100 |

in 1994. These low literacy rates can be explained by the known urban-rural difference and stresses the need for more effort in female education in these areas in particular.

Consanguinity in marriage was a common practice as 73.7% of the marriages were consanguineous with some degree of relationship and one fifth of the parents were first cousins. This is higher than that found in a study in Jeddah city in which 41% of mothers were consanguineous to their husbands. Consanguinity was documented as a risk factor for some hereditary problems in Saudi Arabia and the need for the limitation of this practice and premarital counselling is a valid recommendation. Multiple marriages (Polygamy) was moderately practiced in the area as 37.8% of mothers mentioned that their husbands had another wife. This is higher than the rate documented by Sebati of 18% in semi settled communities at Turrabah in 1983. This can be explained by the economic growth since that date and the better settlement of this area.

Age at marriage for these mothers started as early as 12 years and the mean age at marriage was found to be 19.2 (SD=4.3) while 48.1% of the mothers got married before reaching 19 years compared to 80% in Qatif study. Consequently, mothers in Missan started their pregnancy relatively early, as 34.9% had their first pregnancy before 19 years of age and the mean age for first pregnancy was 20.7 (SD=4.5). This age is considered to be a safe time for first pregnancy for both the mother and her child morbidity and mortality when compared to younger age group as documented by Omran.

A total of 2752 pregnancies were reported from 356 mothers with a mean of 7.7 pregnancies per mother. This general fertility rate can not be considered as a mean gravidity per mother as the group was composed of various gravidity levels and mothers did not reach the end of their fertility age yet, as seen in table 4 which describes the frequencies of pregnancies. Hence, the mean gravidity per mother is expected to be higher than the observed mean. Hammam in his study in Egypt found a higher mean of 10.2 gravidities in urban mothers compared to 9.1 in rural mothers.

Mothers recalled a total of 180 abortions in these pregnancies and 57 still births with an overall rate of 65.4 and 27 per 1000, respectively. Mean number of live births for each mother in these pregnancies was 6.9 and a total of 27 twin pregnancies were recalled with a rate of 8.3 per 1000.

Natal history from these mothers revealed that 76% were delivered at home, 22.4% in the hospital and 1.6% in the health center. These rates are acceptable in the view of the geography of the surveyed area. Questions on who attended these deliveries (answered by 312 mothers) showed that 36.5% of them were not attended by medical or paramedical personnel but rather by a non trained relative. The rate of unattended births was

Table 4
Distribution of mothers according to number of pregnancies

| Pregnancies | Freq | %  |
|-------------|------|----|
| 1           | 16   | 4.5|
| 2           | 20   | 5.6|
| 3           | 32   | 9.0|
| 4           | 19   | 5.3|
| 5           | 18   | 5.1|
| 6-10        |162   |45.5|
| 11-18       | 89   |25.0|
| **Total**   |356   |100 |

Missing = 23
documented to fall below 10% in Saudi Arabia by 1993 and such difference can be thought of as a result of rural-urban differences or the inadequacy of delivery services in the area. Traditional birth attendants (TBA or Daya) conducted 597 of these deliveries with an average of 5 TBA deliveries/women. Most of the reported deliveries (96.1%) were spontaneous vaginal ones and only 2.7% were by cesarian sections. Questions regarding complications during pregnancy and delivery including hemorrhage which required hospital admission, raised blood pressure or blood sugar diagnosed by her doctor, puerperal sepsis or eclamptic fit were answered by a group of 312 mothers. Table 5 shows the frequency of these complications. Keeping in mind the recall bias and the high rate of unattended births, the above data can be used to indicate the need for easily accessible antenatal and natal services in the area, better training of TBAs and the availability of transportation or mobile emergency services aiming to reduce the risks attached to home deliveries.

The practice of family planning was reported by 27.7% of the mothers (N=347). This is a higher rate than a 15% rate documented by Hanbali in rural Syria but in agreement with the finding of 33.6% in the fertility control study in Qatif. Contraceptive pills were the most commonly used method (62.6%) in Missan followed by intrauterine device (33%). It is noted that the use of pills in Missan is higher than that of Qatif (6.9%).

| Complication          | %   |
|-----------------------|-----|
| Antepartum Hge.       | 12.2|
| Raised Bl. Pressure   | 5.1 |
| Raised Bl. Sugar      | 3.2 |
| Postpartum Hge.       | 8.9 |
| Puerperal Sepsis      | 10.0|
| Eclamptic fit         | 2.3 |

N = 312

Children data

A total of 265 children < 5 years in 340 families were surveyed in their houses. Males formed 56.2% and their age distribution is described in table 6. In agreement with the pattern expected in rural areas in Arab countries, their birth order showed that 38.6% were 6th to 9th in their family and 9.8% were 10th or more in the birth order of the family. Vaccination history from immunization cards was indicative of a high level of coverage as 97.7% received their BCG vaccination, 92.2% completed their 3rd dose of DPT & poliomyelitis vaccines, 89.7% received measles vaccine and 83% received at least one dose of the Hepatitis B vaccine which is newly introduced in the vaccination scheme of the country. This high coverage rate of immunization has been documented in many studies and is highly related to the legislation of connecting child registration in the civil bureau with the completion of the immunization scheme. Mortality rates among children was collected using the recall of mothers of any previous child death and accumulated infant mortality rate was found to be 112.3 per 1000 while 1-5 age specific death rate was 17.7 per 1000. These rates were not confirmed by hospital data and can be questioned for accuracy compared to the lower rate in infant mortality reported by Mazrou in rural area (68 per 1000) in the child survey study. Questions on the prevalence of some childhood infectious diseases revealed low rates as mothers recalled 23 (9.0%) cases of chicken pox, and 8 (3.1%) cases of measles. Recall of diarrheal attack during the last

Table 5
Percentage of pregnancy & delivery complications

| Complication          | %   |
|-----------------------|-----|
| Antepartum Hge.       | 12.2|
| Raised Bl. Pressure   | 5.1 |
| Raised Bl. Sugar      | 3.2 |
| Postpartum Hge.       | 8.9 |
| Puerperal Sepsis      | 10.0|
| Eclamptic fit         | 2.3 |

N = 312

Table 6
Distribution of ≤ 5 children according to age groups

| Age group | No | %   |
|-----------|----|-----|
| - 1 y     | 42 | 15.8|
| - 2 y     | 69 | 26.1|
| - 3 y     | 45 | 17.0|
| - 4 y     | 66 | 24.9|
| - 5 y     | 43 | 16.2|

Total 265 100
year among these children was reported by 46.2% of mothers only (N=182). Attacks ranged between 1 and 10 with an average of 2.9 attacks/child. This is less than the 6-12 episodes documented in developing countries for children in this age and can be explained by the recall bias of these mothers. 49% of diarrheal attacks were severe and required hospital admission. Advice on the use of ORT in treatment of diarrhoea was given by health personnel to 52.9% of mothers and those who reported the actual use of ORT at home formed 48.9% of cases only. The wrong perception of stoppage of breast feeding during attacks of diarrhoea was shared by 34.8% of mothers indicating the need for more effort in health education for diarrhoeal diseases.

Questions on feeding practice for the first two years of life were answered by a group of mothers who had children of < 3 years of age (N=167) in order to decrease the recall period. 72.4% of them had breast fed their babies during the first year with some other supplementation. Mothers showed a highly positive attitude towards breast feeding as 79.3% of them thought that breast feeding should not stop before entering the second year of life and preferred late stoppage of breast feeding at an age between 1.5 & 2 years. Breast feeding was practiced on demand status in 68.6% of cases while the rest went on 3-4 hours schedule. The above findings were in accordance with the finding of a review study of infant feeding pattern in the country and can be related easily to the Islamic look to breast feeding and child care. Fluid supplementation was introduced in 50% of cases at early time of 3-6 months of life. This was formed of fruit juice in 50% of cases and extra bottle milk in 41.2% of cases. Mean age of introduction of solid foods in this group was 7.1 months (SD.4.5) but some solid foods were introduced wrongly as early as 2 months in 9.2% of cases while 43.1% of cases introduced it during the 3-6 months period. These foods were composed of biscuits and canned cereals in 36.3% of children, rice and potato in 37.4% of cases, fruits and beans in 11% of cases and mixture of all in the rest. The above data on infant feeding and nutrition are in accordance with the documented information by Mazrou.

School health survey

Students in the largest 14 boys schools (n=1923) represented 47% of all students registered in the area. Of these, 1229 were at the elementary levels and 694 at the intermediate and secondary level. Distribution of their 5th, 50th and 95th percentiles of weights and heights by age are shown in Table 7. The 50th percentiles of weight for age and height for age were further compared with the NCHS population (Figures 2 and 3). The finding from Missan is describing a lower weight and height for age than the NCHS population. This can be ascribed to the limitation of sample size in Missan, but can be related partially to both genetic difference and environmental factors in the area; a finding similarly documented by Attallah in his larger sample study, compared to Europeans, in Asir region, south of Saudi Arabia.

Visual acuity

Table 8 shows the results of visual acuity examination of right & left eyes using snellen chart. Majority of the students (91%) were found to have perfect or near perfect eyesight while only a small percentage (0.7%) had gross visual impairment.

Table 7

Percentiles (5th, 50th & 95th) of weight and height for age in school boys

| Year | Weight (kg) | Height (cm) |
|------|-------------|-------------|
|      | 5th | 50th | 95th | 5th | 50th | 95th |
| 6    | 15   | 20    | 23    | 108  | 117  | 127  |
| 7    | 16   | 21    | 29    | 109  | 118  | 137  |
| 8    | 18   | 23    | 34    | 115  | 123  | 139  |
| 9    | 18   | 24    | 33    | 111  | 126  | 138  |
| 10   | 21   | 26    | 40    | 121  | 130  | 151  |
| 11   | 21   | 28    | 42    | 124  | 135  | 153  |
| 12   | 23   | 32    | 51    | 123  | 141  | 159  |
| 13   | 24   | 35    | 50    | 133  | 146  | 164  |
| 14   | 31   | 40    | 60    | 136  | 153  | 167  |
| 15   | 25   | 43.5  | 61    | 129  | 157  | 168  |
| 16   | 32   | 49    | 61    | 141  | 161  | 173  |
| 17   | 39   | 52    | 71    | 152  | 165  | 174  |
| 18   | 38   | 54    | 68    | 124  | 165  | 176  |
Dental survey

In the dental survey, brushing habits of students were investigated and showed that nearly half of them did not brush their teeth in the morning of the questioning day. As a daily practice, only 33% of students used to brush their teeth regularly, 48% brush occasionally and 19% do not brush their teeth. Brushing was done using either tooth brush and paste (70%), or miswak (30%). Dental examination revealed that dental caries was prevalent in 40% of all school students. Based on the above findings, implementation of school health education dental care program is highly recommended.

Smoking

Prevalence of smoking between intermediate and secondary students (N=694) was found to be 4.9%. Of those smokers, 82% smoked cigarettes and the rest (18%) smoked shisha. This finding is quite less than the reported 17% prevalence rate in a study of secondary school students in rural Riyadh, which might be partially explained by the interviewing nature of our study compared to the self administered method used in Riyadh study. 60% of smoking students reported to be encouraged to smoke by their friends and 72% of all smokers reported the presence of a smoker in their family. A high proportion (73%) of smokers knew some of the hazards of smoking but unfortunately only 16% of them thought of stopping smoking.

CONCLUSION

Rural areas in our country are experiencing an increasing development in various aspects of life being social, economical and health status and Missan area is not an exception. Based on the findings from the household and school surveys, the area was found not to be an endemic area for major diseases and can neither be considered an underprivileged area nor experiencing any specific disease pattern. An evaluation of the available health services in the area was not included in this survey but the effect of some shortage of these services was noted, indirectly, especially in the area of maternal and children health and indicate the need for improving quality and magnitude of these services. Specific recommendations in the field of health education, female education, environmental services and school health education are important preventive services needed to promote the health status of the population in Balhareth area.
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