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MANAGEMENT SCIENCES FOR HEALTH
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A Health Survey of Three Provinces of Afghanistan

A Tool for the Planning of Health Services

November 1977

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A Tool for the Planning of Health Services

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SUMMARY

Implications of Survey Findings for Rural Health Programs

In the introduction to this report the management process is described as the process of using existing resources in the most efficient and effective way in order to solve a specific problem. This village health survey was presented as a means of obtaining the information on health needs and health resources required to carry out the process of managing a rural health program. The most important findings of the survey and their implications for the planning of village level health programs in Afghanistan are summarized below.

Health Problems

1. Finding - Infants, young children and women share a disproportionately large burden of sickness and death in rural Afghanistan; more than one half of all deaths occur to those under five; women aged 30-45 years have a rate of reported illness almost twice as great as men of the same age group. (Documented in Section III-B, subsection 1.)

Implication - Any village level health program should give special emphasis to the health problems of children and women. (Such programs might be carried out most effectively in rural Afghanistan through the training of women as health workers.)

2. Finding - A relatively small number of illnesses account for the major portion of illness and death in rural Afghanistan; three causes - respiratory illnesses, diarrhea/dysentery and jinns - account for over 50% of recent deaths and 60% of all recalled child deaths. (Documented in Section III-B, subsection 2.)

Implication - A health worker trained in the prevention and treatment of a few of the most common illnesses encountered could have a large impact on the overall health of a village.

3. Finding - With one important exception, namely malnutrition, the health problems as perceived by villagers themselves as being "most serious" are those which account for the greatest proportion

of illness and death as determined by this survey; 56% of respondents named respiratory illnesses and gastrointestinal illness as the most severe problems they face. (Documented in Section III-B, subsection 3.)

Implication - Any village health program aimed specifically at the prevention and cure of the most serious health problems should receive a high degree of cooperation and support from villagers. Programs aimed at the very serious problem of improving child nutrition may receive less initial support as malnutrition was not recognized as a severe problem by respondents.

4. Finding - Malnutrition is a severe health problem of young children in rural Afghanistan; fewer than 60% of children in any age group are classifiable as well-nourished according to arm circumference measurements; malnourished children had a reported rate of illness almost three times that of well-nourished children. (Documented in Section III-B, subsection 4.)

Implication - As malnutrition is an underlying factor in much of the childhood morbidity and mortality, it must be addressed both at the local level, through the development of village level programs aimed at improving child nutrition, and at the national level, possibly by the establishment of a National Nutritional Council to further investigate the prevalence of the problem, its causes and alternative means of combating it.

5. Finding - Childrearing practices are one of the contributing factors in childhood malnutrition; eggs, meats, and other high protein foods are reported as not being introduced into the child's diet until almost two years of age; children with illnesses such as diarrhea are frequently reported as being denied the foods they require. (Documented in Section III-B, subsection 4.)

Implication - A special priority should be given to the education of mothers in the feeding habits that will be conducive to the health and nutrition of their children.

6. Finding - While the actual and desired family size of rural Afghans is extremely large, the vast majority of villagers, 69% of males and 91.6% of females, are interested in learning about ways to

increase the amount of time between births. (Documented in Section III-B, subsection 5.)

Implication - Given the interaction between intervals between births and the health of children as well as mothers, and the expressed desire of villagers for information on spacing their children, it is essential that any program whose objective is improved health have as a component increased information on family spacing methods.

7. Finding - Environmental conditions in the village also contribute to the prevalence of illness and are perceived by many villagers as being unsatisfactory; 80% of male respondents reported a readiness to contribute their labor to work with a government expert to improve village sanitation. (Documented in Section III-B, subsection 6.)

Implication - Programs to improve the village environment can be expected to receive high levels of community support, if adequate technical expertise is made available to guarantee the success of projects.

8. Finding - Those of lower socioeconomic status tend to have higher prevalence of disease, infant mortality, and fertility. (Documented in Section III-B, subsection 7.)

Implication - The needs of a specific subsection of a village - the very poor - must be recognized, and programs that will include means of reaching the whole socioeconomic spectrum of the population must be developed.

Rural Health Resources

1. Finding - The services currently utilized by rural Afghans are many and varied; in the year prior to the survey households made an average of 17.5 visits to all sources of treatment with an average of 3.63 different sources being consulted; both modern and traditional services were used, 60% having used a pharmacy, 50% a mullah and 25% having visited a shrine. (Documented in Section III-C, subsection 1.)

Implication - There are currently many different sources that a villager can turn to when sick. In designing a village level health

program it is important to know the alternatives available and to work as cooperatively as possible with those who are already providing important health services to the village.

2. Finding - The amount of money now being spent by rural Afghans on health care is by both absolute and relative terms very large; the median annual reported expenditure is 1000 Afs; 7.4% of the estimated household income is spent on health. (Documented in Section III-C, subsection 2.)

Implication - As villagers are already spending large amounts of money for health services, they should be capable of supporting local health programs, such as a village health worker, provided that the programs have a demonstrated value to the village.

3. Finding - Medicines represent the single most expensive item in the villagers' health budget; 37.0% of the annual health expenditure is spent at the pharmacy, with an average per-visit cost of 248 Afs. (Documented in Section III-C, subsection 2.)

Implication - One of the greatest savings in the cost of health care to villagers could be made by increasing access to low cost, high quality medicines through programs carried out through existing pharmacies, BHCs, village shops or village health workers.

4. Finding - Villagers' satisfaction with the services currently available to them varies; 64.3% are satisfied with the BHC, but only 31% felt that the dokhan was an adequate source of medicines; one third felt that the BHC was the best source of treatment outside the household for an illness, while only .9% named the local private doctor; the most frequently mentioned health improvement needed was access to medicines. (Documented in Section III-C, subsection 3.)

Implication - The respondents report being quite satisfied with the services available through the basic health center except in its role in distributing medicines. The expressed desire of villagers for increased availability of medicines provides an indication that any program aimed at improving access to drugs would meet with a high level of village support.

5. Finding - Villagers are strongly supportive of the concept of a village health worker; 78% of males and 95% of females felt that a VHW was feasible for their village; a significant number of individuals were able to name a person, in many cases a woman, who they felt would make a good VHW. (Documented in Section III-C, subsection 4.)
Implication - Attempts to institute a VHW program can expect to be favorably received by villagers.
6. Finding - Informants agreed that VHWs should be paid but were divided on how he/she should be paid; 43% stating that the village should pay and slightly more stating that the government should pay. (Documented in Section III-C, subsection 4.)
Implication - More evaluation based on actual experience will be required to determine whether villagers are able to support a health worker and to determine the best means for collecting the money in the village.
7. Finding - A relatively large percent (27%) of males stated that they would allow their wife or daughter to be trained as a VHW; 34% felt that it would be possible to find a woman from the village who would be able to leave the village for some duration for training. (Documented in Section III-C, subsection 5.)
Implication - In most villages it may be possible to recruit and train a woman as a VHW for the crucial role of working with mothers on the improvement of child nutrition and health.
8. Finding - Mobility of women is severely limited by the restrictions placed upon their travel, however 44% report being able to visit a BHC unescorted by a male; almost half of the women listen to the radio at least once a week. (Documented in Section III-C, subsection 5.)
Implication - While the channels for the diffusion of information into the Afghan village are currently quite narrow, especially for the women, the potential exists for the use of innovative mass media radio techniques to improve maternal knowledge and child-rearing practices. The BHC exists as a legitimate object of travel

for many women and can serve as an important educational center as well as a location for women to communicate with one another.

9. Finding - The opportunities that a household has for the care of its sick members as well as its attitudes concerning what is appropriate treatment are affected by its socioeconomic status. Likewise, opportunities for these households to receive information which would assist them in improving and maintaining their health appear to be more restricted than for wealthier households. (Documented in Section III-C, subsection 6.)
Implication - Plans for the improvement of village health conditions must take the heterogeneity of the village population into consideration; specifically, provision must be made to include access for the poor to health services in any program that is designed to make use of available village resources.

Conclusion

No research is useful unless its results are helpful to managers in making decisions that affect their programs. As such, the results of a study or survey must be relevant, understandable, and, of great importance, timely. Appendix C summarizes some of the immediate applications that the findings of this report have had, since the time that a preliminary report was available, for the planning of a village health worker program. As well, it presents in summary form some of the implications of the study for future Ministry of Public Health programs aimed at improving rural health.

The final test of the usefulness of the survey, however, will be found in whether or not it has served a role in accelerating the rate at which health standards in the Afghan village are improved.

I. Introduction - The Management Process in Health Programs

Management can be defined as the process of using available resources in an effective and efficient way in order to solve a specific problem. This report describes one undertaking in the management process -- the efforts of the Ministry of Public Health (MOPH) to define and analyze the problems of providing basic and essential health services to the rural population of Afghanistan.

Two main components of the management process are the analysis of the nature of the problem and a description of the resources available to meet that problem. Each requires a different type of information. The broad outline of the nature of health problems in rural Afghanistan has been known for some time.⁽¹⁻⁴⁾ Infant and maternal mortality, childhood illness, and infectious diseases have high prevalence in rural areas. The exact nature and cause of these problems, however, have been less well studied and appreciated. How often does a household have an illness requiring some form of treatment? What are the most common diseases and health problems, and which are more frequently associated with death? What are the patterns of illness by age, sex, or location? Which illnesses are perceived as being the most serious by villagers themselves? What are the underlying causes of the problem, including such factors as sanitation, nutrition, childrearing practices and lack of basic understanding of the cause and prevention of disease? The health survey of three (3) provinces of Afghanistan was specifically designed to obtain information on the nature of rural health problems in a form that would be useful to the Ministry of Public Health in the planning and management of rural health services.

Likewise, only limited information has been available concerning the second component of the management process -- the resources available to meet the problem. For instance, the MOPH has long been aware that a disproportionately large percentage of its annual budget has in past years been allocated to support health services which have grown up within the cities. Even a casual analysis of the distribution of health personnel in the country vividly demonstrates the urban-rural imbalances. Large segments of the rural population, estimated to be 85 - 90% of the total population, are known to be beyond the convenient reach of

existing government health services. Considerably less is known, however, about the actual pathways that a villager follows in the event of an illness. Where does he go? How does he decide on the "best" alternative? How much does he pay? How far must he travel? How satisfied is he with the care that he receives?

In addition, little is known about a villager's attitudes toward the provision of a new type of health service - the village health worker (VHW). Would he be willing to support new programs to make basic health information and services available at the local level, such as the training of a VHW? If so, how should such a person be selected and trained? Would the person have to be paid? By whom? How? One objective of this survey was to gather information on the health resources, both traditional and modern, which are now available to and used by rural people and to determine the feasibility of introducing innovative health programs at the village level.

The method used by the Ministry to obtain the information needed for its planning was a direct one. It asked the villagers themselves. Persons living in 17 villages of three different provinces, Ghazni, Helmand, and Baghlan, (See Figure 1) were interviewed to obtain information about the health of their household and about the steps that they take when a member of that household is sick. The findings of this survey are divided into three sections in this report. The first provides a description of the characteristics of the populations studied. The second section analyzes the nature of the health problems confronted in the Afghan village. The last section describes the health behavior of rural populations, examining health resources presently used by villagers, as well as others with potential for use in a village health scheme.

It must be appreciated that the step of the management process which is carried out after the information has been collected and studied - the linking of known resources to known health needs - is often the most difficult one. It is a step, however, which the Ministry of Public Health has already begun. Over the past five years,

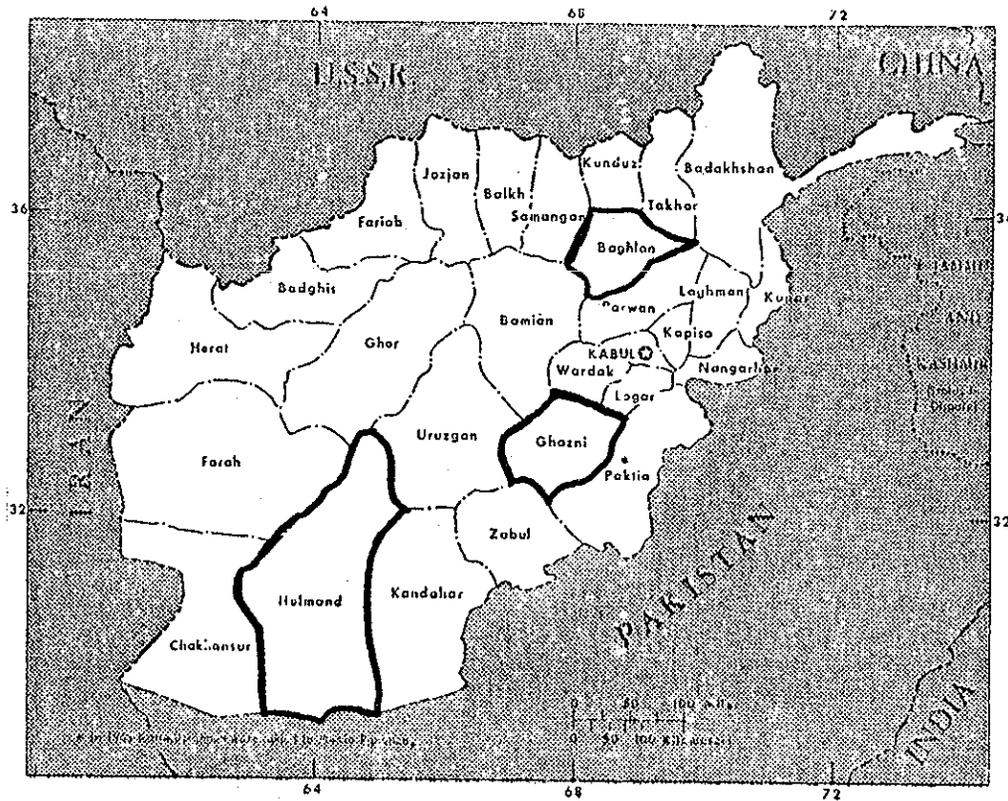


Figure 1
Map of Afghanistan with Sample Provinces

the Ministry has established more than 100 basic health centers in rural settings. These are designed to provide the necessary infrastructure for rural health initiatives. In addition, the Ministry has designed a village health worker program, laid the groundwork to obtain village understanding and cooperation, and has trained two experimental groups of village health workers to deliver primary health care and health education in two pilot districts, Jaghori and Sarobi. An intensive evaluation of this program will be carried out during the first year. After the Ministry has developed successful training and managerial methods, the program will be expanded to other rural areas. The goal of the Ministry is 1500 VHWs for 1000 villages within five years.⁽⁵⁾ Beyond these efforts, other new approaches to reaching remote locations with health services include an experimental program for the training of Dais - traditional birth attendants - and initial planning for a village drinking water program to capitalize on villagers' interest in this health problem.

Finally, it should be emphasized that management is a continuing process; last year's answers may not be adequate for this year's problems. A solution which has proven adequate may be made even better. Seldom are solutions final. Thus, the manager's need for information is continual. It is hoped that this report will demonstrate the role that village surveys can play in providing the needed information, and that it will pave the way for additional such studies to be used in managerial decision making.

II. Methodology

The provinces selected for the study were determined by the Ministry of Health in accordance with its overall scheme for the expansion of rural health services. Within each of the provinces selected - Ghazni, Helmand and Baghlan - two established basic health centers (BHCs) were chosen as focal points for village selection. Selection of BHCs was based upon length of operation (and, thus, their potential historical impact upon the community), as well as upon the desire to achieve a representative variation of geographical, social and economic conditions within each province. Village selection was accomplished by preparing grid maps of areas adjacent to the selected BHCs and by random selection of villages at 1 km., 10 kms. and 15 kms. from the health center. Within each village, household selection was done systematically using prelists of households developed by a random start method. Depending upon the size of the village, every second or third household on the prelist form was sampled. Within a household, an attempt was made to interview an adult male and an adult female, preferably but not exclusively, a husband and a wife. Respondents were required to be adult (over 18), permanent members of the household, with preference being given to heads of household and their spouses. Only one wife was interviewed per polygamous marriage. The discrepancy between the number of female interviews conducted (486) and the number of male interviews (237) primarily reflects the fact that during the interview period, August to October, many men were engaged in agricultural activities at a distance from their village.

All interviews were carried out by trained male and female interviewers using separate interview forms for men and women which had been designed, pretested, and revised before the start of the survey. Male and female questionnaires contained both overlapping and different questions. For example, only women were asked questions concerning child rearing behavior, while both men and women supplied information about illnesses, health expenditures, and attitudes towards health services. A team of two female interviewers met with each female, while a single male interviewer was used for the male

interview. Each interview required between 40 and 50 minutes to complete, a length which did not appear to affect cooperation, as judged from respondents' compliance. No effort was made to coerce interviewee cooperation. For example, in one of the sample villages originally selected, suspicion and lack of cooperation made it necessary to seek an alternative sample site. Respondents were given no rewards for participation and care was taken to explain to the village that participation in the survey did not imply a guarantee of any future government help.

Interviewers were trained over a two week period and received both classroom instruction, field practice and performance evaluation. During interviewing, quality control checks were carried out by the field team supervisor and by the training staff. The number of interviews completed during the three months of field work is shown in Table 1 below:

Province	Village	Female Interviews	Male Interviews	Total Interviews
Ghazni	Khonadai	32	27	59
	Khonsal Kosh	36	11	47
	Jabaar Khel	22	17	39
	Khanadara	21	9	30
	Bakhtyar	30	16	46
Total Ghazni Province		141	80	221
Baghlan	Tawashakh	26	12	38
	Khoja Khede	31	9	40
	Kona Qala	27	16	43
	Qashlak Qala	30	14	44
	Na Bahar	29	14	43
	Ghazmarq	27	10	37
Total Baghlan Province		170	75	245
Helmand	Loye Bagh	31	16	47
	Nawliabad	30	14	44
	Saidabad	31	13	44
	Nowzad	27	10	37
	Konjak	32	11	43
	Kanghai	24	18	42
Total Helmand Province		175	82	257
Survey Total		486	237	723

Table 1 - Distribution of Interviews by Province and Village

Coding of questionnaires was done by Ministry of Public Health personnel with the supervision of the staff of the Management Team. Key punching and data preparation were performed by Afghan Business Machines in Kabul, and data analysis was done in Cambridge, Massachusetts by the staff of Management Sciences for Health, Inc. The use of partially processed questionnaires and the cooperation of all those involved in the data processing made it possible to produce a preliminary report of survey findings within three months of completion of the survey, a "turn-around" time which allowed the results of the survey to be used in the planning of the village health worker program.

As one goal of the survey was to obtain information on the nutrition and growth of village children, all children aged one to four years in a household were weighed using hanging Salter scales. In addition, each child's height and midarm circumference was determined using standardized measuring instruments. (Appendix A discusses the use of arm circumference measurements in nutrition surveys.)

The exchange rate at the time of the survey was 50 Afghani (Afs) = \$1.

III. Findings of Survey

A. Demographic Profile of the Population Sampled

It is often useful to describe the characteristics of a population sampled, including age and sex distribution, the birth rate, death rate and size of household. A thorough description of a population makes it possible to compare the findings from surveys carried out at different times or different locations. For example, only if important characteristics of two populations were known to be very similar would it be legitimate to make comparisons of such basic measurements as birth or mortality rates. An analysis of demographic data also helps in identifying and understanding regional differences in population over time.

Additionally, demographic information assists in determining whether the population sampled was genuinely representative of the entire population. As an extreme example, any rural survey which included only maliks or large landholders as informants would immediately be suspect as not being representative, and its results would have to be interpreted in light of this potential bias.

1. Characteristics of the Population

The population surveyed included 3483 individuals living in 486 households. Of these, 51.2% were males. The mean age of household members was 21.0 years, with 49.4% of the population below the age of 15 years. Only 3.9% were over 65. The dependency ratio of the population - those under fifteen years of age or over 65 as a percentage of those 15-65 years of age - was 114. A breakdown of the population by age and sex (Figure 2) demonstrates the relative decrease in females over males in the age groups 35 years and over. This differential survival, which has been documented by the national demographic survey as well, ⁽⁶⁾ may possibly be attributable to the effects of continued childbirth on maternal health.

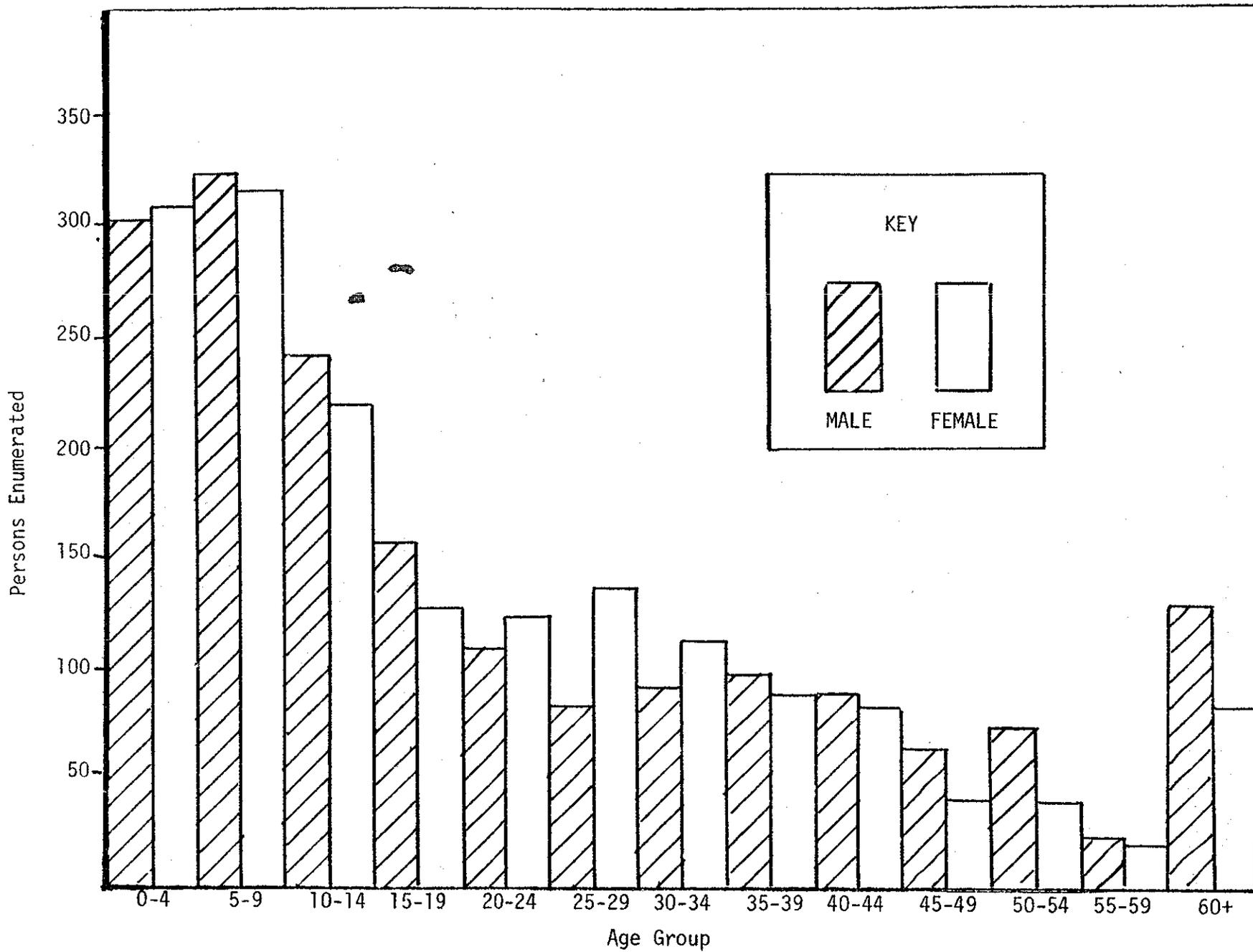


Figure 2 - Age and Sex Profile of Population Studied

Thirty-eight percent of all household members were married at the time of the survey and 2.5% were widowed. Among the 486 female respondents, 23.0% reported being a co-wife. The mean number of wives per husband was 1.24.

Educational levels and literacy of household members over 15 years of age was as follows:

	<u>Mean Years of School</u>	<u>% Having Attended School</u>
Male	1.99	26
Female	0.27	5

Thirty percent of the adult men and 3.5% of the adult women were reported as being literate.

The principal reported occupations of males over fifteen were:

Farmer	47.2%
No Occupation	12.6%
Student	6.3%
Laborer	5.7%
Shopkeeper	4.3%
Mullah	2.8%
Clerk	2.5%
All Others	18.6%

The mean age of male respondents to the questionnaire was 46.5 years, while that of female respondents was 35.1 years. Almost 90% of men interviewed were heads of households and 86% of the women were wives of heads of households. In 98% of the 237 households in which a male was interviewed, a female was also interviewed.

2. Household Characteristics

As mentioned earlier, there were 3483 individuals enumerated in the 486 households in the sample, thus, an average of 7.17 persons per household. The mean number of rooms per household was 2.25, with

the distribution broken down as follows:

<u>Number of Rooms</u>	<u>Percent of Households</u>
1	38.9
2	31.1
3	14.8
4	7.3
5	1.8
6	3.8
7 or more	2.3

The average number of persons per room was 3.18, a figure which indicates extreme crowding.

As described in the methodology section, villages were selected at varying distances from basic health centers in order to allow for comparisons in health seeking behavior. Distribution of villages by distance from the health center is:

<u>km</u>	<u>Percent</u>
1	40%
10	35%
15	25%

A number of previous surveys have demonstrated the difficulty in obtaining reliable information on the economic status of households in Afghanistan. Thus, in this survey no attempt was made to obtain information on the annual household income. However, due to the importance of socio-economic status as a determinant of illness and health behavior, two indicators were used. The first was the number of rooms in a household and the "crowding factor" - i.e., the number of persons per room. The second indicator was a subjective one. Female interviewers were asked at the completion of each interview, "How would you judge the economic standard of this household in relation to others in the village?"

Classification of Households as Perceived by Interviewers

Extremely poor	34.7%
Poorer than average	38.6%
Average	20.4%
Above average	4.8%
Extremely wealthy	1.5%

While a disproportionate number of households were rated as being poor by interviewers, the classification system does allow for the division of households into three very nearly equal categories: extremely poor, poorer than average, and average or above. A socio-economic standard (SES) was determined for each household using a formula which weighs both the "crowding factor" and the interviewer's evaluation of the household's economic standard. The SES with classifications of very poor, poor, and average or better, is the standard which has been used throughout this report to make socio-economic comparisons.

3. Fertility, Mortality and Growth Rates

Female respondents, mean age 35.1 years, had an average of 3.93 living children and 5.82 children ever born. The number of children living and ever born for women in five-year intervals is, however, a better indicator of overall fertility. This data is presented in Figure 3.

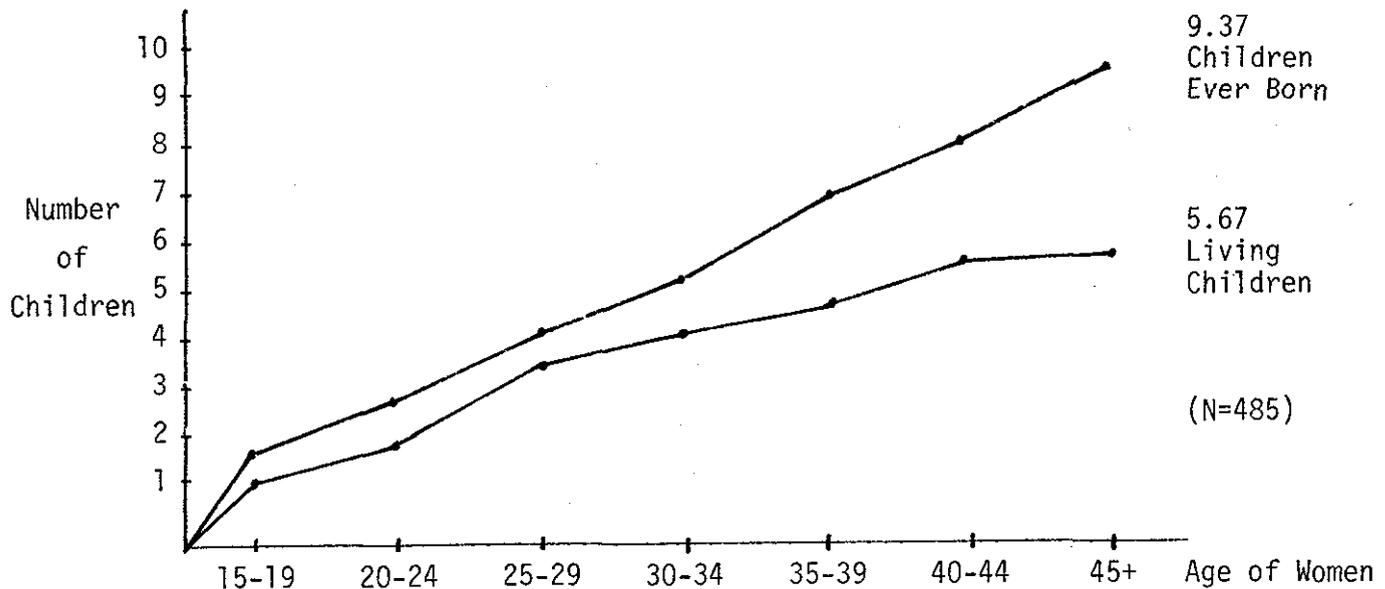


Figure 3 - Living Children and Children Ever Born for Female Respondents by 5-year Groups

As the foregoing table points out, women of completed reproductive age, i.e., over 45, report having had an average of 9.37 children ever born and 5.67 still living; 40% of their offspring were reported to have died.

Age-specific fertility rates for all women and for married women alone are presented in Table 2.

Age Group	Percent of Women Married	Married Women Fertility per 1000 women/yr.	All Women Fertility per 1000 women/yr.
15-19	39.1	440	172
20-24	79.5	488	388
25-29	93.4	400	374
30-34	95.5	382	365
35-39	96.6	328	317
40-44	91.5	227	208
45-49	84.6	27	23

Table 2 - Age Specific Fertility Rates for Married Women and All Women

The total fertility rate, considered one of the best single cross-sectional measures of fertility, estimates the average number of children that a woman would bear if she went through her reproductive years exposed to the age specific fertility rate in effect at a particular time. The total fertility rate for the women interviewed is 9.23 - that is, a woman with completed fertility would have an average of 9.23 births if the rates in the table above remained unchanged throughout her reproductive years.

The crude birth rate is the number of births per 1000 total population per year. In the households interviewed, there had been a total of 169 births or 48.5 births per 1000 in the period since the previous Jeshyn. When this rate is standardized to a single complete year, the crude birth rate is 41.3 per 1000 total population.

The number of deaths in the population during the same recall period was 98, giving a crude death rate of 24.2 per 1000 after adjustment for a single year. Current vital rates lead to a growth rate of 1.71% for the rural villages studied. This would lead to a doubling of the population within 36 years.

The infant mortality rate or the number of children under 1 year of age who die per 1000 live births in a year for the population studied was 157. Almost 60% of all deaths in the preceding year were to children under 5 years of age, with the breakdown by single year intervals as follows:

<u>Age of death (N=59)</u>	<u>Percent of All Deaths 0-5 Years</u>
0-1	43.2
1-2	29.3
2-3	15.5
3-4	3.4
4-5	8.6

While the Three Province Survey was not designed as a demographic study, some comparison of its demographic findings with other surveys carried out in Afghanistan is noteworthy, as is a comparison of the vital data of rural Afghanistan with selected other countries. These comparisons are presented in Tables 3 and 4 respectively.

Parameter	Three Province Survey	National Demographic Survey ⁽⁶⁾	WHO/Infant Mortality Survey ⁽²⁾	Buck et. al. Four Village Survey ⁽¹⁾	CINAM Survey ⁽³⁾	Parwan/Kapisa Survey ⁽⁴⁾
Infant Mortality Rate	157	185	183	205	154	150-200
Crude Birth Rate	41.3	43.0	45.6	44.6	44.0	43.0
Crude Death Rate	24.2	21.0	--	--	20.0	20.1
Growth Rate	1.7%	2.2%	--	--	2.4%	2.3%
Maternal Mortality Rate	--	64.2/ 100,000 females	--	--	--	--
Women Age 45, Number Children Ever Born	9.3	7.7	--	--	--	7.7*
Women, Age 45, Number Children Died	3.6	3.4	--	--	--	2.6*
Persons Per Household	7.2	6.2	--	--	7.4	6.2

*Ages 35-39

Table 3 - A Comparison of Population Characteristics From the Three Province Survey with Other Afghan Surveys

	Afghanistan	Nepal	India	Iran	Iraq	Pakistan	Turkey
Crude Birth Rate	43	43	34	44	44	44	39
Crude Death Rate	21	20	13	16	11	15	12
Annual Growth Rate	2.2	2.3	2.1	2.8	3.2	2.9	2.7
Infant Mortality Rate	182	169	122	139	99	121	119
% Under 15 Years of Age	44	40	40	47	48	46	42
Life Expectancy at Birth	40	40	50	51	53	51	57

Table 4 - Comparison of Population Characteristics of Afghanistan with Neighboring Countries*

* Date Source: 1977 World Population Data Sheet, Population Reference Bureau, Inc. 1337 Connecticut Avenue, N.W., Washington, D.C. 20036

B. Rural Health Problems and Needs

Any attempt to improve health services should be planned with as thorough an understanding of the nature and cause of the specific health problems as is possible. In this section, findings of the Three Province Survey which increase understanding of rural health problems will be presented.

At the onset of discussion, it should be pointed out that the data on morbidity and mortality was based upon the recall of respondents. Numerous studies have demonstrated under-reporting of illnesses, especially common childhood ailments, in surveys relying on the recall of informants.⁽⁷⁾ Attempts were made to minimize inaccuracies by limiting the period of recall to the immediate two weeks before the interview. The survey was carried out from August through October, and therefore illnesses with higher incidences during these months may be over-represented, while illnesses associated with winter - such as pneumonia, typhus and common colds - may be under-reported. Ideally, morbidity surveys should be repeated in several different seasons although the increased time and expense involved may outweigh the benefits to the planner.

Another approach to collecting morbidity data is the clinical survey in which the actual signs and symptoms are used as indicators of illness. The need for trained medical staff, the increased expense and higher levels of informant cooperation required decrease the practicality and usefulness of this approach. Also, the differences in results of the morbidity recall surveys and the clinical surveys⁽⁸⁻⁹⁾, previously conducted in rural Afghanistan, are not significant, arguing for the lower-cost recall survey employed here.

1. Illness Prevalence

All female respondents were asked as part of their household interviews if each household member had been sick in the last two weeks, the nature of the illness, treatment sought and whether the individual was still sick at the time of the interview. Twenty-two percent of household members were reported as having been sick in the two weeks prior to the survey; 81.6% of those were still sick at interview time. Illnesses reported are summarized in Table 5.

Illness Reported	Percent of Total (N=766)
<u>Respiratory</u>	
Colds	2.7
Coughs	2.1
Black Cough	0.5
Pneumonia	3.7
T.B.	3.2
Sore Throat	0.8
Other respiratory	5.0
Subtotal	18.0
<u>Gastrointestinal</u>	
Vomiting	0.8
Diarrhea	6.9
Dysentery	4.5
Cholera	0.4
Stomach Pains	13.6
Subtotal	26.2
<u>Fevers</u>	
Unspecified	8.8
Malaria	5.0
Other	0.8
Subtotal	14.6
<u>Aches and Pains</u>	
Headache	4.5
Joint Pains	3.7
Arthritis	1.5
Other pains	11.3
Subtotal	21.0
Eye Problems	1.7
Women's Illnesses	3.8
All Other Illnesses	14.7
TOTAL	100.0

Table 5 - Illnesses Reported for Household Members in Last Two Weeks

Three types of illnesses - respiratory ailments, gastrointestinal illnesses, and fevers - accounted for 57% of all illnesses mentioned. Two illnesses - measles and malnutrition - are notable by their absence. Measles, an illness frequently reputed as associated with childhood death, may be low due to the season, as measles is usually associated with the closer living conditions of the winter months. Malnutrition, which was mentioned in only 0.7% of cases, may be underreported due to the fact that it is not perceived as a distinct illness by villagers, but rather as an end condition resulting from other health problems. The prevalence of malnutrition as

determined by anthropometric measurement is very high, as will be discussed later.

The prevalence of illness, as reported by female respondents, differed by sex, 19.1% of males having been reported ill in the last two weeks as compared with 24.1% of females. While this difference may be attributed to the fact that informants were women, Figure 4 suggests another hypothesis - namely, that the increased prevalence of illness for females which begins at reproductive ages, may in part be a function of the hardships of multiple childbirths.

Figure 4 also demonstrates that the very young and the old share a disproportionate burden of illness. Possible causes for the high prevalence of illness among the very young will be discussed in the section on Nutritional Status and Child Rearing Practices.

2. Illnesses Associated with Death

Informants were also asked to describe the illnesses which were associated with each death in the household in the last year. Their responses are included in the following table:

<u>Illness</u>	<u>Percent of All Deaths (N = 98)</u>
Pulmonary/Respiratory Problems	20.4
Dysentery/Diarrhea	17.3
Jinns	14.3
Fever	9.2
Swelling	6.1
Measles	3.1
Stomach Ache	3.1
Heart Disease	3.1
Other	23.4

Table 6 - Illnesses Associated with Deaths in the Last Year

The reported causes of death for children from birth to five years is presented in the following table, Table 7.

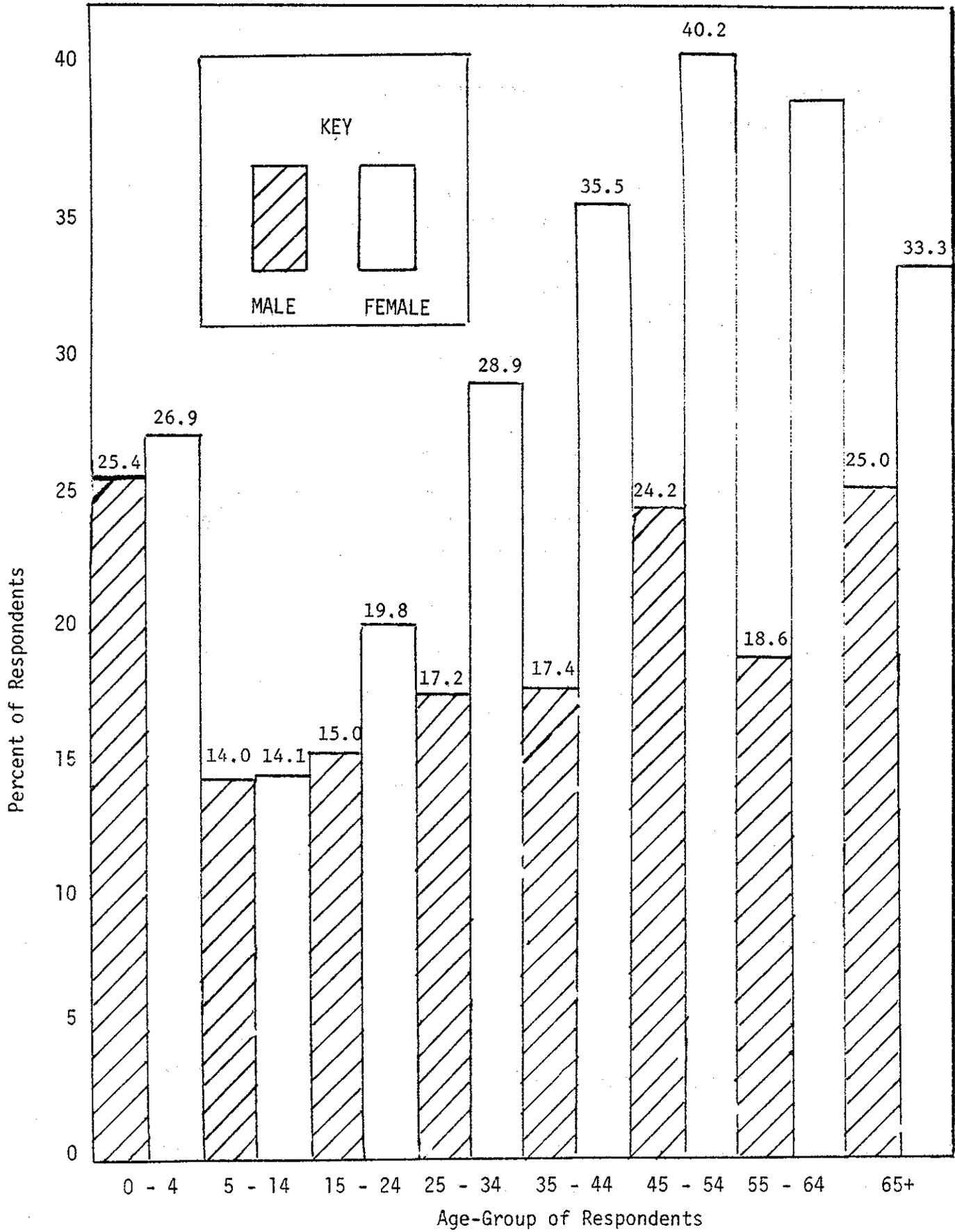


Figure 4 - Sickness in Last Two Weeks by Sex and Age

Illness	Age of Death					Total	Percent of Total
	0-1	1-2	2-3	3-4	4-5		
Jinns	9	0	3	0	0	12	20.7
Diarrhea/ Dysentery	4	5	0	1	1	11	18.9
Pulmonary/ Respiratory	2	3	2	0	1	8	13.8
Fever	2	1	2	0	0	5	8.6
Swelling	0	4	1	0	0	5	8.6
Measles	0	1	1	1	0	3	5.2
Other	4	6	1	0	3	14	24.2
Total	21	20	10	2	5	58	
Percent of Total	36.2	34.5	17.2	3.5	8.6		100.0

Table 7 - Illnesses Associated with Death of Children Aged 0-5 in Last Year

Jinns is a folk classification for childhood deaths attributable to evil spirits with an attraction to the very young. It is difficult to make an exact translation of jinns into a specific disease classification, but on the basis of a description of its signs and symptoms and the specific age groups affected, it is tempting to equate jinns with neo-natal tetanus, especially since neo-natal tetanus does not receive any separate mention as a cause of childhood deaths. Jinns are often described as convulsions, with a rapid irreversible progression to death; a description compatible with the clinical signs of neo-natal tetanus. Surveys done in developing countries report extremely high infant mortality rates due to tetanus, ranging from 10% in Haiti ⁽¹⁰⁾ to 54% in India ⁽¹¹⁾. Given the similarity of traditional umbilical cord severing and care techniques among rural populations, it would be unusual if tetanus were not also an important cause of childhood deaths in Afghanistan. Additionally, 55% of the 115 infant deaths reported

in that survey and attributed to jinns, occurred within the first month; this further supports the equation of jinns and neo-natal tetanus. It is extremely important to verify this association given the extraordinary reduction in infant death which has been brought about in many countries through low cost maternal immunization programs.⁽¹²⁾ Similarly, the classification of "swelling" could easily be interpreted as a description of the edema which accompanies malnutrition, and further study should be carried out to determine the interpretation which should be given this classification.

Mothers were also asked to recall the cause of death for all their children who had ever died. Table 8 summarizes their answers:

Illness	Number of Deaths by Age					Total (N=701)	Percent of Total
	0-1	1-2	2-3	3-4	4-5		
Jinns	136	35	22	6	8	207	29.6
Pulmonary/ Respiratory	54	25	22	15	4	120	17.0
Diarrhea/ Dysentery	19	17	29	7	6	78	11.2
Measles	11	6	21	12	9	59	8.4
Fever	19	6	10	1	2	38	5.4
Smallpox	5	6	10	7	4	32	4.6
Malnutrition	15	0	3	0	0	18	2.6
Injury	6	0	3	1	2	12	1.6
Other	86	14	15	14	8	137	19.6
Total	351	109	135	63	43	701	
Percent of Total	50.1	15.5	19.3	9.0	6.1		100.0

Table 8 - Illnesses Associated with Total Child Deaths by Age

The large proportion of total child deaths attributed to jinns again emphasizes the importance of a further understanding of the exact classification of this illness category. The fact that smallpox appears in Table 8 but not in the listing of causes of death to children in the last year reflects the successful eradication of smallpox in the past five years in Afghanistan.

A look at causes of death by age group is instructive. For children aged 0-2, jinnis is the most common cause mentioned. At ages 2-3 years, corresponding roughly to the reported age of weaning of Afghan children, diarrhea and dysentery become the leading causes of death.

3. Most Serious Illnesses as Perceived by Respondents

Both male and female respondents were asked, "In your opinion, what are the most serious illnesses which affect your household and others in your village?" Up to three responses per person were recorded.

Table 9 presents the combined totals for all replies.

Illness	Percent of Total Mentions	
<u>Respiratory Illnesses</u>		
Colds	4.8	
Cough	1.1	
Black Cough	7.2	
Pneumonia	8.8	
TB	8.2	
Sore Throat	0.8	
Other	0.2	
Subtotal		31.1
<u>Gastrointestinal Illness</u>		
Vomiting	0.7	
Diarrhea	8.6	
Dysentery	11.8	
Cholera	2.4	
Subtotal		23.5
<u>Fevers</u>		
Fever Unspecific	8.3	
Malaria	9.0	
Other	3.3	
Subtotal		20.6
<u>Aches and Pains</u>		
Stomach Ache	3.6	
Headache	2.3	
Other	2.3	
Subtotal		8.2
<u>Measles</u>		7.5
<u>Eye Problems</u>		2.0
<u>All Others</u>		7.1
		100.0

Table 9 - Most Serious Illness, All Mentions (Males and Females)

Interestingly, no respondents reported jinns as being the most serious illness, although it was reported as being the single most important cause of child deaths. It may be speculated that while jinns kills children, it is not considered as an illness, but rather an action taken by powers beyond the control of medicines and which, in the villagers' minds, somehow lies beyond the usual classification of illness.

With the exception of jinns, there is a strong congruence between those diseases perceived as "most serious" and those associated with death. For instance, 32% of child deaths in the last year were said to be due to gastrointestinal or respiratory problems, and 56% of respondents named these illnesses as being most serious. This has favorable implications for planning village level health programs as it is usually easiest to obtain community cooperation and support for a program directed toward a problem that is given priority by the people themselves.

4. Nutritional Status and Child Rearing Practices

Ample evidence of high childhood morbidity and mortality existed in Afghanistan, especially in rural areas, before the design of this survey. One objective of this study was to examine the underlying causes for health problems among the very young, especially related to nutrition and child rearing practices. This section summarizes the information on the nutritional status of children aged 1 - 4 years, as determined by measurement of weights, heights and arm circumferences. Also included is a summary of women's responses to a series of questions designed to obtain information on current child rearing practices in the villages studied.

The first important finding of the study is that there is extensive undernutrition among younger children. Figure 5 summarizes the results of arm circumference measurements for 358 children over 1 year and less than 5 years of age. "Well nourished" has been defined as having an arm circumference in the "green," i.e. over

13.5 cms. measured at mid upper arm. All children with "red" or "yellow" readings, i.e., under 13.5 cms. were excluded from the "well-nourished" category.

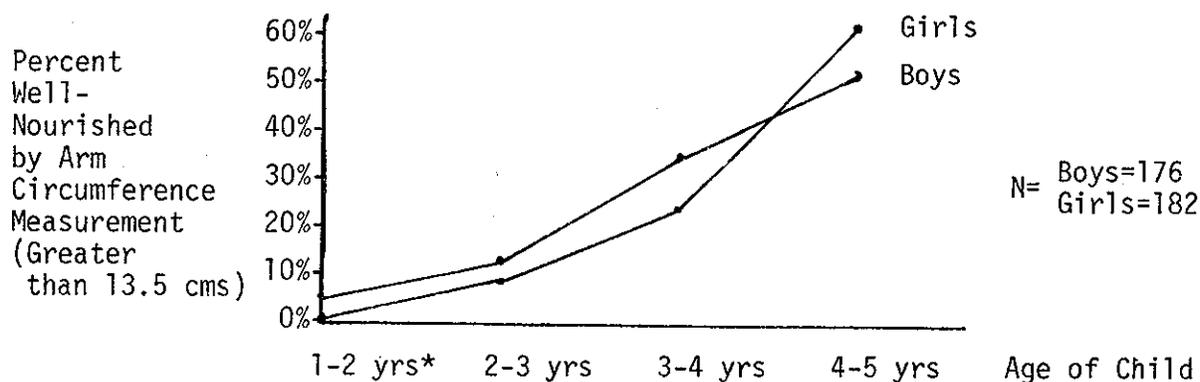


Figure 5 - Percentage of Children Classifiable as "Well-Nourished"

* In this figure and in Table 10, "1-2 yrs" means one year old but less than 2 years old, "2-3 yrs" means 2 years old but less than 3 years old and similarly for the other age groups.

For each age group the small percentage of children classifiable as well-nourished is striking. For instance, less than 10% of children 1-3 years old were well-nourished, while of the oldest age group studied, over 4, but less than 5 years of age, less than 60% were judged well-nourished. Table 10 below presents the completed breakdown of arm circumference statistics by sex and age.

Age Group	Green ($AC > 13.5$ cm)		Yellow ($12.5 \text{ cm} \leq AC \leq 13.5$ cm)		Red ($AC < 12.5$)	
	Male	Female	Male	Female	Male	Female
1-2 years	6.1	0.0	33.3	21.2	60.6	78.8
2-3 years	13.7	7.4	58.8	40.7	27.5	51.9
3-4 years	36.2	25.5	51.7	53.2	12.1	21.3
4-5 years	53.4	58.3	33.3	27.1	13.3	14.6

Table 10 - Arm Circumference (AC) by Age and Sex

Arm Circumference as Percent of Total at Each Age (N=176 Boys, 182 Girls)

Figure 5 and Table 10 indicate that girls are less well-nourished than boys up until the age of four years, after which they do slightly better than boys. They also demonstrate an overall trend toward less undernutrition in older children than younger ones. This data must be carefully interpreted, however, for it could be that the decrease is caused by poorly nourished children dying and therefore leaving the sample, as well as from children converting to a well-nourished status with the passage of time.

There can be little doubt about the serious nature of malnutrition in the population studied, and undoubtedly, in rural Afghanistan in general, even though respondents seldom mention it as a serious health problem. The intersection of malnutrition and other manifestations of illness in Afghanistan can be seen in Table 11 which compares prevalence of recent illnesses of children classifiable as well-nourished (green) with those definitely malnourished (red):

		Well-Nourished	Malnourished
Sick in Last	YES	16.7%	44.7%
Two Weeks	NO	83.3%	55.3%

Table 11 - Prevalence of Illness in Last Two Weeks by Nutritional Status of Children Over 1 and Under 5 Years of Age (N=288)

Malnourished children have a rate of illness almost three times that of children who are well-nourished. This finding does not prove that malnutrition causes illness as it is also possible that it is the illness which causes the child to be malnourished. However, the evidence from this survey as well as numerous other studies⁽¹³⁾ is extremely suggestive that poor nutrition leads to increased illness. This has important implications in the design of programs with the objective of child health improvement.

In order to obtain some insight into the nutritional and child rearing behavior of rural women and perhaps into the cause of nutritional problems, each female respondent was asked a set of questions dealing with child care practices. When asked, "How long do you breast feed your babies?", the mean response of 486 mothers was two years, with no significant difference between boys and girls. The relatively long period of breast feeding should be a positive factor in child health; however, it should be remembered that responses were given in terms of ideal breast feeding lengths. If an event such as a pregnancy occurs soon after a birth it may prove impossible to accomplish the ideal. There was no significant difference in the nutritional status of children measured by arm circumference by the age of weaning reported by their mothers.

Mothers reported giving their children foods in addition to milk at an average age of 11.5 months. Not only is the introduction of solid foods rather late - most experts feel that a child benefits from being given well prepared solid foods as early as 5 months of age - but the foods currently being introduced are often of marginal value to the growing child. Table 12 summarizes responses to the question, "What are the best foods to begin feeding your baby?"

Food	Percent of Mentions
Rice	19.2
Bread	17.0
Powdered Milk	16.6
Bread and Tea	6.0
Vegetable Soup	4.4
Yogurt	4.2

Table 12 - Six Best Foods to Introduce to Babies (N = 452)

More instructive than the type of food introduced is the mean age at which respondents reported first giving a particular food to their children, as seen in Table 13.

Food	Mean Age of Introduction (in Months)
Eggs	26.3
Soft Meats	20.2
Vegetables	18.8
Fruits	16.5
Tea	11.5
Bread	11.3

Table 13 - Age Reported for Introduction of Specific Foods (N=452)

Table 13 contains especially important information. Not only does it indicate one of the underlying causes of poor childhood nutrition: the extremely late reported introduction of high protein foods into the child's diet, but it also suggests an intervention at the village level with potentially profound implications for child health: improvement of mothers' knowledge of appropriate feeding patterns for small children and modification of current feeding practices. An intervention of this nature could be carried out at low cost, perhaps as part of a village health worker program, especially if female VHW's were available. Another approach to improving nutritional practice is through the use of mass media campaigns making use of the radio, an approach which will be discussed in more detail in a later section of this report.

Only 20% of mothers interviewed reported ever giving their children powdered milk, while over 70% reported giving animal milk. Frequencies of giving milk were:

	<u>Milk Powder</u>	<u>Animal Milk</u>
Never	79.9	28.8
About Once/Month	0.8	2.3
About Once/Week	6.5	20.5
Three-Four Times/Week	2.3	7.0
Every Day	10.5	41.4

Another factor affecting child nutrition is the prevailing belief about the proper feeding of a sick child. In many societies food (either all foods or specific foods) is withheld from the sick child. The most common example of this occurs with diarrhea. It is a common belief that solid food, and occasionally liquids as well, should not be given to a child with diarrhea. This frequently leads to under-nutrition, weakness and dehydration. Both men and women in the sample were asked, "Should you feed your child when he has diarrhea?" One third of the men and one quarter of the women stated that a child with diarrhea should not be given food. In addition, men were asked whether water should be given. Over 20% reported that it should not be. Among those stating that a child with diarrhea should be fed, soft rice was the food most frequently suggested.

There is much about the nutrition of children in the Afghan village that this survey was unable to learn. Questions such as: How much food is available to the household? What foods are actually given to small children? How are they fed? How often? How is food distributed among household members? are important questions, and ones that could be answered only by more detailed nutritional surveys. They are questions that must be answered, however, if village level health programs are going to be designed to meet the most basic health problems facing rural people.

5. Attitudes Toward Family Size

Essential to learning about the feasibility of using child spacing as an element of a general rural health program is an understanding of the attitudes of couples toward the number of children they want as well as their interest in learning about ways to increase the time between births.

Increased birth intervals allow a mother to give a child more of her time and attention, since she will not have several small children to care for simultaneously. The child will receive extended breast feeding. A greater space between children usually means fewer births during a woman's reproductive period and, thus, family resources are

divided among fewer persons. Most importantly, women's health will be improved with longer rest between children and improved ability to care for the children they do have.

Both men and women were asked how many additional children they would like to have. Sixty-three percent of the men and 65% of the women said that they would like to have no more children. The mean number of additional children desired was 1.27, with boys being more desired than girls by a ratio of approximately 2:1. The number of additional children desired by women is shown in Table 14, below:

<u>Number of Living Children</u>	<u>Mean Number of Additional Children Desired</u>
0	2.45
1	3.20
2	2.92
3	1.53
4	.74
5	.64
6	.46
7	.17

Table 14 - Additional Children Desired by Number of Living Children of Female Respondents (N=333)

Not unexpectedly the number of additional children desired decreases with the number of living children a woman already has. A single exception to this trend occurs among women with no living children who desire fewer "additional" children than women with 1-2 living children. This inconsistency is explained by the fact that one half of the twenty women in the sample with no children were over 35 years old. These women most likely were incapable of producing any children and therefore would not express an anticipation of having any additional children. There was no association between the number of children who had died and the number of additional children that a woman desired.

The number of additional children also shows a direct inverse relationship to the age of female respondents as shown in Table 15.

Age of Female	Mean Number of Additional Children Wanted (N =333)
15-19	3.91
20-24	2.96
25-29	2.47
30-34	1.53
35-39	0.98
40-44	0.64
45-49	0.50

Table 15 - Mean Number of Additional Children Wanted
by Age of Female Respondent (N = 333)

As noted earlier in the discussion of fertility, the number of children born to women in rural Afghanistan now and in the past is extremely high; women aged 15-19 years will have 9.2 children by the time they have completed their reproduction if current rates of fertility continue. The average desired family size, the number of living children plus additional children desired, is also high, as might be expected.

Nonetheless, 69% of the males and 91.6% of the females interviewed stated that they would be "interested in learning about ways that would allow them to increase the amount of time between pregnancies." The number of women expressing an interest in learning about spacing methods is especially noteworthy and carries implications for the services which could be productively provided by a village health worker.

6. The Village Environment

The environmental condition of a village is another factor in illness. Poor sanitation, crowding, lack of proper water supply, and inadequate housing all contribute to morbidity and mortality in the Afghan village.

As discussed earlier, the average rural household consists of slightly over 7 persons living in 2.25 rooms; or just over three persons per room. Such conditions lead to the rapid spread of infectious diseases, especially during winter seasons when families spend more time gathered together in the home. Sharing facilities with livestock also increases the risk of animal borne vector diseases.

All male respondents were also asked the source of the drinking water used by their household. Sources mentioned were:

Jui (Open Irrigation Ditch)	37%	(N=198)
Well in Yard	23%	
Karez	19%	
Spring	13%	
River	6%	
Well in Village	2%	

Seventy-eight percent of men reported being satisfied with their source of drinking water, nonetheless 86% said that they would be willing to contribute their labor to improve the drinking supply of their village if government specialists were available for technical assistance; 60% reported a willingness to contribute money to the same cause.

The primary sanitation facility used by the households sampled were:

Latrine in Yard	41.8%
No Facility	27.7%
Deep Hole Outside Yard	15.8%
Deep Hole in Yard	4.5%
Latrine in House	4.0%
Other Facilities	6.2%

Fewer men, only 55%, were satisfied with their sanitation facilities. Eighty one percent of male respondents claimed a readiness to contribute labor to improve their sanitation and almost 50% would contribute money for the purpose of improving village sanitation facilities.

There is an apparent need for improvement of the environmental conditions in rural villages. Some of these improvements, such as the wholesale improvement in housing, will prove extremely difficult. Others may be accomplished more easily, especially given the strong inclination of informants to help themselves if technical assistance were available from governmental sources.

7. Socioeconomic Status of Households and Health Problems

The economic status of a household often affects the health of its members. For instance, in this survey 41.9% of children aged 1 - 4 years in households characterized as very poor were classified as being malnourished, compared with 21.0% in households which were average or better; while, on the other hand, in the households classified as average or better 38.7% of the children were classifiable as well nourished compared to only 27.7% in very poor households.

Women in very poor households have both greater numbers of children who had died and a larger number of children living than do women in households with an SES of average or better as seen below:

<u>SES</u>	<u>Living Children</u>	<u>Children Died</u>	<u>Desired Total Family Size</u>
Very poor	4.3	1.92	6.9
Average or Better	3.7	1.85	5.9

Significantly, women in the lowest SES classification had a desired total family size, i.e., living children plus additional children wanted, which was one child larger than those in the highest SES category. While it is not possible in this report to analyze all data by SES, the findings above support the conclusion demonstrated by innumerable studies and surveys around the world - poverty is accompanied by increased risks of poor health, higher mortality and an accompanying trend toward increased fertility rates. The implication of this is that any health program to be effective must be designed in such a way as to reach those in the greatest need, most frequently including the very poorest segment of the population.

C. Rural Health Resources

Every society evolves methods to promote and maintain the health of its members. To those concerned with the planning and management of health programs, an appreciation of the existing health resources is as important as an understanding of the nature of the health problems facing a community. In this section the health-seeking behavior of rural villages will be described. As described in an earlier MOPH report ⁽¹⁴⁾ the number of alternatives that the villager has available in the event of an illness or to ward off sickness are many. While the entire system of health services, both modern and traditional, is too complex to describe in this report, there are general statements that can be made:

The present network of health resources in rural Afghanistan is composed of many layers of belief, tradition and practice.

The villager is, above all, pragmatic in the way that he seeks care. Several different sources of expertise may be drawn upon for a single episode of illness, with little energy being extended in attributing cures to one specific source or another.

The new and the old in health care rest comfortably side by side in rural Afghanistan. Traditions of curing tend to be more accumulative than competitive. For the same reasons that an individual will seek advice from several different sources when sick, the advent of modern treatments has not eliminated the existence of more traditional practices and practitioners.

The household represents the first, and in many cases the primary, source of care for most rural Afghans when sick. Treatment is usually sought beyond the household only after knowledge and treatments available in the family home have proven inadequate for the problem.

The decision as to the type of treatment to be sought out after home treatment proves inadequate is a complex one involving numerous considerations such as the perceived cause and severity of the illness, age and sex of the sick individual, the amount of money available to the family, the availability of transport and the household's past experience with similar illnesses.

The findings of the Three Province Survey provide extensive information on the behavior of rural households in pursuing health, as well as the amount of money expended. Figure 6 is a map of health resources which attempts to convey both the complexity of the network of services available as well as their spatial relationship to the household, which in this report serves as the focal point for the analysis of health needs and health behavior. Appendix B is a brief description of each of the sources of health care appearing in Figure 6.

1. Sources of Treatment

An analysis of the type of treatment sought for the 740 household members who were reported as having been sick in the last two weeks provides one measure of the health seeking behavior of the populations studied. Of those reported to have been sick, 496 or 67% reported having used at least one specific treatment. The average number of treatments mentioned for those who did seek care was 1.55, with 15% having tried three or more different sources of treatment. The sources of treatment and the frequency with which they were used is presented in Table 16.

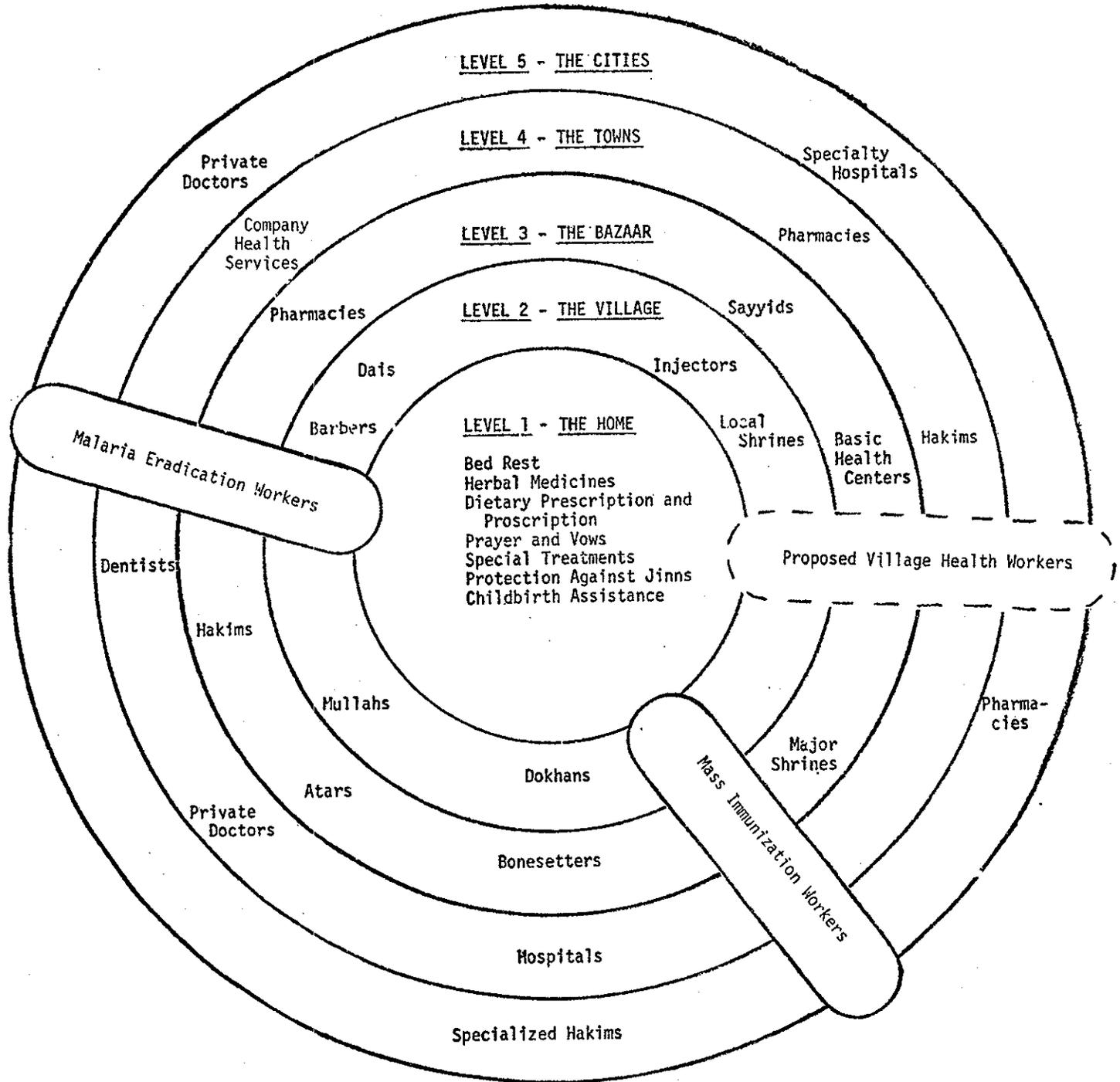


Figure 6 - Overview of Afghan Rural Health System

Treatment Used	Percent of Illness for Which Used
Home Treatment	58.8
Basic Health Center	25.4
Private Doctor - Local	12.9
Hospital - Regional	12.5
Private Doctor - Regional	9.6
Pharmacy	9.0
Bazaar	8.2
Private Doctor - Kabul	5.2
Mullah	4.8
Dokhan	3.8
Hospital - Kabul	2.4
Treatment Outside Country	1.2
Malaria Specialist	0.6
Hakimji	0.4
Cupper	0.2

Table 16 - Frequency of Use of Sources of Treatment
For Illness in Last Two Weeks

Table 16 affirms that the single most frequent source of treatment for illness is the household itself, primarily herbal remedies, food prescription and proscriptioin, prayer and bed rest. Also important is that the Basic Health Center was reported to have been used in 25% of all illnesses and was the single most frequently consulted source of treatment outside the home. This is an indication of the important role now being played by the BHC; it also provides information on the potential of the BHC to perform an even larger role in the delivery of services. Other than for the mullah, reported use of traditional services was low, but underreporting is a possibility as interviewers were clearly perceived by villagers as being advocates of modern types of treatment - a bias impossible to avoid when highly literate interviewers are required.

The sources of treatment sought for all deaths in the last year provides information on the types of care which are sought in life threatening situations, rather than for the more common illnesses. Thirty-eight percent of those who died had received no treatment; 27% had consulted three or more different sources, an average of 1.9 sources were consulted per death. The sources consulted are summarized in Table 17.

Treatment Used	Percent of Deaths for Which Used (N=61)
Private Doctor - Regional	37.7
Home Treatment	32.8
Basic Health Center	26.2
Mullah	24.5
Hospital - Regional	19.6
Private Doctor - Local	14.7
Pharmacy	14.7
Private Doctor - Kabul	9.8
Hospital - Kabul	3.2
Dokhan	3.2

Table 17 - Frequency of Use of Sources of Treatment for Deaths in Last Year

Not surprisingly, the sources of treatment sought for household members who died shows an increased usage of sources of care more specialized, more expensive and at greater distance from the village. Treatment at the health center was sought for one fourth of all persons who died, again showing the important role it plays.

In the year prior to the survey, households sampled made an average of 17.5 visits to all sources of medical care, with a mean of 3.63 different sources consulted per household. The following table summarizes the percent of households reporting to have used specific sources of treatment as well as the median number of visits for households which used the sources.

Source	Households Using	Median Number of Visits
Pharmacy	59.1	3.19
BHC	49.8	1.93
Mullah	48.5	3.28
Injectionist	28.7	5.40
Shrine	26.6	1.40
Doctor - Regional	26.2	2.35
Dokhan	23.6	7.50
Hospital - Regional	20.7	2.13
Atar	12.7	3.50
Doctor - Kabul	12.7	1.33
Dai (Midwife)	11.8	1.20
Doctor - Local	11.0	3.50
Hakimji	10.1	2.25
Barber	6.8	1.39
Bonesetter	5.9	1.14
Hospital - Kabul	5.5	1.15
Copper	1.7	1.50

Table 18 - Percentage of Population Using Various Sources of Treatment/
Median Number of Visits (N=237)

This table clearly demonstrates the wide variety of resources utilized by rural populations and supports the view that villages do not use one system of care, modern or traditional, to the exclusion of another. Almost 60% of respondents had used a pharmacy in the previous year; 50% visited a basic health center, but almost 50% also visited a mullah and 25% made a visit to a shrine for an illness. Several traditional sources, however, appear to be relied on only infrequently, particularly the cupper and barber.

Both men and women were asked specifically whether anyone in their households had ever used a basic health center. Fifty-one percent of the men and 67% of the women reported having done so. There appear to be only slight differences in the use of the BHC by distance as shown below.

<u>Distances from BHC to Village</u>	<u>Percent of Women Having Used BHC</u>
1 km	75
10 km	61 (N = 476)
15 km	63

Those who had not used the BHC gave the following reasons:

<u>Reason</u>	<u>Male (M=98)</u>	<u>Female (N=143)</u>
No One Sick	46.9	27.5
Services in Town Better	7.1	10.5
No Medicines Available at BHC	6.1	7.7
Staff Require Money	16.3	7.7
Family Objection	0.0	7.0
Too Far Away	1.0	7.3
Go to Private Doctor	0.0	5.6
Heard Bad Things about BHC	4.1	0.0

Table 19 - Reasons for Not Using BHC - Male and Female Respondents

Very few respondents mentioned the distance to the BHC as a reason for not using its services, while the fact that money is required for services was mentioned often as a reason why men did not use the services.

Approximately 25% of households reported using the village shop or dokhan as a source of medicine in the prior year. Their overall opinion of the quality of medicine they were able to obtain from the dokhan was not high, however; only 26.8% of respondents considered the medicines to be "good."

Male respondents were asked whether they get advice from anyone outside their household when a family member is sick. Only 15% of respondents answered that they did. The person who gave the advice was almost always reported as being another man, living in the same village. Only infrequently, less than 25% of cases, were these sources said to dispense medicines as well as advice. On the other hand, 58% of women and 37% of men knew of someone in their own village who could give them an injection if needed. In less than 15% of the cases was the injectionist described as a person who also dispensed medicines.

Pregnancy and childbirth are recognized in all societies as times of potential physical and emotional problems. Not surprisingly, a specialist source of care is common for this particular problem. Slightly less than 50% of female respondents reported using a traditional midwife or dai for their deliveries. Most dais used (89%) were located in the same village as the respondent. Of those not using a dai, the vast majority (93%) relied on female relatives for delivery assistance. All women, regardless of the type of help they reported receiving for childbirth were asked whether they were satisfied with the services available. These responses were:

	<u>Percent</u>	
Very satisfied	6.6	
Satisfied	50.8	
Intermediate	30.9	(N=470)
Unsatisfied	8.9	
Very unsatisfied	2.8	

The fact that only 11% of women rated their childbirth assistance as "unsatisfactory" is evidence that the methods evolved for handling normal deliveries in the village meet the needs of most women.

2. Cost of Health Services

As important as the information on the types of services being utilized is the amount of money that rural householders pay for the services they receive. Household health expenditure data is useful in obtaining a better understanding of the "marketplace" for health care and to determine the financial capacity of villages to support new programs designed to improve their health.

It has been estimated that the per capita annual government health expenditures is approximately 20 Afs⁽¹⁵⁾. It is obvious that even if the MOPH budget were spread equitably over the entire population of the country, there would be severe limitations on the services which could be provided to the country's 15 thousand villages if only Ministry resources were utilized. On the other hand, the median annual personal health expenditure, according to male informants, is 139 Afs, or almost seven times the government expenditure.

Data on household incomes in rural Afghanistan is scarce and of questionable accuracy. However, if the mean annual household income of 13,600 Afs which was obtained from a 1971 survey of 254 farmers in Parwan and Ghazni⁽¹⁶⁾ is considered representative of rural Afghanistan in general, health expenditures are 7.4% of the annual household income.

The following table summarizes how male informants reported allocating their household health budget of approximately 1000 Afs/year:

Source	Percent of Health Expenditure	Average Paid Per Visit (in Afs)*
Pharmacy	37.0	248
Hospital - Regional	12.1	327
Doctor - Regional	9.0	182
Doctor - Kabul	8.0	664
Basic Health Center	5.7	54
Dokhan	4.6	36
Hospital - Kabul	4.4	909
Mullah	4.0	33
Shrine	3.5	122
Other (Included care outside country)	2.8	958
Injectionist	2.4	14
Hakimji	2.4	85
Doctor - Local	1.7	45
Atar	1.0	32
Dai	0.9	94
Bonesetter	0.2	47
Barber	0.2	30
Cupper	0.1	39

*Includes transportation costs 50 Afs = \$1.00

Table 20 - Health Expenditure by Source and Average Cost of Services

This data presents a wealth of information on the health behavior of rural Afghans. For example, it vividly points out that the single highest expenditure is for the purchase of medicines at the pharmacy, 37% of the total health budget. It also demonstrates the extremely high cost of a pharmacy visit, average cost 248 Afs, relative to most other sources of treatment.

It also demonstrates that an illness requiring care in Kabul, either from a private physician or a hospital is a major expense. This was underlined by a statement of one respondent when asked what people in his village do for an illness too serious to be treated at home. "Those who are lucky enough to have money go to Kabul for help. Those like many of us who have no money must stay in the village and either get better or die." Table 20 also confirms the wide variety of treatment sources employed. Note that even though visit payments for a traditional practitioner are considerably less than for a modern service, villagers spend almost 20% of their health budget on traditional treatments. Additionally, the data

demonstrates that a visit to a basic health center often requires some expense, either for transportation or services.

In summary, the health expenditure data implies that as villagers are already spending large amounts of money for health services, in absolute as well as relative terms, any plan which calls for villagers themselves to contribute to the support of a local health program could be successful as long as villagers perceive the program as being beneficial and worthy of their support. This could have immediate implications for the planning of the new village health worker program. One additional factor should be kept in mind, however. While the median household health expenditure is very high, over 25% of the households spent less than 100 Afs for health care. In order to plan programs that will reach all of those in need, it would be essential to understand whether these households had no one in the household who was sick during the year or whether they represent a segment of the population who simply did not have the money to spend.

3. Attitudes Towards Available Health Resources

Another important factor in planning health programs is the attitude of villagers toward the services presently available. Logically, there will be greater interest in and cooperation with a program designed to improve services considered unsatisfactory than for services which are currently satisfactorily meeting the needs of the village.

All female respondents were asked whether they were satisfied with the source of treatment for household members who had been sick in the last two weeks. Table 21 summarizes their responses:

Source	Percent Satisfied (N=468)
Private Doctor - Local	75.0
Hospital - Regional	71.0
Basic Health Center	64.7
Bazaar	57.9
Private Doctor - Kabul	57.1
Private Doctor - Regional	53.5
Pharmacy	52.4
Mullah	52.4
Home	49.6
Dokhan	31.6

Table 21 - Satisfaction by Source of Treatment (Female Respondents)

All respondents were also asked where they felt they received the best treatment for an illness which cannot be treated at home.

Table 22 summarizes their replies.

Best Treatment	Percent Response	
	Males (N=227)	Females (N=468)
Basic Health Center	34.8	33.3
Hospital - Kabul	29.1	3.0
Private Doctor - Regional	8.8	14.5
Private Doctor - Kabul	7.0	2.6
Regional Hospital	7.0	6.4
Mullah or Shrine	5.3	25.0
Private Doctor - Local	3.1	8.8
Village	2.6	0
Pharmacy	.9	3.4

Table 22 - Most Frequently Named Best Source of Treatment Outside Home

Both men and women mentioned the basic health center most frequently as the best source of treatment. Other than for the BHC there was little agreement between men and women on the best source of treatment. Men tended to name sources in the cities as being best while women selected sources near to home. For instance, 29% of men but only 3.0% of women thought hospitals in Kabul were best, while 25% of the women and only 5.3% of the men named the Mullah or shrine. This undoubtedly reflects the greater mobility of men, travel to the cities being a more realistic possibility for them than for women.

Those who reported having used the basic health center were asked their opinion on the quality of the medicine and services they received. Responses indicated a broad range of attitudes:

<u>Quality of Medicines and Services at BHC</u>	<u>% of Males (140)</u>	<u>% of Females (291)</u>
Very good	7.9	11.0
Good	50.0	48.5
Intermediate	17.8	16.5
Poor	23.6	23.7
Very Poor	0.7	0.3

The general feeling about the services provided by the BHC is a favorable one, even though almost one fourth of respondents gave "poor" ratings. Similar distribution of responses were given when the question was asked concerning the personal treatment received from BHC staff, with slightly fewer "poor" replies.

<u>Personal Treatment Received at BHC</u>	<u>% of Males (141)</u>	<u>% of Females (283)</u>
Very good	11.3	11.7
Good	58.9	53.3
Intermediate	14.9	17.7
Poor	9.9	17.7
Very Poor	5.0	0.0

Several questions were asked to determine whether respondents perceived any improvement in health conditions in the past few years. The first was: "Do you feel that children are healthier or less healthy than 5 years ago?" with responses:

	<u>Males (223)</u>	<u>Females (430)</u>
Healthier	63.7	38.6
Same	15.7	23.5
Less Healthy	20.6	37.9

Apparently, women are less favorably impressed with present health conditions than men; the same percent saying that children are less healthy as healthier than in the past. The reasons the respondents gave for their responses were:

<u>Reasons Given for Poorer Child Health</u>	<u>Percent (N=33)</u>
More children now	39.3
More disease	30.3
Bad weather	9.0
Bad health services	9.0
Poverty	3.0
Bad water	3.0
Medicines not free	3.0
More malaria	3.0
Other	0.4

<u>Reasons Given for Improved Child Health</u>	<u>Percent (N=112)</u>
Medicine and doctor available	52.6
Less disease	12.5
God's help	8.5
Good weather	8.5
Better food	5.7
Hospital	4.1
Cleanliness improved	4.1
Transportation	2.8
Other	1.8

Table 23 - Reasons Given for Current Child Health Status by Male Respondents

Similarly, women were somewhat less positive about improvements in child mortality in the last five years. When asked, "Do you think that more or fewer children die now than 5 years ago?" they responded:

	<u>Male Respondents (204)</u>	<u>Female Respondents (421)</u>
More die now	11.7	28.3
Same	21.6	14.5
Fewer die now	66.7	57.2

The final question was whether respondents felt that health services had improved in the last five years. Almost 3/4 of all respondents felt that health services were better now than they were five years ago. The overall attitude of respondents appears to be that general health conditions have improved in recent years. The implications of this for change in the attitudes of parents toward the number of children they desire is important. It has been hypothesized ⁽¹⁷⁾ that parents will seek to control the number of children they have only if they have assurance that the children that they do have have

an increased probability of survival. The survey, however, did not demonstrate any significant differences in fertility or desired family size by respondents' perceptions of improvements in health services or child "survivability."

However, among women who have had three or more children who have died, there is somewhat less interest in contraception than among women who have not lost any children, as shown below:

	<u>Number of Children Died</u>	
	<u>0 (N=123)</u>	<u>3 or more (N=71)</u>
Interested in contraception	16%	5%
Not interested in contraception	84%	95%

It is premature to predict whether perceptions of villagers about child survivability are changing substantially enough to have a significant impact upon the number of children desired. In a situation such as in Afghanistan where 38% of women sampled have had more than 3 children die and several respondents had as many as 10 children die, there may be a considerable time lag before actual fertility patterns change in correspondence with feelings of the chances of a child surviving to adulthood. It is a subject requiring continuing study.

All respondents were asked what in their opinion was the most needed health improvement in their village. Table 24 compiles their most frequent responses.

<u>Most Needed Improvement</u>	<u>Percent of Mentions (N=1241)</u>
Medicines	30.5
Doctor	24.4
Hospital	10.5
Improved Sanitation	8.9
Better Food	7.5
Transportation and Roads	2.6

Table 24 - Most Needed Health Improvements
(Most Frequent Responses Only)

This information is useful because it shows that villagers are more concerned with having improved access to medicines than they are in better health facilities or physicians. This was also seen in Table 21 which showed fewer people satisfied with pharmacies and dokhans than most other health services available.

Access to medicines may be limited by costs as much as by the distances to pharmacies or the supply of medicines stocked. As shown earlier, medicines are the single most expensive item in the health budget of rural Afghans, both on an annual and a per visit basis. The priority given to having access to medicines may be a very favorable factor in the success of any village level program whose objective is to increase the availability of essential, low cost medicines, whether it is through village health centers, village shops or pharmacies.

4. Attitudes of Villagers Toward the Feasibility of a VHW Program

One approach to the expansion of health services in rural areas is the village health worker, a concept which has been successfully introduced in a number of countries. One of the objectives of this survey was to determine the receptivity of rural Afghans to the idea of an individual from their village being recruited, trained and supervised to manage the most common health problems of the village.

In order to learn villagers' views on the feasibility of a village health worker program all respondents were asked, "In some countries persons from villages have been trained to treat the most common health problems facing the people of their village. Do you feel that this type of thing could be possible for your village?" As can be seen below, reaction was strongly positive for the feasibility of such a program.

	<u>Males (235)</u>	<u>Females (483)</u>
Feasible	78.3%	95.3%
Not feasible	17.4%	3.7%
Don't know	4.3%	1.0%

Of those stating that such a program would not be feasible for their village, the most common reason given (60% of all replies) was that there was no one in their village qualified for the role. Questions designed to elicit information about which characteristics would be most important for a person who would serve as a village health worker produced the following responses:

	Percent Replies	
	Male (193)	Female (421)
<u>Best Age for a VHW*</u>		
Young	30.0	42.3
Middle-Aged	26.3	24.9
Older	6.3	4.6
Don't Know	37.4	28.2
<u>Best Sex for VHWs</u>		
Male	13.7	11.6
Female	6.3	43.3
Both	80.0	45.1
<u>Should Literacy be Required?</u>		
Yes	100.0	81.3
<u>Should VHW Have Experience Outside Village?</u>		
Yes	94.3	98.4
<u>What are Best Qualifications for VHWs? (Most Frequent Responses Only)</u>		
Good character and patience	40.4	54.4
Proper Manner	15.3	2.6
Humanitarian	10.4	4.5
Experience	8.2	1.0
Intelligence	6.6	26.0

* N = 190 for men, 494 for women

Table 25 - Best Characteristics for Village Health Workers

The table points out that both men and women felt that it would be important that women be trained as VHWs. It also shows that personal qualities such as good character and proper attitude are judged to be more important qualifications than experience or intellect, even though respondents share the common belief that candidates should be literate. (While literacy is rated highly and respondents felt that VHWs should have at least 10 years of education, whether or not such qualifications are either essential or useful for such a role is unclear, especially

as studies⁽¹⁸⁾ have shown that the most successful change agents at the village level are persons who share as many characteristics as possible with the people they serve. Persons of higher education may automatically be distinguished from the majority of villagers and may be less successful as change agents than persons less well educated. The important question is what is the minimal education which is required in order to perform the specific tasks.

Respondents were also asked how they felt VHWs should be selected. Replies were:

	Percent Replies	
	Males (N=182)	Females (N=438)
By the people	47.3	42.3
By the government	39.7	40.2
By village leaders	7.7	11.9
By the government and people	3.5	2.3
By leaders & people	1.2	1.6
From among the injectionists in village	0.6	1.7

The most common belief was that the people of the village should themselves decide who should be their village health worker. However, large segments of the population also stated the opposing viewpoint that the government should make the selection, indicating that the best method may vary from village to village and may realistically depend upon the specific political structure encountered as much as upon the attitudes of the people. Interestingly, the question brought forth a suggestion from a small number of respondents which is worthy of consideration, namely that those in the village currently in roles where they provide a health service for the village, such as injectionists, be given first consideration for the VHW role. This may prove to be a suggestion worth pursuing.

Twenty six percent of males and 18 % of females could think of a specific person in their village who they felt would make a good VHW. In those cases in which an individual was nominated, their characteristics had the following profile:

	Males (N=59)	Females (N=79)
Mean Age	33.5 years	31.5 years
Sex: Male	91.4%	61.8%
Female	8.6%	38.2%
Education Mean Years	9.2 years	7.9 years
Literacy	82.8%	72.0%
Experience Outside Village	63.8%	61.5%

Table 26 - Characteristics of Persons Nominated for VHW Role

One of the problems anticipated in establishing a VHW program has been the lack of qualified women. Table 26 is encouraging in that over one-third of females responding were able to nominate a woman from the village who they thought would make a good VHW. Also encouraging is that 27% of male respondents stated that they would allow their wives or daughters to be trained as village health workers.

Thirty percent of males, but only 10% of females, felt that it would be possible to find a woman from the village to be trained as a VHW if training were nearby and she could return home in the evenings. Somewhat surprisingly, slightly more, 34% of males, answered affirmatively when the same question was asked, but training was described as being farther away, requiring women to spend an extended period away from the village. There was a slight drop in positive replies among women for these conditions.

Respondents were also asked why they nominated the person they did for the VHW role. Their replies were:

Reasons for VHW Nomination	% of Males (N=62)	% of Females (N=98)
People like him/her	35	27
Good education	19	14
Person is informed	15	7
Person is clever	13	35
Person is useful	13	5
Knows how to give injections	5	1
Relative of respondent	0	11

Table 27 - Reasons Given for Nomination of Individual as VHW

Again, the belief that a good character is a more desired characteristic than knowledge, or experience in selecting a VHW appears to be supported, especially in responses of males.

Over 200 male respondents were asked whether VHWs would have to be paid. Eighty percent felt that they would. The following methods of payment were suggested.

	<u>% of Responses</u>	
People should provide salary	43	
Government should provide salary	27	} 47 % other than villagers themselves
People could not provide salary	20	
People provide part of salary	10	

Men were obviously divided on whether or not the village would be able to support a VHW. The answer to the question of whether a village can or will support a VHW will come from actual experience and may well differ from area to area. The percentage of men that thought the village itself could pay for the health worker varied from 100% to 22% in villages studied. The method by which payment is collected may also make a difference. For instance, villagers may be reluctant to join an insurance scheme to help pay for the support of a VHW whether or not there is anyone in their household requiring his/her service, but they may be readily willing to pay for their help when they require it or may be willing to buy medicines from a VHW knowing that he/she will receive a small profit from each sale.

The method by which a VHW will be supported is a key question, especially since one major assumption of the Ministry of Public Health's planned program is that the village health worker would be nearly self-sufficient and operate with minimal government expenditures beyond those incurred for training and supervision.

5. Diffusion of Information in Rural Villages

As described earlier, many of the health problems in the rural populations studied, especially those of small children, arise from lack of information as much as from lack of available health services. The nutrition of children, treatment of the umbilicus of newborns leading to tetanus and the treatment used for diarrhea are important examples of health problems caused or exacerbated by lack of knowledge.

One remedy is obvious -- increased information. However, before beginning a program aimed at improving health education it is essential to have an understanding of channels by which villagers, especially women who are the prime targets, currently receive information. The question posed is an immense one and one which the Three Province Survey has only begun to investigate.

All women interviewed were asked whether they ever listen to the radio. Almost 50% reported that they did and the following table records their reported frequency of listening:

Times Per Week Listened	Percent of Responses (N=245)
Less than 1	13.5
1	4.1
2	11.0
3	5.7
4	1.2
5	0.4
6	1.6
7 or more	62.4

Table 28 - Frequency of Radio Listening - Women Who Listen

Two-thirds of women listeners reported having radios in their homes; most of the rest listened in the homes of friends or relatives. The most interesting programs as reported by women listeners were:

Music	62.1%
Family life	19.4%
News	9.7%
Farmers' program	3.7%
Stories	2.8%
Radio doctor	2.3%

Men were asked a slightly different question, namely how many days a week they listen to the radio. Their responses were:

Days Per Week Listened	Percent of Responses
0	61.2
1	5.1
2	2.1
3	2.5
4	.8
5	2.5
6	1.3
7	24.5

Table 29 - Frequency of Radio Listening - All Men Mean = 2.1 days/week

Their favorite programs were reported to be:

News	32.7%
Farmers' program	27.1%
Music	19.6%
Radio doctor	7.5%
Family life	5.6%
Stories	1.9%

The radio is one of the major means by which new ideas come into the village. The information on the radio listening habits of men and women provides a wealth of information with broad implications for health education programs. The first fact is that the percentage of people in the village who have access to a radio is extremely high. Secondly, women report listening to the radio as frequently as men, if not more frequently. There are however distinct differences in favorite programs of men and women. Women rate music programs as their overwhelming favorite while men report favoring the news and farmers' program. Neither men nor women rate the Radio Doctor program among their favorites.

There are several important implications in these findings. First, the radio would have the possibility to reach a very large percentage of the rural population with health education messages. The second implication is that these health messages would be most effective if

sent via the most listened-to-program, i.e. music for health education messages for women and news or farmers' programs for messages for men. One of the most successful campaigns to improve nutrition of rural children has been carried out in Zambia, a country with geographic and language barriers similar to Afghanistan's. The approach used has relied heavily on the use of popular radio programs and nutrition messages incorporated into popular music. In fact, in most years the most popular song has been a message on nutrition or child rearing produced by the National Nutrition Commission. The potential for this type of health education program in rural Afghanistan is extremely favorable, given the radio listening habits of the rural population.

Another potential use of the radio which should be mentioned is in communicating with VHWs dispersed around the country to provide them with ongoing information, instructions, and encouragement. One example of this approach is the Nigerian extension workers' "Radio Farmer". This is a program broadcast on national radio once a week, to which all extension workers listen to find out what other workers are doing, and to upgrade their own knowledge. Such an approach might also work well for village health workers.

Another means by which information diffuses into the village is by villagers who travel to regional centers and to the cities. As was already shown for the source of treatment used by men and women, there is a great difference in mobility according to the sex of an individual. All of the men were asked whether they permit their wives to go to the following places alone:

<u>Place</u>	<u>%Permitting (N=230)</u>
Visiting female friends in village	41.8
Bazaar	7.8
Basic health center	12.9
Shrine in village	6.5

When women were asked whether they were allowed to travel outside the household alone they gave the following replies:

<u>Place</u>	<u>% Allowed (N=431)</u>
Visit female friend in village	3.3
Bazaar	6.7
Basic Health Center	44.3
Shrine in village	19.0

This information points out the severe limitations on women's movements outside the household. The small percentage of women reporting being allowed to visit female friends in the village points out the restrictions on the spread of information from woman to woman within the village.

The basic health center, however, appears to represent a force for change. The ability of greater percentages of women to travel to the health center than to other places makes it an advantageous site for the spread of information both from health center staff to those attending and from woman to woman. Programs should be arranged at the BHC to take advantage of this opportunity.

The current channels of communication to the rural Afghan woman are quite narrow; the potential for their expansion, making use of innovative health education programs, is, however great.

6. Socioeconomic Status and Health Behavior

Just as the SES of a household can affect the health of its members, so too can socioeconomics be an important determinant of both what a household does when one of its members is sick and the access which that family has to information. As discussed earlier, while the average amount a rural household pays for health care annually is quite high, there are many households in which expenditures are very low. Analysis shows that the health expenditure of very poor households is approximately one half of that of households above average. Furthermore, attitudes as to the best treatment for illness appear to vary by socio-economic category as well. For instance, 34% of poor women feel that the mullah offers the best care when sick, while only 15% of the average or above average households mentioned this source. Likewise, 16% of average or above average women felt that a hospital was the best place to go when sick, compared with 3% of very poor women. Slightly fewer (24%) of average or above average women perceived the BHC as providing the best care as did very poor women (40%). There was no difference by SES for receptivity to the concept of a village health worker. Not surprisingly, poor

women have considerably less access to a radio and therefore could be expected to be reached less easily by that means than women in households which are wealthier and possess their own radios.

While not all differences between the rich and the poor are significant or important for the planning of health services, their specific needs and constraints must be taken into consideration in planning village health schemes.

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Appendix A

MEASURING MALNUTRITION

SIR,—Protein-energy malnutrition is a widespread health problem of infants and young children in the developing world, and a valid and simple method of assessing their nutritional status is needed. A simple growth chart for all children has many advantages¹ but unfortunately such charts and reliable scales are not available in all health centres, nor will the precise age of many children in developing areas be known. Moderate or severe malnutrition can of course be detected by eye, but milder degrees of malnutrition or growth failure are easily missed.^{2,3} Biochemical tests are expensive and unsuitable for population screening. The use of various anthropometric measurements has been investigated. These include "weight-for-age", using the Harvard Standards⁴ and the following ratios: "weight/height"^{5,6}; "the height/weight index"⁷; arm circumference/head circumference⁸; and arm circumference/height, as in the 'Quac Stick'⁹. Measuring the mid-upper-arm circumference is simple and practical in the hands of auxiliary workers.^{9,10} One of us (A.S.) has studied a group of 777 children attending clinics and also a group of malnourished children in Iraq, whose precise age was recorded and from whom standard anthropometric measurements were obtained so that the various ratios could be calculated. From this study we conclude that a simple arm-circumference measurement has advantages over any other single measurement, or any ratio of two measurements. This conclusion was reached by comparing these ratios with their weight-for-age⁴ which, despite its imperfections, is widely accepted as the most practical nutritional standard. Fortunately, in the age-group in which malnutrition is most common, between the first and fifth birthdays, the arm circumference is nearly constant,¹¹ and the same measurement can therefore be used throughout this age period.

Figures have less meaning for auxiliaries in the developing world than for health personnel in industrial societies. We therefore suggest the use of a three-coloured cord to measure the arm circumference. The cord must be regularly checked against a ruler in case it shrinks, and perhaps non-stretch plastic strip may prove more suitable if available. Red, yellow, and green have universal significance, thanks to the ubiquitous traffic lights.

The piece of cord (fig. 1) is placed around the middle of the extended relaxed upper arm (fig. 2). The children are divided into three groups according to their arm circumference, as shown in the accompanying table.

This simple method has several uses. In the clinical situation, where simple weight charts are not yet available, it is a quick and reliable means of identifying the ill-nourished children. Even where weight charts are in use, it may help to indicate on the weight chart that a child falls into the yellow or red group. In the circumstances of a famine it may be used for assessing and monitoring the

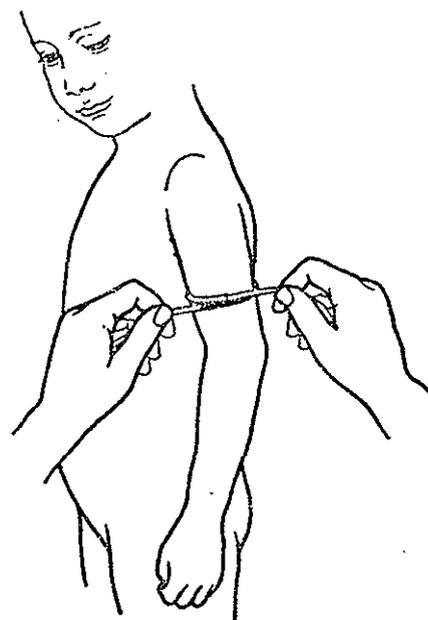


Fig. 2—Cord in use.

COLOUR OF CORD RELATED TO ARM CIRCUMFERENCE

Colour of cord	Arm circumference measured (cm.)	% standard arm circumference	Result with malnourished children and with 777 "normal" Iraqi children
Red	Under 12.5	< 75	All children with clinical signs of severe malnutrition fell into this group. There were no children whose weight exceeded the 80% weight-for-age Harvard standard.
Yellow	12.5-13.5	76-85	Some of these children had mild malnutrition but no child with clinical signs of severe malnutrition fell into this group.
Green	Over 13.5	> 85	Most of these children are normal. Only 2.6% had weights below the 80% weight-for-age Harvard standard.

nutrition of a community and identifying those children who need extra feeding.

Specimen lengths of the cord and a description of how they may be produced are available on request from Teaching Aids at Low Cost (TALC), Institute of Child Health, 20 Guilford Street, London WC1N 1EH.

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ADNAN SHAKIR.

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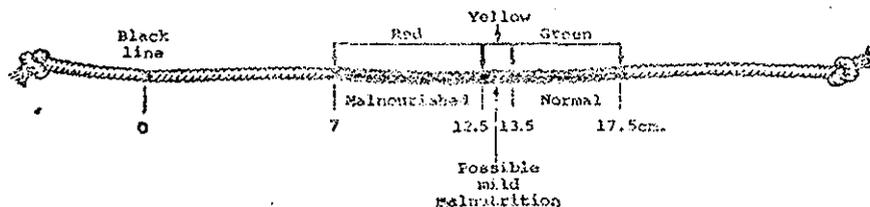


Fig. 1—Three-coloured cord.

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Further experience has suggested that a strip of X-ray film is cheaper and better. Scratch the film with a sharp point and colour with a spirit felt pen, not quite up to the scratch line. Cut the film into 1/4 inch strips with scissors or a guillotine. About 50 can be made from one large X-ray film

APPENDIX B - DESCRIPTION OF THE HEALTH RESOURCES
AVAILABLE TO RURAL AFGHANS

As was discussed in this report in Section C, there is a wide variety of health care alternatives available in rural Afghanistan. This appendix will describe some of the most important of these alternatives, using a framework which begins with actions taken in the home to preserve health and treat illness, and which then moves outward from the household to describe successive layers of service which can be drawn upon. In doing this, a map of medical care possibilities, as seen by the villager himself, will be created. (Readers should refer to Fig. 6.)

The Home

The single most common source of health care in rural Afghanistan is undoubtedly the household. It is not surprising that the Afghan household, which strives for self-sufficiency in most of its other essential needs, would have the capability of caring for many of its health needs within the walls of its compound. Treatments which are carried out entirely or partially within the home include:

Bed Rest - Sick individuals are expected to rest. When possible their household responsibilities are taken over by others and their health needs are attended to by family members, most frequently older women.

Prayer and Vows - One of the first actions mentioned for illness is prayer. Often the prayers take on the form of a vow; "If my son is allowed to live, I will visit the shrine every Friday for a year".

Diet - There are many dietary prescriptions and proscriptions associated with the treatment of an illness. The predominant concept of diet during illness follows the Greek humoral beliefs of hots and colds. The diet of each individual is determined according to the body

temperature of an individual as well as the perceived hot or cold nature of his illness. Foods and medicines are likewise classified as to their temperature and the proper alignment of body temperature and food temperature is strived for.

Herbal Medicine - Herbal medicines play an important role in home treatment. There is a known herbal treatment for almost every set of signs and symptoms. These medicines, usually readily available within the vicinity of the household, but also purchased from herbal shopkeepers or Atars at the Bazaar, are usually the domain of the older women of the household.

Special Treatments - There are a number of special treatments whose origin is the home. One example is the special treatment for fevers and injuries in which a patient is wrapped in goat skins (Post-i-gosphand). Another example is the practice of caring for a weak and thin child by gathering wheat from seven different households in the village and baking it into a bread to be shared by at least forty women. Many other treatments such as treatment of wounds, skin infections, eyes, and aches and pains also take place in the home.

Childbirth - Pregnancy and childbirth are recognized as times of exceptional physical and emotional problems for women. While many women make use of the Dai, or traditional midwife (to be described later), approximately half of all women report receiving childbirth assistance from other women in their own household.

Protection Against Jinns - As discussed in the report, Jinns represent a very serious threat to the health of young children. As might be expected, there is a series of rituals and protective actions to help guard an individual, especially a newborn, against these evil spirits. One example is the use of an amulet or "tawiz", which is an inscription from the Koran sewn into cloth and worn around the child's neck from birth. Another preventive measure is the "shewest", whereby a child

drinks water into which a mullah has immersed paper on which he has written verses of the Koran.

The home is the source of first resort for most illnesses. The health activities at this level are most frequently the responsibility of women; with men, as one example, having only limited knowledge of such information as the best herbs to use for an illness. Men are explicitly proscribed from active participation in childbirth, other than for such activities as the transport of women to the doctor or a hospital in the event of a complication.

The treatments administered at home share the characteristics of being traditional in nature and inexpensive. They are the first line of defense against illness. If they fail to prove effective, a decision must be made as to the next level of care which will be sought. This is a decision which involves the potential expenditure of money and the arrangement of transportation. At this point decisions about care become a matter for the attention of men in the household. Depending upon the nature of the illness, the attitudes of the men, and the amount of money available to the family, care may be sought from any one of the following levels, or, as commonly occurs, from several at once.

The Village

In the village there are frequently persons who can be turned to in the event of a health problem. These include:

Dais - In many villages there are women specialized in childbirth who come to a woman's home at the time of birth. While the skills and qualifications are usually varied, they are often older women who have raised their own families and who have turned to midwifery as a means of supplementing a meager income. Dais often visit a woman in advance of delivery to examine her and after birth will continue to visit the home to observe the condition of mother and child, offer advice and frequently to assist with household chores.

Barbers - There are a number of services, in addition to cutting hair and shaving, provided by the village barber. They perform circumcisions, pull teeth and draw blood to release the "bad blood" considered to be the cause of many illnesses. There are many indications that the barber's role as bleeder is one that is diminishing. Blood letting is frequently described by villagers as something "done in the past, but not anymore". The fact that only 6.8% of respondents reported having used the barber's service in the last year supports this notion.

The Mullah - In each village there is found one or more religious leaders who, in addition to leading the community in prayer and interpreting the Holy Koran in the context of everyday village life, plays an important role in the curing and prevention of illness. One of the main services of the mullah is the preparation of the tawiz which is an amulet consisting of appropriate verses of the Holy Koran, which is worn around a patient's neck or pinned to his clothes. The tawiz can be both curative, as with adults, or preventative as can be seen in its use in preventing jinns in children. The mullah is said to have his greatest effectiveness in treating emotional problems, nervousness, anxiety, mental illness and illnesses due to evil spirits. He may also play an important role in filtering illnesses and making appropriate referrals to health services outside the village.

One reflection of the importance of the mullah's role in health is that 48% of households reported having used his services in the prior year, with an average of 3.2 visits per household.

Dokhandars - Dokhans are small village shops, selling a variety of essential items, frequently including medicines such as aspirin, vitamin C, Vicks Vaporub and other preparations. They appear not to sell antibiotics or other prescription drugs. They appear to play only a very limited role in providing service and are not viewed favorably by villagers as a source of care. Their potential lies in use as a more structured means of distributing medications.

Injectionists - As was mentioned in the report, many villagers report knowing someone in their own village who could give them an injection, if required. They most often assist in the administration of medicines which the villagers have received from physicians, but some injectionists have been reported to purchase their own supplies of drugs. Twenty eight percent of households reportedly have used an injectionist in the previous year, demonstrating their importance to the village and supporting the argument that injectionists be screened for their appropriateness for training as village health workers.

Local Shrines - Almost every village has a shrine, usually the burial place of an exceptionally pious ancestor, which is venerated and called upon for its ability to cure illnesses and bring about favors.

Although there are a number of important health services which are carried out at the village level, they tend to be of a relatively unspecialized nature, provided by part-time practitioners. More specialized services are encountered at the level of the Bazaar.

The Bazaar - A large bazaar or marketplace supplies a number of villages with the goods and services they require. Here the specialist, be he gunsmith or pharmacist, can establish his trade and draw upon a large enough population to earn a livelihood. At this level can be found both traditional and modern health practitioners including:

Pharmacies - There is no modern health service which reaches as deeply or pervasively into rural Afghanistan as the pharmacy. There are at least 500 in the country, with at least one in every major market settlement. They stock and sell a large variety of both prescription and non-prescription drugs. There can be little doubt that the compounder in the pharmacy is an important primary health care provider, especially in areas where there is no doctor. Not only does he provide advice to his customers, but he may administer injections as well. An indication of the importance of the pharmacy is that 60% of all households surveyed had used a pharmacy in the prior year, expending 37% of their total health budget.

Hakimji - Traditional medical practitioners or hakimji are found in bazaars, with the more successful ones being located in the cities. These practitioners, often Hindus, use procedures and medicines which descend from the Unani medical traditions of India as well as those from the Greco-Arabic traditions of the West. The influence of the hakimji may be on the wane, especially in those areas where they are in natural competition with a physician. Only 10% of households reported using the services of a hakimji, suggesting the notion that their impact is limited.

Atars - Atars are shopkeepers or sidewalk vendors who specialize in the sale of herbal medicines. They are often small-scale operators with little personal knowledge of health and illness. As many of the herbal medicines used by villagers are well-known plants found growing in their own vicinities, the atar's role is a marginal one, as can be seen by the fact that only 1% of the average annual health budget of rural Afghans is expended at the atar's.

Bonesetters - The "shekesta bande" or bonesetter is one of the more specialized practitioners. As the name implies, he sets bones. But he also treats sprains, dislocations and assorted body pains. The relatively low percentage of households (6%) reporting having used the bonesetters in the previous year, underestimates his importance. Most Afghans would prefer to go to the bonesetter for a broken bone than to a physician. This preference is apparently empirically derived.

Bonesetting is a profession apparently not so much chosen as thrust upon a person out of the necessity for someone in a community to meet a need for bone repair. Consistent with their working out of demand rather than for economic gain, bonesetters claim not to charge for their services, accepting money only as offered.

Major Shrines - Another source of help lying outside the village is the major shrine or "ziarat". Often a ziarat will possess renown for its ability to effect a cure for a particular illness, such as rabies, snake bites, deafness, or infertility. One fourth of all households reported use of a ziarat in the preceding year.

Not all of the services described above are to be found in each bazaar, and additionally many village-type practitioners such as barbers, dais, injectors and dokhandars, can also be found in large market places.

Towns

In many ways Afghan towns can be looked upon as enlarged bazaar areas. As such they contain many of the same services as can be found in the bazaar, but may also have:

Private Doctors - Most towns are large enough to support at least one general physician. Town doctors, like most other doctors in Afghanistan, are usually government salaried physicians who augment their official practices with private patients seen after official working hours. More than twice as many households make use of town or regional physicians as Kabul physicians, a pattern which indicates the useful role of the general town physician.

Dentists - Many towns are large enough to support a dentist. However, as trained dentists are in short supply in the country, demand outweighs supply.

Hospitals - Many towns serve as sites for regional hospitals. As with physicians, regional hospitals are used with greater frequency than those of the capital. While the quality of regional hospitals may not be recognized as being as good as those in Kabul, the expense is much lower, 327 Afs versus 909 Afs, and thus regional or town hospitals play an important role, especially at greater distances from Kabul.

Generally, health services in towns are less sophisticated than in the cities, but they are also less expensive and more convenient. The net result is that, for many villagers, the regional hospital and the private physicians of towns represent a major source of care. For more serious illness, either acute emergencies or when all else has failed, a decision is frequently made to bring the patient to Kabul for care.

Cities

Not surprisingly, the cities of Afghanistan, especially Kabul, are centers for specialized health services, including:

Hospitals - In addition to general hospitals with a variety of specialty departments, there are several specialized hospitals in Kabul, including maternity, childrens', tuberculosis, and eye hospitals.

Private Physicians - There are approximately 500 private physicians in Kabul, many of whom are specialists.

Specialized Hakimji - There are a number of specialized hakimjis in the cities, several of whom draw patients from throughout the country.

APPENDIX C

CONCLUSIONS AND FINDINGS SUPPORTING CONCLUSIONS

PLANNING APPLICATIONS

<u>CONCLUSION</u>	<u>FINDINGS SUPPORTING CONCLUSION</u>	<u>IMMEDIATE APPLICATIONS TO VHW PROGRAM</u>	<u>PROBABLE/POSSIBLE FUTURE APPLICATIONS</u>
A. <u>The Health Problem</u>			
1. Infants, young children and women bear disproportionately large share of the burden of sickness and death.	Half of all deaths are under age 5 years, infant mortality rate 157; women aged 30-45 have incidence of illness twice men of same age group.	VHW training program designed to emphasize problems of children and of women. Commitment increased to recruit women whenever possible.	Infant Mortality Rate, Childhood and Maternal Morbidity Rates to be used in evaluation of the impact of village level health programs.
2. A relatively small number of illnesses, many preventable or treatable at village level, account for major portion of illness and death.	Respiratory illnesses, diarrhea/dysentery and jinns account for 50% of all recalled child death.	VHW trained to recognize and treat major health problems; treatment protocols & medical supplies standardized for specific therapy regimens.	Investigation into etiology of jinns; development of maternal tetanus immunization programs.
3. Health problems perceived by villages as most serious account for majority of illness; (except malnutrition and jinns which are not viewed as serious).	56% of respondents named respiratory illness and gastrointestinal problems as "most serious". Jinns and malnutrition not mentioned as health problem.	VHW trained in methods of obtaining village cooperation by eliciting felt needs and addressing answers to these; also taught importance of making villagers aware of unrecognized needs.	Role of VHW in village education; the BHC as a source of education for women.

<u>CONCLUSION</u>	<u>FINDINGS SUPPORTING CONCLUSION</u>	<u>IMMEDIATE APPLICATIONS TO VHW PROGRAM</u>	<u>PROBABLE/POSSIBLE FUTURE APPLICATIONS</u>
4. Malnutrition is a severe health problem among young children.	Less than 50% of children aged 12-60 months classifiable as well-nourished.	VHW training organized to stress the role of nutrition in illness and possible means of intervention.	More detailed nutritional survey to further define problem and underlying causes. Formation of a National Nutrition Planning Council.
5. Childrearing practices are major contribution to malnutrition.	Meats, eggs and high protein food reputed not to be introduced until 2 years; some children not fed during illnesses.	VHWs, especially women, taught food preparation, food values and methods of working with mothers to improve nutrition.	Radio programs designed to promote nutrition education; BHCs developed as nutrition training center for villagers.
6. Although desired family size remains large, men and women are both interested in learning about child spacing methods.	69% of men and 91.6% of women report being interested in learning about spacing.	VHW curriculum includes section on rationale and methods of family planning; male and female contraceptives included in VHW basic supply kit.	Female VHWs to promote contraception for maternal and child health objective.
7. Environmental conditions in village contribute to illnesses.	Many villagers perceive the sanitation facilities and drinking water supply to be inadequate; 80% men willing to contribute to improvement.	Basics of environmental sanitation taught to VHWs; technical backup provided to VHWs who begin village projects.	Specific environmental health programs of MOPH working directly with villagers.

<u>CONCLUSIONS</u>	<u>FINDINGS SUPPORTING CONCLUSION</u>	<u>IMMEDIATE APPLICATIONS TO VHW PROGRAM</u>	<u>PROBABLE/POSSIBLE FUTURE APPLICATIONS</u>
B. <u>Village Health Resources</u>			
1. Services currently utilized are many and varied, modern and traditional.	Households average 17.5 visits to sources of treatment a year; average of 3.63 different sources. 50% of household use pharmacy, BHC and mullah during year.	Selection process for VHWs includes review of those currently providing health services; VHW curriculum includes discussion of total resources available.	Retraining of traditional birth attendants; promotion of shops for sale of medicines.
2. Household health expenditure now very high in relative and absolute terms.	Median reported household health expenditure is 1000 Afs; 7.4% of the estimated household income.	VHW program will test feasibility of full village support; various payment schemes will be tried including fee-for-service and profit from sale of drugs.	Charge for services and medications provided at BHCs.
3. Medicines represent single most expensive item in health budget.	37% of annual health expenditure spent in Pharmacy; average 248 Afs. per visit.	Basic essential medicines to be provided to VHW at start; resupply through BHC at minimal cost; control over amount that can be charged set by village leaders or by MOPH.	Continued efforts to reduce cost of drugs through improved national purchase and production schemes.
4. Great variation in villager satisfaction with available services; improvement desirable in many services.	64% satisfied with BHC; only 31% with medications available through village shops.	Access to medicine to be one objective of VHW program; BHC referral and supervisory system for VHWs.	Use of shops for medicine distribution; government support for services now considered valuable, such as bone-setter.

<u>CONCLUSION</u>	<u>FINDINGS SUPPORTING CONCLUSION</u>	<u>IMMEDIATE APPLICATIONS TO VHW PROGRAM</u>	<u>PROBABLE/POSSIBLE FUTURE APPLICATIONS</u>
5. Village Health Worker concept seen as feasible by many.	78% of men and 95% of women felt VHW would be appropriate and feasible in their village.	Current program will evaluate those conditions that contribute to the success of VHW program.	Results of evaluation to be used in expansion of VHW program.
6. VHWs will have to be compensated; exact mechanism will depend on characteristic of village.	80% felt VHWs would have to be paid; 43% felt the village should pay; 47% felt that the government should support.	Current program to experiment with payment schemes.	Plan future VHW payment in accordance with evaluation of current program.
7. In most villages it should be possible to recruit and train women as VHWs.	27% of men would allow their wives or daughters to be VHWs; 34% felt it would be possible to find female VHWs in their village.	Background research being done to determine methods of recruiting women and obtaining village understanding of their roles; 6 women recruited from first 2 experimental sites.	Each village to have at least one female VHW.
8. Mobility and channels of communication for village women is severely limited. BHC is a potential legitimate meeting and education center. Radio has immense potential for diffusion of information.	50% of women reported listening to radio; only 3% of women claimed to be able to visit friends unescorted in their own village; 44% reported being able to visit BHC.	Female VHW role designed to emphasize the diffusion of information to village women.	Mass media education via radio. Use of BHC as center for education and communications.
9. The socio-economic status of household influences health standards and behavior.	The annual health expenditure of household has a range from 0 to 5000 Afs. Poorer households have higher rates of illness.	VHW remuneration schemes planned to take into consideration extreme poverty of many households.	Nutrition studies to determine roles of poverty and lack of education in mal-nutrition.