

# HEALTH PROBLEMS AND POTENTIALS FOR CHANGE IN A RURAL AFRICAN COMMUNITY

The Lama doonka-Buulalow study

*A 10-year research collaboration  
across disciplines and cultures*



The Somali-Swedish  
Epidemiological Study Group  
Umeå 1995

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Edited by Lars Åke Persson and Stig Wall  
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## Foreword

Epidemiology is of special relevance for health promotion and policy formation. Valid health information for local health planning can only be generated through active participation from the community. The process of gathering such data and the setting of research priorities are illustrated here in a transcultural research collaboration emphasising the interdisciplinary approach of epidemiology but discussing also the various obstacles challenging a long-term joint venture such as this. In population groups where health is poor, it has sometimes been suggested that research is not needed to prove that actions are called for. With even greater emphasis, however, it may be argued that such areas need data for priority decisions. When focusing on inequities in health, epidemiology is more than an observing discipline. It may assist in identifying vulnerable groups, asking questions on the current use of resources and suggesting priorities for the protection of those at risk.

Somalia has suffered a lot during the last decades. The first decade after independence in July 1960 was relatively peaceful, although tensions lay under the surface. During the 70s and 80s a series of persecutions of different clans and an attempt to win back the Ogaaden from Ethiopia created a nation in turmoil. The present fate of Somalia is also imposed by the heritage of colonial split and the end of the cold war. During the last decade social and economic conditions for the majority of the population deteriorated. Resources, which should have been used for the benefit of the health and development of the Somali children were not properly used. Some of the results presented in this book reflect the continuous deterioration of the Somali society in terms of, for example, an increasing child mortality. During the past few years the world community has reacted strongly and with compassion when exposed to the tragic events in Somalia communicated by the mass

media. Today there is no longer a functioning state of Somalia. It will take a long time before these wounds are healed and different clans can overcome suspicion and hatred and start building a new Somalia. It may seem misplaced to show a historical, however recent, epidemiological picture of rural Somalia as in this book. We think, however, that the chronic and pandemic situation of poverty and in health needs to attract the attention of the world conscience, not only the epidemics of war and famine. The report also underlines the potentials for change in communities like these; the power in the literacy of women, the prevention of common childhood deaths through immunization and the improvement of health through a primary village health care. We hope that this piece of health research from rural Somalia may be of use in the future development of a new primary health care in Somalia, and also serve to illustrate and communicate experiences gained through a research collaboration across cultures.

This research is the result of an institutional Somali-Swedish collaboration, jointly supported by SOMAC (Somali Academy of Sciences and Arts), and SAREC (the Swedish Agency for Research Cooperation with Developing Countries). Above all, we are indebted to inhabitants of the Somali villages Lama doonka, Buulalow and Cumar Beerre, who shared their time and experiences and made these studies possible.

Contributions to this publication have been made by all members of the Somali-Swedish epidemiological study group. The book has been edited by Lars Åke Persson and Stig Wall.

Umeå, December 1994

*The Editors*

## Collaborating departments

*The Department of Community Health, Medical Faculty, Somali National University, Mogadishu, Somalia.*

This department commenced work in 1978 but was officially established in 1983 when a new medical training curriculum was implemented. The department has been responsible for the theoretical training in community health and for field activities for medical students, exposing them to the health problems of the rural community. Rural training centres were established and community health workers and traditional midwives were trained. The training of medical students was the starting point for village-based research activities.

*The Department of Epidemiology and Public Health, Medical Faculty, Umeå University, Umeå, Sweden.*

Since 1979 this research group at Umeå University, Sweden has gradually developed into a research setting which in 1986 was formally established as a department within the Medical Faculty at Umeå University. The researchers address Swedish research problems on disease and exposure oriented epidemiology, social and evaluative epidemiology as well as public health issues in developing countries. Long-term collaborative research has been established with departments in Somalia, Ethiopia, Tanzania, Zimbabwe and Nicaragua.

## The Somali - Swedish epidemiological study group

**Abdulaziz Sharif Aden**, MD, MPH, Lic Med Sci, project co-ordinator and lecturer in health management and planning. Head of the Somali department up to 1988. Research on community participation and perceptions of health and disease.

**Brita Bergström**, BA, sociologist, lecturer at the research unit in Vilhelmina, Sweden, formerly associated to the Umeå department. Research on women's role in family health.

**Inger Brännström**, Med Dr, senior lecturer in public health at the Umeå department. Research on community participation in health programmes and social epidemiology.

**Maria Emmelin**, BA, doctoral student in medical sociology, formerly responsible for administration within the Somali-Swedish collaboration.

**Ulf Högberg**, MD, Dr Med Sci, associate professor and senior lecturer in obstetrics and gynaecology. Main research on obstetrical epidemiology, maternal and reproductive mortality and infertility.

**Maryam Mohammed Ibrahim**, MD, MSc, head of the Somali department since 1988 and lecturer in epidemiology. Research on child dietary habits, morbidity and growth.

**Göran Lönnberg**, BSc, statistician. Data consultant within the Somali-Swedish collaboration.

**Hussein Mao Omar**, BSc, Master of PHC management, lecturer in statistics at the Somali department. Research on demography and child mortality.

**Maymuuna Muhidin Omar**, MD, MPH, Lic Med Sci, lecturer in nutrition at the Somali department. Research on women's health and reproduction.

**Lars Åke Persson**, MD, Dr Med Sci, associate professor of paediatrics, senior lecturer in epidemiology. Main research interest in paediatric epidemiology, especially applications regarding nutrition.

**Stig Wall**, PhD, project co-ordinator, professor of epidemiology with health care research. Head of the Swedish department. Main research on epidemiology in primary health care, environmental and social epidemiology and medical technology assessment.

During various stages in the research collaboration contributions were made by Yussuf Ahmed Ali, Jeylani Mohammed Dini, Kassim Aden Egal, Lennart Gustafsson, Yngve Hofvander, Kadigia Ali Mohamud, Abdirahman Haji Omer, Mohamed Gedi Qayad and Hassan Ismail Yusuf.

## Points of departure

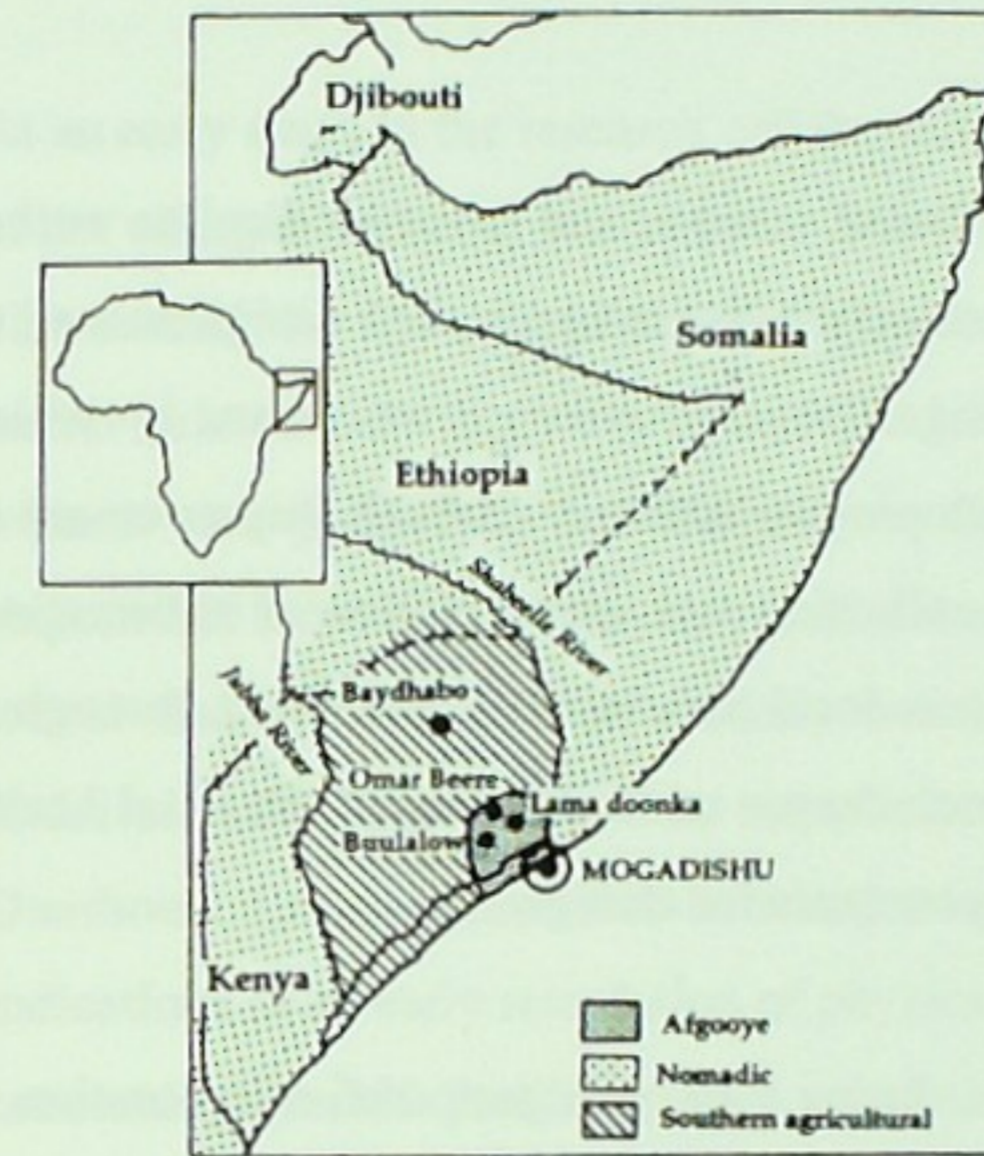


Figure 1. Map of Somalia.

Somalia, situated on the Horn of Africa, had in the late 80s a population of about 4 million, according to some estimates. Another 3 million were living in the Ogaaden desert in Ethiopia, Kenya and Djibouti. As a consequence of the ongoing civil war, Somali refugees were seeking protection far away from their normal homes and routes. Traditionally, nomadic pastoralism is extended throughout the country, while settled cultivation is practiced along and between the Jubba and Shabelle rivers. The Somali society shares a common language and the Sunni Islamic culture. Southern Somalia has a heterogeneity stemming from the historical process, where elements of different cultures were brought together, forming an intricate lineage system with divisions on various levels. The system of clan-families, ruled by a social contract, decides how individuals and clans should behave towards one another. This system of social contract is fragile, as illustrated during the past decades of conflict.

Primary health care goals were early recognized in Somali national plans, but their realization has been jeopardized by the ongoing civil war. It was estimated, that before the escalation of the civil war only one quarter of the population had access to health services and preventive health care such as vaccinations. The distribution of health care was skewed to the disadvantage of the rural population. To a great extent the population had to rely on therapies offered by the traditional healer, the *wadaad*. Very little has so far been reported on living

conditions and health in rural Somali communities. This report describes the situation, health problems and potentials for change in a few villages in the settled cultivation area between the two Somali rivers.

Valid epidemiological data should be population based, current, and cover medical as well as socio-cultural fields. In a developing country, cost-effectiveness in research design as well as in setting priorities in health care is of special significance. An important means by which knowledge about health can be increased in developing countries is through improvement in the representativeness of routine systems for the collection and use of statistical information. However, quantitative and qualitative data from a local community, generated through a number of different study designs, may give a much deeper understanding of the local health problems, their causes, the community needs and potentials for change.

In this documentation we will try to illustrate how, during a 10-year period of collaboration, a process of gathering epidemiological information developed. It should be stressed that, for the purpose of this book, we will pay attention to the route taken as well as to some of the end results.

Initially, we describe the national and local setting for the research and present the successive construction of a project design. When communicating the results from various sub-studies we have chosen to present them in terms of a life-span chronology. The refinement and use of demographic methods for village-based surveillance has been considered a priority research area of its own. The results of such a set-up are described in terms of the study population structure and its mortality and fertility patterns. The epidemiological features of a society are much reflected through its mothers and children. Major fields of interest are therefore found in reproductive and child health. This information is supplemented by studies on the perceptions of health and health action. In view of the past political developments in Somalia, we also include an analysis of mortality trends during the period of an approaching war. We conclude the presentation of results with a summary of the lessons learnt and their implications when investing in health in the rebuilding of Somalia. Finally, we recognize the joint strengthening of research capability and understanding as a rewarding by-product and discuss some experiences from the collaboration.

## Project design

At an early stage in the research collaboration social anthropologists carried out studies in one of the villages, focusing on the socio-economic structures, traditional beliefs about health and disease and the use of traditional therapies. Through these and earlier studies a number of health-related facts regarding the people in the villages were revealed. Thus, the situation of women was judged to be difficult, as they had an extremely heavy work load, being responsible for all household activities as well as a considerable part of the labour in the fields. It was also evident that most elderly women had gone through numerous pregnancies. The social situation of women was complicated by the fact that divorce was rather common. Diarrhoeal diseases seemed to be a major health problem among the children, and there were indications of an early retardation of physical growth. Thus, a number of questions were raised concerning health problems and possibilities for health intervention as well as about community knowledge and perceptions about these matters.

Having got so far, the need for proper demographic information was identified. There was a call for better knowledge of the population structure and estimations of the magnitude of some of the problems already identified. Demographic mapping of the population would also provide a sampling frame for further studies. Enumeration procedures and census survey forms were developed and evaluated in pilot studies in a small village in the same district. The village compounds were enumerated and complete lists of compounds, households and individuals were constructed. Formal epidemiology courses as well as on-the-job training were integrated into the research collaboration.



*- Somali researchers were trained in the use of micro computers and epidemiological software for the storing and processing of all field data -*



*- Polaroid photos were taken of each child with its mother. They were then attached to the questionnaire form to facilitate the identification of individuals over an intensive study period -*

From the obtained socio-anthropological and demographic data, questions regarding the health of women and children were raised: What are the major diseases in the under-five population and what are the risk factors of this morbidity? These questions were studied in a longitudinal investigation of child feeding, morbidity and growth.

What are the possibilities and obstacles in strengthening the role of women as promoters of family health? This was approached, partly by use of qualitative methods including interviews and participatory observations. Child health data were supplied by the under-five cohort study, and related to relevant information from the mothers.

Primary health care is often implemented following experiences and recommendations from other settings. Here the need for health care research even on simple primary health care technologies was identified. One example is the use of growth charts, which on the one hand are tools for community growth monitoring but on the other serve as a social device in health education. The maternal comprehension of the growth chart was evaluated as part of these activities. Another example is the acceptance and use of oral rehydration therapy (ORT) in diarrhoeal diseases.



*- The villagers in Lama doonka and Buulalow took an active part in planning and carrying out health activities -*

An interaction with the community also took place with a feedback of information from on-going studies, not only as an obligation to the community but also as a means of utilizing



people's experiences and knowledge in the interpretation of data. Some of the socio-demographic data on population size and age distribution, marital status, literacy and mortality pattern were, therefore, presented to village committees and women's groups of both villages. In individual and group interviews people also expressed their perceptions of major health problems of the area and suggested appropriate actions accordingly.

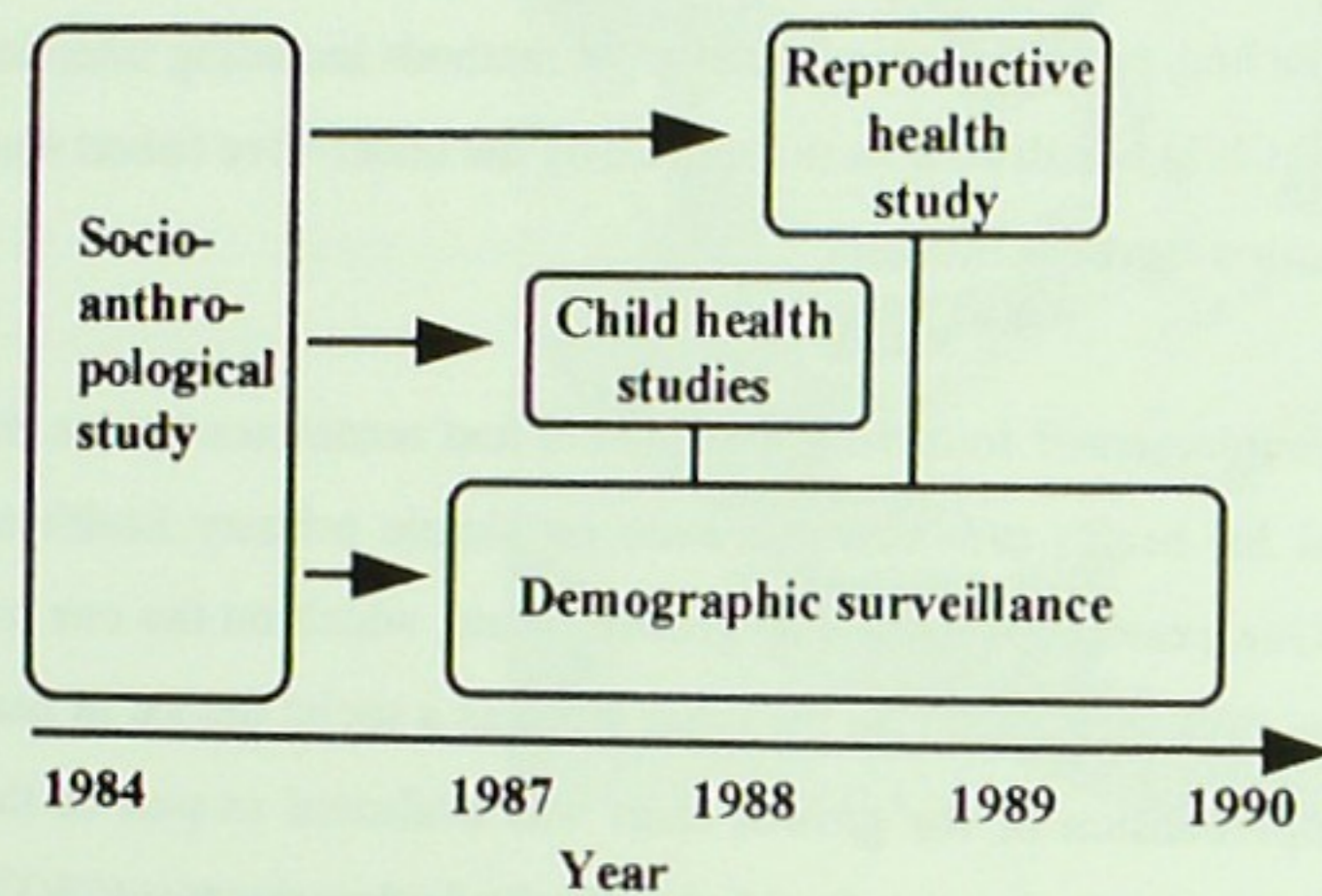


Figure 2. The project structure.

Figure 2 summarizes the successive build-up of a project structure. Thus, we had a running system for demographic surveillance, which allowed the assessment of fertility and mortality patterns. Within the study base a cohort of children under five was followed prospectively over one year, focusing on diet, morbidity and growth. Reproductive health was addressed in epidemiological surveys as well as through qualitative in-depth interviews. Finally, as part of the continuous feedback of information to the community, simple PHC tools like the growth chart and oral rehydration therapy have been evaluated. Community participation was an ingredient all through the studies, and special studies were carried out on villagers' perceptions of major health problems.

In these series of studies our ambition has been to choose a cost-effective design for the various sub-studies (Table 1). A cross-sectional demographic census was followed by a continuous surveillance of vital events, maintained in collaboration with village leaders and community health workers. On a fortnightly to monthly basis the research team checked and followed up the registered events. Causes of death were registered utilizing a "verbal autopsy"

interview procedure, a systematic structured interview to obtain the probable causes/symptoms preceding death.

The prospective cohort study of under-five children was based on fortnightly home-visits, while cross-sectional surveys were performed to investigate maternal perceptions of child health and for growth chart evaluation.

Reproductive health was investigated in a cross-sectional survey, but additional information on these issues was obtained in the demographic surveillance as well as in the child health studies. The survey on reproductive health was also performed in a third village, Cumar Beerre, which is similar to the other villages of Lama doonka and Buulalow.

In focus groups and structured interviews with villagers, descriptions were made of their perceptions of health problems, their suggested solutions to these problems and their experiences of current health services.

Table 1. Research problems, designs, materials and methods in the Lama doonka-Buulalow studies in rural Somalia 1987-90.

Problem area	Design	Material	Method	Time
Population structure	Demographic survey	2,456 inhabitants	Home-based interviews	January 1987
Natality, mortality	Prospective registration	6,947 person years	Surveillance through monthly home visits	1987-89
Child diet and morbidity	Cohort study	431 children, 4412 months of follow-up	Fortnightly home visits	1987-88
Child growth	Cohort study	431 children, 4165 months of follow-up	Monthly measurements	1987-88
Perceptions of child health	Survey	220 mothers	Home-based interviews	1988
Understanding of growth chart	Survey	199 mothers	Questionnaire	1988
Perceptions of child growth and development	Neighborhood meetings		Focus group interviews	1989
Reproductive health	Survey	280 women	Home-based interviews	1989
Community perception of health and health action	Survey	106 individuals	Open-ended interviews	1990
	Neighborhood meetings	16 groups	Focus group sessions	1990

## The villages

Five generations ago a Somali man from Afgooye town entered the dry-land area west of the Shabeelle river, accompanied by his family and relatives. They brought livestock and began to plough and cultivate the land. People from different clans and places of origin joined this initial nucleus of the village Lama doonka ("the two hills"). Not far away from that area some families from Afgooye town had already started to keep their cattle in the area of Buulalow (literally the "cattle village"). This was the initial establishment of the village, according to the local religious leader Sheekh Ibraahim Abiikar.

The two villages are situated in the Afgooye district in the Lower Shabeelle region. The landscape around the villages is flat and monotonous, and the vegetation is very limited except for the planted crops. The villages are easily accessible situated some 40 kms from the coast along the tarmac road between the capital town Mogadishu and Baydhabo.

Farming was the main occupation in this dry-land area. The main crops were maize, sorghum, cotton, sesame and beans. Efforts were usually made to create a surplus, both for storage purposes to prevent famine in periods of droughts, and in order to generate necessary cash income. Being situated on the paved highway, the villages were able to sell their products directly to the markets in either the district town Afgooye or in Mogadishu. However, the country's socio-economic and political situation was clearly deteriorating during the study period. The economic crisis gradually worsened and this, of course, also affected the rural villages.

The villages had two main sources of water – wells and water ponds. In dry seasons the wells were the only source. When being in the village the cattle were kept close to the compound. Poultry was kept within the household compound, feeding on maize husks.



– A village scene –

In these villages the families lived in compounds, often surrounded by a fence. There were one or two *mundul* huts and sometimes a rectangular *caariish* house. On average there were five people to a household (varying between one and 17), sharing meals. Sometimes two households lived within the same compound. There were some pit latrines in the villages, but usually there was only a small partitioned space in the compounds to collect foul water, drained by a small canal leading into a pit. There was no electricity and most of the families used kerosene lamps.

Each village served as a centre for other smaller villages which depended on them for water, shops, education, and medical services. The villagers had set up village health centres and community health workers and traditional birth attendants provided some essential health services. There were different traditional healers such as religious healers, exorcists, magicians, and bone setters. Both villages had Qur'an schools, elementary and intermediate schools. Pre-

Islamic cultural concepts were still in use and often integrated in syncretistic form with the dominant Sunni Islamic culture.

Both villages had headmen and village committees elected by the district authorities. Their responsibilities were to settle minor disputes and to ensure that centrally planned programme for the villages were carried out. In addition, traditional leaders still played significant roles; religious leaders were particularly influential in juridical questions, and lineage heads also had a significant say, even if not represented in the village committees.

The community health workers were trained at the district hospital for some months, and thereafter rarely supervised by the district health team. They were trained to diagnose common conditions like malaria, bronchopneumonia, diarrhoeal diseases and to supply chloroquine, some available antibiotic or oral rehydration salt accordingly. Furthermore, the research team initiated immunization activities in collaboration with the extended programme of immunization central office in Mogadishu, later on handing over to the district health team. Many of the under-five children and some of the women aged between 15–45 were vaccinated during 1987–88, but to a lesser extent during later years due to a growing deficiency of the district health services – probably an effect of the increasing social and economic problems and the approaching civil war.

## Social and demographic setting

In January 1987 there were 2456 inhabitants in the two villages. The population was very young and every fifth individual was a child under five. Two out of three villagers were either children below 15 years of age (44%) or women in the reproductive ages 15–49 (19%).

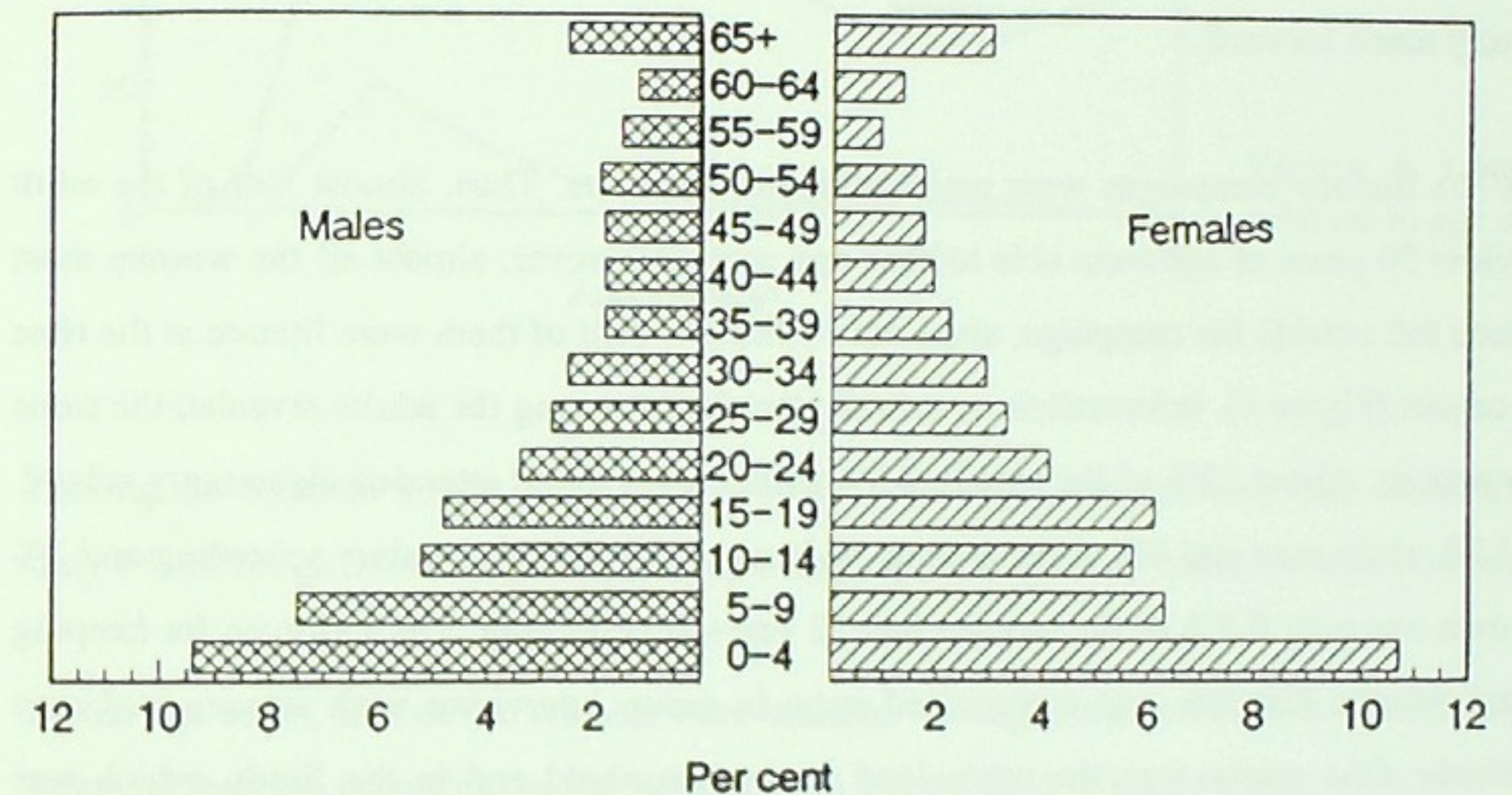


Figure 3. Age and sex distribution of the population in the study area, January 1987.

The distribution of the population in the two villages was classically that of a pyramid (Figure 3). Overall, there were more females than males in the population. The excess of females in productive ages may partly be explained by male labour migration to town or big farms. The males later returned to retire in the villages.

In spite of the semi-nomadic character of the villages, 3/4 of the population were born in the villages. However, every fifth adult woman was born in another district, whereas only every tenth male was an immigrant.

Somali women live in a well organized network of family and social ties. The patrilineal family known as *Qoys* (immediate relatives) or *reer* (agnatic kin) grants the woman a permanent place as a daughter within her father's extended family group. This identification remains with her after marriage and balances her position as a childbearer for her husband's

family. This dual loyalty is expressed in the saying *"what belongs to you (the husband) is not herself, but her services"*. The bride price can be seen as a compensation for those services.

The patrilineal society of rural Somalia values the woman mainly in relation to child bearing and rearing. She is recognized as a mother, *"wey i dhaleen"* (they have given me birth). She gains respect and prestige through her ability to give birth, especially to boys. The strength of the family depends on the number of sons, increasing the lineage population and passing on the family name forward.

The 1970's literacy campaigns were mainly targeted at adults. Thus, almost half of the adult men below 50 years of age were able to read and write. However, almost all the women must have been left outside the campaign, since only a few per cent of them were literate at the time of the census (Figure 4). Information on school attendance among the adults revealed the same gender pattern. About 12% of the men and 3% of the women had attended elementary school. Some 13% of the men and 4% of the women had some additional secondary schooling and 3% of the men and only 0.4% of the women had 12 years of schooling. The rationale for keeping girls and women illiterate was commented upon in group interviews with women and men respectively. One reason was the work-load in the household and in the fields, which was carried out to a large extent by girls and women.

*"The fathers do not allow their daughters to go to school – they should fetch the water, replaster the huts and herd the cattle"*

Women's group

Another reason was the potential empowerment through education – even by the Qur'an school – which could change the relation between men and women.

*"...daughters should help their mothers both at home and in the field instead of studying. Often, we do not let girls study even the Qur'an, in case they will attempt to compete with males and divorce their husbands if they disagree for some reasons"*

Men's group

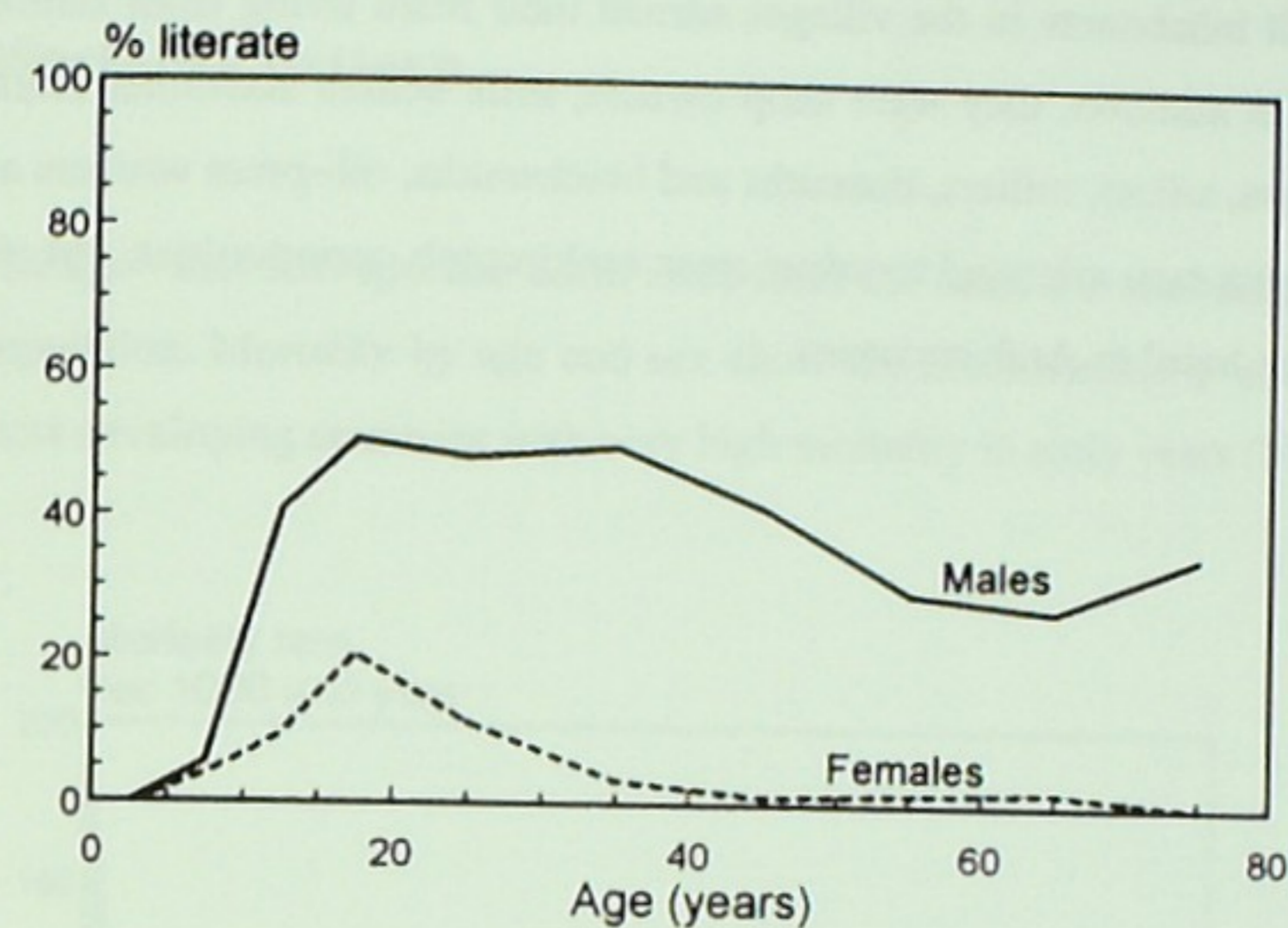


Figure 4. Literacy in relation to age and sex.

Among the children 10–14 years of age, 40% of the boys knew how to read as compared to only 9% of the girls. No improvement regarding equity in literacy could therefore be seen.

At the age of 20, half of the women were married. Young men, however, could not marry for financial reasons, according to the villagers. If a girl decided to marry a man without the means to make proper payment to her parents she might be neglected as a daughter. Two out of three males and nine out of ten females had married before the age of 30. The Somali government had tried to implement monogamy as the norm and the Family Law of 1975 imposed 18 years of age as the minimal legal age for marriage. In reality, this was rarely practiced and the law was rescinded in 1990. According to the Qur'an a man is allowed to have up to four wives at the same time. In these villages 17% of the married men had two or more wives. The number of wives can be seen as an expression of age, seniority and wealth.

This polygamous society seems to be unstable and insecure for the women. Divorces were fairly common, mainly on the men's initiative. Almost half of the adult women had experienced more than one marriage at the time of the reproductive health survey. In case of divorce the father is deemed the natural guardian of the children, but the children usually continue to live with the mother, especially when they are small. A divorced woman usually moves back to her parental home until she remarries.

Three quarters of the adult inhabitants in the villages earned their main living from farming and the raising of cattle. In addition, they were shop owners, milk sellers and other market people, e.g. drivers, butchers, tailors, millers, tinsmiths and blacksmiths, oil-press workers and Qur'an teachers. Many young men migrated to urban areas seeking job opportunities, but also contributed to the "muscle-drain" to Arab countries.

## Mortality pattern

The age- and sex-specific death rates form the basis for assessing the mortality pattern of a population. Mortality by age and sex show the characteristic u-shaped curve that we find in most developing countries with very high mortality in early years (Figure 5).

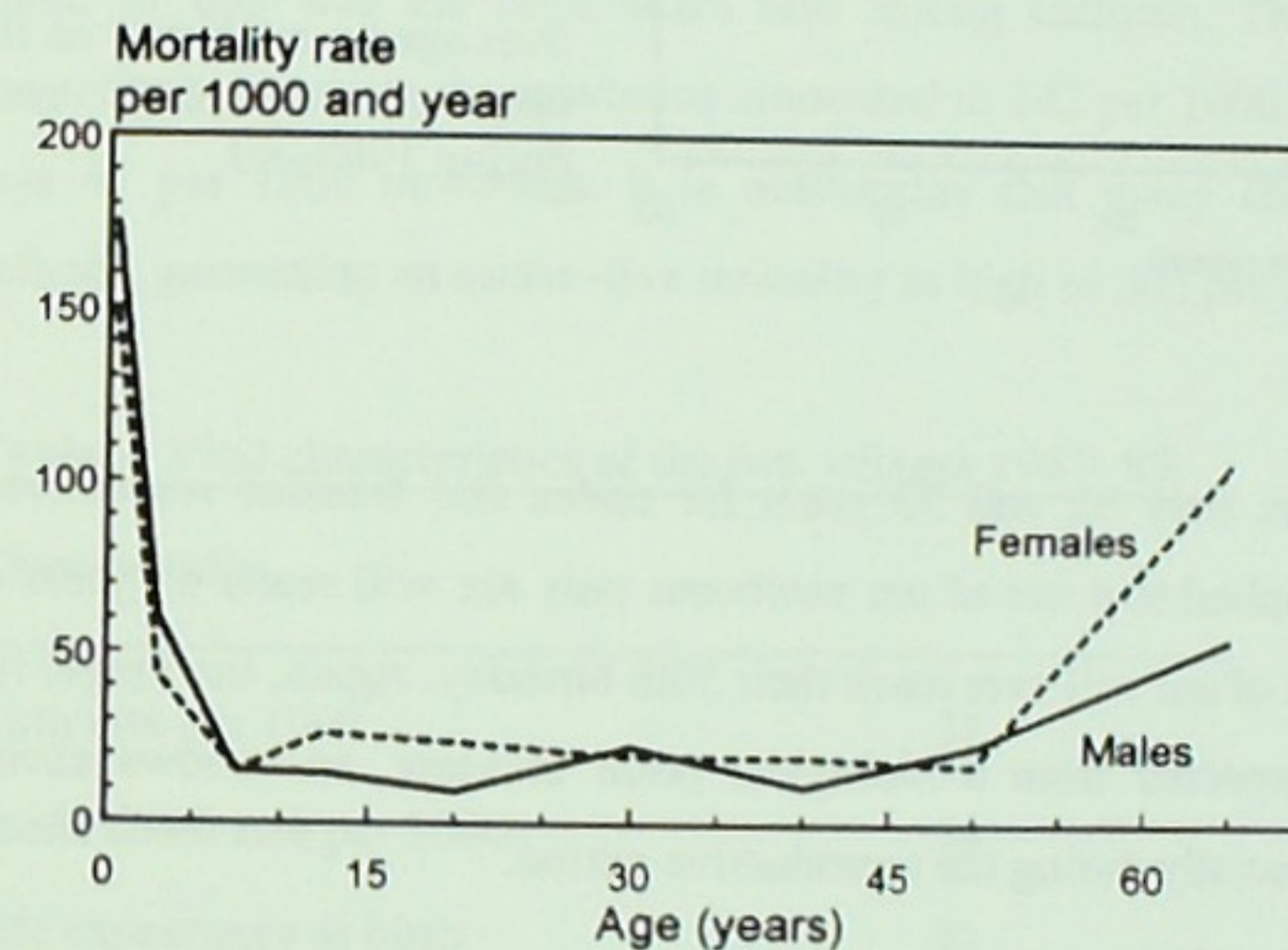
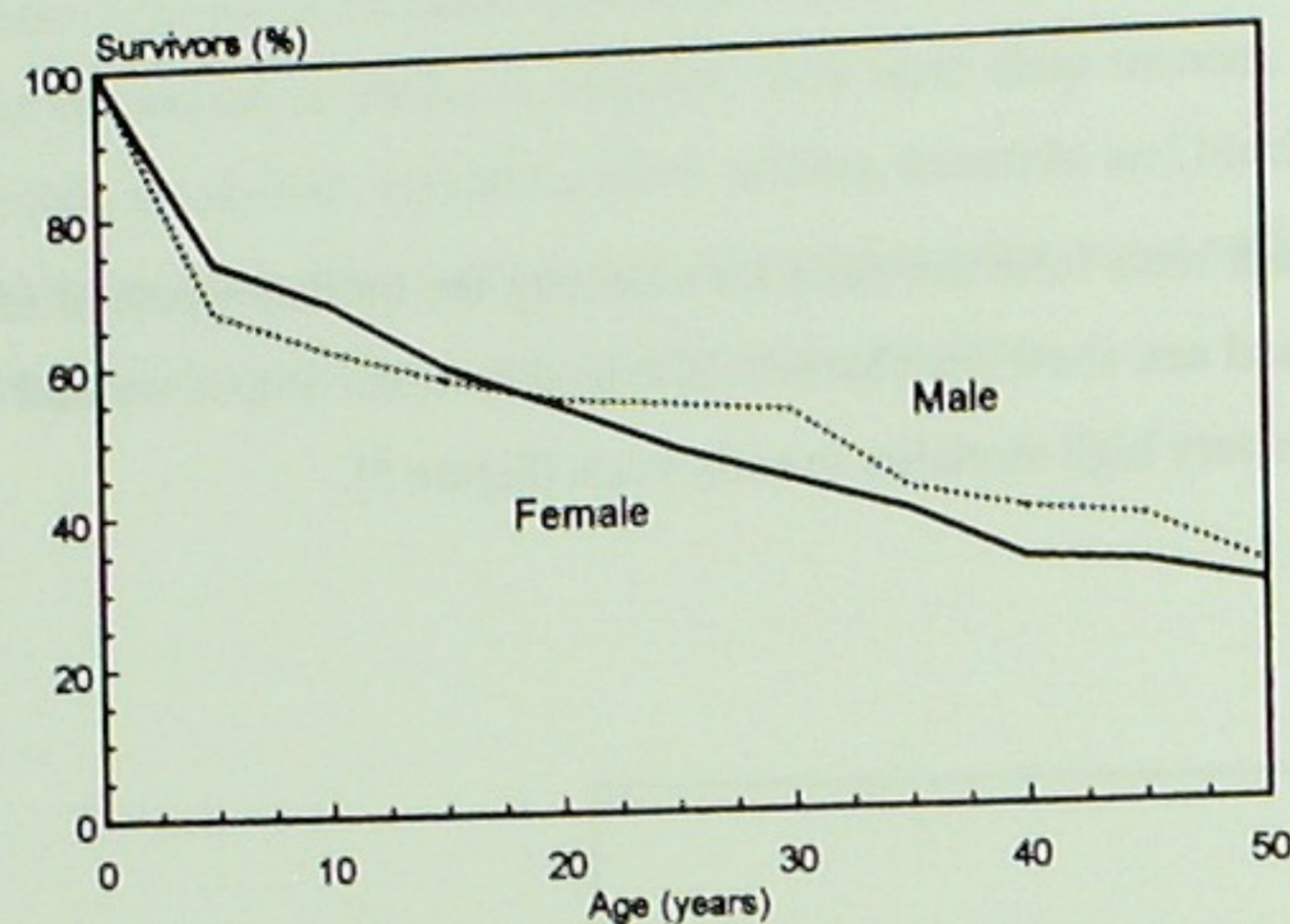


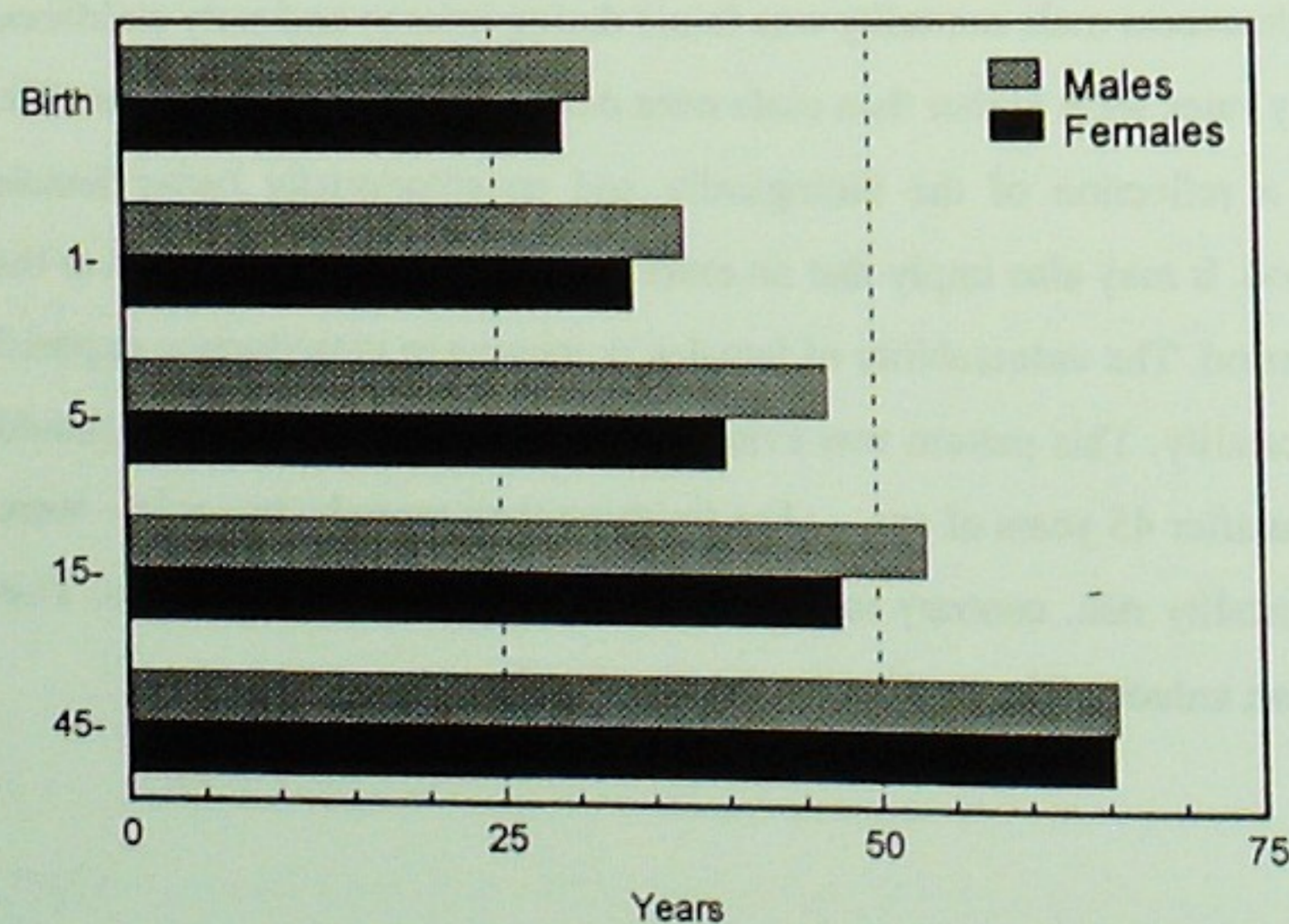
Figure 5. Mortality pattern by age and sex as observed during 1987-89.

A small tendency towards excess male mortality was found during infancy and early childhood whereas female mortality rates were higher than male ones during the reproductive years. The first tendency may be a reflection of the biologically and constitutionally better female survival in early childhood. It may also imply that no extra priority was given to boys over the three year observation period. The vulnerability of females in relation to reproduction exposed the women to excess mortality. This pattern was evident in the villages (Figure 6). It should also be noted that women after 45 years of age - after finishing their reproductive role - were exposed to an excess mortality risk, contrary to the common pattern in most countries. This mortality pattern reveals an arduous life situation for the female villagers.



**Figure 6.** Survival pattern over age by sex based on the observed mortality rates during 1987-89.

Life expectancies at birth were only 32 and 30 years for males and females respectively (Figure 7). Survival figures implied that out of ten newborns only six will reach 15 years of age. Furthermore, only four out of ten will ever reach their 50th birthday. Again, the longer life expectancy of males are unexpected from a biological point of view, and shows excess mortality risks for females, especially during the reproductive period.



**Figure 7.** Life expectancy from different ages estimated from the observed mortality during 1987-89.

The two study villages showed somewhat different demographic patterns. Despite a higher infant and under-five mortality in Lama doonka, the crude death rate and life expectancy were on similar levels in both villages. The reason for this difference between the villages may be found mainly in the epidemic of hepatitis that struck the area during 1988 and the first half of 1989, affecting mainly Buulalow and particularly women in reproductive ages. The birth rate was high, 31 per 1000, as were the death rates. (Table 2). The crude death rates for 1987-89 were 25, 38 and 39 per 1000, respectively. This kept the population growth at zero. The main cause of this was the high death rate among children. The estimated cumulative infant mortality rate among the newborns amounted to 142 per 1000, and the neonatal mortality rate was 47 per 1000 newborns. It is noteworthy that many child deaths occurred even after infancy, generating an under-five mortality as high as 303 per 1000.

**Table 2.** Vital characteristics of the two villages 1987-89.

Characteristic	
Birth rate per 1000	31
Crude death rate per 1000	34
Life expectancy at birth	31
Infant mortality per 1000	142
Under-five mortality per 1000	303

Based on the symptoms prior to death, as reported mainly by the mothers regarding children's deaths and by heads of household regarding deaths of older people, a classification of causes of death was divided up into eight categories. The fractions of the estimated number of deaths during different age periods due to these disease entities are shown in Table 3.

Beside hepatitis, predominant causes of death among adults were other infectious diseases classified as respiratory infections, fever and diarrhoea. Among infants, 35% of the deaths were caused by neonatal tetanus. Respiratory infections, diarrhoea and fever constituted other major causes of death among infants, as well as in the age group 1-4 years.

**Table 3.** Symptoms prior to death (%) in various age groups as observed during 1987–89.

Symptom/diagnosis	Percentage distribution				
	Infancy	1–4	5–14	15–	All ages
Respiratory infections	22	26	18	32	27
Fever/Malaria	10	19	20	22	19
Diarrhoea	16	24	20	10	16
Jaundice/Hepatitis	0	0	6	20	10
Malnutrition	6	20	18	3	9
Neonatal tetanus	35	0	0	0	7
Other infections	6	11	9	3	6
Other non-infectious diseases	4	0	9	10	7
Total number of deaths	35	53	34	111	233

## Children – half the world and all the future



*Every second inhabitant in this rural area is a child. The child is usually more vulnerable to health risks than adults. Thus, threats to the health of the children will usually have a major public health impact on the current situation as well as on the future society. This also means that preventive measures implemented may have a substantial impact, not only now but also tomorrow.*

### The newborn child

Child birth usually took place in the house of the delivering woman, with the assistance of the traditional birth attendant (TBA) on slightly more than half of the occasions. One quarter of the deliveries in these villages were assisted by a relative of the mother, and only a few per cent took place at the district hospital or the major hospital in the capital town. Some of the TBAs had received further training by the district health authorities. Long informal training in the village was otherwise required before becoming a TBA and the skills were usually taught by an older TBA in the same village.

As soon as the child was born, the umbilical cord was cut and the wound was treated by a black powder or paste made of eggs, soot and the gum from a special tree. Then the child was washed with heated, but unboiled water, and the child's nose and mouth were rinsed by the TBA.

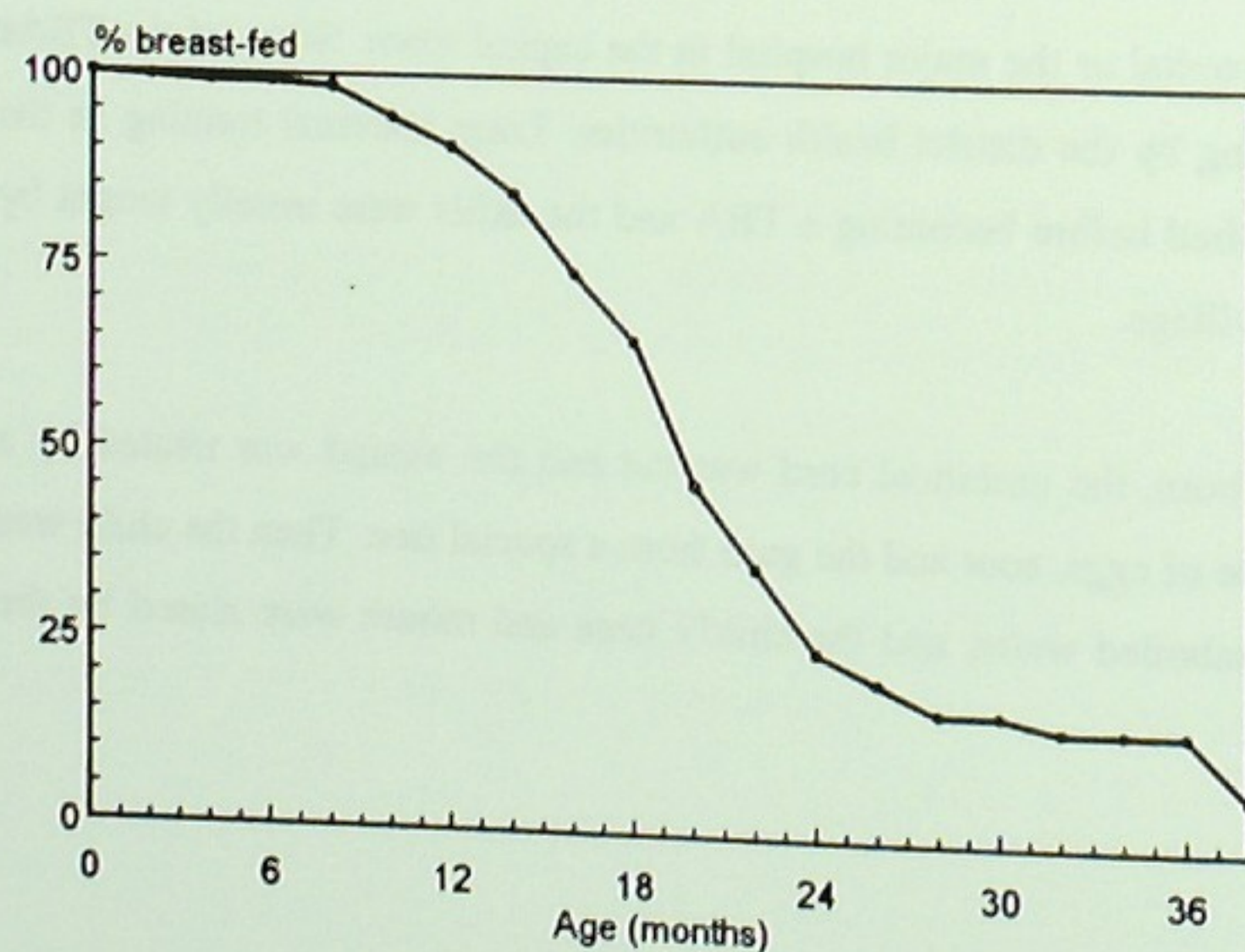
The birth of a boy was considered as good fortune, while that of a girl was met with less enthusiasm. The mother's status increased with the number of sons delivered, and the celebrations at the birth of a girl were often rather tame compared to those at the birth of a boy.

In line with the Islamic tradition the mother was allowed a 40 days rest after child birth. However, after 10 days of rest the village mother resumed most of her household activities. After 40 days she was ready to work in the fields again, leaving the child at home in the care of another female relative or an older sister of the child.

### Feeding

Half of the mothers had begun to breast-feed their newborns about two hours after delivery, and 90% had done so during the first 24 hours. Almost all children were fed colostrum, while the remaining 4% did not get this first milk due to advice from others or illness of the child.

Only 10 % of the children received breast milk as their very first food. All others were given pre-lacteal feeding of cow's milk, which afterwards was also given as a complement to breast milk. The animal milk was dispensed by cup. Other foods were also introduced during the neonatal period. Some children were given ghee and honey during their first days of life, while others received sugar or oil during the first weeks of life. Those energy-rich foods were usually mixed with milk.



**Figure 8.** Breast-feeding pattern among under-fives in the two villages.

On average, mothers breast-fed their children for 19.6 months (Figure 8). Breast-feeding patterns did not differ between boys and girls. At six months, 99% of the surviving children were still being breast-fed and at three years 15%. According to the answers registered during the study period the most common reason for mothers to stop breast-feeding was a new pregnancy. The second most common reason was the illness of the mother, and the third that the child was old enough to be weaned.

Almost all children (96% of all fortnightly interviews in the age interval 0-5 months) received cow's milk or - in a few cases - other animal milk (goat or camel) as a supplement to breast milk. Cow's milk was given all through infancy and childhood in this community. Sugar and water were added to the milk in the majority of cases. Staples, protein-rich foods like beans and meat, vegetables and fruits were not given on a daily basis to most children before 12 months of age. Thus, almost no infant was exclusively or even predominantly breast-fed in early infancy. This may expose these children to the risk of infections through the cow's milk, the unboiled water or the utensils used. Furthermore, this non-exclusive breast-feeding pattern may be linked to an earlier return of ovulation and fertility - and most mothers stated a new pregnancy as the major reason for terminating breast-feeding. Semi-solids or solids, including good dietary sources of iron, were thus usually delayed half a year as compared to current recommendations. From one year, mixtures of milk, energy supplements, staples, vitamin- and protein-rich foods were given daily to the majority of children. From that age the dietary mix was rather optimal from a nutritional point of view. Contrary to the case in many other African communities, these children received a well-balanced, energy-rich diet after infancy, including prolonged breast-feeding - until the mother became pregnant again.

The prevalence of breast-feeding and the use of animal milk did not vary with the seasons. Likewise, the energy supplements - oil and sugar - did not show any significant seasonal variation. For most of the year three quarters of the children received maize as a part of their daily diet. Other staples, such as sorghum, rice and cereals varied over the year, which can be partly explained by the cultivation pattern. As expected, the consumption of protein-rich foods like beans and groundnuts and vitamin-rich foods like vegetables and fruits showed a seasonal variation, with a low intake in May-June.



The main sources of water for these children were the wells supplying water all the year around (Figure 9). The villagers considered this water to be a little too salty. Therefore the unprotected water pond, the "war", was frequently used during the rainy seasons. The water from the pond was grey to green in colour and was heavily contaminated from the shores, where animals came to drink. To a minor extent rain water, collected in containers, was used as drinking water.

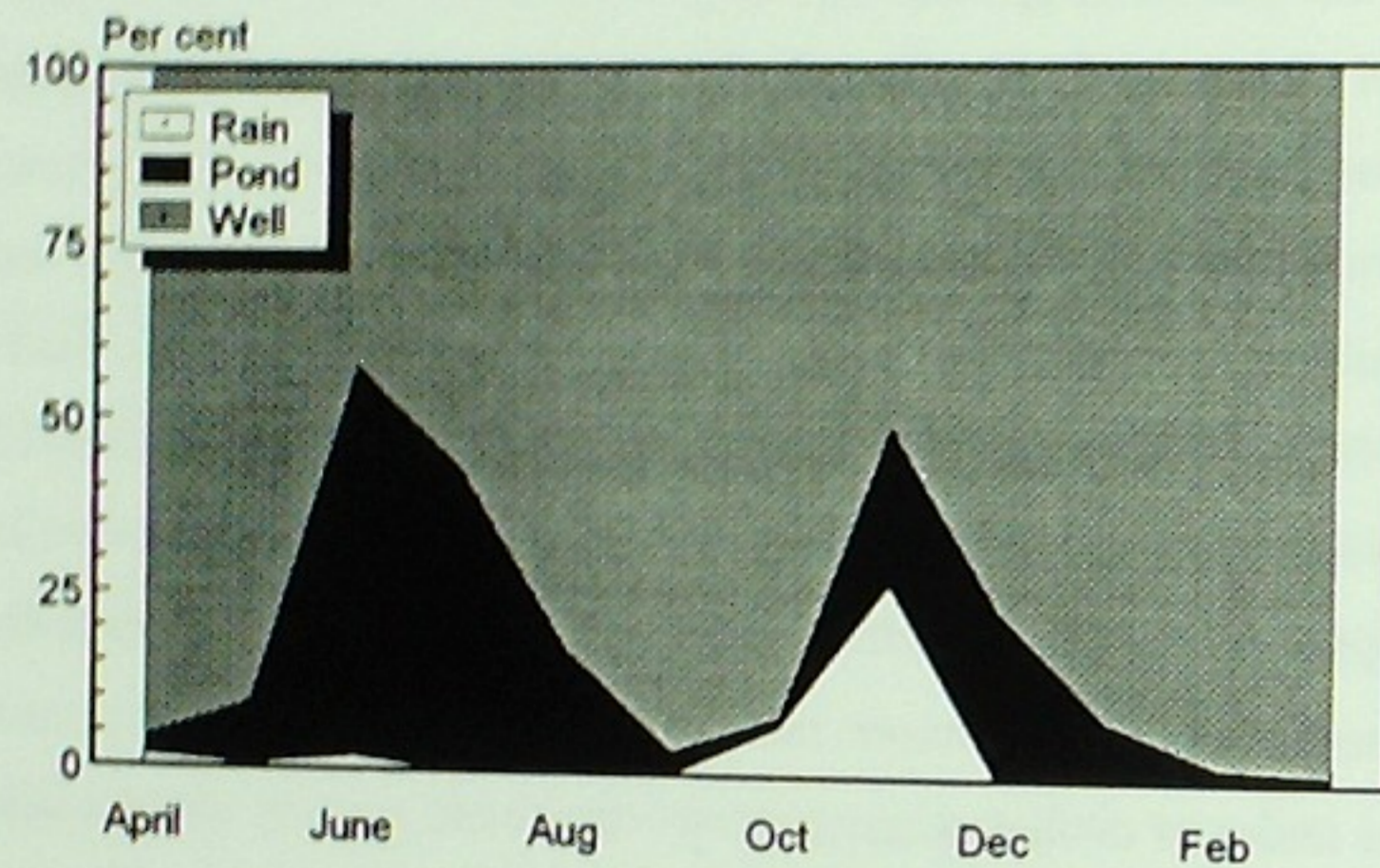


Figure 9. Source of drinking water (%) for children under five years of age over the calendar year.

In June the greatest number of children were drinking the unprotected pond water. Drinking water was never boiled and even the newborns were given the contaminated water from the pond, often mixed with cow's milk.



- The well in Lama doonka -

### Morbidity

The under-five children had some disease symptoms every third day. The most common were respiratory symptoms (12% of the days during the year), followed by fever/malaria (7%) and diarrhoea (7%). This estimation was based on 24 repeated visits to the households during one year and registration of the presence or absence of symptoms on these occasions. There was no difference between boys and girls in this respect.

The highest proportion of days with disease symptoms occurred during the second year of life (Figure 10). Respiratory symptoms, fever and diarrhoea all showed the highest occurrence during this age period.

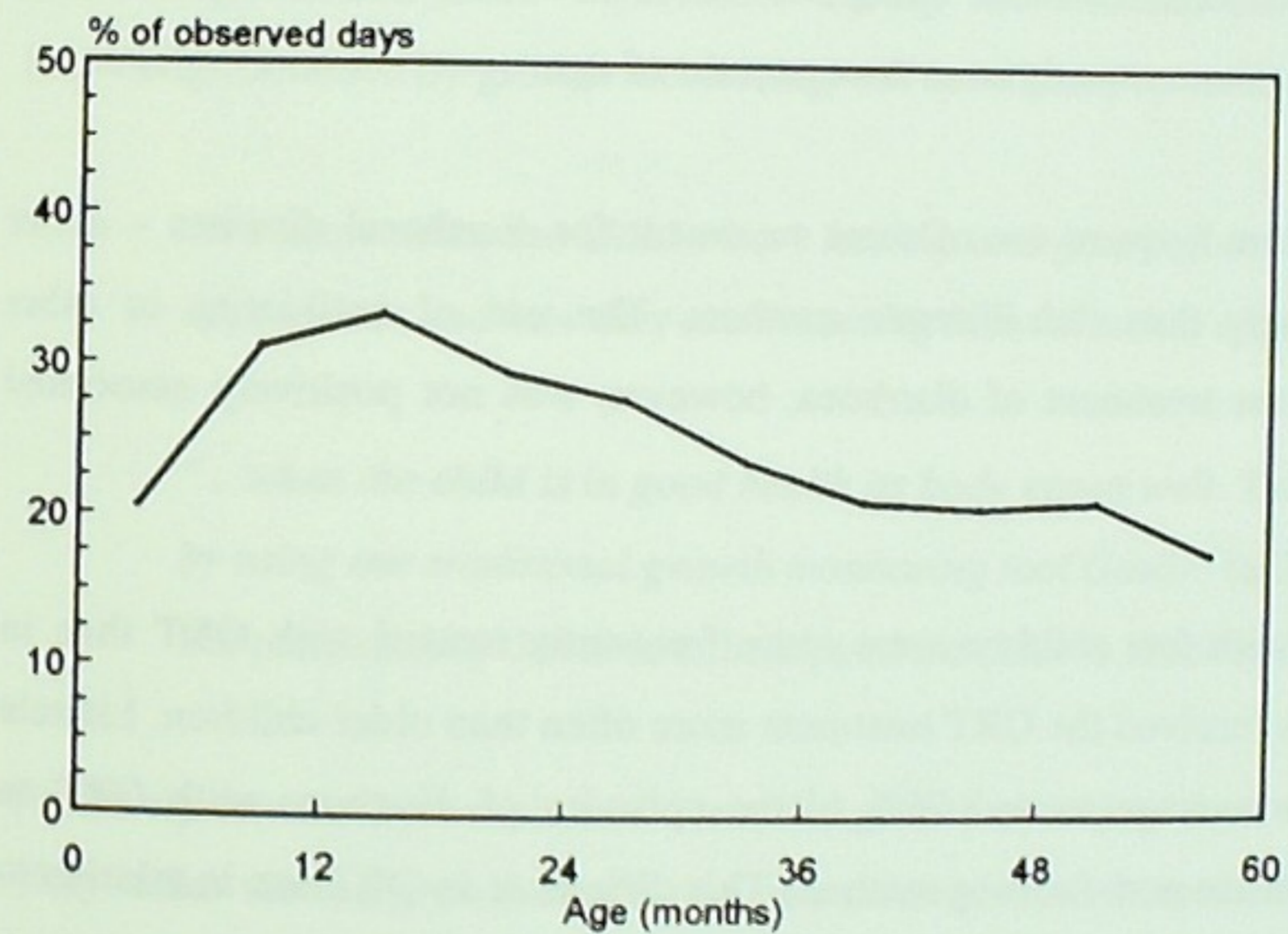


Figure 10. Proportion of days with some disease symptoms in relation to age among the under-fives.

There was also a marked seasonal variation in disease symptoms, with a maximum during August and September or the *Xagaa* and *Deer* seasons, when the cooling south-west monsoon blows and the weather is humid.

### Health care in the household

The main provider of health care within the family was the mother. The results from the prospective study revealed that both traditional and 'modern' treatments were given to the children when they were sick. Traditional treatments were supplied in 11% of the disease episodes, while antibiotics were supplied in 13% and other drugs in 38% of the episodes. In one fifth of the episodes no treatment at all was given.

Diarrhoea was the second most common disease symptom during infancy and early childhood. Oral rehydration therapy was given to half of the children with any registered period of diarrhoea. In all, ORT was used in 34% of the diarrhoeal disease episodes, usually by preparing the UNICEF oral rehydration solution.

A number of different traditional therapies were used to cure and prevent further diarrhoea. Usually these therapies included different Quranic procedures, the use of herbs, fumigation, etc. It should be noted that surgical procedures like uvulectomy, the extraction of tooth germs and skin-burning were performed – sometimes combined – in conjunction with diarrhoea among a few per cent of the children. Tooth germ extraction was performed to treat and prevent a number of conditions, diarrhoea being one of the most important. It was usually performed on infants, sometimes as early as at three months of age.

Literate mothers made more frequent use of some treatment for diarrhoeal diseases – either ORT or traditional therapy than did illiterate mothers. The use of antibiotics or other pharmaceutical drugs in the treatment of diarrhoea, however, was not positively associated with maternal literacy.

Children in households with few children were more frequently treated with ORT than in larger households. Infants received the ORT treatment more often than older children. Literate non-farming mothers on average treated 76% of the episodes of diarrhoea with ORT as compared to 41% for illiterate non-farming mothers. This difference in ORT use in relation to literacy was not evident among farming mothers. These associations to background factors may imply that the time factor for the mother is an important determinant of ORT use. Non-farming mothers and mothers having fewer children had more time to care for their sick children. Another factor could be the empowerment that literacy could imply. The literate mother might have a better power position in the household for coping with the daily problems of life.

### Growth

Growth monitoring had not been implemented on a large scale in Somalia. In the study area growth charts and growth monitoring were introduced when the child cohort study was initiated in 1987. However, the use of growth charts as a tool for health education has been

questioned. Do illiterate mothers understand the growth chart message? The ability of these mothers to combine a set of four growth charts was tested against the corresponding sets of pictures of children of different ages. The mothers managed well in identifying the normal growth pattern but had difficulties in matching the curves of subnormal growth with the corresponding figures. Almost all mothers recognized the value of the growth chart as being good for the control and promotion of their children's health and/or growth. In conclusion, the growth chart may be an applicable and appropriate tool in health education even for illiterate mothers, provided that other prerequisites for successful growth monitoring, e.g. appropriate health services with emphatic health workers prepared to listen to and understand the needs of the village mothers. Some mothers acknowledged that these positive views on growth monitoring resulted from experiences during the research period. However, the extra knowledge obtained by growth monitoring was questioned by some of the mothers:

*"We know when our children are healthy and growing well by their physical appearance and how they are becoming heavier month after month..."*

*"... when the child is in good health its body grows well. This we get to know by using our traditional growth monitoring tool Gasiir" (a thin string loosely but permanently tied above the hips of the child to monitor the growth)*

Relatively few mothers explained a retarded growth by lack of food or inadequate food mixes. They rather viewed growth retardation as a consequence of repeated or long-standing illness. A growth monitoring activity without proper primary health services would then become useless:

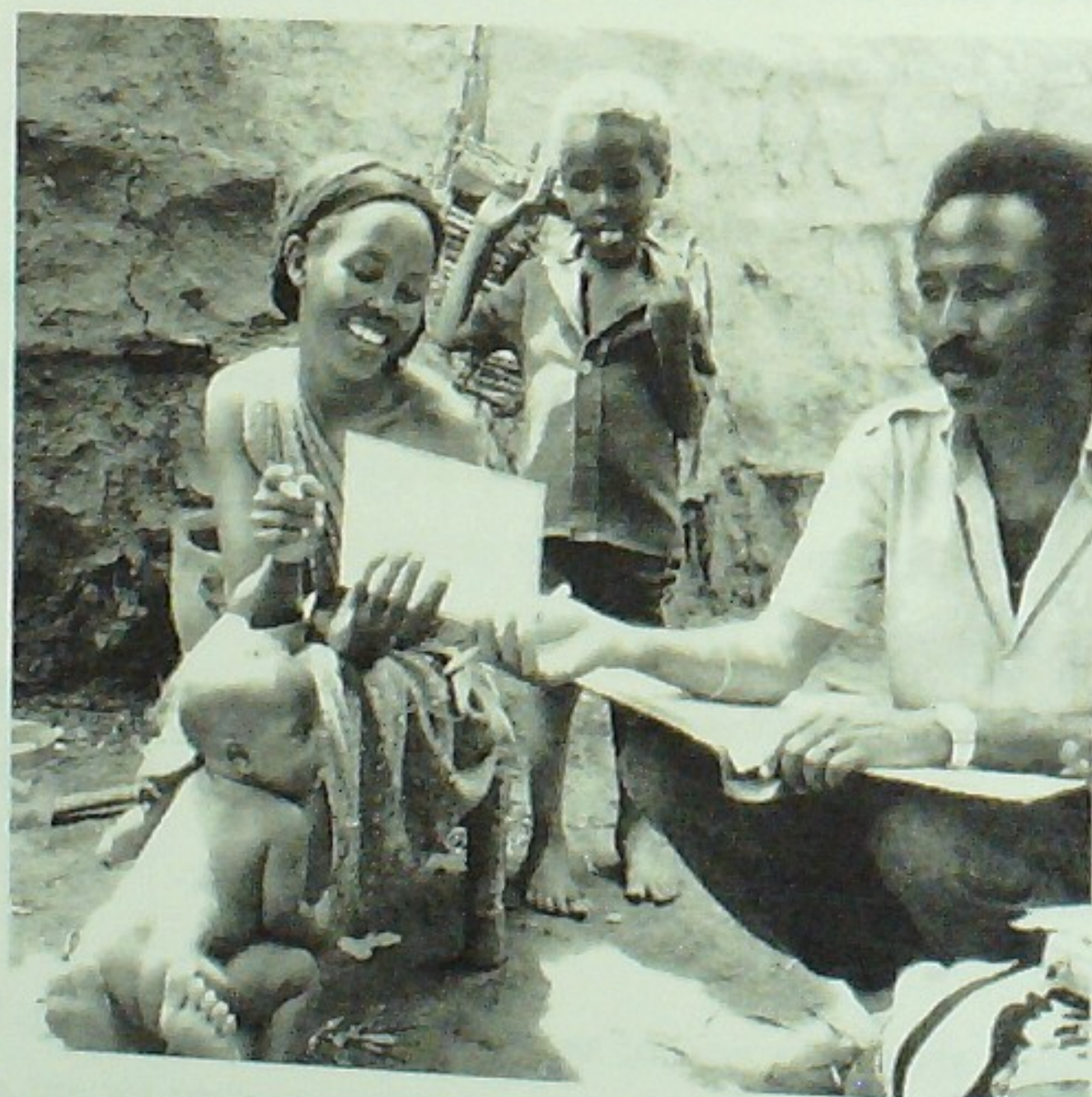
*"By weighing the baby what extra benefit do we get if the health centre lacks food supplements for malnourished children and has no medicines for the sick child?"*

Many of the children above one year of age were stunted (short for age, i.e. height for age < -2SD of the WHO growth reference) and underweight (weight for age < -2SD), Table 4. However, relatively few were wasted, i.e. having a low weight for height (< -2SD). Thus, from

one year of age and onwards these children showed signs of chronic malnutrition, as expressed in height retardation.



- The growth of a child is a sensitive indicator of its health development -



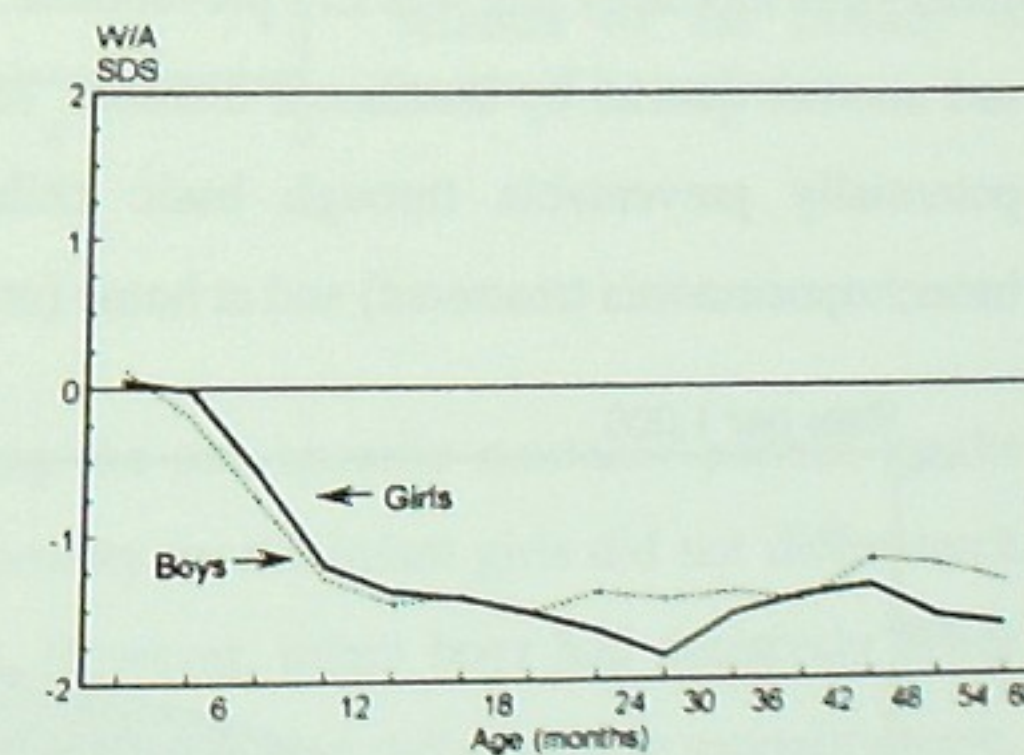
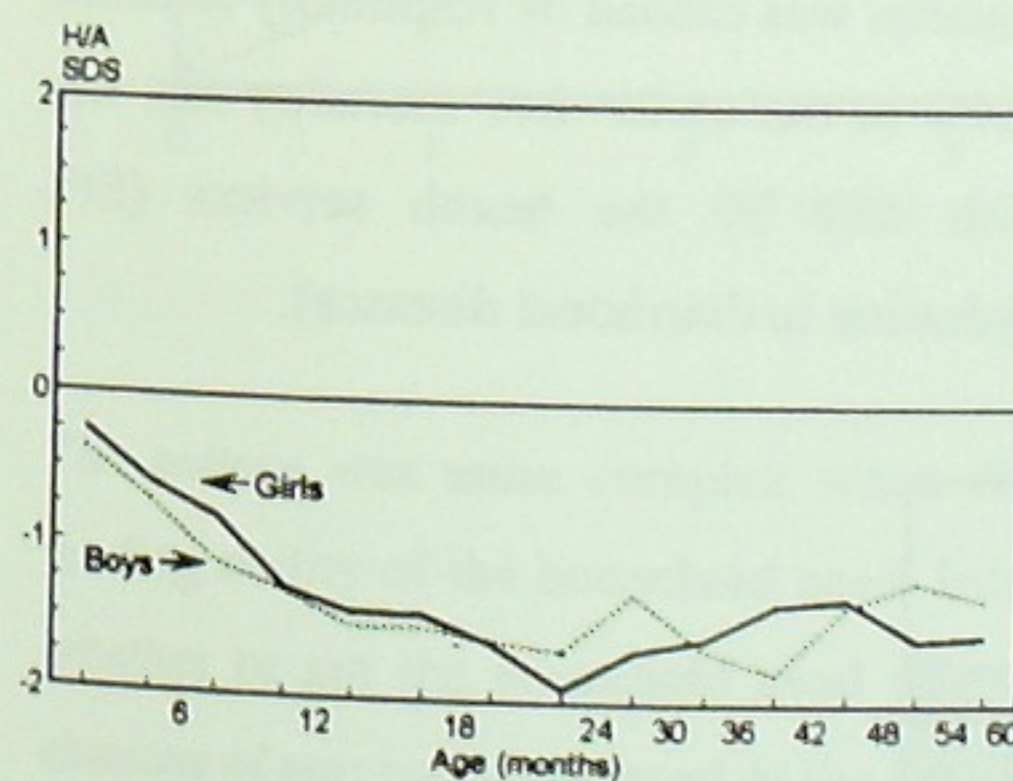
- During a home-based interview the mothers were asked to combine a set of four growth curves with a set of four pictures, showing the corresponding developments of four children -

**Table 4.** Nutritional status of children under five years of age in two Somali villages 1987. Data from first examination in the 1987-88 cohort study on child health.

Age group (months)	Mean SDS			Per cent		
	W/A	H/A	W/H	Under-weight	Stunted	Wasted
0-11	-0.1	-0.5	0.3	4.9	6.9	0.6
12-23	-1.6	-1.8	-0.7	39.6	41.0	6.3
24-35	-1.6	-1.5	-0.7	36.5	36.5	3.1
36-59	-1.5	-1.5	-0.7	25.8	37.5	5.0

W/A= weight for age, H/A= height for age, W/H= weight for height, SDS= standard deviation scores

The weight and height development of these children started close to the international growth standards but retarded gradually during infancy and especially from one year and onwards (Figure 11 and 12).



**Figure 11 and 12.** Height for age (left) and weight for age (right) 0-5 years of age expressed as standard deviation scores of the WHO growth reference.

## Mortality

The cumulative infant mortality rate was 142 per 1000 whereof 47 per 1000 constituted neonatal mortality (first month). Eight of the ten neonatal deaths were caused by tetanus, and the other two by prematurity. During the remaining 11 months of infancy one third of the deaths were related to respiratory symptoms including whooping cough, one quarter to diarrhoeal diseases and the remaining diagnoses were mainly fever (sometimes equal to malaria), measles and malnutrition. Many preventable deaths also occurred between one and five years of age, contributing to the high cumulative under-five mortality of 303 per 1000.

Vaccination was offered and performed by the village health workers under the supervision of the personnel of the expanded programme of immunization during the first year of study, 1986. However, because of several regrettable circumstances the vaccination programme was not continued. A good coverage of an EPI-programme would certainly have had a most important impact on child health, as many of the child deaths were caused by tetanus, whooping cough and measles, all highly preventable. The potential impact of a vaccination campaign is illustrated by Figure 13. With good vaccination coverage the observed under-five mortality could be lowered from 303 to 207 per 1,000. Thus, one third of the cumulative under-five mortality rate was EPI preventable. One quarter was caused by respiratory infection and another quarter by diarrhoeal diseases. In all, 84% of the under-five mortality rate was potentially preventable through basic child health care by the health services (EPI, bronchopneumonia treatment) and at home (oral rehydration in diarrhoeal diseases).

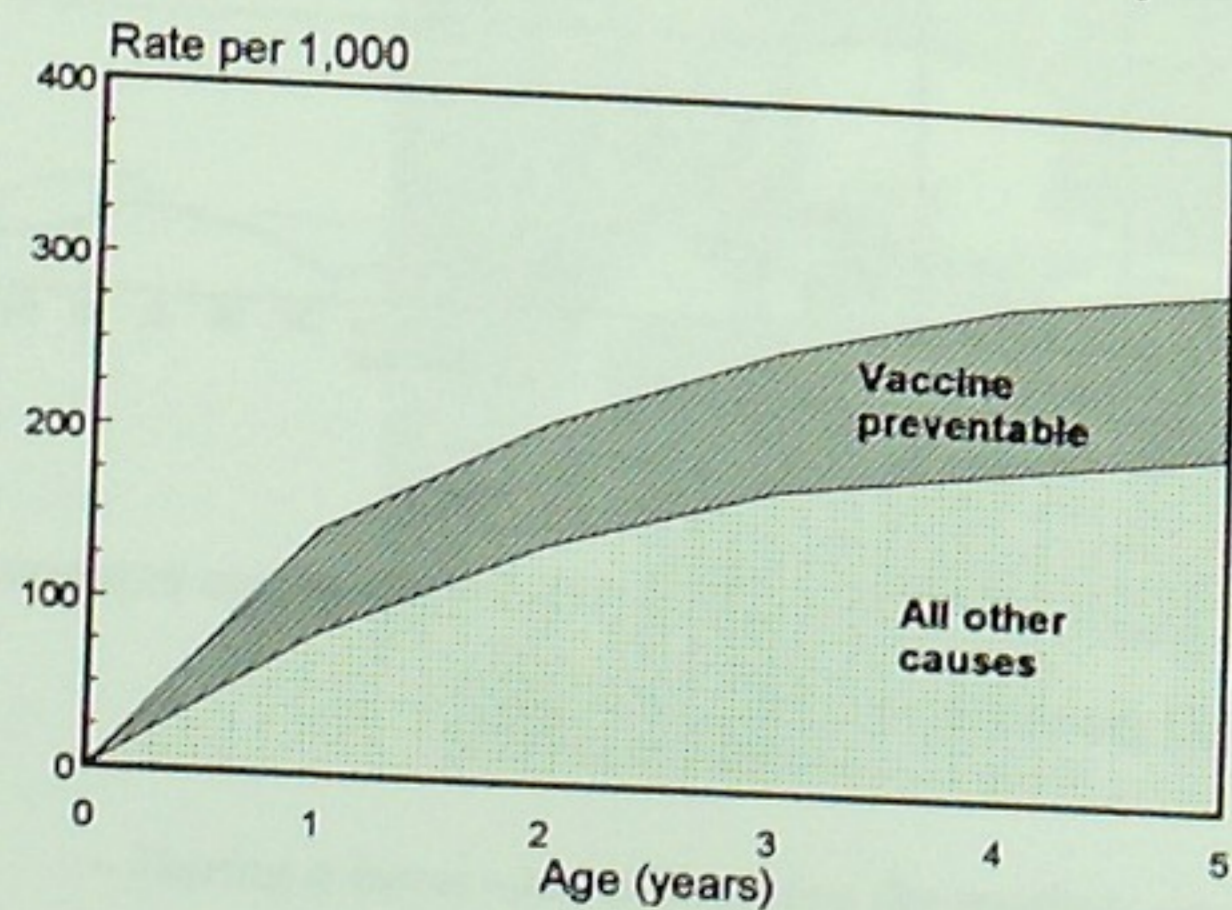


Figure 13. Potential impact on under-five mortality from an implementation of an EPI program.

Under five-mortality was maybe surprisingly associated with smaller households. Children in households consisting of fewer than six persons had a cumulative under-five mortality of 361 per 1000 while those in households of six persons or more had a corresponding figure of 270 per 1000 newborns. Household size is probably not only a reflection of socio-economic standards but also a question of the social network in the traditional society. Thus, the extended family including three generations of aunts, uncles and cousins could possibly offer better care for the children and hence better prospects for survival.

The under-five mortality was 1.5 times higher among children with an illiterate head of household than for those where the head of household was literate (Figure 14).

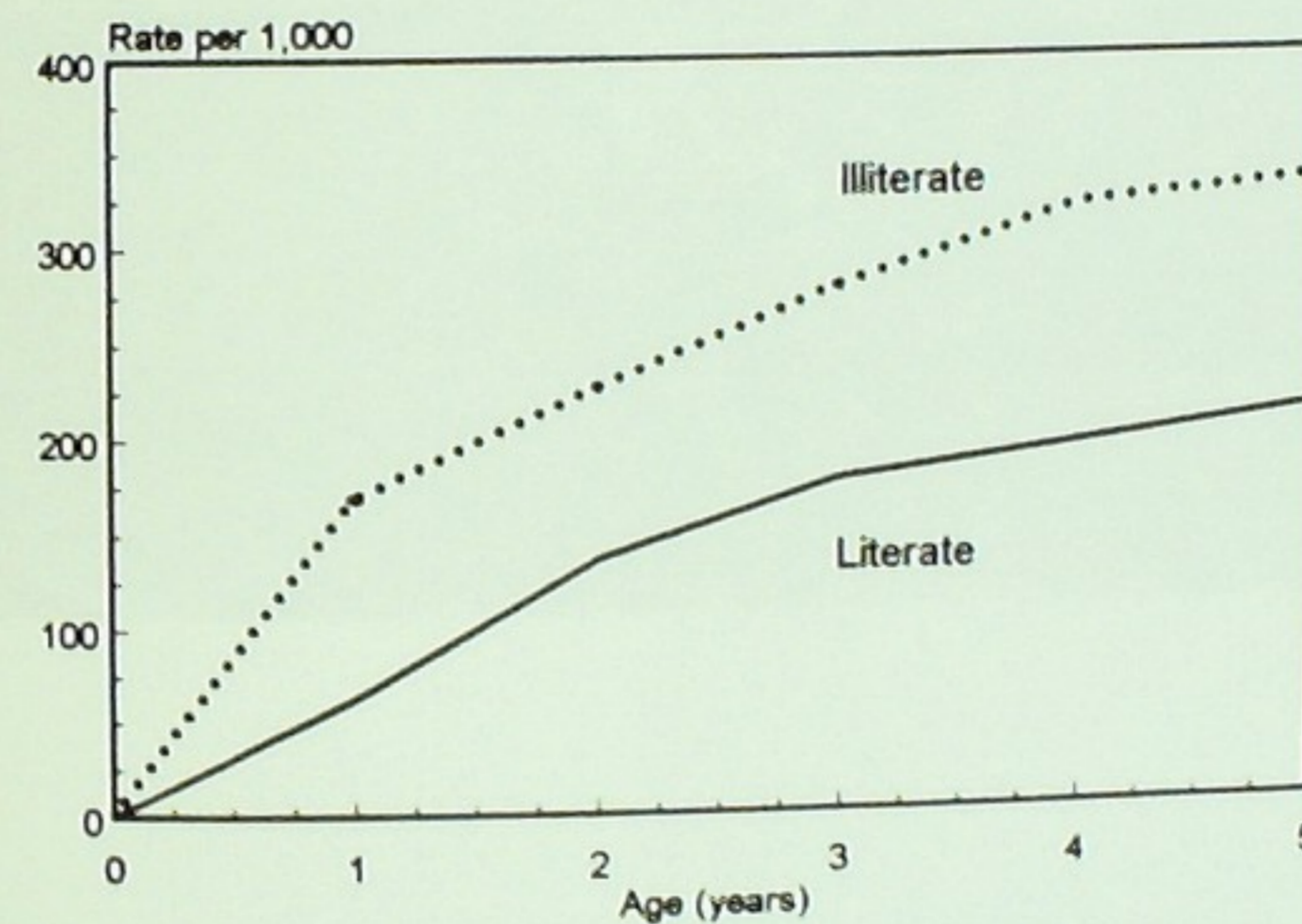
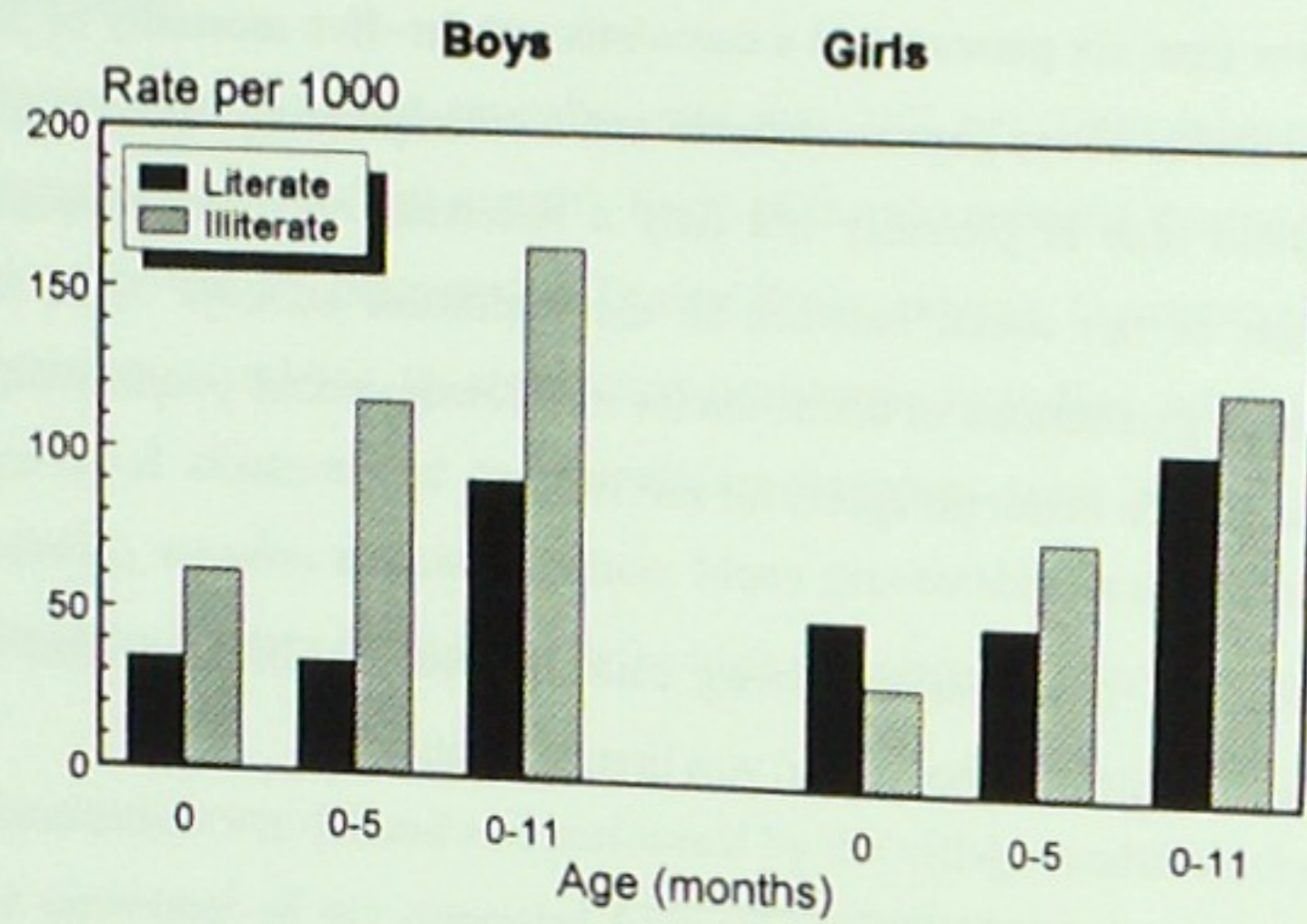


Figure 14. Cumulative under-five mortality in relation to the literacy of heads of household.

The pattern was more complex when describing the sex-specific mortality pattern by the reading ability of the household head. Infant mortality for the infant girls did not differ much whether or not the household head was literate. However, infant boys had decisively better chances of survival if the head of the household was literate. Sex differences in mortality were, thus, modified by the literacy status of the household as represented by its head (Figure 15). The same tendency of reversed sex differences in mortality prevailed in the age interval 1-4 years. In illiterate households there was a definite excess male mortality, while in the literate households this difference was leveled out. This could be an expression of better child health care provided in the literate households, showing its greatest impact on the biological most vulnerable group.



**Figure 15.** Infant mortality among 310 newborns by literacy of household head and sex of the child.

## Adulthood – a treadmill of production and reproduction



*The treadmill of reproduction in a socio-economically deprived society is characterized by female ill-health followed by pregnancy and delivery complications, low birth weight, child morbidity, early child death, and soon a new pregnancy. There is a vicious circle of reproduction to ensure the survival of new members of the community. Child-bearing victimises the woman. Poverty, illiteracy, ignorance are impediments to changing this situation.*

### Production

The working day starts at dawn, after the morning prayer, and continues until late evening. Men and women play different roles in the daily work (Table 5). The division of labour among members of the rural family is biased towards women. They do the main part of all agricultural work as well as the household work. They take care of calves, goats, sheep and poultry, collect grass and milk, process and market animal products. Besides taking care of the children they pound the grain, prepare the meals, fetch the water and collect fuel. Between the farming seasons women also produce handicraft such as baskets, mats, brooms, etc. A few women bring in extra incomes to the household from selling milk, fruit, vegetable, kerosene or tobacco. Often, young women are also employed on a seasonal basis on big farms and plantations.

**Table 5.** The division of labour by gender with respect to household, agricultural and livestock tasks in two semi-nomadic Somali villages in the lower Shabelle region.

Male	Female	Both
Camel grazing and rearing	Firewood collection	Cattle, goat/sheep, grazing/rearing
Camel milking	Fetching water	Cow, goat/sheep milking
Slaughtering animals	Food processing, cooking and distributing	Sewing/planting, weeding and harvesting
Hunting	Cleaning household	Weaving traditional cloths
Clearing fields	Selling milk and other animal products	Working in a shop/teashop
Ploughing fields	Child care	Shopping
Participating in socio-political gatherings	Domestic washing	Making clay pots for cooking and for carrying and keeping water
House construction	Nomadic hut construction	Dancing for entertainment or during Zar-type treatment rites
Cutting house pole/beams, lintels and doors	Attending child birth	Attending Qur'an and ordinary schools
Sporting activities	Harvesting branches, grass and sewing materials for thatching hut	
Entitled to hold community responsibility	Selling vegetables, salads and fruits	
Accountable as a legal witness	Sewing baskets, mats, brooms and woven containers	
Selling livestock, maize or sorghum	Performing female circumcision	
Performing male circumcision	Plastering or mudding house	
Making wooden containers, dishes, spoons, mortars, pestles, headrests, male/female combs and walking sticks	Cutting, processing the traditional <i>asal</i> for painting wooden and woven articles	
Making hoes, axes, bows and knives handles	Processing animal hides and painting them for making leather	
Making metal tools like knives, arrows, hoes and axes	Plaiting ropes and painting them with traditional <i>asal</i>	
Digging water pond and channels		
Legalizing marriage and divorce		
Making sandals for men and women from cow and camel hide		

Men shared some of the work with women, e.g. cattle grazing, milking, sawing and planting, weeding and harvesting. They also graze the camels, slaughter and hunt wild animals. They participate in social and political gatherings, are entitled to hold community responsibilities, and sell the livestock, the maize and the sorghum crops.

### Reproduction

Almost every woman in Somalia is circumcised. Circumcision is considered to be a means of controlling sexual activity in women. The mutilation performed is usually the most extensive one, the Pharaonic circumcision. The behavioural heritage is very solid and the majority of women say that they would circumcise their daughters. The consequences of the female genital mutilation can be severe with early complications such as haemorrhage, urinary retention, infections and tetanus. The outcome for the child can be fatal. As a long term consequence of circumcision women may suffer from gynaecological diseases such as cysts, urinary tract diseases, infections, dyspareuni; moreover, the scar tissue may cause problems of delivery.



- A young Somali mother with her child -

Half of the girls had their first menstruation at the age of 14 years, and on average, the first child was born when the mother was 17 years of age. The mean number of children born by mothers of different ages is given in Figure 16. Although this is derived from a selective

population (all having children under five years of age) it indicates a high birth rate. At the end of their reproductive lives they had, on average, given birth to nine children. It is a general belief that the high infant mortality motivates many pregnancies to ensure that at least some of the children born will reach adulthood. The more children you have the greater the guarantee that someone can take care of you when you get old.

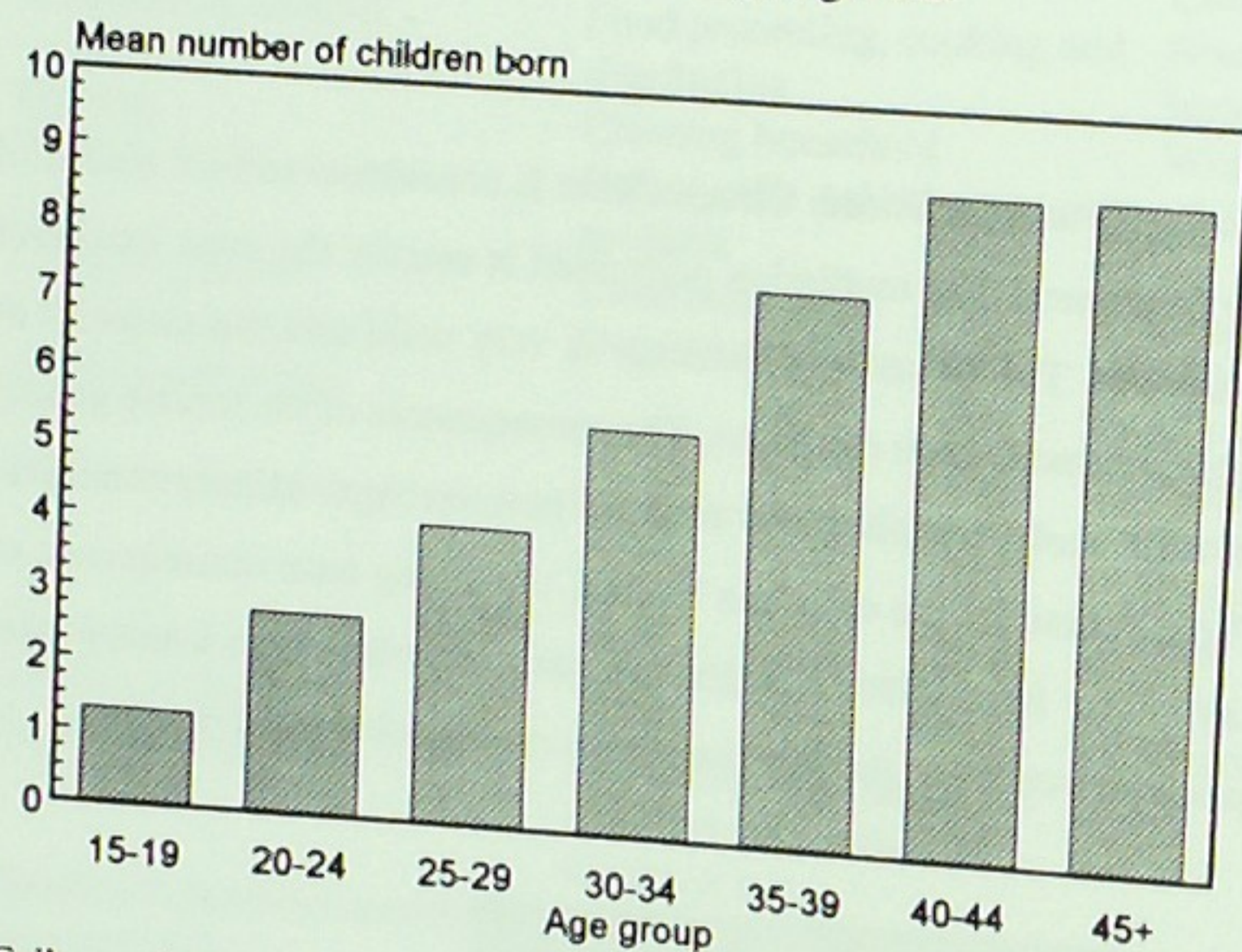


Figure 16. Mean number of children born by mothers in different age groups. Data from the child cohort study 1987-88.

Failure of reproduction in this setting can be described as a personal tragedy. Failure to bear children was seen as an accepted reason for the husband to divorce his wife. In the villages, 7% of the women aged 45 years and above were primarily infertile according to the information from the reproductive survey.

In connection with the longitudinal child health study a nutritional assessment of the mothers was made. They had a mean height of 159 cm and a mean weight of 57 kg. A mean body mass index [ $BMI = \text{weight}(\text{kg}) / \text{height}(\text{m})^2$ ], of 22.3 was found. One tenth of the women had a BMI below 18.5, thus indicating chronic energy deficiency. Eighteen per cent of the mothers had a BMI above 25 and three per cent were above 30, showing different degrees of obesity. Thus, two thirds of the women had a BMI within the recommended range while the others were underweight or obese. The tendency to obesity increased with age and number of past pregnancies.

The reproductive health survey disclosed that many women suffered from anaemia and that less than 1/3 of the women had a normal haemoglobin level, above 115 g/l. The mean

haemoglobin value of women in reproductive ages was 105 g/l. More than 10% of the women had haemoglobin values below 85 g/l, considered as severe anaemia, whereas 5% of the women had values below 70 g/l.

Haemoglobin levels differed between social groups, e.g. women were prone to have higher haemoglobin values if the husband was literate, if they owned their own farm, if she had a side profession or if she possessed gold. As expected, pregnant women as well as women who had gone through numerous pregnancies had lower haemoglobin levels.

Even though more boys died during infancy and childhood, the excess female mortality later in life resulted in a tendency towards a shorter female life expectancy from birth. Figure 6 showed that the survival curve of females crosses the male curve when the woman enters into reproductive life. Thus, this pattern of a shorter remaining life expectancy for females is more pronounced from the age of 15 and onwards, with seven years shorter life expectancy for females. This indicates that a substantial number of female deaths might be related to childbearing. Although only 213 births were registered during the study period, two definite cases of maternal deaths were reported. Furthermore, the cases of anaemia and excess female deaths, mainly due to infectious diseases, e.g. the epidemic hepatitis affecting mainly pregnant women in 1988, indicate a high maternal mortality in the area.

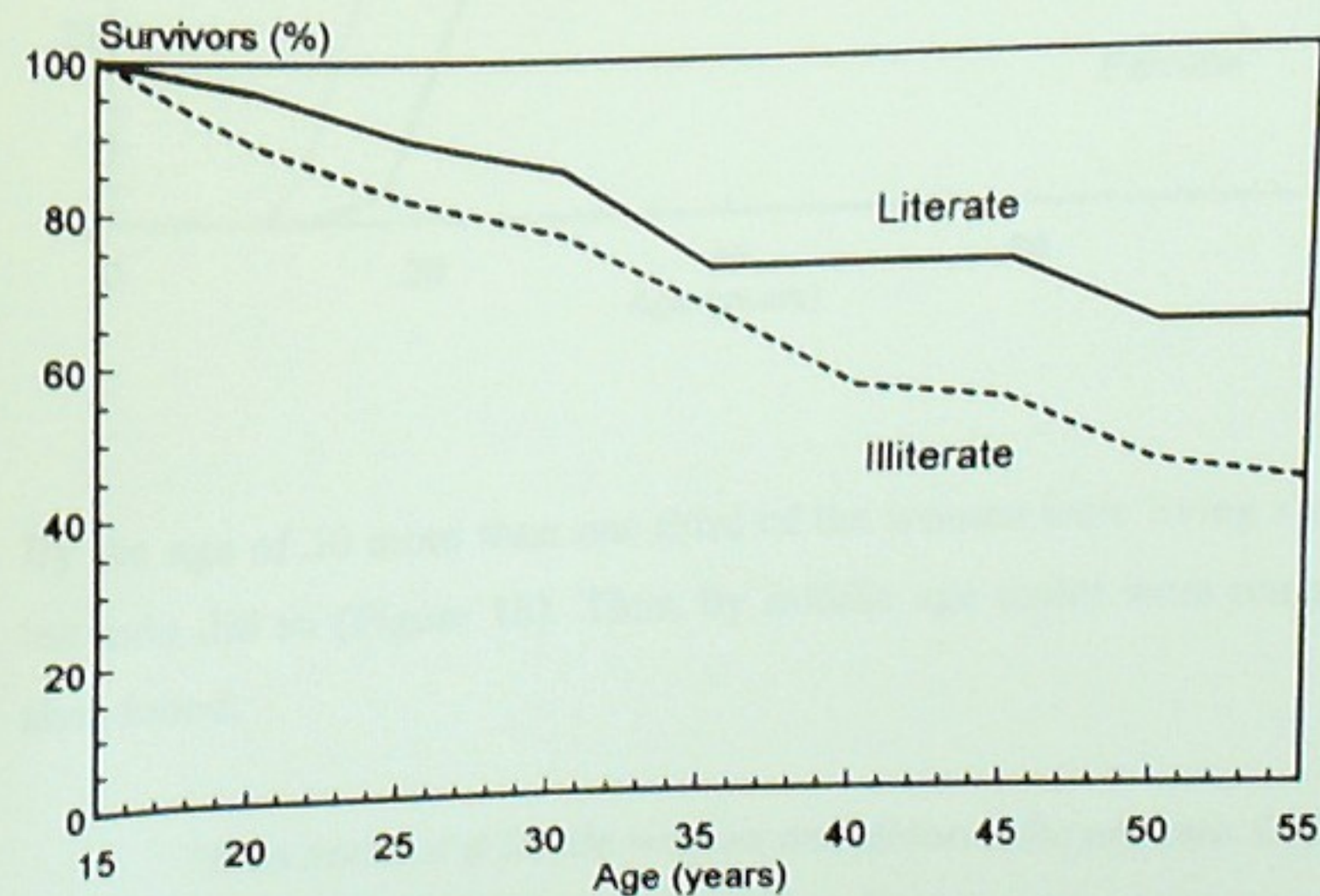


Figure 17. Survival by literacy in adults based on the observed mortality during 1987-89.

The impact of literacy on survival in socio-economically deprived societies is a well described phenomenon. In the census some background social data were collected. Thus, it is possible to link observed deaths to literacy of adults and literacy of heads of household. The protective effect of literacy can, thus, be documented also for this society (Figure 17).

However, there was an interaction between gender and literacy in the survival chances for adult women. Life expectancy from 15 years was 48 years for women and 52 years for men. Life expectancy from 15 years was 63 years for a literate male, 50 years for an illiterate woman living in a household with an illiterate head, but only 41 years for an illiterate woman with a literate head of household. Thus, this gender inequality further eroded the position and health of women with disastrous consequences for their health. Not only did women overall have a shorter life expectancy than men, but the illiterate woman living with a literate husband had a shorter life expectancy than her sister who was married to an illiterate husband.

## Ageing – increasing social inequities

These rural communities were young. Only 15 per cent of their members were 50 years old and above. There was an equal number of old men and women, but the social conditions were different for the two sexes.

The rules and customs concerning marriage and divorce in the villages were to a large extent based on the Islamic law. Seventeen per cent of the married men had a second wife. By the age of 40, every tenth adult, irrespective of sex, was living single after a divorce. Another 2% were widowers or widows (5%) at that age. Single living was much more common among old women than men.

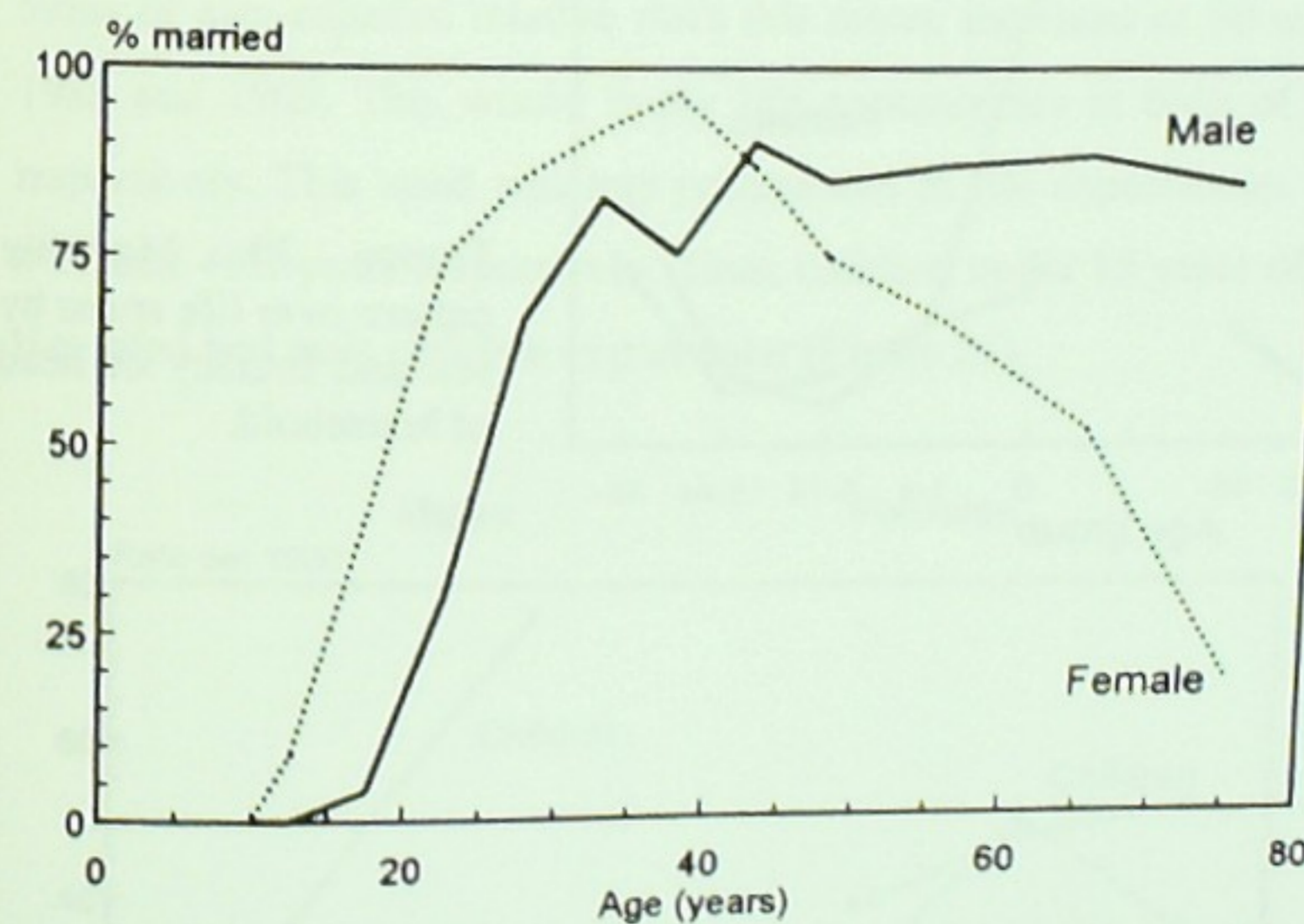


Figure 18. Proportion of married individuals among men and women in relation to age.

By the age of 50 more than one third of the women were living single, while only one out of ten men did so (Figure 18). Thus, by middle age males were remarrying while women were abandoned.

*"Men seek for a fertile woman and divorce the old one. Old women also lose their capacity to work and there is much work to do."*

Voice from village committee



Almost no women over 40 were able to read and write, while one third of the men were literate. As shown above, literacy was associated with better survival chances for the individual, for the household members and for the child.

Figure 20 summarizes this mortality pattern over the life span by sex and literacy of head of household. The woman in the literate household was specifically at risk from middle age onwards. From that age, women married to a literate husband had an increasing mortality rate, exceeding even that for women married to an illiterate husband.

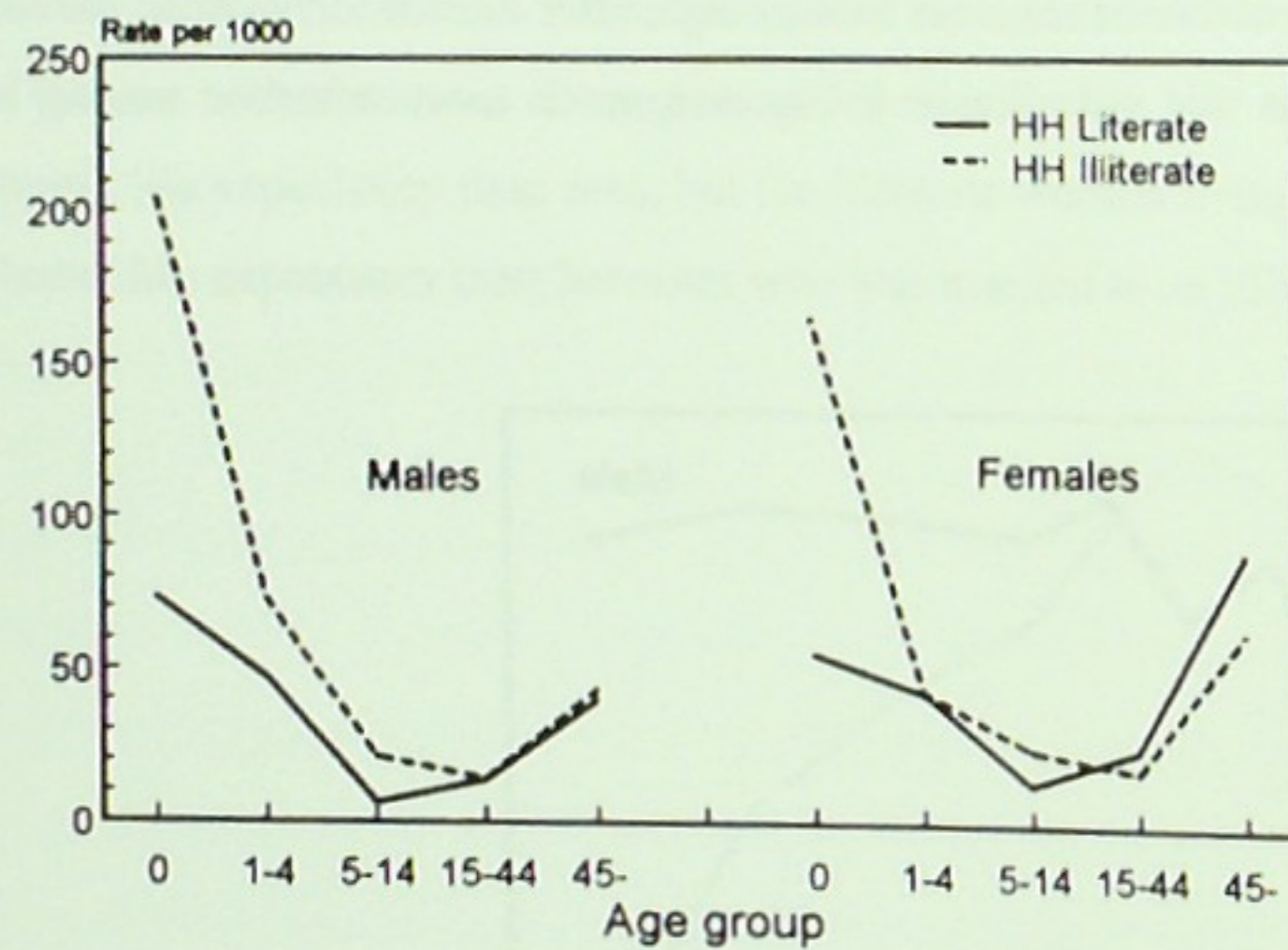


Figure 20. Mortality pattern over life spans by sex and literacy of head of household.

## Health development in a collapsing society

Local epidemiologic patterns are often dynamic and susceptible to external forces. During the three-year period 1987-89, the situation in Somalia gradually deteriorated and the outbreak of civil war in early 1988 was the extreme consequence. This was also soon witnessed in the study villages, with economic deprivation, decreasing food availability and a collapsing regional health care system. These developments were also drastically verified in the mortality figures below.

### Mortality trends 1987-89

The crude mortality rates over the three years were 24.8, 37.5 and 38.7/1000 respectively. In terms of age-adjusted relative risks this meant increases of 60 and 80% respectively during 1988 and 1989. This would imply life expectancies at birth of 40.0, 28.0 and 24.5 years respectively. This trend was less pronounced in life expectancies from 15 years, being 55.3, 47.7 and 49.3 years respectively. Thus, children under 15 years of age accounted for most of this trend and male children in particular (Figure 21).

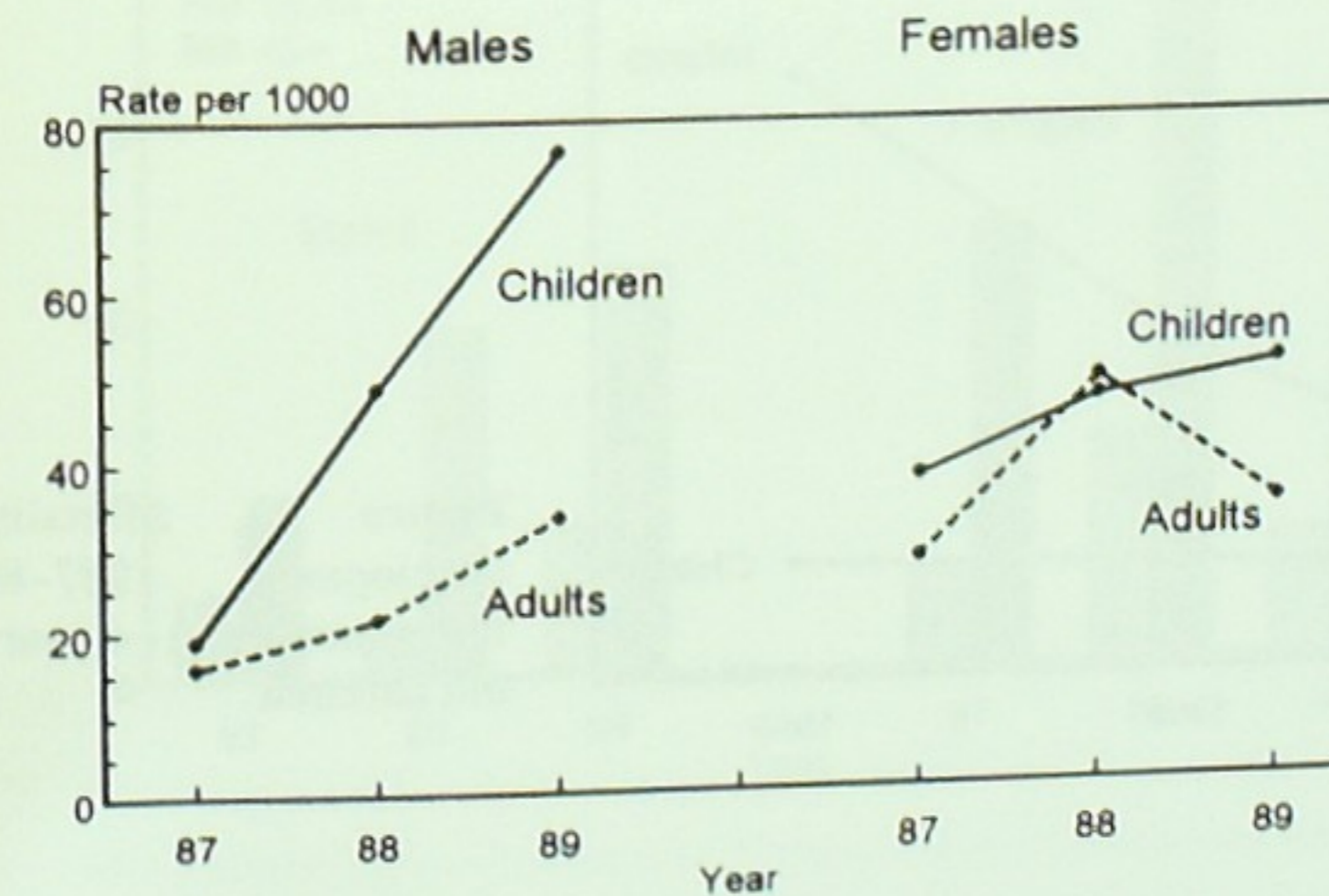


Figure 21. Vulnerability of the approaching war - mortality development by age and sex.

Among children, infants contributed most to the increasing mortality trend during the study period (Figure 22).

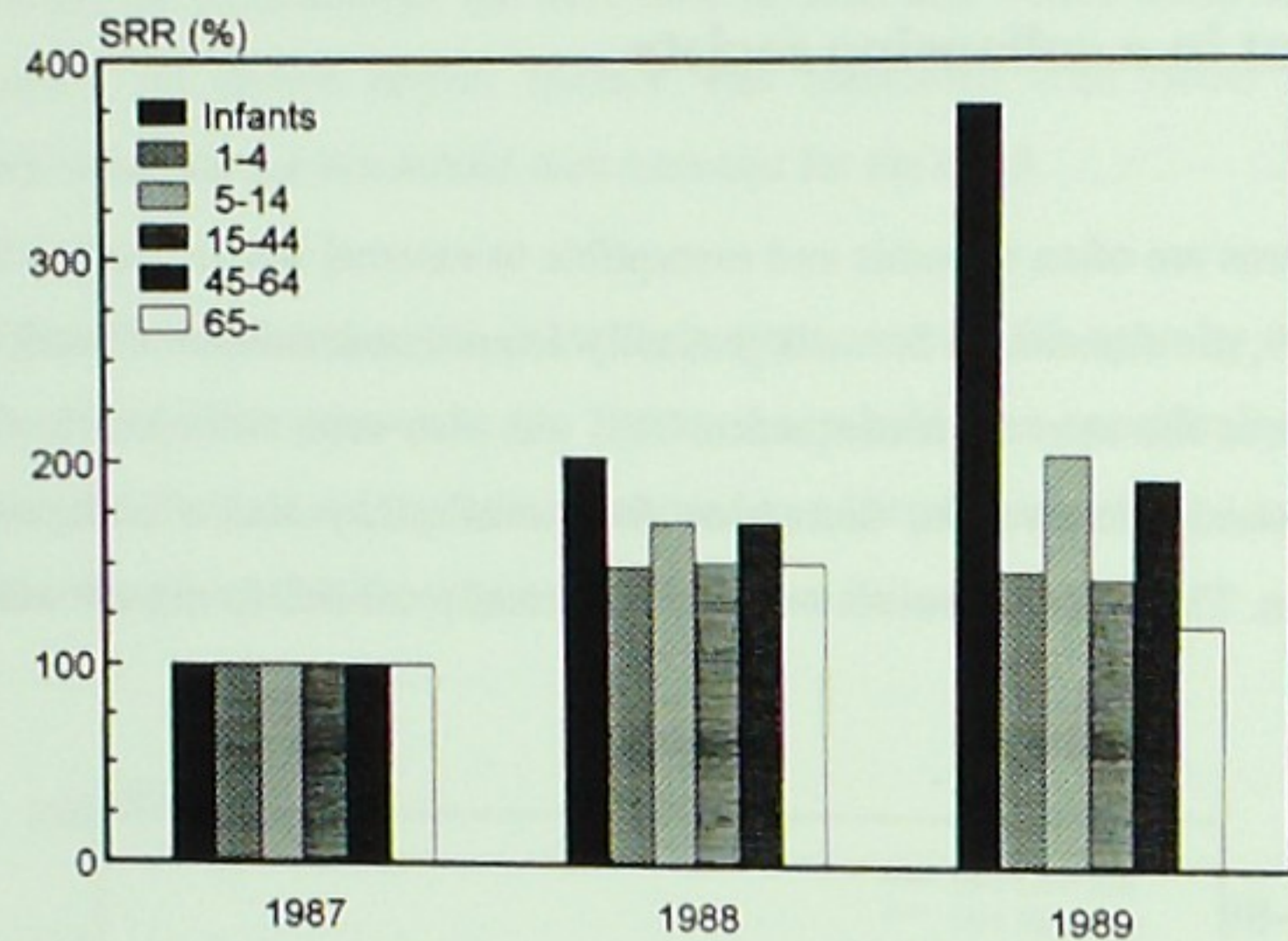


Figure 22. Relative mortality increase 1987-89 by age group.

Thus, the infant mortality rates (0-11 months) during the three years were 81, 163 and 305 respectively, while the child mortality rates (12-59 months) were 39, 58 and 57 respectively (Figure 23).

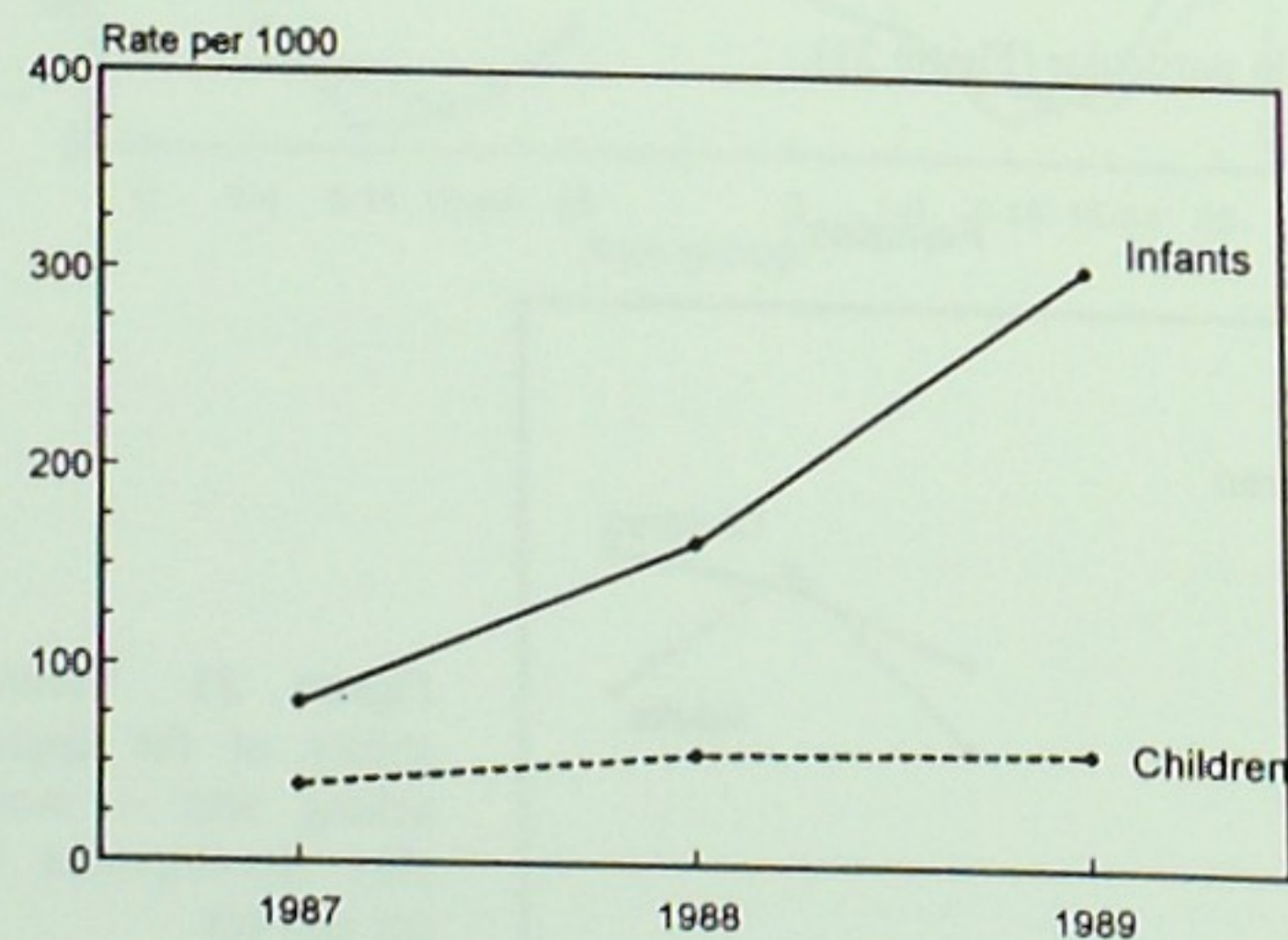


Figure 23. Mortality development 1987-89 for infants and 1-4 year-old children.

The increasing under-five mortality rate, was again most pronounced among boys, whose rates rose from below that for girls in 1987 to twice their level in 1989 (Figure 24). Thus, most of the increase in mortality under five years of age occurred among male infants.

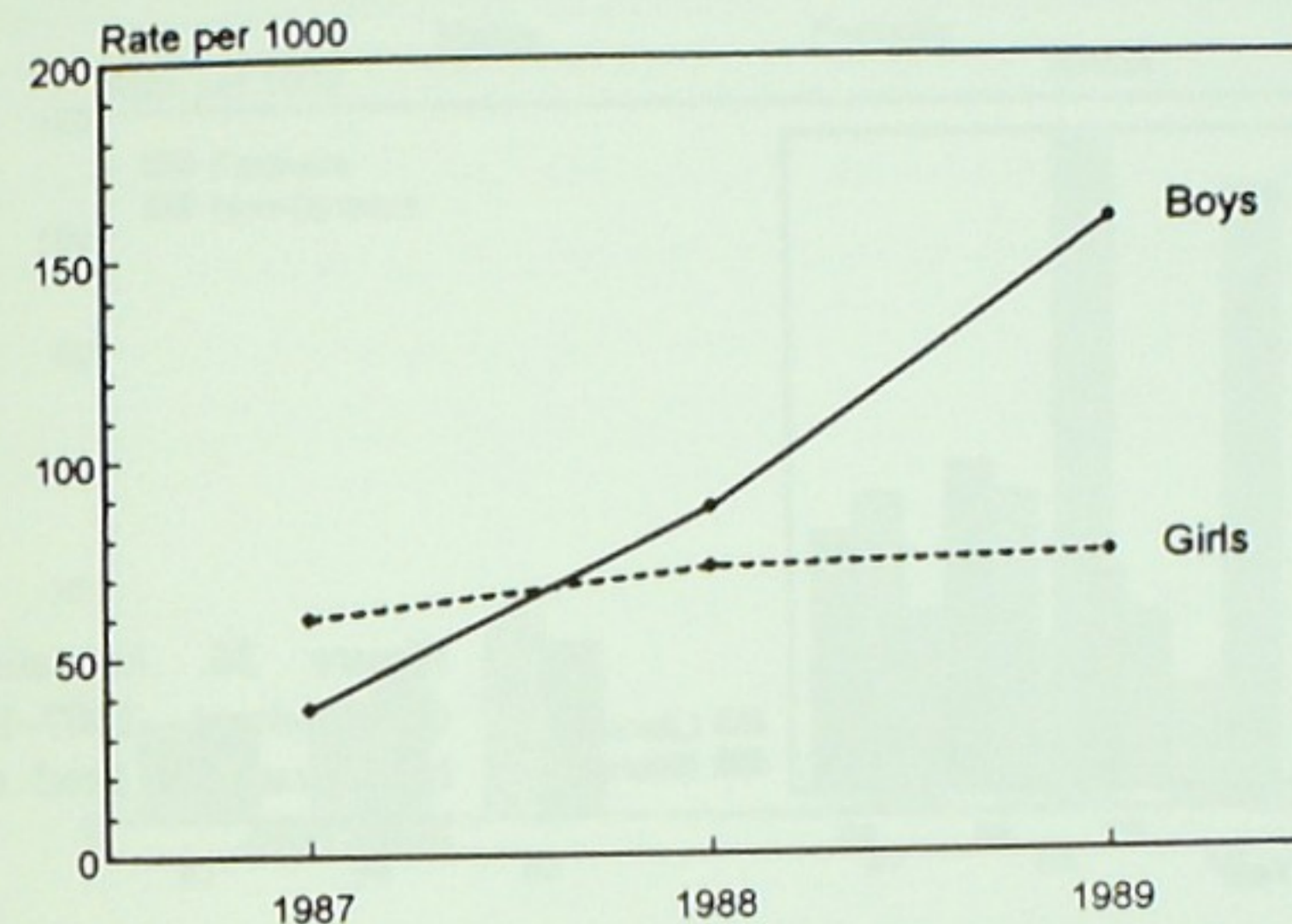


Figure 24. Mortality development for children under five years of age 1987-89 by sex.

Among adults, on the other hand, the excess female mortality, shown previously, diminished during the study period, while an increasing mortality trend was most pronounced among men from 45 years of age and above (Figure 25).

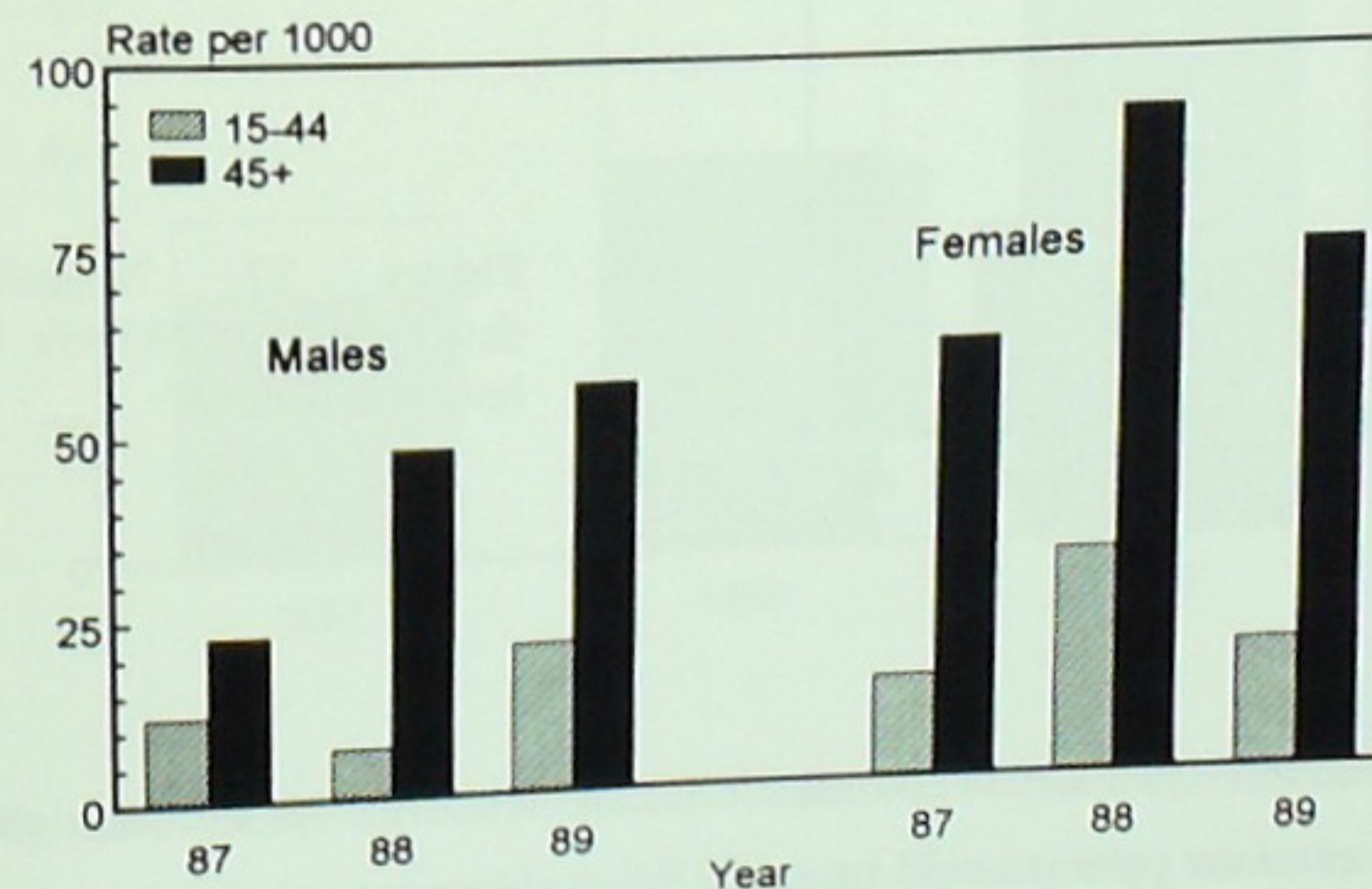


Figure 25. Mortality development among adults 1987-89.

When relating mortality trends to three socio-economic indicators - literacy of head of household, household size and occupation - again the most obvious trends were seen in the case of children (Figures 26 and 27).

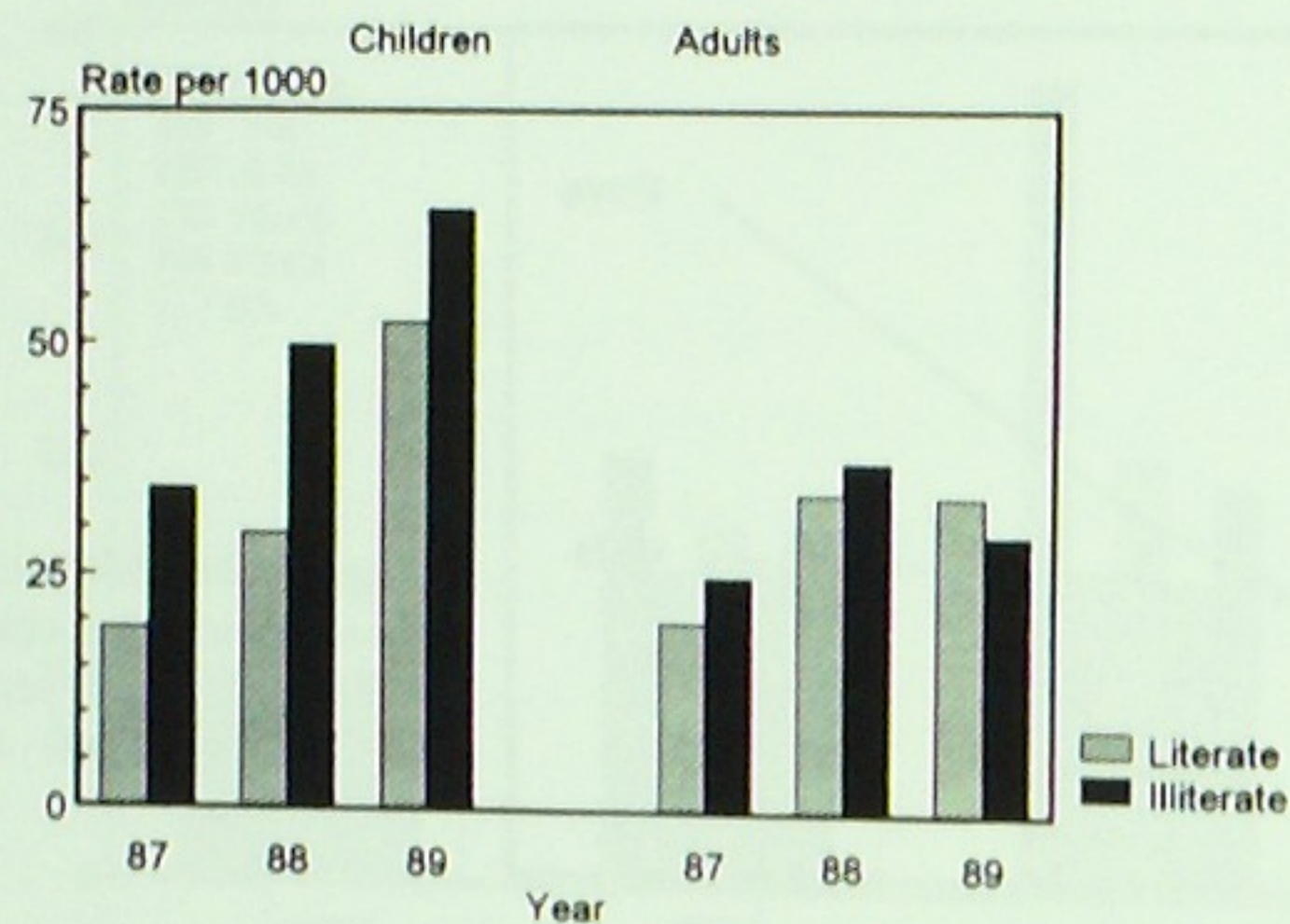


Figure 26. Mortality development 1987-89 by literacy of head of household.

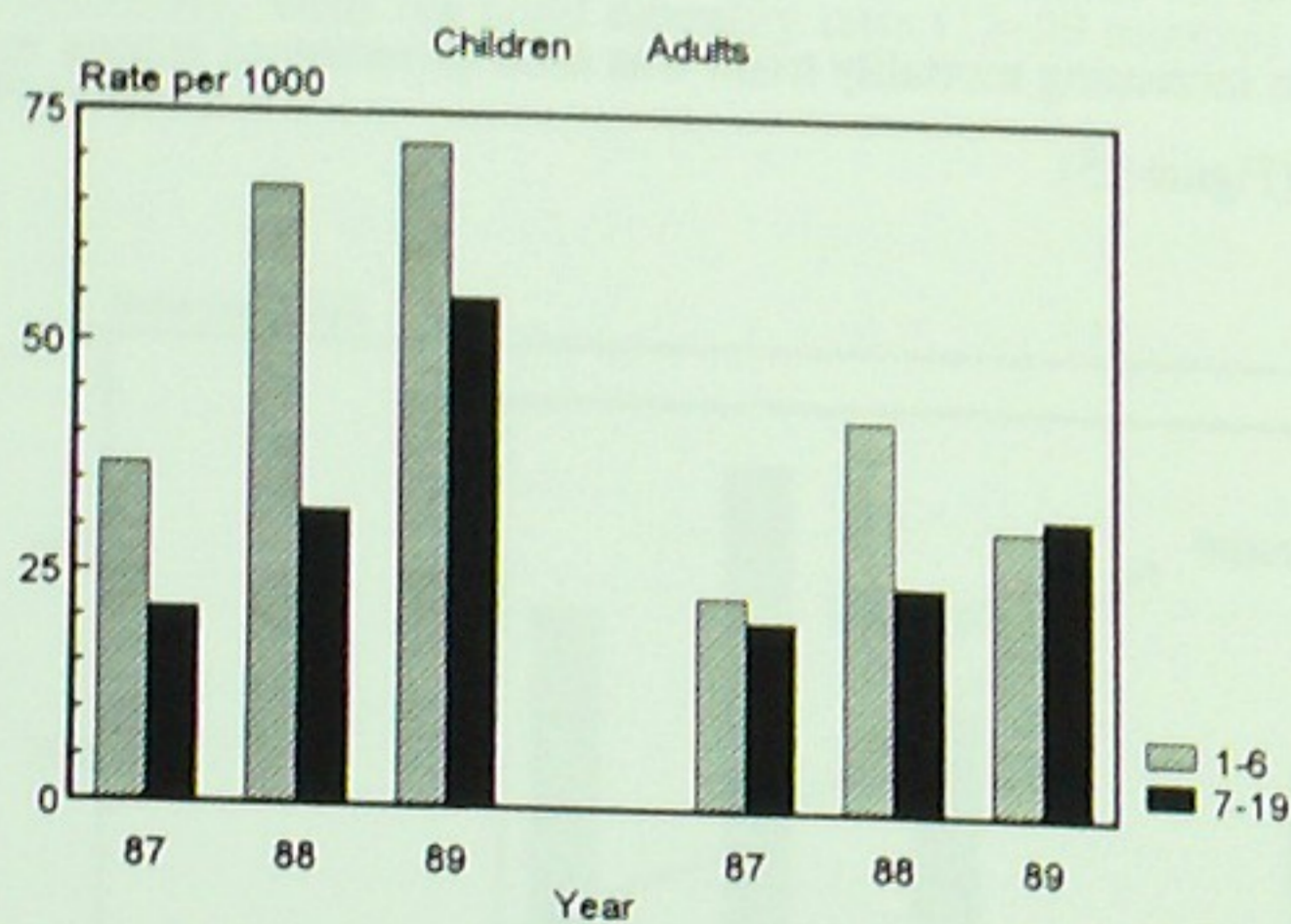


Figure 27. Mortality development 1987-89 by household size.

Trends among under-five children in illiterate households and small households were at higher levels. Among adults, no obvious pattern could be seen. When, however, relating trends to adult occupation (Figure 28), an exceedingly high female mortality was noted during 1988 and 1989 among non-farming women. An explanation could be, that women depending on the market economy suffered most during the years of deteriorating economic system, inflation and deprivation. The mechanisms behind this excess mortality are, however, not clear.

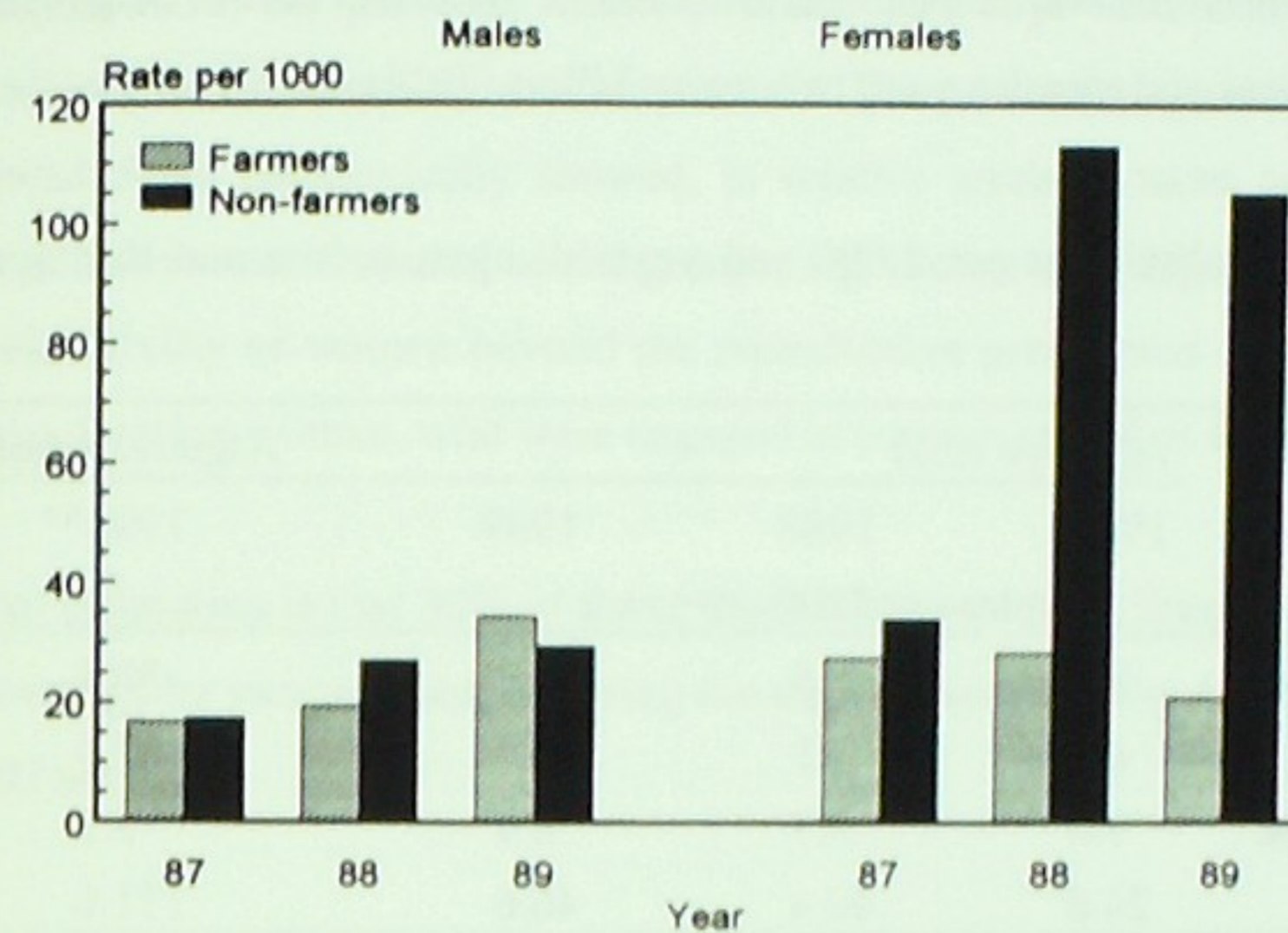


Figure 28. Mortality development 1987-89 by occupation among adults.

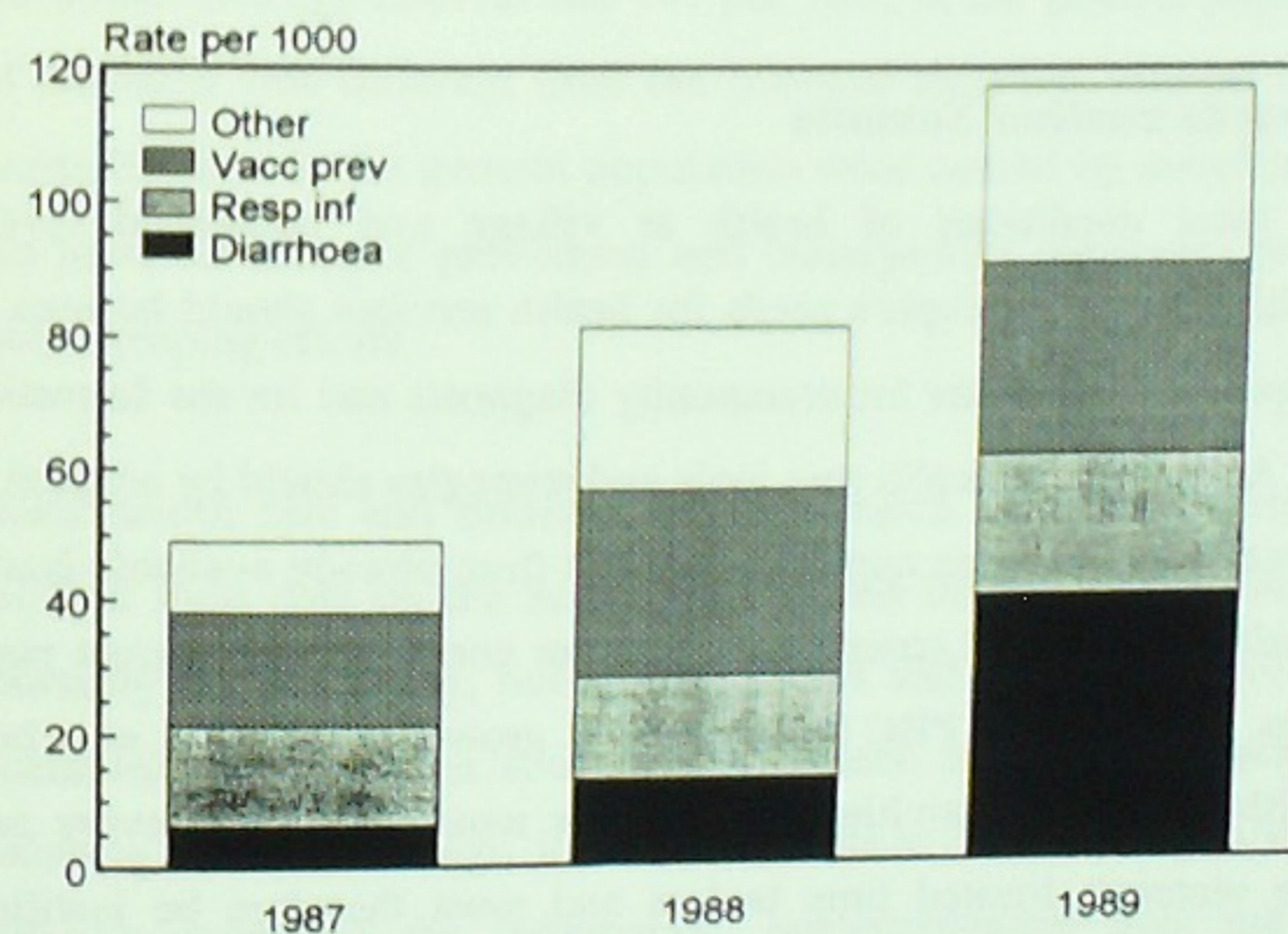


Figure 29. Mortality development 1987-89 by cause of death.

The time trends in cause-specific under-five mortality rates are shown in Figure 29. Diarrhoeal disease mortality rates increased dramatically, while mortality rates in respiratory infections were fairly stable. Some increase over the period in vaccine preventable diseases (whooping cough, measles, tuberculosis) was also noted.

In conclusion, during the period of successive social and economic collapse, the diarrhoeal diseases and to some extent the vaccine preventable diseases emerged as major threats. This

can be compared with data from the war and famine situation in the urban part of Afgooye in 1992, when diarrhoeal diseases and measles were two major killers (Table 6).

**Table 6.** Cause-specific mortality rates per 1,000 and year, all ages, before and during the Somali Civil War.

Cause	Afgooye rural			Afgooye urban
	1987*	1988	1989	1992**
	(rates per 1000 per year)			
Measles	0.8	0.5	2.2	58.4
Diarrhoeal diseases	4.2	3.1	10.8	32.9
Acute Respiratory Infections	7.6	9.7	8.9	7.3
All causes	24.8	40.4	46.6	171.6

\* Figures 1987-1989 age adjusted with 1987 as reference year

\*\* Calculated from data by Moore et al (The Lancet, April 10, 1993;9:935)

### Investing in health – towards another Somalia

This book addresses the local conditions of health at village and household levels. Professionally assessed health needs and people's needs for health services should be seen as complementary entities supporting each other for community diagnosis and for the formation of health care programmes. Also, primary health care tools and strategies should be adapted to local cultural values and practices and, when applicable, depart from already available health care traditions. Primary health care should complement and not compete with current non-harmful traditional practices. Even if some PHC initiatives, e.g. growth monitoring, may be a lever for a number of health promotion activities, it should be remembered that every new action consumes from the women's limited time budget and must therefore be justified. Finally, when planning for primary health care, due consideration must be given to the social and gender distribution of health care resources. The provision of non-discriminatory health services can, however, only partly compensate for gender bias in health. The traditional support of gender inequity in terms of literacy, marital status and decision-making, and as manifested in excess female mortality and child morbidity, needs to be met by empowering women as well as by better utilizing their knowledge about health matters. The fostering of community health must thus address these obstacles and consider the potentials of women.

As shown in the previous chapter, infants and boys were most vulnerable to the pre-war changes, as expressed by mortality trends. The under-five mortality development in different social strata paradoxically showed, in relative terms, a more negative development among previously more favoured social groups, e.g. literate and larger households. Among adults the vulnerability of women beyond the reproductive period was drastically increased among the non-farming women, who were engaged in commerce and as salary employees.

Our estimation is that 30% of the child deaths could have been prevented by a continued good coverage by vaccinations, lowering the under-five mortality for the whole period from 303 to 207 per 1000.

Our data underline the increasing mortality risks for children in a collapsing society – even before any shot is fired. The excess mortality caused by war and famine was 331 per 1000 in the under-five age interval and 147 per 1000 in the general population. The pattern of causes of mortality was different from the pre-war situation. Almost two thirds of the increase in mortality risks in the general population were caused by measles and diarrhoea. This stresses the need for massive prevention and management assistance programmes – parallel to the peace keeping efforts.

Basic health care and essential health research need an epidemiological perspective. This requires local data on the health situation for the whole community, its burden in terms of mortality and morbidity, but also on access and acceptability of health services and on the community's perceptions about health matters. Such an approach is not solely a method of counting heads in a village, it must also relate to culture patterns and values. If fed back to the villagers supplying the information, epidemiological data may 'talk', and increase our understanding about causes and needs. Valid and practical epidemiological information for local health planning can be generated through villagers' participation in the process of data gathering. In assessing the shortcomings of health programmes it is therefore important also to consider people's perceived needs for health services.

## Post scriptum

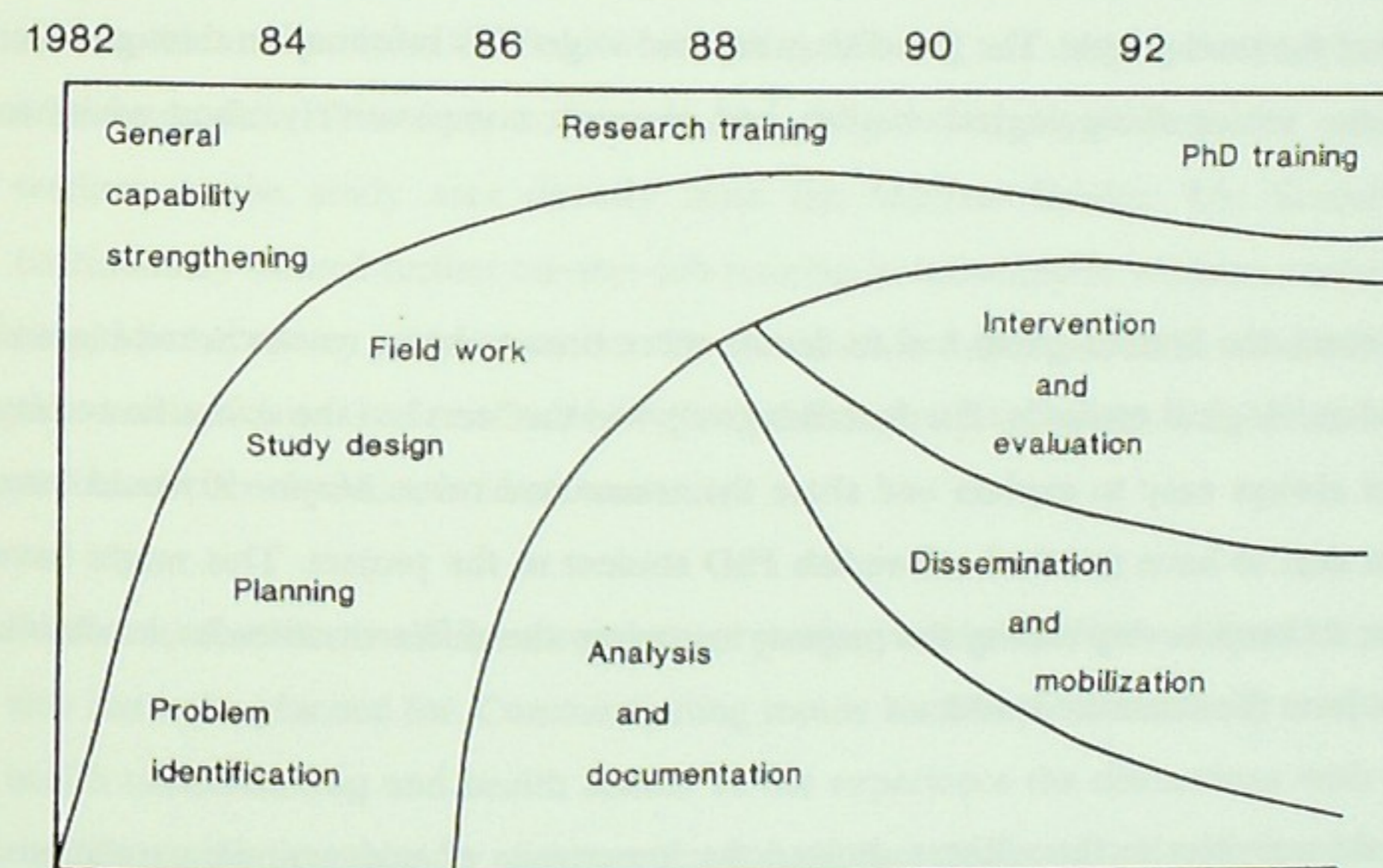
When summarizing this 10-year venture one is reminded of its many dimensions – the social and medical results, the different cultures and values and the collaboration across disciplines.

Several historical and external events have influenced the collaboration. Like many developing countries Somalia was historically dependent on the old colonialists' educational curricula, both in the medical and social sciences. For many years a number of students were sent abroad to Western and Eastern European countries for medical or other training programmes. But far too many did not return to Somalia and if they did they were often unfit to cope with the problems of their country because of a westernized approach.

The Somali National University (SNU) was founded in 1969 and opened in 1970. In 1973 the University of Rome was requested to assist in establishing a Medical Faculty at the SNU. This, of course, resulted in a medical curriculum that was very much influenced by the medical education in Italy and community medicine had no part in the education. The students were not confronted with the reality of health care in rural areas and therefore changes were evidently needed. After an evaluation of the medical education, made by the WHO, the first community-health care training programme was launched. In 1978 field training activities for the medical students were initiated by the Medical Faculty and some years later in 1983 the Department of Community Health was formally established and a new medical curriculum implemented. In a number of villages in the Lower Shabeelle area "rural training centres" were established, Community Health Workers (CHW) were trained, traditional midwives received additional training, simple health centres were built by the villagers and basic health care was provided. Research activities were integrated with the training of medical students in the communities. These activities form an important background to the collaboration described in this book and its development.

When the collaboration between our two departments started in 1982, the infrastructure on both sides was rather weak. The Somali Community Health Department had limited previous research experience, a heavy teaching burden and an unstable staff composition. On the Swedish side, the institutional basis was at stake and the time and manpower-input was

limited. Despite the above hindrances, there were commitment and potentials for development. Both the Swedish and the Somali groups have varied in size and competence but have through the years included representatives of medicine, epidemiology, biostatistics, sociology, nutrition and health planning. Much effort was put into basic epidemiological as well as research training. The courses within this training followed the various steps in epidemiologic research; the formulation of the problem, the operationalization, the selection of study variables and measurement procedures, the collection, processing and interpretation of data and the reporting of results. The teaching model was field- and process-oriented.



**Figure 30.** The different components in the Somali-Swedish research collaboration over time according to the initial planning.

Our studies have formed the basis for a series of publications from the project. The current situation in Somalia has caused huge difficulties and delays in analysing and reporting of results. However, some of the demographic and child health data have been discussed together with the villagers in feedback activities, e.g. neighbourhood meetings and focus group sessions. Other activities aiming at mobilization and intervention studies regarding priority of health problems have not been possible due to the present security situation in the study areas. Owing to the Somali situation the most important issue within the research collaboration during the last few years has been to make it possible for the Somali team to finalize their

research training and academic degrees as well as to put forward the results as potentials for health policy action.

A transcultural collaboration is a stimulating process which requires time and improvisation. Its challenges are not only scientific in nature. Several times research activities were delayed by logistic difficulties, e.g. lack of transport, delay in communication between Somalia and Sweden or visa problems. It also takes time to establish a common language and understanding in the joint research efforts. The Somali group had the culture competence for the field activities. They were the only ones who really knew the Somali society, the environment and the conditions of the rural people. The Swedish group had to get this information through other sources, e.g. the socioanthropological studies and through comparatively short visits to Somalia.

On the other hand, the Somali group had to devote more time to basic research training and studies of epidemiological methods. The Swedish group had the "ears" of the scientific society but it was not always easy to explain and share the norms and rules. Maybe it would have meant a great deal to have attached a Swedish PhD student to the project. This might have made it easier to keep in step during the project, to convey the different attitudes, traditions and rules that form the scientific world.

The daily field activities in the villages showed the importance of understanding traditional values, beliefs about health and disease, and the use of traditional therapies, and also stressed the need for a dialogue with the villagers in all stages of the research process.

We learnt that valid information for local health planning and the development of primary health care can only be secured through active participation from the community. This means not only informed consent from the study participants but also the necessity for the villagers to take an active part in the planning and performances of health activities. In all sub-studies numerous meetings were held with village committees and women's groups. Many contacts were made with political and religious leaders, traditional healers, women's organisations, etc. The experiences from these meetings were in general positive and made it possible to establish a good and fruitful communication with the villagers. Community participation is dynamic and

might be seen as a process over time in which citizens take part in activities which aim at influencing health policy outcomes.

The Swedish team had much to learn from the way that the Somali researchers approached the community. Despite methodological shortcomings the Somali researchers have been demonstrating an exceptional competence and empathy in approaching the research objects, i.e. the community. No fancy methods can substitute that.

Ethical issues were also discussed during the field work. For example, it was felt impossible and unethical to perform the field work without having any drugs or treatment to offer to those who were sick. Therefore, some essential drugs were supplied to the community health workers in the study area directly from the Medical faculty. The Somali doctors also continuously offered further on-the-job training to these health workers, convinced that there should be no survey without service. However, ethical dilemmas still arose when the research aims and activities were confronted with the reality of poor health, lack of resources and other structural circumstances in the community.

Feedback of results is always a continuous process within the field work and is something that also has to be planned for. Communicating results back to the community is a prerequisite for health understanding and health action. In our experience the discussions with the villagers, e.g. about the importance of immunization of the children, oral rehydration therapy and hygiene conditions, formed a basis for their health action in daily life and their demands for increased resources in primary health care.

Basic epidemiological know-how can be gathered through formal courses or text-books, but experiences of practical epidemiology can only be gained through research out in the field. Available epidemiological textbooks are rarely adjusted to teaching in developing countries. Global health problems or methodological issues of specific relevance to developing countries are seldom dealt with. To gain practical epidemiological knowledge we therefore considered it essential for the research team itself to perform the field activities without having specially trained and paid enumerators and interviewers. Through the combination of qualitative and quantitative research methods we believe that we obtained a better understanding of the health problems and conditions that affect them. However, field work is always hard and contains

numerous logistic problems. Local access to research grants, purchase of petrol for the field trips, bad roads or lack of vehicles can disintegrate any well-designed and planned scientific projects. Having acquired this practical knowledge of communicating with the people and the hardship of field work, we have been able to note some essential characteristics which are needed to be a "good" field worker. First of all you have to be well prepared and trained, able to explain your research purposes and willing to discuss the aims of the study. You have to listen to and pay respect to the people and try to avoid hurting their feelings. You have to give them time and consider their culture and conditions and to be flexible, patient, sincere and gentle.

A cost-effective study design is even more important in a developing country where resources are extremely limited. Therefore various epidemiological designs and methods have been tried out within the project. We have also found it necessary to equip the research team with appropriate technologies, e.g. micro-computers and appropriate software, which are robust and user-friendly. However, equally important is the appropriateness of methods used in the field work. For example, the estimation of a person's age has constituted a difficult measurement in the studies. Age and birth date are not considered as important as in Western societies. By establishing a local calendar, based on local names of years, months, religious events and the seasons of the year, the birth month and the year have been estimated with greater accuracy.

Finally, this collaboration has also illustrated the vulnerability of field research, and that political instability and other seemingly non-scientific obstacles may easily challenge a long-term venture such as this. The current situation in Somalia has divided the Somali research team. Most members have gone abroad for further training. However, working together across cultures and disciplines in an interplay with the community, the mutual exchange of views and knowledge has been a development process for all involved.

When summarizing a 10-year project, we can obviously not do so without accounting for external events and processes. The ongoing war is, of course, the major devastating process. We dare to conclude, however, that some of the lessons learnt from this project could be shared when the time comes to invest in another Somalia. It is then not just wishful thinking that health ought to be a major entry point for such a change.

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Department of Epidemiology and Public Health  
Umeå University, S-901 85 Umeå, Sweden