Questions on adult mortality

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The technique of verbal autopsy is being used to investigate the causes of adult deaths in part of Ibadan, Nigeria. The problems encountered in the first year of the study and the measures taken to overcome them are described below.

Accurate information on adult mortality can help health authorities to prioritize problems and interventions. Unfortunately, in many developing countries the national data are incomplete and unreliable, and studies based on hospitals are of limited value because most deaths occur elsewhere.

Verbal autopsy, or retrospective inquiry into the symptoms and signs of illness prior to death in order to assign cause, has been used with some success in children. It has also been employed in a few studies to obtain information on causes of death in adults, but in this area there is little evidence as to the reliability of the findings or the limitations of the method *(1)*. The use of the technique requires the following assumptions to be made:

- that it is possible to differentiate between various causes of death in the light of clinical and historical events;
- that relatives of deceased persons can accurately recognize and describe these events;
- that sufficient information is retained over time *(2)*.

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Using verbal autopsy, a study on adult mortality is being conducted in Ibadan, Nigeria. The ultimate goal is to develop a capacity for establishing the crude and cause-specific adult mortality rates in a traditional urban community by this method. The study, currently in its third year, is intended to last four years. It began in Idikan, an overcrowded inner-city area of about 0.18 km^2, the population of which was estimated to be slightly over 10 000, of whom 6000 were thought to be 15 years of age or more. However, an initial census indicated a residential population of 6434 people in 1495 households, with 3832 people aged 15 years or more (see table on page 374). In order to increase the sample size, therefore, the study was expanded to cover the adjoining community of Abebi.

The houses in the study area are close together and many of them lack adequate ventilation and natural lighting. Pipes carry water to some locations but the supply is very unreliable. Unsanitary wells provide water that can only be safely used for certain domestic purposes. The disposal of faeces is commonly unsafe because most houses lack sanitary toilet facilities.

There is no formal traditional leadership structure. Most of the people have had no more than elementary education. The men are mainly artisans, the women mostly housewives and traders; few of the inhabitants are involved in the formal economy. A primary health care clinic in Idikan is run by staff of the University College Hospital's Department of

Preventive and Social Medicine with the help of a community health committee.

Community entry and recruitment of field workers

The research team met the health committee to discuss the purpose and modality of the study. Permission and support for the study was obtained and the committee was asked to help with the recruitment of suitable residents as field staff. It was stipulated that candidates should be female so that fewer difficulties would be experienced in entering people's homes, that they should have attained the secondary school level of literacy, and that they should be permanently resident in Idikan throughout the study. Interviews were held and two candidates were selected and trained before the study began.

Some members of the health committee, wishing to help unemployed relatives, presented candidates who did not fulfil the criteria laid down. This led to the selection of a worker who did not reside in Idikan. She often experienced difficulty in obtaining transport from her distant home and could not work at certain times. Attempts to replace her were resisted by her sponsors and she was reluctantly retained in order to maintain the goodwill of the committee.

Most women with the required level of literacy move out of Idikan in search of permanent employment or further education, making it difficult to secure workers of high calibre. The initial insistence that recruits should be female and that they should remain with the study until it was complete had to be abandoned. The two women who began work at the start left within the first year. The non-resident worker eventually left because she became pregnant and the other moved away from the district.

Verbal autopsy study, Idikan, Nigeria: initial census and first year of follow-up, 1993-1994

Number of households	1495	
Total population	6434	
Population aged 15 year and above	3832	(59.6 %)
Number of adult females	2027	(53.0 %)
Mean age of adults (years)	36	
Adults with no formal schooling	1349	(35.2 %)
Adults with primary education only	1180	(30.8 %)
Adults with post-primary education	1303	(34.0 %)
Adult deaths	26	(7/1000)
Deaths associated with hospital use	7	(26.9 %)

Recruitment and follow-up of participants

The census was carried out by the field workers. Persons aged 15 years and over were regarded as adults, and to be included they had to be permanently resident in the study area. The basic unit for the census was a household, defined as people who ate from the same cooking-pot. The unplanned nature of Idikan made the census and follow-up difficult. There were no real streets, the houses were not laid out in an regular manner, and it was frequently hard to move between adjacent dwellings and to know which houses had not been registered. The houses were not numbered consecutively, the same numbers were used on different houses in some instances, and other dwellings were unnumbered. Numbering systems were devised but their effectiveness was limited by the haphazard arrangement of the dwellings.

In each case, information was obtained from the head of household or any other member who could give reliable information.

Households where information could not be obtained during the day were visited in the evenings. The census commenced in May 1993 and, on the basis of an estimate that there were 10 000 people in about 1500 households, was projected to last a month. However, many households were not registered within this period, largely because of the difficulty of identifying houses and also because of abortive visits to dwellings when no household members were present.

It was intended that the recruited participants should be visited at intervals of three months. When households were revisited the census forms were updated with information on persons who had not been registered earlier, persons who had moved in or out, those who had reached the age of fifteen, and those who had died. Individuals who were ill at the time of a visit were directed to the clinic; in some cases the field supervisor, a physician, made home visits.

Death monitoring and verbal autopsy

Information relating to deaths was sought by the field workers during their quarterly visits and their daily interaction with the community, but family members were sometimes reluctant to cooperate. Furthermore, it was not always possible to interview the closest relative and in some instances no relative was available because the family had moved to the deceased person's farmstead for a period of mourning lasting up to six months.

The staff of the clinic were requested to provide similar information, but their knowledge was restricted to deaths that had occurred near the facility. It was hoped that the health committee would be able to give comprehensive information on deaths. Unfortunately, however, it did not command the high level of respect commonly enjoyed by such bodies in traditional rural communities. There was no channel of communication by which the committee members could learn about deaths in the community and consequently they could not provide notifications of deaths.

A verbal autopsy questionnaire was designed, translated into Yoruba and translated back into English to ensure that intended meanings had been conveyed. This document was pretested in connection with deaths outside the study area among people whose social status was similar to that of the Idikan population. Verbal autopsy interviews were administered by a trained nurse after an acceptable period of mourning. It was intended that, wherever possible, interviews should be conducted within six months of notification of death. In order to obtain information of the greatest possible accuracy on history and clinical events, the person involved in terminal care who had been closest to the deceased was selected as the respondent. The details sought included a history of visits to, or death in, a health facility, and its name and location. The questionnaire was arranged in modules, with filter questions relating to the various organ systems and the major and secondary causes of death considered in the study.

The interview forms were checked by the field supervisor to ensure that they had been filled in properly. A doctor analysed the responses and placed the causes of death under the headings *infection*, *cardiovascular*, *trauma*, *malignancy*, *others*, and *unknown*. A second physician independently assessed the forms and again categorized the causes of death. The principal investigator endeavoured to resolve any differences between the doctors in this matter; if necessary, reference was made to a larger number of the researchers.

Information from health facilities

The field supervisor went to health facilities where deaths had occurred or where individuals had made visits during their last illness. Information on complaints, diagnoses and causes of death, where applicable, was gathered, and copies of records were obtained. So as to avoid bias the field supervisor, who was one of the doctors responsible for drawing up the interview form, visited the facilities only after causes of death had been categorized. The interview findings were compared

with the health facility reports, where these existed, in order to confirm agreement on causes of death and thus validate the questionnaire.

Only a few of the deceased had visited or died in a health facility during their last illness. Relatives often failed to find the hospital cards of those who had been in a health facility. In some cases the health facilities denied knowledge of the deceased, in others no records could be found even though the providers remembered the patients. Workers in private clinics were generally reluctant to give information unless the proprietor or the most senior doctor gave approval, the obtainment of which sometimes necessitated numerous visits. Efforts are now being made to act more quickly after the occurrence of deaths so as to diminish the number of instances of lost records.

The relative scarcity of verbal autopsy studies on adult deaths probably arises for both medical and cultural reasons. Mothers and children may use formal health services more frequently than does the general adult population in developing countries. Many local cultures do not favour the discussion of the death of a young adult. A deceased person's hospital card is often thrown away soon after the death as part of the mourning process.

In our study it proved to be quite difficult to explain to the relatives of deceased persons who had not used a health facility before death why health workers should ask questions about what had happened. Studies focusing on death are likely to seem very negative, no matter how important the findings may be. Relatives may be particularly unwelcoming in cultures where it is believed that the spirit of a deceased person could be disturbed by such questions.

However, the situation ought to be more favourable for verbal autopsy studies in settings where attempts are made to provide easy and affordable access to health care services for the entire community, as is the case in Idikan. This kind of study can help to determine the true rate of utilization of services by the community, especially in respect of life-threatening illnesses, and can indicate reasons for underutilization, where this occurs, and lead to remedial intervention.

Because many residents do not return to their houses until late in the evening, field workers should live in the communities so that they can make home visits at this time of day. Since few deaths occur in hospitals and the medical records often cannot be found, it is necessary to recruit a large population for the purpose of validation. Broad categorization of the causes of death facilitates the approach: we used six categories and included both the primary and the underlying causes in order to give the fullest possible picture.

The principal problem was the reluctance of the local people to discuss deaths of adults in the community. Other impediments included the low rate of utilization of formal health services and the small proportion of deaths occurring in hospitals. Both of these factors make the use of verbal autopsy for adult deaths quite difficult, in circumstances where the approach is most needed. The full potential of verbal autopsy in this type of longitudinal survey remains to be determined, however, and, given the absence of alternatives for gathering adult mortality data, continued exploration of the technique is desirable. ■

References

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