

A NOTE ON ILLNESS COVERAGE BY MEDICAL AND NON-MEDICAL INVESTIGATORS

by

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The limitations of the routine sources of morbidity data like the notifiable diseases records, hospital registers, etc. in presenting a reasonably complete picture of the health problems in a community are only too well known. Specialized surveys are, therefore, carried out from time to time to study the prevalence and associated factors of important diseases like malaria, tuberculosis, leprosy, etc. They are pertinent to a study of specific diseases, but in the wider context of forming a comprehensive picture of community health the scope of such surveys is restricted. Moreover, the specialized nature of these surveys demand the services of trained medical personnel and facilities for clinical and laboratory tests. In view of these considerations, general health surveys have been recognized as a promising source for obtaining adequate and satisfactory data for evaluating health problems in a community.

The pioneering attempt in the collection of comprehensive health data in this country was made by the All-India Institute of Hygiene and Public Health in Singur, a rural area near Calcutta in 1941. Subsequently in 1953 the same institution carried out a rapid medical and health survey in Sikkim State¹. In 1956 the Indian Statistical Institute carried out a health survey in West Bengal which was in the nature of a pilot survey to evolve a suitable methodology for the collection of morbidity and medical care statistics². About this time attempts were also made by the Government of India through the All-India Institute of Hygiene and Public Health to collect health data from Community Project Areas³. In the National Sample Survey with a field organization covering the whole of India, collection of data on morbidity was first introduced in the seventh round (1953-54) as an exploratory measure for finding suitable methodology for future large scale surveys. Since then such data were collected on a continuing basis till the thirteenth round (1957-58). The results of these investigations have been presented in a report of the National Sample Survey⁴. More recently, the collection of morbidity data was reintroduced in the seventeenth round (1962).

A general limitation to all data obtained by household interview is that the data are not better than the respondent's knowledge of and willingness to give the required information. This is particularly true in morbidity inquiries. Hence in a country like ours where medical services are available to or availed by only a small segment of the population, a complete evaluation of sickness experience in terms of a detailed diagnostic classification of diseases is difficult. It has been observed that even the employment of medical investigators does not preclude possibilities of misclassification of diseases⁵. No doubt, the value of a health investigation could be considerably enhanced if the scope of the inquiry is widened to include physical examination of the subjects supported by laboratory confirmation, whenever necessary. While the feasibility of such a procedure for comprehending chronic conditions cannot be questioned, its coverage of acute diseases of short durations occurring in a stated period is obviously restricted. Moreover, there may be operational difficulties in a country like ours because of paucity of trained medical personnel and the high cost such a venture would involve. In the circumstances, the employment of non-medical investigators has a decided operational advantage.

As already indicated a household investigation by merely interviewing the respondent is not likely to provide adequate clues to arrive at a sufficiently detailed diagnostic classification of diseases. However, even an assessment of the quantum of morbidity conditions and the associated characteristics like disability, medical care, socio-economic status, etc. will be of value to the public health administrator. Any deficiency in the coverage of illnesses is bound to diminish the utility of the collected data. In the following paragraphs, therefore, an attempt is made to study the relative performance of medical and non-medical investigators in respect of illness coverage. For this purpose, the data collected in a Validity Survey⁶ carried out in 1966 by the Indian Statistical

Institute to compare the relative efficiencies of medical and non-medical interviewers in giving correct diagnostic information about diseases were used. The sampling frame for this inquiry was the register kept at the medical out-patient department of a well-known hospital in Calcutta which provided information regarding address of the patients and the diagnosis. About 400 households were selected which were apportioned equally between the two types of investigators. Though this survey was not actually designed for the purpose of studying the aspect considered in this paper, in view of the fact that the two groups balanced each other in all important respects, it may be possible to use the data for making a rough assessment of the illness coverage by the two types of investigators. However, there are certain limitations to the present study. Based as it is on an urban sample with peculiar characteristics, the conclusions may not be of general applicability. For instance, the fact that at least one member of the household had been to the OPD may imply a certain attitude towards illness (reporting) in the observed population which may be different from that of persons in the general population many of whom for various reasons could not have availed of medical care. The manner in which this may affect the response is not considered here. Further, the investigators commissioned for the survey were too few in number. Nevertheless, some broad conclusions are presented in this paper for their suggestive value. Further studies are, however, required to come to firm conclusions.

In the study⁶ mentioned earlier which took into account only the OPD cases it was found that medical investigators had failed to report about 6.7% of the cases whereas the corresponding percentage for non-medical investigators was 11.12%. But in a general population where a large majority of cases do not actually avail of any medical care the omission rates need not be the same. In the present analysis, therefore, the OPD cases which led to the selection of the households for investigation have been excluded and as such the morbidity experience recorded refers to the rest of the persons exposed during the reference period of one month.

Illnesses occurring in any stated period of time can be classified into four categories according to their time of onset and termination, viz. i) illnesses beginning and terminating during the reference period, ii) illnesses beginning within the reference period and continuing on the date of investigation, iii) illnesses beginning before the reference period and terminating within it, and iv) illnesses beginning before the reference period and continuing on the date of investigation. The measurement of morbidity considered in this paper refers to the prevalence rate defined as the number of illnesses in existence at any time during the reference period of one month per 1000 population. In Table I the monthly prevalence rates per 1000 population, specific for age and sex, for the groups canvassed by the two types of canvassing agents are given.

On the assumption that the groups investigated by medical and non-medical interviewers were similarly exposed to sickness experience and in view of the consistency of the observed differences in the rates in all groups, it may be inferred that the non-medical investigators have not recorded the illnesses to the same extent as their medical counterparts. However, as there were too few investigators the inference is to be regarded as tentative.

In retrospective inquiries, particularly in those relating to sickness experience loss of information may result from the failure of the informant to recollect all events. Besides, intentional suppression of facts by the informant, wherever it occurs, leads to underreporting of events. The effect of loss of memory could be minimized by appropriate techniques. On the other hand, the propensity to suppress information is of the choosing of the informant and therefore subject to variation in different interview situations. Presumably, the prevalence rates shown in Table I are affected by these factors. However, if the events are present on the date of investigation under-reporting of them on account of memory lapse

Table 1: Prevalence rate by age and sex according to the type of investigators a) medical investigators b) non-medical investigators.

a) medical investigators			
age/sex	male	female	total
0-6	100.48	243.59	216.05 (182)*
7-16	134.45	118.28	127.38 (212)
17-46	118.11	103.85	130.21 (384)
47 & over	228.57	381.70	282.05 (117)
total	148.01 (527)	192.53 (348)	165.71 (875)

b) non-medical investigators			
age/sex	male	female	total
0-6	132.65	175.28	153.85 (185)*
7-16	88.50	66.77	92.52 (208)
17-46	87.58	142.80	112.78 (399)
47 & over	207.55	166.87	188.12 (101)
total	110.42 (481)	142.85 (420)	125.42 (801)

* Figures in brackets give the number of persons exposed.

should not arise. The prevalence rates for illnesses present on the date of investigation for broad age-groups by type of investigators are shown in Table 2.

If the morbidity experience in the two groups at the time of investigation could be assumed to be similar, then the divergence in the rates might have arisen due to difference in completeness of recording events by the two types of investigators. A plausible explanation for the observed divergence in the rates shown in Table 2 seems to be that the medical investigators might not have recorded some of the minor aberrations in health or vague symptoms as of no consequence. The higher over-all rate for the medical investigators (Table 1) thus seems to be due to the relatively more efficient coverage of non-prevailing illnesses (but prevailing during the reference period) by the medical personnel. Further examination of the data on the basis of disability status of such illnesses has revealed marked divergence in the proportions of disabling illnesses in the two groups investigated (Table 3). It may be said, within limits, that the non-medical investigators have recorded mainly disabling illnesses.

Table 2: Prevalence rate for illnesses present on the date of investigation

age	medical investigators	non-medical investigators
0-6	86.42	112.82
7-16	51.89	83.11
17-46	65.10	82.73
47 & over	145.30	178.22
total	76.57 (97)*	99.99 (90)

* Figures in brackets give the number of illnesses recorded as prevailing on the date of survey.

Table 3: Percentage of disabling illnesses among non-prevailing illnesses

age	medical investigators	non-medical investigators
0-6	40.00	87.50
7-16	70.50	83.33
17-46	57.89	100.00
47 & over	46.15	100.00
total	53.82	90.48

Table 4: Percentage of disabling illness among prevailing illnesses

age	medical investigators	non-medical investigators
0-6	28.57	72.73
7-16	18.18	81.54
17-46	24.00	94.59
47 & over	52.94	88.89
total	31.34	83.33

Even among illnesses present on the date of investigation the proportions recorded as disabling by the non-medical investigators were substantially higher as compared with their medical counterparts (Table 4).

Here also it may be argued that the non-medical investigators fail to report some of the non-disabling illnesses. But the prevalence rates given in Table 2 suggest that it was unlikely that the non-medical investigators would have failed to record to any appreciable degree, the prevailing illnesses. Thus, the marked divergence in the proportions observed above may be attributed to the seemingly unsatisfactory classification of illnesses according to whether or not they were disabling by the non-medical investigators. Inclusion of some of the non-disabling illnesses in the other category is suspected.

Further, a comparison of Tables 3 and 4 indicates a certain amount of divergence in the disability proportions, the latter Table showing lower proportions. In this connection two factors which tend to affect the proportions in Table 4 in opposite directions may be mentioned. First, the proportions are likely to be lowered on account of the fact that non-disabling prevailing illnesses were not followed up till their termination by which time some of them would have probably become disabling. Second, the proportions are likely to be pulled up because of inclusion among prevailing illnesses chronic conditions of long durations. However, in view of the large differences in the proportions recorded by medical investigators, under-reporting of non-disabling illnesses among those not prevailing at the time of investigation cannot be entirely ruled out. On the other hand, divergences are not so marked in the case of non-medical investigators, probably because of (mis) classification, as stated earlier, of a number of non-disabling illnesses among those currently prevailing as disabling. The alternative explanation of omission of some of the non-disabling illnesses from the prevailing ones, though not unlikely seems to be rather weak for reasons already indicated.

Among the factors tending to affect the accuracy of data recorded in an investigation, education of the informant is an important one. For instance, in a health inquiry this factor may be said to be associated with the accuracy of diagnostic information. Though diagnostic classification of diseases is a useful adjunct for a detailed study of morbidity pattern, for an over-all assessment of illness prevalence in a community it is the totality of events (illness) that matters and any deficiency in this respect will affect the prevalence rate. The foregoing analyses have indicated that the coverage of illnesses by non-medical investigators was below that of medical investigators. It would be useful research to identify factors responsible for any such differential. Some of the plausible reasons may, however, be advanced. For instance, the manner in which the interviews were conducted by the two types of investigators could have been different. The medical investigators might be penetrating more deeply into the subject of inquiry. Further, in an inquiry of a specialized nature, like the one considered here, the informant's response aptitude may be affected by his assessment of the investigator in the particular context of the inquiry. It is also likely that this aptitude itself may be influenced by his social status. An indication of this is available from Table 5 where prevalence rates are given for the two groups by literacy status of the head of the household (who is usually the respondent).

Table 5: Prevalence rate by literacy status of informant

literacy status	medical investigators	non-medical investigators
illiterate and literate with no knowledge of English	150.00 (230)*	138.47 (487)
literate with knowledge of English	188.24 (638)	116.94 (414)
total	166.71 (870)	125.42 (901)

* Figures in brackets give the number of persons exposed.

It is hazardous to generalise on the nature of association between social status and response from the above table. The small difference in the prevalence rates for the two literacy groups observed: medical investigation could have arisen due to chance. On the other hand, the somewhat larger difference for non-medical investigation is suggestive of certain broad tendencies. It is either indicative of a differential in the prevalence rate or in the response rate as between the two social groups. While arguments could be advanced in support of either of the above observations, further studies would be needed to arrive at definite conclusions.

SUMMARY

A nation-wide health survey envisaging complex physical examination aided, wherever necessary, by laboratory tests can be summarily dismissed as impracticable. On the other hand, it may be possible to collect basic health data by the usual household interview method. However, such a procedure is unlikely to lead to any accurate and detailed diagnostic classification of diseases. In such a situation, even an assessment of the total morbidity and its associated characteristics will be of some value to the public health scientist. Though much depends upon the ability and willingness of the informants to discuss matters relating to health, the role of the investigators cannot be minimised. In this paper an attempt is made to study the relative efficiencies of two types of investigators—medical and non-medical—in canvassing information on illness episodes.

Higher prevalence rates have been uniformly observed in all the age-sex classes in the group investigated by medical investigators. On the assumption of similarity of morbidity experience in the two groups of households, the implication is that the performance of medical investigators was better with respect to coverage of illnesses. Further examination of the data is suggestive of the possibility of omission by non-medical investigators of a number of non-disabling illnesses among those terminating before the date of investigation. As regards prevailing illnesses the coverage of non-medical investigators seems slightly more excessive than that of their medical counterparts. However, their classification of such illnesses with respect to the nature of disability does not seem to be entirely satisfactory. It would be interesting study to identify factors influencing the prevalence rates in the different social groups.

The statistical evidence presented in this discussion may not be such as to permit final and unquestioned judgment on the relative merits of the two investigator types in the matter of coverage of illnesses. Nevertheless, they do suggest certain tendencies which deserve confirmation or refutation by further studies.

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