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METHODOLOGY OF DATA COLLECTION

FIELD SURVEYS

by

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In recent years field surveys have come to occupy a very prominent place as a method of data collection for psychiatric epidemiology. It offers a number of advantages over the historically older methods of data collection from the records of mental hospitals and related health services. However, as the experience grows it is becoming obvious that there are many limitations to this approach also. Some excellent reviews of field surveys have already appeared in WHO Public Health Papers by D.D. Reid (1960) and Tsung-Yi Lin and C.C. Standley (1962). In the present paper it is planned to first discuss some of the existing survey methods as they are applicable to mental health problems of developing countries and then to review some of the studies on prevalence of mental illness done in India and South East Asia. In the end briefly some of the field studies done by the author to measure ill health in certain special groups of population will be presented.

The broad aims of field surveys are to assess the prevalence of different types of mental ill health in a population as a basis for the prevention, treatment and control of

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these diseases. They are also useful to uncover the association between population characteristics and a particular mental illness as well as to test the hypothesis born out of clinical observations like genetic basis of an illnes. There are certain obvious advantages of field survey methods over hospital data collection for such purposes. For example to find out the prevalence of mental illness in general population the hospital records are only of a very limited use. This is particularly so in developing countries where mental hospitals are very few and the vast majority of the population either goes to traditional healers or is now coming to general hospital out-patient facilities. This makes the patients in mental hospitals as highly non-representative of general population. Furthermore the record keeping is highly unsatisfactory in most of these centres and diagnosis varies not only with the skill but also with the aptitude and training of the consultant in charge of the case. On the other hand in a field survey one can ensure a certain degree of standardization of interview procedure, diagnosis as well of the training of the interviewer.

Types of Field Surveys

The field surveys vary in design and execution. They may relate to general population or can be conducted on certain special population subgroups like industrial workers or college students. They can be classified as a total population survey or a survey of a random sampling of a given population. They can be cross sectional in nature, i.e. survey done once for a given population or longitudinal survey, where the same population is assessed repeatedly more than once. They can be retrospective or prospective depending on the relationship to a particular event. They can be timed to measure the prevalence on a single day or they can be related to prevalence seen in a longer period of time.

Morbidity surveys by random sampling method of a large section of population have been attempted in a number of countries including the USA, Canada, United Kingdom, Denmark and Japan. Japan's survey of 1954 for the national mental health programme is a very good example of such surveys. While such surveys give a comprehensive global view of the national morbidity, they are often not very accurate, as such extensive surveys have to be

done by relatively lesser trained staff. They are also costly in terms of time, money and manpower and need an efficient central administrative machinery.

Total population surveys, sometimes referred to as census surveys consist of studies of the entire population of a geographically defined area chosen either as a representative of the national population or because certain features of that population, like socially isolated pockets, mark it out for investigation. A number of such studies have been carried out since the pioneering work of Brugger (1931, 1933). Some of the subsequent well known studies are those of Lin in Taiwan (1953) done on a rural, semi-urban and urban sample and Stromgren's study (1957) done on an isolated island in Denmark.

Though such surveys have yielded good information on prevalence which can be useful for planning of services, it is difficult to take them as a model of morbidity for the whole country as the communities thus studied may not be truly representative. On the other hand such studies have served a very useful function to focus attention on certain causal relationships which can be subsequently tested in specially designed studies like Hallgren and Sjogren's study (1959) for genetic aspects of schizophrenia or Hollingshead and Redlich (1958) for social class and mental illness.

Survey by random sampling of geographically defined districts is relatively a simpler technique than the total population survey and also permits a more intensive clinical and social enquiry. In recent years a number of such surveys have been undertaken including a small town survey by Leighton (1956) and Midtown Manhatten study by Rennie (1957). However, one should be careful in evaluating the results of these surveys due to the limitations of methodology. Often the number of serious mental cases is small in a community and it is difficult to collect large samples for good statistical analysis.

Due to the chronic and long-term nature of mental illnesses, many workers have preferred to undertake longitudinal studies instead of cross sectional prevalence surveys. Such studies give a better idea about the rate at which a disorder develops and it affords better opportunity for studying causative factors at different life stages. For example, Fremming (1947) in Denmark followed up a series of 5 500 persons born in between 1884-87 in the remote island of Bornholm and succeeded in tracing almost 92 per cent of his original

cohort after fifty years. Similarly very good information has been obtained by prospective longitudinal study by Douglas (1960) in which premature children and their control were followed up from birth till twelve years. The well known study of Terman on gifted children through not strictly a survey of mental illness is a remarkable example of a planned prespective epidemiological study. Ninety-five per cent sample was still being followed up nearly forty years later in 1959.

As is obvious from foregoing discussion, there is no ideal method of field survey. It depends greatly on the aims of study, resources available and degree of training of participating staff. For prevalence studies total population surveys have the advantage of being comprehensive but measurement may not be accurate due to the large size of sample. On the other hand in smaller random samples the measurement is more accurate but samples suffer from being not representative. Furthermore as Kato (1973) has pointed out, the possibility of detection of mental patients is closely connected with socio-cultural, financial and ethical factors in a given country. For example, surveys done in Japan seem to suggest that more often male patients are detected than female patients, young patients than the old patients among traditional families, poor lower class than rich upper class, mentally retarded children than mentally retarded adults, deteriorated schizophrenics than paranoids, and hysterics than anxiety neurotics. It seems the pattern is very similar in developing countries.

Psychiatric Field Surveys in India and South East Asia

Field surveys for psychiatric epidemiology are relatively recent phenomenon in India and South East Asia. Most of the references related to the work done after 1960 (with the important exception of Lin's study in 1946-48 in Taiwan which is more appropriately in WHO Western Pacific Region). However, the need to assess the magnitude of mental health problems in these countries seemed to have been felt for a long time specially after the gaining of independence from foreign rule. For example there is a resolution of Indian Psychiatric Society dating back to 1949 requesting the Government of India to include a column on mental illness in the ten yearly national census. One wishes the problem was as simple as that, but as it soon became apparent to early workers, the field surveys

are highly complicated affairs needing careful planning and extensive resources in money, time and trained personnel.

In India, though there were one or two earlier surveys in Bangalore and Pondicherry, the first major field survey to measure prevalence of mental illness in general population was launched by Dr Dube in Agra. The work started in 1961 with a grant by the Indian Medical Research Council and continued for a number of years. The preliminary investigations were done by 1963 and psychiatric examination was completed in 1965. However, the statistical analysis took a long time and results were published in 1970.

Meanwhile a number of other workers took up similar studies, notable among them are Sethi, 1967, 1972; Gopinath, 1968; Elnagar, 1971; Verghese, 1973, and Kapoor, 1973. The work in some of these and other centres is still continuing. Apart from general population surveys the prevalence studies have also been done in certain special populations, e.g. factory workers (Ganguli 1968), and migrant population (Bhaskaran 1972 and Sethi 1972, etc.)

Outside India the work by Jayasundere in Ceylon in 1960 is most well known. There must be a number of other surveys in South East Asia the results of which were unfortunately not immediately available for the purpose of this review.

A brief synopsis of type of survey and major results are shown in Table I. For the purpose of this paper we are confining ourselves to adult population.

Prevalence of mental illness

A look at Table I would confirm that there is wide disparity of prevalence of mental illness in different studies; the range being 4-73 per 1 000. This observation is not unusual or confined to surveys in South East Asia but similar disparities have also been noted in surveys in other parts of the world. A careful scrutiny would, however, reveal that this disparity is relatively less in cases of psychosis, but is very marked in cases of neurosis and personality disorders. This is chiefly because the major behaviour disturbance in psychosis is much better identifiable in contrast to neurosis where the symptoms are mainly subjective and difficult to categorize. For example in the enclosed table most of the studies have reported the rate of psychosis as varying between 2 to 7 per thousand, while the prevalence of neurosis is as low as 1.4 and 5.2 per thousand in

rural studies in Elnagar (1971) and Sethi (1972) to 24 and 48 per thousand in the urban studies of Sethi (1967) and Verghese (1973).

The disparity between findings of different surveys - some possible reasons

If the findings of two field surveys are reliable but there are different prevalence rates in two populations it would mean very important etiological implications. But before attributing various social factors as of possible etiological significance in various mental disorders, one must make sure that the two surveys were conducted in reasonably similar conditions by nearly similar methodology. Unfortunately differences in design and execution are so marked between most of the studies reported that it would be premature to seriously consider them for etiological discussion.

What can be the reasons behind such widespread disparity of results? It is not simply the poor training or sophistication of workers, but there are certain inherent problems in present day methodology, as a result of which certain degrees of disparities seem inevitable. It is hoped to briefly discuss some of the common problems met with in this area.

Problem of sampling: This is one of the foremost reasons for differences in result. Some of the common sampling methods like total population survey and random sampling have been discussed earlier. The small size of sample can be a serious source of error. For example, if we are expecting a prevalance rate of schizophrenia of about .5 per cent in the general population, in a small sample of 1 000, missing or over inclusion of one or two cases can greatly distort the results. The psychotic patients particularly paranoid schizoprenia or patients with history of suicide are often reluctant to volunteer information. Hence in a small random sampling an un-co-operative patient is very important and should not be lightly dropped.

Problem of defining a case: This problem has never been resolved satisfactorily in various studies. It is easy to define a hospital "case" as one who has got symptoms and who seeks help from a doctor but what about a person who has not yet sought medical help? When does he become a case? How many symptoms or what extent of personal distress or social disturbance is necessary before an individual would be accepted as

a "case"? The problem is more complicated in developing countries where mental symptoms are many times not regarded as illness and relief is sought not from medical but often from other traditional sources of help.

The WHO Expert Committee on Mental Health (1960) suggested the following as an operational definition of a case: "A manifest disturbance of mental functioning specific enough in clinical character to be consistently recognizable as conforming to a clearly defined standard pattern and severe enough to cause loss of working or social capacity or both and of a degree which can be specified in terms of absence from work or taking of legal or other social action."

This is certainly a useful definition which brings a certain uniformity of approach. However, it tends to be rigid and concentrates on severe mental disturbance only. In developing countries where mental disturbance may not always conform to "a clearly defined standard pattern" of European psychiatry, this definition might prove inadequate. It is also difficult to measure by this definition "minor" psychiatric symptoms or "functional" disturbances which constitute such a large part of psychiatry in general practice.

Some examples about definitions of "case" in field surveys in India might clarify these issues. Dube (1970) in Agra has tried to adopt the WHO Expert Committee definition quoted above but the initial screening was based on abnormal behaviour noted by others. He came to find 8.86 per thousand hysteria and 3.77 per thousand other neurosis. Sethi on the other hand, using a set of questionnaire for physical and psychological symptoms at initial screening, found the prevalence of psychoneurosis in urban families as 24 per thousand while Verghese, again using a screening device followed by psychiatric interview in suspected cases reported prevalance of neurosis as high as 47 per thousand. Majority of the cases in Verghese series were of Depressive Neurosis which were hardly encountered in Dube's survey. It is strongly suggested by the methodology of these studies that by the introduction of checklist of symptoms for screening, the possibility of identifying more neurotic cases increases considerably.

Another significant example of how very different results can be obtained by using different definitions of a "case" is provided by the work of Kapoor and Carstairs in South India. They defined the case "as one who had one or more symptoms" on 124 psychiatric symptoms of Indian psychiatric survey schedule developed and standardized by the authors. By this definition, they report the case rate as high as 370 per thousand which is much higher than any study reported in South East Asia. Diagnostic-wise, it contains about 8 per 1 000 psychosis, 27 depression, 25 "possession states" while remaining 300 per thousand are mixed cases of neurosis, psychosomatic symptoms and vague somatic sensations.

Problem of psychiatric classification: The next most serious difficulty in the expression of the result of the field survey is the lack of a uniform system of classification of mental disorder. A great advance has been made in the recent years by the development of WHO International Classification of Diseases related to Mental Disorders. It has ushered in a new era of comparability of psychiatric morbidity in different parts of the world. However, the I.C.D. is yet to obtain a universal acceptance and many of its areas are not yet above controversy. The glossary to I.C.D. has also been introduced only recently. For the developing countries, psychiatric classification raises special problems. For example, certain non specific acute psychosis and possession syndromes do not clearly fit in but they occur in considerable number (25 per 1 000 in Kapoor's study). Similarly, culture-bound neurosis like "Dhat Syndrome" (a kind of sexual neurosis) of India or mixed somatic and psychological symptoms (which Kapoor reports nearly 25%) are difficult to put in the standard glossaries. Another example of difficulty of classification is the syndrome of depression. Many studies have recorded it independent of psychosis or neurosis. Personality disorder and alcoholism and drug dependence are also the areas which cause a considerable difficulty of definition.

Problem of classification of social and demographic data: Apart from difficulties experienced in the classification of mental disorders there are serious difficulties in the developing countries about the use of demographic and social data for the purposes of correlations which makes the comparison between any two studies very unreliable. There are no standardized definitions of psychosocial variables. Social class stratification into class one to four which is available in the Registrar General's office in the UK and other Western countries does not exist. In countries where persons are not sure even of their ages, any guesses about income, etc., are highly unreliable. The terms like joint family or extended family used by authors are again used very differently in different studies. There is urgent need for standardization of psychosocial data used for epidemiological work in developing countries, without which comparison of studies and guesses about etiological possibilities are quite meaningless.

Problem of statistical analysis: Another serious shortcoming in many studies which makes the comparison very difficult is the very different and inadequate statistical techniques used by investigators. Incidence and prevalence data are mixed together. With varying periods of studies the number of cases detected would also vary.

Some other practical problems of methodology: There are still many other problems of methodology which can seriously interfere with the overall results of a field survey and make the comparison with other studies very difficult. In all the studies ultimately it is the field worker who has to give the judgement whether a particular person is a suspect for mental illness or not. Hence, a uniformity of their training is essential but rarely achieved. Since most of them are temporarily recruited research staff, many of them leave before the study is completed. Furthermore, as the study advances, the investigator and the whole team gets more experience and as a result methodology is often modified in the middle of a study causing serious differences in initial and later measurements. Another problem is that of multiple investigators

in a project which requires cross validation of their results. To overcome the last problem many investigators use an initial screening schedule which is standardized and field workers are trained in its use. Similarly, for psychiatric evaluation also use of a standard schedule is becoming more common. A great step forward in psychiatric epidemiology was the development of Present State Examination (P.S.E.) schedule by Wing et al (1967). It was initially used in the WHO International Pilot Study of Schizophrenia and has also been used in other studies. Goldberg (1970) has developed a two-stage procedure with quick initial screening at the field level and a structured interview of suspects in a realistic clinical setting. Kapoor (1973) on the other hand feels that it is very difficult to contact the same respondant twice and even more difficult to persuade people (who, it must be remembered, never asked for interview or any help) to come to a "realistic clinical setting". Kapoor has designed his own Indian Psychiatric Survey and Indian Psychiatric Interview Schedules. He also advocates interviewing not only the patient but also a close relative. He feels that by interviewing the patient only, one misses cases like paranoid schizophrenia, suicidal attempts, psychopathy, etc.

Field Surveys to Measure General Ill Health in Special Sub-groups - Experience in Chandigarh

Methods of field surveys can be used not only to measure the mental illness in general propulation but can also be applied to many other epidemiological problems. In the Department of Psychiatry at Chandigarh we have been engaged for the last six to seven years in the study of psychiatric symptoms following family planning procedures particularly after male and female sterilizations. For this purpose we have surveyed 700 to 800 persons at various stages before and after sterlization operations and repeatedly for many months and years afterwards (Wig et al 1970, 1972, 1973, 1974). Since the findings of psychiatric ill health in these special populations have a close similarity with the field surveys done for prevalence of mental illness in India, it may be of interest to discuss them briefly.

TABLE I

Psychiatric Field Surveys in South East Asia

Country	Reference	Population studied	Rate per 1 000 population					Remarks
			Total	Psychosis	Neurosis	Epilepsy	Mental retard.	
Taiwan	Lin et al (1969) T	1946-48 N=19931 3 communities (rural, small town, city)	9.5	3.9	1.2	1.3	3.4	Higher rate in second study, possibly due to aging of the population and increase in psychoneurosis.
		1961-63 N=12184 (same area)	17.2	3.1	-	-	4.9	
Ceylon	Jayasundera (1969) T	4 villages						
		1960 N=2506	10	8.4	1.6			The first 2 surveys were considered more reliable
		1961 2212	5	4.5	.5			
		1962 1519	6	6.0	.6			
		1964 2497	4	3.2	.8			
India	Dube (1970) T	1961-66 N=29468 Agra (rural, semiurban, urban)	23.79	4.28	12.6	3.19	3.70	Life prevalence
			17.99	2.64	10.4	2.24	3.70	Active cases (18 months)
India	Surya (1964) R	Rural, Pondichery	9.5	3.7	5.0			

T = Total population) Georgraphically
R = Random sample) defined area

TABLE I (cont'd)

Country	Reference	Population studied	Rate per 1 000 population					Remarks
			Total	Psycho-sis	Neuro-sis	Epile-psy	Mental retard.	
India	Sethi et al (1967) R	1966 N=1733 300 urban families Lucknow	72.7	2.3*	24.2*		22.5	Depression 6.9 32% families affected
	Sethi et al (1972) R	1970 N=2691 500 rural families Lucknow	39.4	1.1	5.2*	2.2	25.3	Depression 1.5 17% families affected
India	Gopinath (1968) T	423 rural (near Bangalore)	16.54	7		2.36	4.72	Alcoholism = 2.36
India	Elnagar et al (1971)	N=1383 Village in Hoogly 184 families	27	7.2	1.4	4.3	1.4	21% families affected. Depression 2.9
India	Verghese et al (1973)	1970-72 N=1887 Vellore town 539 households	66.5	5.7	47.6		3.2	32.8 depression out of 47.6 total neurosis. 14.1 severe disturbance

T = Total population) Geographically
R = Random sample) defined area

* Excluding depression

TABLE II

Psychiatric Field Surveys on Specific Population Sub-groups

Country	Reference	Population studied	Rate per 1000 population				Remarks
			Total	Psychosis	Neurosis	Epilepsy / Mental retard.	
India	Kapoor (1973) T	1970-72 1233 3 castes in South Indian village	369	8.1	200	5.7	"Possession"=25.1 Depression=27.6
India	Ganguli (1968) R	327 all males textile workers, Delhi	140	3.06	125.4	9.17	Psychosomatic
India	Bhaskaran (1972) R	100 migrants in industry, Ranchi					-6 cases of paranoistates -Higher incidence in migrants
India	Sethi et al (1972) R	1547 (250 refugee* families)	95.7	3.3	29.7	14.2	Affected families 44.4%
		1410 (250 non-migrated families)	41.8	1.4	10.6	14.2	19.2%

T = Total population survey
R = Random population survey

*The term refugees refers to families migrated from West Pakistan in 1947

These field surveys were different from the traditional type in the sense that while in the usual prevalence surveys one starts out to look for mental illness, in the present surveys it was not definite what kind of disability we are going to find. Instead of identifying classical psychosis or neurosis we were on the lookout for all varieties of physical or psychological symptoms.

Defining a case: The first problem faced in our work was how to define a case. The WHO Expert Committee's definition of a case being "consistently recognizable as conforming to a clearly defined standard pattern" was not very appropriate for our needs. We first tried to use a check-list of symptoms but soon ran into a number of difficulties. For example, if one uses a check-list, some symptoms are missed which one has not listed. Secondly, there is a tendency on the part of the population, particularly in the uneducated, unsophisticated section, who are often quite suggestible to check many more symptoms than they really have. The third serious problem is of measuring severity of symptoms. Perhaps many of these difficulties could have been solved if we had highly trained pyschiatrists who could personally go to the field, interview the patients and make a phsycial and mental examination on the spot to decide the nature and severity of the disturbance. As is common in all such studies, there are never enough psychiatrists and we had to depend on social workers and other psychiatrically lesser trained individuals. We made efforts to develop empirical definitions of severity of symptoms and guidelines to workers on how to recognize symptoms, but with the degree of their training and occasional change of workers in studies (a phenomenon not too infrequent in developing countries), we found it difficult to rely on the judgement of field workers in the matter on whether "symptoms" exist in a particular individual and what is the dgree of the severity if symptoms do exist.

To overcome this difficult problem we decided to use the traditional clinic method adopted by psychiatrists namely to listen to the complaints of the patient. We advised our field workers to verbatim record the complaints as narrated by the person. All these verbatim records were repeated in a weekly research meeting.

Listening to the description given by patients gave us a much better idea about the nature of the problem, the degree of personal distress and relative importance of different symptoms. Verbatim record of symptoms is not difficult and can be written with a little practice by even the least qualified field worker. The judgement about whether a person can be justifiably considered a "case" or not was arrived at by the chief investigators in a joint meeting where verbatim records along with the observations of field workers were discussed. The severity of symptoms were also decided in the meeting, by taking into account the number of symptoms, degree of personal distress, previous visits to the doctors or other healers, degree of disturbance in family and social life. In this way an effort was made to nearly reconstruct the procedure as is usually done when such a decision is taken in the clinic. The severity of symptoms was finally given the following grades:

- No symptoms
- Symptoms present but insignificant
- Symptoms present but obviously related to some other physical illness
- Symptoms present and mild
- Symptoms present and moderate
- Symptoms present and severe.

For the purpose of our studies, only the last three categories were considered significant and regarded truly as constituting a "case." All the moderate and serious cases seen in the field were later called in the clinic and diagnosis confirmed. The nature of symptoms in these cases were mixed and consisted of various types of physical, psychological and sexual complaints. It was not easy to put them in traditional categories. One could recognize easily a psychotic illness, with a little more difficulty a neurotic depression and perhaps a psychophysiological reaction of sexual impotence, but the majority of the other cases were dominated by a number of vague, ill-defined physical and psychological symptoms like poor health, weakness,

pain in the legs, back and other parts of the body, poor sleep, irritability, excessive worrying, etc. These appeared to be neurotic complaints but it was difficult to give a specific label. Perhaps in a psychiatric clinic they might be regarded as a chronic anxiety or hypochondriasis.

Findings of surveys: It would be difficult to present all the findings in this short paper. However, to illustrate the points raised in methodology, some of the findings in our recent field survey are being presented. It relates to the follow-up of patients who had undergone vasectomy three to five years before and who had been followed up before and after the operation earlier also. The number of population is 200. The age range was thirty to fifty years. The education, income and occupation were not very different from average census figures of Chandigarh and neighbourhood.

TABLE III

Psychiatric Ill Health in Vasectomized Males
(Report of a field survey done 3-5 years after operation)

Population studied	Method of survey	PSYCHIATRIC ILLNESS					TOTAL
		Psychosis schiz.	MDP	NEUROSIS			
				Multiple somatic symptoms	Neurotic depression	Sexual impotence	
200 males age 30-50	Individual household visits	1	2	18	9	7	37
Rate per thousand		5	10	90	45	35	165

TABLE IV

Psychiatric Ill-health in Vasectomized Males

Grading of scores according to severity of symptoms

Grade of disturbance	No. of cases	Percentage
No symptoms	113	56.5%
Insignificant symptoms	44	22.0%
Symptoms obviously related to some other illness	7	3.5%
Mild symptoms	15	7.5%
Moderate symptoms	15	7.5%
Severe symptoms	6	3.0%
TOTAL	200	100.0%

Significance of findings: As these findings related to a specific population and the study was conducted for a specific purpose, they obviously cannot be generalized or compared with prevalence of studies in general population. The main point of presentation is to illustrate the methodology. It seems to us that for small surveys where personal supervision is important, this method of determining the "caseness" and severity of symptoms has more reliability as it nearly reproduces the assessment as is done in the clinic. With the addition of the group "insignificant symptoms" the subclinical complaints are largely kept out. With larger populations and multiple assessors this method would probably lose its advantage but it may be useful in small personalized surveys particularly where the symptoms are vague and ill defined.

The high rate of symptoms, suggest that these complaints are similar to neurotic complaints reported by many earlier workers. Kapoor and Carstairs have reported even higher "case" rate (about 370 per thousand). It is likely that they included complaints which we excluded as "insignificant symptoms" because their definition of a case was "any one who reports one or more symptoms." It is strongly suggested by these studies that psychiatric ill health, particularly of neurotic variety, is a continuum in the community. It merges on one side with physical illness and on the other side with social distress. Any cut-off point would be an arbitrary decision depending on the use to which the data is to be put.

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