THE IMPORTANCE OF PRIMARY SOCIAL GROUPS

FOR

HEALTH EDUCATION

GUY WALTER STEUART

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CONTENTS

INDEX TO TABLES AND FIGURES

Figures

Comparison of Homogeneity of High, Moderate and Low Cohesive Groups in Terms of All Variables.

INTRODUCTION

THE IMPORTANCE OF PRIMARY SOCIAL GROUPS FOR HEALTH EDUCATION.

INTRODUCTION.

THE DEVELOPMENT OF MODERN HEALTH SERVICES

In recent years there has been a steadily increasing interest in the social aspects of medicine and public health. This interest is broadly based on the notion that disease may be regarded not simply as a biological and biochemical phenomenon but to a great extent as a product of human behaviour, thought and feeling in both private and public life, and as an expression of social and cultural factors.

Indeed there has developed a modern branch of medicine or perhaps more correctly, a kind of approach to medicine known as "Social Medicine" and although as Galdston (1) has shown, it means many things to those who pursue the study of various aspects of it, the essential spirit of the movement is perhaps summed up in the title of Ginsburg's well-known book, Public Health is People (2).

The whole movement however is so vast that no attempt will be made here to deal with it in detail extending as it does from manifestations in clinical medicine to an expression at the highest levels of national legislation for health and welfare.

We may instead take a brief historical glance at some of the origins of modern public health services in the work of Edwin Chadwick in Britain and Lemuel Shattuck in the United States.

Chadwick's report on The Sanitary Conditions of the Working Population of Great Britain in 1842 (3) and Shattuck's Report of the Sanitary Commission of Massachusetts in 1850 (4), both stressed the political, economic and environmental implications of disease with special reference to the infectious

diseases and poor housing, overcrowding, inadequate sewage and refuse disposal and the protection of water supplies.

Moreover, the solutions they proposed were largely in terms of political or public action such as the the provision of sewerage facilities by exploiting the resources of sanitary engineering.

The famous episode of John Snow and the Broad Street pump in 1854 (5, 6), typifies the kind of public health effort of the times. It occurred in the parish of St. James, Westminster, where there was a severe outbreak of cholera. John Snow traced the cases to one particular water pump in Broad Street and persuaded the parish council to remove the handle of the pump. The cholera outbreak thereupon subsided.

The significant elements in this episode are firstly that the epidemiological work of tracing the course of the disease through the population, concerned an infectious disease. Secondly, the solution was achieved by an organised public group, the parish council.

These elements are among the most characteristic of the development of public health in the last 100 years or more.

Epidemiology was largely the study of the natural history of infectious disease in a community, of its causes, distribution and movement in the population. The great epidemics of infectious diseases such as plague, cholera, diphtheria and smallpox were the dramatic and sudden killers of large numbers of people and tended to conceal the load of malnutrition and other long-term non-communicable disease carried by the communities of the world.

The recent relatively successful conquest of communicable or infectious disease in Western countries has laid bare the variety of non-infectious conditions without whose existence perhaps, the infectious diseases may not have produced such a formidable mortality as they did.

But the dire and ever-present dangers from infectious disease gave rise to what may be regarded as among the great achievements of medicine in which the bacteriologist, the laboratory and the microscope played a major role.

Its latest manifestation has been the production of the anti-poliomyelitis vaccine which is only a phase as it were, in what is now a long tradition of success in medicine emerging from the laboratory.

As a result of all this work, we have a comparatively clearly distinguishable set of diseases, infectious in nature with a well-defined essential etiological element, each of the diseases having its own peculiar identifiable micro-organism as the agent. For most of these diseases, specific vaccines have been developed and the immunisation procedure has given a simple and powerful weapon of prevention.

This heady success has tended to send many modern investigators along the path of seeking essential single causes for diseases even of a non-infectious nature and the recent association of cigarette smoking with lung cancer is an example of this.

It has also tended to emphasise the role in public health, of providing both immunisation facilities on the one hand, and general sanitation facilities on the other. Thus the proper organisation by public and sometimes private bodies of sewage and garbage disposal, of the protection of water and milk supplies for example, and widespread immunisation campaigns has changed the whole disease picture in Western communities particularly.

But epidemics as well as sporadic outbreaks of infectious disease still occur even where the facilities for their prevention are at hand and it is being increasingly recognised that the missing link in the chain is the use made by people of the facilities which are available.

In South Africa for example, the problem of community use of facilities is constantly recurring. There is, for instance an ample supply in South Africa of anti-diphtheria vaccine but the disease still occurs extensively particularly among Africans (7). For a more defined area, Kark and Cassel (8) have described an illustrative situation for almost all the formidable infectious diseases of this country.

But the attention of health and medical workers was drawn more dramatically to the problem of community co-operation when interest in the non-communicable diseases increased.

Malnutrition was found to depend on a variety of dietary habits, as well as agricultural skills and the productivity of the soil (9). A national American report (10) stated that over half the hospital beds in the United States was occupied by mental patients, victims of diseases with highly complex etiologies. In South Africa, as elsewhere, heart conditions and cancer were found to be the highest causes of death among Europeans (7).

With all these disease conditions, it appeared that the causation lay not so much in single causes, as in the whole pattern of everyday behaviour including sleep, rest and exercise, working conditions, eating, smoking and drinking, sanitary habits in the broadest sense, child-rearing methods and human relationships.

This has had at least 2 highly significant results.

In the first place, the term epidemiology has now come to be applied not only to the infectious diseases but to the non-infectious diseases as well. In fact, so far has the pendulum swung that it is possible to talk today of the distribution through a population both of disease and the causes of disease as well as of health and the causes of health as for example has been done by Galdston in his Epidemiology of Health.(11)

Secondly, these developments stimulated the emergence of community health education as a recognised weapon of public

health and medicine. A sign of the importance attached to this field has been the appearance of a specialised worker known as the health educator. In the United States he has a professional organisation (the Society of Public Health Educators), in Britain his work is represented by the Central Council for Health Education, and on an international level, a special section of the World Health Organisation deals with health education programmes. Shepard (12) has said of health education that it is "the most recent and perhaps the most effective of the gradually evolving health procedures".

Thus, in summary, a significant feature of modern health services is the belief that the health of a community is not dependent only on the quality and extent of the technically expert services or disease preventive facilities that are provided; but that it depends also on the extent to which the community's everyday life, its knowledge, feelings and behaviour, is itself promotive of health.

PART I

THE PROBLEM

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THE METHODS OF COMMUNITY HEALTH EDUCATION.

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The Methods of Community Health Education.

Ordinarily, the main methods employed by the health educator may usefully be considered in two categories.

Firstly, as with John Snow and the parish council, he attempts to influence organised bodies, both public and private, to carry out action on behalf of its own members or of the community as a whole.

The typical situations then in which he finds himself are those where he discusses either with the individual who occupies an important position in an organisation, or with the governing committee of the organisation, the possibility of action by that agency in relation to some health problem.

The modern campaign in the United States and other countries to introduce fluoridation of water supplies is an appropriate illustration of the method. Fluoridation of water supplies has been accepted by medical and dental authorities as an effective prophylaxis against dental caries particularly with children and is quite harmless to health if the correct amount of the chemical is introduced.

Nevertheless, communities and their elected councils have everywhere protested against and often finally opposed any such action on the grounds that it is dangerous to health, that it has no effect on dental health and even that it is an infringement of personal liberty to tamper with water supplies.

The campaigns have consisted largely of attempts to sway the opinions of city councils, and of private organisations such as women's institutes. Taylor (13) has given a description of one such campaign in New Zealand.

But this is a situation where the health worker supplies an expert appraisal of a problem as well as his own solution.

The community organisation work of the health educator may, however, be carried to more sophisticated lengths. For example, there have recently been appearing in the literature (14, 15) reports of private voluntary bodies in the community carrying out surveys themselves of their own communities in order to assess the nature and extent of certain health problems and to propose appropriate solutions, the health service team acting in the capacity of advisers.

This kind of approach has deeply influenced the relationship between health services and the communities they serve, setting up between them in place of the older situation of an expert team imposing solutions to health problems on the community, a coöperative partnership typified in the descriptions of Rosen (16) and MacLeod (17) for example, where community and health department are regarded as a "working team".

The importance attached to community organisation in relation to health education is shown in the 1941 report of a committee of the American Public Health Association (18).

It is apparent however, that the main scope of community organisation work is to substitute for the action of health and medical departments, a joint action between these and various formal organisations in the community.

It is in health education's other main method that an attempt is made to reach by education not only those participating in public life but everybody in the community during the course of their private lives.

The method employed for educating the private citizen directly, is predominantly that of mass media. Of course, in a health education programme, community organisation and mass media are closely linked, as for example where the community agency itself sponsors film shows, arranges press insertions or buys radio time. This has been so in much of the fluoridation work so far. (19)

The importance attached to mass media has been and still is considerable, the commonest media being literature of various kinds (20), the daily press (21), the film (22) and radio and television (23).

The main characteristic of these mass media is of course, their impersonal nature aiming as they do, the identical message in an identical form at the whole community, relying for their success largely on the purely arithmetical problem of what propertion of the population they can reach.

In summary then, we may say that community health education commonly dealt directly with 2 main categories viz.

(1) The formal organisation (and its individual members), aware of itself as a group and usually accustomed and indeed constituted, to act as a coöperative group.

(2) The community as a whole but as an impersonal aggregate or "mass" with little attention to its social constituents or the channels of informal communication within it.

Gradually however, community health education is undergoing a change of a fundamental nature, a change with a theoretical background embedded in the work of social psychologists and of sociologists. This work has revealed that the community is itself a vast social network of inter-communication and that in this network, both individuals and the groups of which they are members, play various roles. Derryberry (24) has given a short review of these changes over the past 25 years.

Among the most important for health education of the work of social scientists has been the so-called "re-discovery" of the primary group and Shils (25) has recently described broadly the place of the primary group in social science, giving it both historical perspective and contemporary background.

What we have here is a broad classification between relatively large and impersonal groups (the secondary) on the one hand, and relatively small and intimate groups (the primary) on the other hand. European theory has followed an analogous distinction on the lines of Ferdinand Tönnies' Gesellschaft (organised impersonal relationships) and Gemeinschaft (close communal relationships). (26)

Cooley (27) in the United States, provided an early general definition of the primary group. It is much quoted and we make no apology for doing so again.

> "By primary groups, I mean those characterised by intimate face-to-face association and coöperation. They are primary in several senses, but chiefly in that they are fundamental in forming the social nature and ideals of the individual. The result of intimate association, psychologically, is a certain fusion of individualities in a common whole, so that one's very self, for many purposes at least, is the common life and purpose of the group. Perhaps the simplest way of describing this wholeness is by saying that it is a 'we'; it involves the sort of sympathy and mutual identification for which 'we' is the natural expression ..... The most important spheres of this intimate association and coöperation - though by no means the only ones - are the family, the play-group of children, and the neighbourhood or community of elders."

Our interest in this study will, however, be concerned not with family and kinship groups as such but with those adult groups consisting mainly of private friends and neighbours which by their size and intimacy could be described as primary in nature.

In distinguishing primary and secondary groups of course, we are dealing with an essentially comparative matter. The size of groups is relative, as is the degree of intimacy within

them. Health education methods however, have tended to be concerned mainly with groups whose characteristics tend more towards what might be called the secondary end of the scale.

There does however, appear to be the possibility of making more direct use of the more informal social groups and situations of daily living that appear to play such a vital role in making us what we are and exploration of the educational possibilities of these small primary groups is on the threshold of considerable investigation.

It is interesting that the current major assault on this problem occurred through an examination of the effectiveness of mass media and the principles behind whatever influence they may exert. The story of a major investigation is told by Katz and Lazarsfeld (28) who demonstrate that the effectiveness of mass media occurs not so much by its direct impact on every individual exposed to it, but by the effect it exerts on "opinion-leaders" or "influentials", who in turn transmit to and influence others. These opinion-leaders occupy no formally recognised status as such but play their roles essentially in their private everyday lives as members of primary groups.

Griffiths (29) has emphasised the importance of these findings for health education. He remarks that he sees "arising for the first time a unified theory of public health education - unified because of a common base. Use of mass media will not stand, as it originally did in the early days, as the one major educational method; nor will it stand as a method of lesser status, as some of us regarded it during the last decade ... mass media will be linked with (community organisation) by means of this common base."

It is however, of some significance that although Griffiths is among the first to take this standpoint, neither he nor others seem to have gone further than to assume that the awakening of interest in the primary group will do much more

than link mass media and community organisation, highly important and indeed revolutionary as this link may well prove to be for both methods.

What they appear to miss is that primary groups may well become themselves the subject of identification and direct exploitation in health services with special reference to health education, in contrast to making use of these findings only to develop a more sophisticated manipulation of community organisation and secondary groups as well as of mass media for the community as a whole.

It is with this particular possibility that this study is concerned.

C H A P T E R II

PRIMARY GROUPS AS EPIDEMIOLOGICAL UNITS

CHAPTER II

PRIMARY GROUPS AS EPIDEMIOLOGICAL UNITS

If we were to examine the educational possibilities of small groups of a primary nature from the special viewpoint of health services, there would probably be at least 2 aspects to be considered.

The first of these is the question whether such groups constitute what might be called health or disease units in a manner analagous to the family.

The family may be considered an epidemiological unit in the sense that through heredity, through the child-rearing process and the close living together and interaction of its members, there are associated hereditarily determined states of health and disease, the transmission of beliefs, feelings and behaviour effecting health, the sharing of a common diet, the proximity that facilitates the transmission of infectious disease from one member to another, or that exposes them all to similar environmental hazards, and the intimate social relationships.

All these factors in combination create an overwhelming tendency for the family to manifest its own peculiar health and disease picture in a distinctive family pattern.
Spence and others (30), Kark (31) and Richardson (32) are among those who have shown the need for recognition of the family as an epidemiological unit.

Different families are then somewhat similar in this sense, to communities of different living conditions and social and cultural backgrounds that also show relatively distinctive patterns of health and disease.

We may then ask of primary groups a similar question viz. are they in themselves productive of their own relatively distinctive patterns of health and disease. If they are, then they would constitute a necessary target of health education.

The second aspect of the problem is whether and to what extent such groups, as groups, show potentialities for education. Will they for example, when assembled be likely to function as a group, the members feeling they are on some kind of common ground, or will they be no more than a small aggregate of individuals unused to sharing ideas about health matters. Will the group too, be likely to carry on a self-educating function in the absence of the educator, further discussing and digesting the new ideas he may have proposed?

So far as health education is concerned these 2 parts of the question are closely dependent on one another for the simple reason that the task of health education may be conceived as the change by educational methods of those ideas, feelings and practices that affect health and that therefore its legitimate sphere of action would be with those groups which show relatively distinctive health problems combined with relatively distinctive educational possibilities linked to these.

In fact, in this study, we shall not attempt a total answer to the question for this would involve along with other aspects, a study of the clinical states of health of the members of these groups. We shall confine ourselves to the sphere of knowledge, attitudes and behaviour ordinarily considered important for health.

Among the ways in which the problem may be examined, is to test to what extent primary groups have an internal homogeneity in the sense that the members are relatively uniform in respect to characteristics considered important for health education. Do they give their group what Bogardus (33) calls a definable "groupality", analogous to personality for the individual?

From a health point of view this is important because if primary groups do have a relative homogeneity in respect to health matters, they will tend to constitute small distinctive pockets as it were of health and disease in the community and

therefore be an essential consideration in programme planning.

From a more purely educational point of view the implications of homogeneity are also important. The readiest illustration of this, is the formally contrived group of the school classroom. Here, an attempt is made to have a relative uniformity in each class in terms of the age, intelligence and level of school achievement of the children.

This obviously facilitates the task of the educator as he is able to assess the capacity of the class as a whole to respond to a particular educational method and to understand, accept and assimilate the content of his education. He is thus able to adapt both method and content to the group as a whole rather than to the needs and capacities of its individual members.

It is also true that the modern democratic view of education is that its richness is to a great extent dependent on a certain degree of diversity among the members of a learning group; and indeed that a group should not be treated as a uniform "mass" but rather with optimal scope for individual self-expression, participation and achievement, encouraging members thus to learn through the exchange of ideas with others.

But this is a comparative matter.

Too great a diversity may impose serious limits on education. Where it is too great, group education can become wellnigh impossible, and have to fall back on individual education. It is for example, considerably easier to design an educational programme for a culturally homogeneous community than for a mixed one. In one Durban community where Indians, Africans and Coloureds are living together virtually 3 different programmes for the same objective have on occasion had to be designed. Even if this community had shared a common language this would have been necessary because of the culturally different interpretations placed by the groups on the same medical content.

In the same way, in our experience with groups within the community, a certain degree of internal uniformity of groups seems desirable. It is with fair frequency that we have found within a group wide differences in the capacity to understand and the motivation to accept, Western theories of disease causation so that it was difficult to find a common ground for discussion.

Of course, where marked heterogeneity does exist in a group in respect to some characteristic this would itself suggest that the group had exerted no pressure on the members to conform in this respect being perhaps prepared to tolerate such differences as unimportant. About this we shall have more to say later.

We must of course make a distinction between relative uniformity of group members and the regimentation of group members. The differences between individuals are sufficiently wide to mean that no functioning group of everyday life except in the most authoritarian context can be considered to be uniform in any more than a very limited number of respects.

In any event, the educator, may by the kind of educational situation he contrives, elicit differences in the most apparently uniform of groups.

The need for diversity or uniformity may vary considerably depending on the nature of the educational task. We may wish not only to begin with diversity but to encourage diversity also as an end result in subjects such as the humanities. With much of the material dealt with in health education however, the forms of behaviour we wish to encourage are simple and uniform. For example, a uniformly favourable response to immunisation education is what is desired, not a diversity of response in which some people protect themselves and others do not.

In any event, whatever the circumstances, in respect to those characteristics related to the methods and objectives

of the educator, the degree of homogeneity of the groups involved is a matter of importance.

Associated with the problem of homogeneity, but important in its own right, is the question of whether those characteristics of the members important for health and for health education are "socially relevant"; whether they are, in other words, significantly related to those more specifically social forces that hold the group together or attract the members to one another.

For example, if a group is drawn together by informal friendship bonds, and this friendship is at least partly dependent on the political views of the members, those political views may be regarded as "socially relevant".

The importance of the existence of such a relationship is that in such circumstances, it is likely that the group will demand of its members for example, a certain conformity and hence exercise what we might call a self-educating function. In the same group, religious observances of the members may have no social relevance in the sense that the group is prepared to tolerate such differences in its members as unimportant differences.

With such a group, the outsider who wished to convert it to a new political standpoint would be dealing with a group which even in his absence would probably continue to debate and even perhaps to establish new norms for itself, thus carrying out an intrinsic educational function in respect to its members. But he would of course also have to deal probably with a group-generated resistance that may be very powerful.

But were the outsider to introduce a question of religious observances, the relative unimportance of this question to the group could well mean that it might discuss the matter with him when he raised it, but lose interest in it in his absence, and hence have no self-educating function.

Importantly enough, perhaps his main chance of success would be in attempting to relate the question of religious observances to political views. If once he established the connection in the group's perception of the matter and therefore linked the socially irrelevant to the socially relevant, this self-educating function may well swing into action for religious observances as well.

Where we are dealing with material of importance for health education the same principle would apply.

In other words, if a relationship can be established between this material and the forces of attraction of the group members, this would suggest the possibility firstly that within the group there is likely to be a self-perpetuation as it were of the health characteristics of the group making it again a necessary target of health education. But secondly, at the same time, since it will be likely to carry out a self-educating function, the health educator who is able to introduce new ideas in his field is likely to be dealing with a group that will continue to digest these ideas in everyday life in his absence. Hence the educator may well conceive his task to be the exploitation of these "natural" educational forces intrinsic to the group and attempt both to identify them and to harness to them, his objectives and content.

Of course, the mere existence of a degree of homogeneity in respect to any characteristics would in itself suggest these characteristics had some social relevance.

Uniformity among the members would for example, be compatible with pressures by the group on the individual members to conform to certain norms or with the original choice of others to be based partly on the criteria of these characteristics. On the other hand, of course, it may be due to common experiences of the members individually or while in the group, relatively unrelated to the intrinsic social dynamics of the group.

Probably all these factors operate in one degree or another in every group.

Thus, from the educator's point of view, the nature and extent to which the content of his education is socially significant is at least superficially measurable by the extent to which it is shown to be a function of group cohesiveness or the choice status of members of indeed of any of the social factors (as distinct from educational content) operating in group formation or maintenance.

To sum up the position thus, we wish in respect to groups of a more primary nature as distinct from groups of a more secondary nature, to make a preliminary exploration of their potentialities for health education purposes.

To do this we shall take those variables considered of importance for health education and examine the members of primary groups to determine

(1) The extent to which group membership is homogeneous in respect to these variables.

(2) The extent to which the attraction of members to one another is related to these variables by testing

(a) whether a relationship exists between homogeneity and the cohesiveness of the group,

(b) whether a relationship exists between the scores of members of the groups and those they choose to name as their friends.

To the extent that positive answers are found to these questions, so may these groups be regarded as epidemiological units.

PART II.

THE INVESTIGATION.

CHAPTER I

THE ORIGIN AND NATURE OF THE SAMPLE

SECTION II

CHAPTER I

The Origin and Nature of the Sample.

The Institute of Family and Community Health with which is associated the Department of Social, Preventive and Family Medicine of the University of Natal, (34) gives a demonstration service to various local Durban communities of different ethnic and culture groups.

Its practice is based on the theory that the state of health of a community is largely the product of its social and cultural background. It is concerned therefore, not so much with the health of the individual as a more or less isolated clinical entity but as a member of a family, and of other social groups both primary and secondary. Clinically then, it has attempted to make its unit of practice the family (35) but its interest extends also to all the other social groups, both primary and secondary that make up the life of the community.

The Institute offers a combined curative, preventive and promotive service in which the 2 main methods may be described as casework or clinical, and community health education. This is however, largely a division of the professional functions of the doctor and nurse, on the one hand, and of the health educator on the other.

In the last resort the aim of the service as a whole is to exert an educational impact on the community to enable it to achieve the highest level of health possible by its own efforts. This approach, and some of the results in terms of improved health, have been described by Kark and Steuart (36).

A comprehensive demographic description has been given by Kark (37) of the particular community served by the Institute, in which this study was conducted.

It consisted of an urban African township constructed as a sub-economic housing scheme by the municipality. First

established in 1934 with 182 homes, it had increased by 1956, the time of this study, to 1901 homes with an estimated population of 11,406 persons, and has since continued to expand even more.

The growth of the community has been due largely to the rapid development of industry in that part of the city and in which a large number of the male population are employed.

Well over 90% of the men and women, as Kark points out, were born in predominantly rural areas in contrast to their children 75% of whom were urban born.

The residents are mainly Zulu and the large majority are literate being able to read both Zulu and English. The men on the whole have had more than 6 years of schooling and are employed in unskilled and semi-skilled industrial occupations with a scattering of white-collar and professional people, mainly teachers. The majority of the women have had more than 3 years schooling and a large number are gainfully employed. An average family income is about £12 per month.

In charge of the township is a municipal superintendent and there is an elected advisory board of residents with whom he meets regularly, its function being largely to represent to him the views and problems of the community. But although this board is frequently influential, it has no executive power vested in it.

The board has always consisted of male members, but outside of it, most of the community organisation is in the hands of women. These women's organisations usually exclude men altogether from membership although they are by no means confined in their activities to problems and needs peculiar to women. Some of them are essentially housewife organisations interested in the home and in improving domestic skills such as sewing and cooking. But numbers are concerned with the total needs of the community in terms of schooling, recreation,

transport, shopping facilities, burial facilities, and indeed almost all general community problems as these arise from time to time.

Among the more important of these organisations is the so-called "Combined Group", started originally as a body of representatives of all the women's organisations meeting to discuss common problems. It attracted to itself however, membership by women in their private capacity not representing any organisation and today although it is still concerned with the coördination of work of organisations in the community, it has assumed general functions that make it at the same time an autonomous organisation in its own right.

The health education work of the Institute had for some time followed roughly the lines of health education elsewhere. Although it has never made quite the same extensive use of mass media, the film and the poster were common features of the programmes. Moreover, extensive community organisation work was done and its most fruitful products were community centres enlisting the voluntary participation of the people for services not strictly within the terms of reference of a health service such as recreational facilities, centres for the pre-school age children, adult education classes and the provision of cheaper supplies of essential foods such as milk.

But perhaps the main burden of its educational work was within the family itself and for a considerable period intensive education with individual families in relation to their own health care was the dominating feature. Education was also a common feature in antenatal programmes, and in mother and child programmes, with small groups of expectant mothers, and of mothers with young infants attending for routine care.

Sometimes education within a family circle included visiting neighbours and friends and sometimes a number of families whose homes adjoined a common yard, or who made use of common cooking or sanitary facilities would be involved as a group.

But no systematic attempt had been made to make the primary group outside of the family, the target, the medium or the agent of health education.

The events to be described now were largely dictated by various service circumstances.

In the urban African township just described, a stage had been reached where the problem of obesity among the women came to be recognised as one requiring action and it was decided to start an educational programme designed to draw attention to the dangers of obesity and to ways in which it could be prevented.

A decision was also made to take the opportunity with this programme to work with groups of a kind that had not been systematically handled before viz. small, relatively informal groups of friends and neighbours.

At the same time, independently of these decisions, the possibility had arisen that the Institute, hitherto dealing with only a few small local communities where student teaching and demonstration functions were carried out as well as a service, might in the near future have to extend its services to very much larger communities.

Ordinarily, in extending work to larger communities, there would tend to be a decrease in the amount of education possible with single families and small groups and an increase in the use of mass media and of community organisation work.

Although for the meantime, the Institute's service would remain confined to its old communities, it was realised that to make an easier readjustment to large communities should this eventuality arise, methods should be developed and practised right away that would be applicable to large communities.

It was therefore planned to increase staff experience with mass media and with community organisation. But at the same time, the desire to experiment with primary groups of a

kind could not be denied. Ideally, this would have meant extensive sociometric investigation in an attempt to delineate such groups but where a health service is faced with a relatively urgent need for action, such an approach was not feasible particularly if large communities say of 30,000 to 40,000 people per health educator, were to be considered.

It was decided then, more or less on the spur of the moment that in the obesity programme, the health educator would approach the housewife in each of a random sample of 1 in 20 homes.

The householder of each selected home was simply asked whether she would be interested in having her friends in some time to discuss various aspects of the Institute's programme with the health educator.

If she accepted the suggestion, and none of those approached rejected it, an appointment was made and it was left to her to invite whichever of her friends and neighbours she pleased.

Thus the group that eventually assembled was voluntary and self-selected, and met in the informal and personal setting of a private home.

The health educator played a highly permissive role, did no didactic teaching, and merely elicited the group's opinions about whether obesity was a desirable condition or not, whether it was thought to be associated with any particular diseases or problems and what dietary constituents might be related to it.

Each group met on 5 occasions spread over 3 or 4 weeks, and on each occasion a discussion was held lasting about 45 minutes on the problem of obesity.

It was decided since those who attended a series of discussions with any regularity, were those making themselves accessible to direct education, that in defining the group from a service point of view, its membership would be regarded as those who attended a certain minimum number of times. The

arbitrary decision made was that those women who attended a majority of the sessions viz. on a minimum of 3 occasions out of the 5 would be regarded as "members" of the group. This was the sole criterion of their selection.

Unfortunately, the programme had been in action somewhat less than 9 weeks when service demands in connection with a series of new objectives caused the programme as an independent entity to be broken off, and by this time only 21 groups had met on the requisite 5 occasions.

These 21 groups with a total membership of 92 women who were included on the criterion of a minimum of 3 attendances, make up the sample to be studied.

All except 1 or 2 of these women were Zulu and all the field procedures of this study were conducted in the Zulu language.

The code number and composition of each group is given in Appendix A.1. An analysis of the composition of the sample is given in Table 1 below.

Table 1. Membership of Groups in the Sample.

Number of Members per Group	Number of Groups	Total Members
6	5	30
5	3	15
4	8	32
3	5	15
TOTALS	21	92

Median Group Size : 4 members
Range of Group Size : 3–6 members

It is necessary at this stage to note the peculiar nature of these groups and this issue will be raised from time to time later in the study.

In the first place these were not spontaneous groups but

had resulted from the particular circumstances described, in which discussions about obesity were the precipitating factor. Moreover, selected as they were, the members consisted of a circle of associates but they contained not only members who undoubtedly made up genuine primary groups but also members who ordinarily might not be close members of such groups at all.

Indeed, it is probable that most of the groups were not aware of themselves as groups at all and certainly it is most unlikely that any had functioned strictly as a single unified group in any form of concerted action. They were essentially service defined groups of women making themselves directly accessible to the programme.

But if we drop for the moment the issue of whether they are truly primary groups in a natural or spontaneous sense, and concern ourselves more with the terms primary and secondary as describing the qualities of groups, then these groups do show predominantly primary rather than secondary qualities.

Not only were they small groups but they were highly informal, all the members being known to one another in daily life independently of the obesity programme, they met in an atmosphere of intimate friendliness, easy conversation and self-expression was a feature of the discussions and they appeared quite accustomed to being in one another's homes.

In these respects they are markedly different from the organised secondary groups of most health education programmes and indeed, the health education literature reports no groups with anything like the degree of primariness these showed.

Thus although the reservations are serious ones we shall in this study refer to these groups as primary purely on the justification that in the service context, they stand in marked contrast to most of the secondary groups usually used.

As soon as possible after the conclusion of the fifth meeting of a group, those selected for inclusion as group

members, were visited individually and privately in their own homes by a health educator who had not met them before, and an interview combined with observation of certain features of the home was conducted.

Usually the period between the fifth meeting of a group and the visit to the last member of that group was no more than 3 days and with the smaller groups it was usually only 1 day. On occasion however, some members were somewhat elusive being away from the home when the interviewer called. But in no case was the private interview with a woman later than 1 week following the final group discussion.

Each visit lasted between 30 minutes and an hour.

The interview/observation schedule is shown in Appendix A.2.

It will be seen that the schedule consists of sociometric items, items concerned with reading habits and participation in organised action groups, and finally items considered of significance for the content of health education including knowledge, attitudes and behaviour in relation to the use of health and medical services, to infant care, diet, sanitation and communicable disease.

None of these fields is dealt with in detail. The aim was to cover certain broad indicators of health education potentialities.

CHAPTER II

THE NATURE AND MEASUREMENT OF GROUP HOMOGENEITY

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Group Norms.

No matter how homogeneity in respect to whatever characteristics are being studied, has been achieved, it does appear that with most groups, and particularly those with a self-aware executive function - that is groups that go into action as groups - do have a certain internal uniformity in respect to learned characteristics particularly.

A vast mass of studies on the structure and function of small groups, has helped confirm the early postulations of Cooley on the influence of group membership on the members. There are so many of these that only a few cardinal ones will be mentioned.

Among them are the famous gang studies of Shaw (38, 39), Thrasher (40) and Whyte (41) which demonstrate the existence of group codes and standards operating on the members. Stouffer et al (42) showed the effect on soldiers, of the norms of their military units acting as primary groups. Child (43), Park (44) and Zorbaugh (45) have described the influence of primary group pressures in producing conflicts of attitude such as is found in people of marginal status. Coch and French (46) have shown the existence and operation of group standards affecting production levels in industry. Merei (47) has shown that even among pre-school children, the operation of group pressures compelled leaders to conform to the standards of the group.

Still among the best known and most striking studies is that of Sherif (48) in which he demonstrated the effect of group pressure in an experimental situation where the individual had no objective criteria for judging whether his response was right or wrong. He found that in judging the distance a

light moves, his subjects were influenced by what they perceived the group norm to be. Thus individual judgments as a result of group pressure tended to converge towards the group norm.

Festinger et al (49) have shown for university students in a housing scheme, the presence of homogeneity in small groups in respect to attitudes towards and activity in a tenants' organisation. This work will be frequently discussed in the remainder of the study.

For the moment, our concern is not with the way in which groups achieved whatever uniformity they might have but with what seems the established finding that the tendency towards comparative uniformity is present in most and probably all groups in respect to different characteristics, and commonly those related to the reason for the group's existence; in other words that groups tend to establish by whatever means, their own norms in respect to opinions, attitudes, beliefs and behaviour or to various combinations of these or that groups, while tolerating certain differences in their members, in other respects seem to produce a conformity.

The Problem of Measuring Homogeneity.

The first problem with which we are concerned is whether there is a tendency for the groups as defined within the practical field context of this particular programme, to show a homogeneity significantly greater than chance would allow, in respect to variables of importance for health education.

The concept of homogeneity is not an entirely easy one to handle. The literature did not yield either a really satisfactory concept of it, or method of measuring it as such. There are however, a number of methods of measuring conformity to group pressures.

A commonly adopted and useful method is that of subjecting individuals to a controlled experience involving group pressure and to record their scores before and after this experience.

The measure of response to group pressure then is usually made from the movement of scores in a certain expected direction, for example, either towards a measure of central tendency using the mean, mode or median, or from a decrease in measures of dispersion such as the standard deviation of scores.

Sherif (48), Asch (50) and Bovard (51) provide experimental illustrations of this technique.

The tendency then is to employ indicators of increased homogeneity rather than a direct measure of homogeneity itself.

Festinger et al (49) however, do present such a measure of homogeneity. They discuss the homogeneity of "attitude" and "activity" in relation to a tenants' organisation, within groups each of which is made up of residents living in the same "courts" in a student housing scheme.

Referring to "attitude" and "activity", they remark that "In the extreme case where all members of a court coincided exactly on both of these dimensions, the demonstration of homogeneity would be a simple matter. This extreme case does not, of course, occur and some method must be devised for describing the pattern within any court both with respect to the content of the pattern and the degree of homogeneity. That is ... do 80 per cent of the court members show this behaviour and attitude combination or do only 60 per cent of the court members show it?"

Facing this problem, then and using a 2-point scale for each dimension (viz. favourable-unfavourable for attitude and active-inactive for activity), they determine a "pattern" for each court group.

This determination is based on simple majorities. To illustrate the essence of the method, let us assume that a court has 12 members classified as in Table 2.

Table 2. Illustration of Festinger's method of determining court pattern: conformers exceed deviates.

	Active	Inactive	TOTAL
Favourable	7	2	9
Unfavourable	1	2	3
TOTAL	8	4	12

Thus a total of 9 members are favourable as against 3 unfavourable and a total of 8 members are active as against 4 inactive. This then gives a court pattern of favourable-active.

There are 7 members who conform to the pattern (those in the upper left quadrant) and a total of 5 "deviates" (in the remaining 3 quadrants) who do not.

This method does, however, contain a few difficulties both conceptual and practical.

For example it is quite possible to have a court pattern from which a majority of the members deviate. This is illustrated in Table 3 where the pattern using the method described for Table 2 is again favourable active. The conformers here are 5 in number and the deviates are 7.

This is obviously a rather unsatisfactory position, for the concept of a group pattern loses much of its meaning if it may be achieved with a minority of its members conforming.

Table 3. Illustration of Festinger's method of determining court pattern: deviates exceed conformers.

	Active	Inactive	TOTAL
Favourable	5	3	8
Unfavourable	2	2	4
TOTAL	7	5	12

Another objection is the indiscriminate placing of all non-conformers in a single category of deviates. It is obvious that within the deviate category, there will be individuals with varying degrees of deviation from the group pattern.

Individuals in his groups could be placed in 4 categories viz. favourable-active, favourable-inactive, unfavourable-active, and unfavourable-inactive.

Obviously, if we take those who are favourable-active, for instance, then those who are unfavourable-inactive stand at a greater distance from these than those who are say, favourable-inactive.

For example, suppose there were two groups, each with the same homogeneity score, say, 20% of members being deviates from a group pattern of "favourable-active". In the one group, assume that the majority of these deviates have a "favourable-inactive" pattern while in the other group, a majority have an "unfavourable-inactive" pattern. Since the first group's deviates hold a position closer to the group pattern than those of the second group, it could be argued that the first group is more homogeneous than the second.

But in each group Festinger has only 2 classes. One of these is that of conformers to the group pattern. This conformer sub-group is entirely homogeneous. All may be unfavourable-inactive for example. On the other hand, the class of deviates, consists usually of a non-homogeneous sub-group some of whom deviate only slightly from the group pattern and others who deviate markedly.

Now he uses the proportion of members in the deviate category as his measure of group homogeneity, the lower the proportion, the greater the homogeneity.

While the question will not be further investigated here, it should be remembered, that when Festinger ranks his groups

in order of homogeneity, the criticism could be raised that were he to take account of the internal nature of his deviate category instead of using it as a "blanket" unit, his rank order might in the end be different and certainly more accurately reflect the differences between his groups.

This may also have effected his findings when he computed rank order correlations between homogeneity and cohesiveness.

With respect to continuous variables, a method used by Lindzey and Urdan (52) was found.

In examining the homogeneity of cliques, they classified a clique as homogeneous if the standard deviation of the scores of its members was less than the standard deviation of the scores of the same variable for the group or population as a whole.

These cliques consisted of very small groups, sometimes only of 2 members.

Their estimation of standard deviation followed a procedure described by Snedecor (53) and based on a table of mean values of the ratio of range to standard deviation of small groups of different sizes.

Table 4 is set out in order to examine the application of this procedure to hypothetical groups. The assumption in the table is that we have 5 groups of 5 members each. All these people have been subjected to a test on which they could score 1, 2 or 3 points. Thus group 1 had 4 members who score 1 point each, and 1 member who scored 2.

Table 4. Illustration of relative homogeneities based on criterion of standard deviation as applied to 5 hypothetical groups of 5 members each.

Group No.	Numbers of Members Scoring			Range	S.D.
	1 point	2 points	3 points		
1	4	1	-	1	.43
2	3	2	-	1	.43
3	3	1	1	2	.86
4	4	-	1	2	.86
5	3	-	2	2	.86

With groups of 5 members, the Snedecor table gives a mean value for the ratio range/σ of 2.33 and the S.D. scores in Table 4 are calculated from this.

Certain difficulties in this method become immediately apparent.

In the first place it seems that with groups 1 and 2 we have in fact, rather different degrees of homogeneity, not the same as shown in the table.

Group 1 would seem to be the more homogeneous simply because of its greater concentration of members in one class interval viz. those scoring 1 point.

Groups 3, 4 and 5 however, reveal another deficiency.

Again, all scoring the same in the table, it does appear as if group 4 is more homogeneous than group 5 by the same token as there should be differences between groups 1 and 2, i.e. the proportion of persons making the same score.

But both groups 4 and 5 have a serious deficiency in homogeneity by virtue of the fact that there is a vacant class interval. Thus, for example, group 4 has 4 members who score exactly the same but the one deviate from this pattern, is out on his own as it were in isolation.

Thus it could be argued that group 3 has a superiority in homogeneity to both groups 4 and 5 on the grounds that although the range is the same, the members form a continuous series, no individual or individuals being "cut off" from the rest.

With group 5 of course, it might be argued too, that here we have potentially 2 cliques, one of 3 members and one of 2 and that therefore its homogeneity should be the smallest of all.

Of course the seriousness for homogeneity o f these vacant class intervals depends on many factors such as the kind of variable we are dealing with, the range of scores, and of course, the possible range of scores.

Nonetheless, other factors being equal, it appears an

important enough feature to reduce homogeneity when it appears.

Thus in Table 4 it might reasonably be argued that the groups 1 to 5 as set out, are in a descending rank order of homogeneity, group 1 having the highest and group 5 the lowest.

Of course, the reason why this method is not satisfactory is that it does depend on a theoretically normal curve which in our experience with the data of this study, occurs relatively infrequently with small groups. Based then only on group size and range of scores, it takes no account of the nature of the distribution of scores, a matter of some importance in considering homogeneity.

Moreover, it does not help with a strictly discrete variable where individuals are placed in mutually exclusive categories.

This was however, the nearest found in the literature to the use of an index of group uniformity applicable to continuous variables. It seems then that we need a clearer concept of homogeneity and a workable index that will place all homogeneity problems on a common base. We need an index that will separate out varying degrees of homogeneity, and indicate the distance of any group from perfect homogeneity.

A Proposed Solution.

What then is a possible solution to the problem?

It will be necessary to consider the 2 possibilities of continuous variables and discrete variables as there are slight but important differences between them in a consideration of this kind.

For both continuous and discrete variables however, the mode, or value of the variable where the members are distributed most densely, is a significant statistic and among the more obvious.

Other factors being equal, the higher the proportion of members with the mode score, the higher the homogeneity.

So far as continuous variables are concerned, a further factor of importance is the question already dealt with viz. the degree to which the members' scores are associated in adjacent class intervals. Should there be vacant class intervals, other factors being equal, this must lower the homogeneity.

For example a group may have half its members, as a sub-group homogeneous in scoring the same, but the other half, also homogeneous in themselves may have a same score but separated by one or more vacant class intervals from the score of the first half of the group. The total group then must have a limited homogeneity as it may virtually consist of 2 comparatively distinctive sub-groups or "cliques" for that variable.

Thus not only is the proportion of persons with the mode score important, but also the numbers in adjacent class intervals.

For strictly discrete variables, the problem is not quite the same.

Here, by its very nature, the categories in which members may be placed are relatively distinctive and therefore vacant categories would be more likely to indicate higher homogeneity.

For example, if members of a group of 5 were placed in categories with regard to their response to the question which of food, clothing, affection or discipline was the most important for young children, the homogeneity of a group in which 3 said 'food' and 2 said 'clothing' would be no different from that of a group in which 3 said 'food' and 2 said 'discipline'. The order of categories, unlike the continuous variable, is then, unimportant. Moreover, both these groups would score higher than one in which 2 members said 'food' and one each said 'clothing', 'affection' and 'discipline' respectively. In short, the more vacant classes, the higher the homogeneity, unless of course the discrete variables can be graded.

For both continuous and discrete variables the range too is important. The larger the range for continuous variables, and the more categories occupied for discrete, the less the homogeneity and this range would have to be comparative with the possible range. For example, scores that cluster in 3 classes or categories out of a possibility of only 3 will be less homogeneous than if the possibility were 4 classes or categories for the same number of cases.

The following proposals are therefore made.

1. For continuous variables, the factors to be taken into account consist of the proportion of scores represented by the mode, the range in relation to the possible range, the vacant class intervals in relation to the range and the highest total of members in continuous class intervals.

The following formula is therefore proposed:

$$\text{Index of Homogeneity} \quad (\text{I.H.}) = \frac{\frac{n_x}{n}}{(1 + \frac{ra}{Ra + 1})(1 + \frac{V}{ra})} \times \frac{m}{n} \times \frac{100}{1}$$

Where n = number of members.

n_x = number of members with the mode score.

ra = actual range of the distribution.

Ra = possible range.

V = number of vacant class intervals between scores.

m = the maximum total of members in continuous class intervals.

The maximum score, or perfect homogeneity will then be 100. But there is no perfect heterogeneity on the principle that with a continuous variable, by its very nature there is a connection between the highest and lowest possible scores since they represent simply different degrees of the same basic material in a continuum.

The formula is applied as follows viz.

Taking the sample groups of this study the analysis of the variety of items read by group members in Group XX showed that 1 member read none, 3 members read 1, and 2 members read 2, out of a possible total of 8 items.

Applying the formula then, we proceed as follows viz.

$$I.H. = \frac{\frac{n_c}{n}}{(1 + \frac{ra}{Ra + 1})(1 + \frac{V}{ra})} \times \frac{m}{n} \times \frac{100}{1}$$

$$= \frac{\frac{3}{6}}{(1 + \frac{2}{9 + 1})(1 + \frac{0}{2})} \times \frac{6}{6} \times 100$$

$$= \frac{.50}{1.2} \times 100$$

$$= \underline{40.99}$$

It will be seen that where a group has no vacant class intervals, the calculation is completed using only the mode proportion and the range proportion.

For Group XI however, 1 member reads no items, 3 read 1 item, one reads 2 items, none read 3 items, and 1 reads 4 items.

Applying the formula again

$$I.H. = \frac{\frac{3}{6}}{(1 + \frac{4}{9 + 1})(1 + \frac{1}{4})} \times \frac{5}{6} \times 100$$

$$= \frac{.50 \times .83}{1.4 \times 1.25} \times 100$$

$$= \underline{23.15}$$

Does this index help then to differentiate between grades of homogeneity in a way that Lindsey and Urdan were unable to do with their method?

Returning then, to Table 5, let us apply the proposed

formula to test whether it will grade the groups in that table according to the order discussed as desirable at the time.

Table 5 shows the analysis.

Table 5. Comparison of Standard Deviation and Index of Homogeneity as measures of the homogeneity of 5 hypothetical groups of 5 members each.

Group No.	Number of Members Scoring			S.D.	I.H.
	1 point	2 points	3 points		
1	4	1		.43	72.73
2	3	2		.43	54.55
3	3	1	1	.86	50.00
4	4		1	.86	35.53
5	3		2	.86	20.00

It is clear that whereas the S.D. measure differentiates these groups into only 2 classes, the I.H. measure proposed, grades them in the exact order that was considered desirable in the earlier discussion.

But the formula has certain deficiencies. For example:-

(1) Blank class intervals in a small range are more heavily penalised than the same number of blank class intervals in a wider range. The wider range of course, in itself, however, exacts something of a compensatory penalty for this.

(2) Although the group is penalised for vacant class intervals, it is not for gross bimodality or multi-modality where no vacant class intervals are involved. These modes may of course each represent cliques within the group.

(3) Skewed distribution often suggests less homogeneity or at least less potentiality for homogeneity and skewness is not taken account of in the formula.

For example, if a distribution is 4:1:1 for 6 members as compared with 1:4:1, the latter may be considered slightly more

homogeneous because the hard core of 4 members is equidistant from the 2 individuals who are different. It is presumably therefore in a better strategic position to influence these 2 than is the hard "core" in the former example, where 1 of the "deviate" individuals is 2 class intervals away - even though at that point of time, their respective homogeneities of the 2 groups might be considered equal.

2. For discrete variables, the factors to be taken into account are the proportions of scores represented by each category, and the numbers of categories occupied.

The procedure suggested is to arrange the categories in their order of proportion of members in each. Then the difference between the number in each category and the one immediately adjacent to it, moving from top to bottom frequencies, is a part measure of homogeneity. For example, with 3 categories, A, B and C, if 5 out of 5 group members occupy category A, the difference between A and B or C is 5, while if A is represented by 4 members and B by 1, there is a difference between 4 and 1 of 3 and between 1 and 0, of 1, making a total of 4. Thus the greater these differences, the greater the homogeneity.

This approach had to be adopted because although where at least one category is vacant, the "drop" from top category to bottom is the same as the proportion of scores in the top category, this is not so where all categories are occupied.

For example with a distribution of 3:2:1:0, the differences are 3-2, 2-1, 1-0 = 1 + 1 + 1 = 3 which is the same as the mode category i.e. 3 members.

But with distribution 3:2:1:1, the "drop" = 2 cases while the mode has 3.

Thus, having arranged the categories in descending order of frequency, apply the following formula:-

$$\frac{\frac{\leq D_{x-y}}{n}}{1 + (\frac{c-1}{C})} \quad X \quad 100$$

Where n = number of members.

D_{x-y} = Difference between the number in a category and the number in the immediately adjacent equal or lower category.

C = Number of possible different categories.

c = Number of categories occupied.

But there is one proviso and that is that I.H. is automatically 0 where each occupied cell, no matter how many cells are available, has only a single case in it. The formula will however, itself give a score of 0 when all possible cells are occupied with identical numbers of cases.

Thus unlike the formula for continuous variables, complete heterogeneity of 0 is possible with this formula. For example, to take an obvious instance, if a group has 6 members, and only 3 possible categories, should 2 members occupy each category, this would be a situation of the lowest possible homogeneity under these conditions.

But again, a group which has all its members in the same category will gain the perfect homogeneity score of 100.

In table 6, 3 of the sample groups are analysed in respect to the type of services used by the members.

Table 6. Illustration of application of I.H. formula for discrete variable to 3 groups of the sample in respect to services used for illness.

Primary Group Number	Total Members	Institute	Hospital	Private Doctor	Nil	I.H.
XIV	4	3			1	60.00
VII	3	1	1	1		0
XIX	6	2		2	1	26.67

To analyse Group XIV then, we would proceed as follows:-

Arranging the categories in descending order we have the following sequence 3 (used Institute) 1 (used no service), none (used the hospital) and none (private doctor). Then

$$\text{I.H.} = \frac{\frac{\leq D_{x-y}}{n}}{1 + \frac{c-1}{C}} \times 100$$

$$= \frac{\frac{(3-1) + (1-0) + (0-0)}{4}}{1 + \left(\frac{2-1}{4}\right)} \times 100$$

$$= \frac{\frac{3}{4}}{1\frac{1}{4}} \times 100$$

$$= \frac{.75}{1.25} \times 100$$

$$= \underline{60.00}$$

In the same way the score on Groups XIX is 26.67 and that on Group VII is 0 in terms of the special proviso mentioned above.

Inspection of these groups suggests that it is in this order (i.e. XIV, XIX and VII) of homogeneity that we would rank them.

This formula too, however, has certain deficiencies.

It does not in itself meet the obvious condition that if there is only 1 case in each occupied category (no matter how many possible categories there are) such a group has a total absence of homogeneity. To meet this, we have had arbitrarily to state that in such instances, the Index of Homogeneity will automatically = 0. If the formula is applied however, to those groups where only a single member falls into each category and the number of possible categories exceeds the number of members in the group (i.e. there are certain vacant categories as well), that group would score using this formula, a small index of homogeneity.

Moreover, if we have 2 categories and 3 members, the

distribution of lowest possible homogeneity in this situation, is the occupation of one category by 2 members and the other by 1 member. Nonetheless, the formula will yield for such a group an index greater than 0 and manifestly the group does have some homogeneity.

If, however, we have say 2 categories and 4 members, 2 to each category, although it might be argued this group has some homogeneity, the formula will give it an index = 0 and we can only justify this on the assumption that such a group may be considered as "perfectly split" into 2 sub-groups and thus have perfect heterogeneity.

Any unevenness or a "slant" towards greater group homogeneity will give that group a score greater than 0.

The homogeneity of the groups in this study will then, be assessed in respect to factors important for health education, by making use of these formulae.

CHAPTER III

THE HOMOGENEITY OF THE SAMPLE GROUPS

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The Problem of Sample Size.

Although there were 92 subjects in the sample, these as has been seen, made up only 21 primary groups in all.

Since at this stage, it is the homogeneity of each group as a whole which is to be considered, the sample then involves only 21 cases and without any control set of groups.

The null hypothesis may be stated as follows viz. that the primary groups do not have a higher degree of homogeneity than would randomly selected aggregates of people drawn from the same population. The single alternative hypothesis would be that the primary groups do have a greater homogeneity.

In order to create a randomly selected set of "groups" against which to test the primary groups in examining the null hypothesis, 3 sets of such random groups, with 21 groups in each set, and making use of the total original 92 population of the primary groups were created. The choice of 3 random sets rather than any other number was a purely arbitrary one, in an attempt to increase the conservatism of the test.

The same distribution of group sizes was arranged for the random sets as for the primary groups. Thus the distribution shown in Table 1 is true for all 4 sets. Each of the random sets was numbered I to XXI and for ease of handling, groups with the same code number in each set, had the same number of members. Thus Group I in the Primary Groups, and Group I in each of the random sets had 3 members each.

At no stage of the investigation however, were the individual groups from each set, having the same code number, matched with each other.

The procedure in creating these random sets of groups was as follows viz:-

The 92 members of the primary groups were each given a serial number ranging from 1 to 92. Then using a table of random sampling numbers in Bradford Hill (54), the 92 members were randomly re-grouped in 3 different sets of 21 groups each.

Appendix A.3 and Appendix A.4 give the keys to the 4 sets of groups and their membership composition.

Each of the variables in the interview/Observation schedule will be discussed as it is examined. At this stage, it is sufficient to note that although only a very restricted aspect of each item was measured, the list contains firstly a relatively comprehensive set of features significant for health education. Indeed, there are few health education programmes if any which for this community at any rate would be likely to fall outside the main headings covered.

Secondly, the list covers a wide variety of types of material including as it does, knowledge, attitudes and behaviour important for health as well as what might be termed circumstances, such as having a baby in the home and experiencing an illness.

The scores on each variable, of all the 92 women in the 21 sample groups is shown in Appendix B.

When the 92 individual group members had been scored on these variables, the homogeneity index described previously was computed for each of the 21 original primary groups and for each group in the 3 random sets making a total of 84 groups in all. The one exception was for "years of schooling" for which the complete data were available on only 12 of the original groups.

It was necessary then, to take the 12 groups on which this information was available, and in the same manner as was done for the 21 groups on all other variables, to create 3 new random sets of 12 groups each. Appendix A.5 gives the key to the composition of this particular grouping for the primary groups and 3 random sets.

Thus for this variable, there were 48 groups in all.

The final number of computations of homogeneity for all groups on all variables was 2,568.

The Procedure Adopted.

There were immediate problems involved in comparing the primary group set with the 3 random sets in respect to homogeneity scores.

The usual method of computing the significance of the difference between means was not appropriate because, although theoretically the homogeneity index is based on a continuum, nothing was known of its distribution and inspection of the scores for the various items tested soon revealed that the distributions of actual scores rarely appeared normal.

A mean score was in fact computed for each set of groups however, simply as one indicator of the rank order of these sets in terms of homogeneity.

The main method to be adopted in comparing the primary group set with random sets was the Mann-Whitney U Test (55) which appeared to be an appropriate non-parametric method. This test is a distribution-free alternative to the parametric t test and it assumes that scores represent a distribution which has an underlying continuity.

The basic position as described by Siegel (55) is as follows viz.,

"Suppose we have samples from two populations, population A and population B. The null hypothesis is that A and B have the same distribution. The alternative hypothesis ..... is that A is stochastically larger than B, a directional hypothesis." Siegel further suggests that the alternative hypothesis may be accepted if the probability that a score from A is larger than a score from B is greater than one half.

Thus we shall generally reject the null hypothesis where $P < .5$ but far more crucial will be an appraisal of the actual

significance levels found since a $P < .5$ is a very lenient test indeed and also because we are even more concerned with the practical decision as to whether primary groups, if greater in homogeneity at all to random groups, are sufficiently greater to have important implications for health education use.

Intrinsic to the Mann-Whitney test, as to other analagous non-parametric procedures, is a useful technique for ranking the primary group and random sets respectively according to their degrees of homogeneity. This technique consists of ranking the scores of both samples combined and computing R, the sum of the ranks of each sample. Thus where, for example, the scores are ranked, as is done in the Mann-Whitney test, with the algebraically lowest scores being assigned the highest ranks, the larger R is, the greater the homogeneity of that set.

To give an illustration in miniature, suppose we have 2 samples A and B, of 3 cases each. Table 7 illustrates a possible situation. Here the scores for sample A and Sample B are shown in rows 1 and 2 respectively.

Table 7. Illustration of Computation of R in Mann-Whitney U Test.

Samples	Scores		
1. A	40	70	90
2. B	30	50	100

	Combined Ranks					
3. Scores	30	40	50	70	90	100
4. Sample	B	A	B	A	A	B
5. Ranks.	1	2	3	4	5	6

6. Sample A. $R = 2 + 4 + 5 = 11$

7. Sample B. $R = 1 + 3 + 6 = 10$

Arranging the scores in ascending order (row 3) and noting the sample from which each is drawn (row 4), we then give them

a rank order beginning from the algebraically lowest score of 30 drawn from sample B.

The sum of the assigned ranks for the scores from each sample separately (rows 6 and 7) gives an R of 11 for sample A, and an R of 10 for Sample B. Thus if these are homogeneity scores, sample A would have greater homogeneity than sample B.

Thus the sets may be ranked according to R, analagous to the way that ranking has been done with the means.

In this study, the primary group scores and the scores of each of the random sets will be combined in turn so that for each of 3 combinations (i.e. Primary and Random I, Primary and Random II, Primary and Random III), the primary group R and the respective random set R's will be computed.

Then the random set with the largest R of its own ranks may be considered that set with a degree of homogeneity most nearly approximating to that of the primary group set.

The complete Mann-Whitney test will then be used to compare the primary group set with this particular random set.

With a stringent level of significance, it would theoretically of course, make no difference with which random set the primary group set is compared. But since we are primarily concerned with the degree of superiority and its actual significance, the conservatism of our findings should be slightly increased when we compare the primary groups with their nearest rival, as it were, of the random sets.

This conservatism will be further enhanced because it was decided not to correct for ties between scores. Although the effect of ties is very slender, on this test the value of P is very slightly increased where no correction is employed. Tied scores of course, are however, given the average of the ranks for which they have tied.

The statistic used in this test viz. U, and the deviation of the observed value from the population mean under the null hypothesis when $\sigma = 1$ viz. z, which is normally distributed,

will then be computed and the associated one-tail probability noted.

I. Reading Habits.

The education of the individual, in the broad sense of all his learning experiences both formal and informal is manifestly a function of his interest in and accessibility to the flow of new ideas. One indicator of this accessibility is the kind and extent of reading he does.

Moreover, so much of planned education, in distinction to the informal educational experiences of everyday life, designedly uses written material as a vehicle for education, that experience in itself of regular reading no matter what the material, would suggest a greater readiness for receiving, if not necessarily responding to ideas conveyed through the printed word.

The role of mass media in health education was discussed earlier. Modern health education makes considerable use of printed material and, even apart from publications specifically designed to promote health education, common media used by the health educator are the daily press and topical articles in popular magazines.

The members of the primary groups were scored firstly on whether they read current news and topical articles regularly at least once weekly on the one hand, or whether less than once weekly or only occasionally on the other hand; secondly whether they read fiction at all; thirdly whether they read religious literature at all. Finally, each member was placed on a scale according to the variety of her regular sources of reading. One point was scored for each separate publication such as the newspaper, Bible, popular magazines, etc. which was mentioned as read, even if only occasionally.

The index of homogeneity on all aspects of reading for each group of the primary and random sets is shown in Appendix C.1

1. News.

More than half (56.52%) of the 92 women were found to be regular, at least weekly readers of newspapers or topical articles.

Table 8 shows the comparison of the homogeneity of the 4 sets of groups so far as the reading of news is concerned.

Table 8. Reading News: Comparative Homogeneity.

	Primary	Random I	Random II	Random III
Mean I.H. (1)	34.03	28.29	42.73	28.51
R.O. means (2)	2	4	1	3
$R_{Primary}$ (3)		462.5	418	478
R_{Random} (4)		420.5	485	425
R Diff. (5)		42.0	-67	53
RO. $_{R}$ (6)	2	4	1	3

(see key below[x])

Taking the statistic R, it is clear from the table that random set II has a greater homogeneity than the primary group set.

Thus the null hypothesis is confirmed in relation to the reading of news.

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[x] 1. Mean Index of Homogeneity.

2. Rank Order according to means.

3. R of primary group set when combined with the relevant random set.

4. R of the random set when combined with the primary group set.

5. Difference between primary group R and relevant random group R.

6. Rank order according to R.

2. **Fiction.**

In contrast to the reading of news, only 23 (25%) of the 92 women read fiction at all. The main sources quoted were children's story books (quite often school set books) and popular magazines.

Table 9 shows the comparison of homogeneity of the 4 sets of groups.

Table 9. Reading Fiction: Comparative Homogeneity

	Primary	Random I	Random II	Random III
Mean I.H.	59.46	45.68	49.90	44.35
R.O. means	1	3	2	4
$R_{Primary}$		482.5	475.5	479
R_{Random}		420.5	427.5	424
$R_{Diff.}$		62	48	55
R.O. R.	1	4	2^{x}	3

^{x} U = 244.5 Z = .60 P = .27

The primary group set then, shows a higher homogeneity than each of the 3 random sets respectively, and with significance at the .27 level when compared with random set II which is its nearest rival of the 3 sets. The null hypothesis is then rejected and the alternative hypothesis accepted.

3. Religious Material.

Again, more than half of the women (53.26%) were readers of religious material including the Bible, catechisms, hymn books and church journals.

Table 10 shows the comparative analysis.

Table 10. Reading Religious Material: Comparative Homogeneity.

	Primary	Random I	RandomII	Random III
Mean I.H.	30.95	30.92	21.62	20.25
R.O. Means	1	2	3	4
R. Primary		451	504	470.5
R. Random		452	399	432.5
R. Diff.		-1	105	38
R.O. R.	2	1	4	3

Thus, the primary groups do not have a greater homogeneity than the random groups and the null hypothesis is again confirmed.

4. Variety of Sources.

Of the 92 women, 22 (23.91%) did no regular reading at least once weekly, while at the other extreme 13 (14.13%) read regularly from 4 or more sources.

Table 11 shows the comparative analysis of homogeneity in respect to the numbers of sources used by women.

Table 11. Reading from a Variety of Sources: Comparative Homogeneity.

	Primary	Random I	Random II	Random III
Mean I.H.	29.46	22.24	26.20	20.79
R.O. Means	1	3	2	4
R. Primary		520.5	480	525.5
R. Random		382.5	423	377.5
R. Diff.		138	57	148
R.O. R.	1	3	2^x	4

U = 249 Z = .72 P = .24

Thus the primary groups do show a higher homogeneity than the random sets and the difference has a significance of .24 when compared with random set II which comes next in rank order.

5. Reading Habits as a Whole.

Taking the homogeneity scores in respect to news, fiction, religious material and variety of sources, a mean index of homogeneity for reading as a whole, was computed for each of the 84 groups of the primary and random sets.

Table 12 shows the comparative homogeneity in respect to these mean scores on reading.

Table 12. Reading Habits as a Whole: Comparative Homogeneity.

	Primary	Random I	Random II	Random III
Mean I.H.	36.09	31.77	34.26	28.46
R.O. means	1	3	2	4
R. Primary		501.5	492.5	535.5
R. Random		401.5	410.5	367.5
R. Diff.		100	82	168
R.O. R.	1	3	2 *	4

* U = 261.5 Z = 1.03 P = .15

Thus for reading as a whole the null hypothesis is rejected and the alternative hypothesis accepted at the .15 level of significance.

The evidence suggests then that the primary groups have a somewhat greater homogeneity than the random groups in respect to reading habits as a whole and particularly of the reading of fiction and of a variety of materials. But the primary groups fail to show a greater homogeneity in the most important of these habits so far as health education is concerned, viz. the reading of news and of topical articles. It is precisely this area of reading activity that is most exploited by the community health educator. Although the greater homogeneity of primary groups reaches a level of significance well within the limits of acceptance of the alternative hypothesis so far as fiction

and variety of sources is concerned, these aspects have been relatively little exploited in modern health education.

If therefore, a decision in the field were to be made in respect to homogeneity of reading habits alone, there would on this evidence be no strong reason to prefer the primary groups if we wished to place a special value on homogeneity.

At the same time, it may be that the news readers in a group to some extent counteract the need for other members of the group to read news themselves if the readers act as transmitters of events of topical interest. Moreover, regular reading of current news would ordinarily necessitate the buying of a daily paper and this would introduce an economic factor which has not been accounted for in this study.

All this is, however, pure speculation and we must on the whole regard the primary groups as having no greater homogeneity than the random.

II. Community Needs: Awareness and Participation in Organised Group Activity.

As was described earlier, health education planning and action is usually directed at two main levels.

(a) The level of personal behaviour in the context of private daily life - the individual's daily round of activities, such as the food he eats, his sanitary habits, his relationships with others.

(b) The other level is that of public life. It is this level that plays a major role in most health education programmes. Important for this level are the extent to which the individual is aware of the overall health needs of his community, his participation in public bodies and his efforts in helping the community as a whole to meet its needs.

Thus in respect to this feature, the 92 women were assessed in terms of their awareness of various numbers of needs of the community, whether these were specifically in the field of health and education, their formal membership of

various numbers of organisations or associations in general, their membership of church groups and of the largest, most influential welfare agency in the community (known to the people as the "Combined Group") and finally their leadership roles of the past and the present.

The index of homogeneity on all aspects of reading for each group of the primary and random sets is shown in Appendix C.2.

1. Awareness of Community Needs.

The community needs expressed by members of groups ranged in number from none to more than 6. Only 2 people however, stated no needs at all, while 37 of the 92 (i.e. 40.22%) expressed 3 or more needs. The types of needs were very varied and included all manner of public facilities such as transport, housing, electricity, postal facilities, shops, schools and pre-school centres, sanitary facilities, and health and medical services.

Each member was scored on the number of general needs mentioned irrespective of what these needs were.

Table 13 shows the comparative analysis of group homogeneity for the numbers of needs expressed.

Table 13. Numbers of Community Needs: Comparative Homogeneity.

	Primary	Random I	Random II	Random III
Mean I.H.	37.24	36.32	30.54	30.74
R.O. means	1	2	4	3
R. Primary		471	503.5	514
R. Random		432	399.5	389
R. Diff.		39	104	125
R.O. R.	1	2[x]	3	4

[x] U = 240 Z = .49 p = .31

Thus although the level of significance is unimpressive, the primary groups do show a greater homogeneity than the random groups and the null hypothesis is rejected.

2. Awareness of Health and Education Needs.

Of all needs mentioned by individual members, 26 (28.26%) women mentioned health or education needs for both adults and children. Such needs included pre-school centres, primary and secondary schooling, adult education and in the field of health, mainly maternal and child services.

Each member was scored only on the simple alternative of whether she mentioned such a need or not.

The analysis of comparative homogeneity is shown in Table 14.

Table 14. Health and Education Needs: Comparative Homogeneity.

	Primary	Random I	Random II	Random III
Mean I.H.	55.66	37.99	39.58	43.81
R.O. means	1	4	3	2
R. primary		497	498.5	483.5
R. Random		406	404.5	419.5
R. Diff.		91	94	64
R.O. R.	1	3	4	2[x]

[x] U = 252.5 Z = .81 p = .21

Thus, the primary groups, although again with an unimpressive level of significance, show a greater homogeneity than the random groups and the null hypothesis is rejected.

3. Membership of Numbers of Organisations.

Members were scored on the numbers of different organisations and societies of which they were members at the time of interview. Exactly half of the 92 women were members of 2 or more such bodies, the other half belonging either to one or to none.

Table 15 shows the comparative analysis of homogeneity.

Table 15. Organisation Membership: Comparative Homogeneity.

	Primary	Random I	Random II	Random III
Mean I.H.	54.39	22.54	34.25	29.84
R.O. means	1	4	2	3
R. Primary		546.5	507	516
R. Random		356.5	396	387
R. Diff.		190	111	129
R.O. R.	1	4	2^x	3

^{x} U = 276 Z = 1.40 p = .08

Thus the null hypothesis is rejected and a relatively impressive level of significance gives acceptance to the alternative hypothesis of the greater homogeneity of the primary groups.

4. Membership of Church Organisations Only.

It was found that a fair proportion of the 92 women (42 or 45.65%) belonged exclusively to church or church-affiliated organisations. Members were scored in terms of the alternative of whether they were exclusively members of church organisations or not.

Table 16 shows the comparative analysis of homogeneity in this respect.

Table 16. Exclusive Church Membership: Comparative Homogeneity.

	Primary	Random I	Random II	Random III
Mean I.H.	56.19	33.86	26.45	26.14
R.O. means	1	2	3	4
R. Primary		498.5	523	527.5
R. Random		404.5	380	375.5
R. Diff.		94	143	152
R.O. R.	1	2^x	3	4

^{x} U = 267.5 Z = 1.18 p = .12

The null hypothesis must therefore again be rejected, the greater homogeneity of the primary groups being established with a fair significance level.

5. Membership of the "Combined Group".

Of the numbers of organisations in this community, probably the largest and among the most influential, was the so-called "Combined Group", which was discussed earlier.

Of the 92 women of this study, 36 (39.13%) were members of the Combined Group.

Table 17 shows the comparative homogeneity of the sets of groups in relation to combined group membership.

Table 17. Combined Group Membership: Comparative Homogeneity.

	Primary	Random I	Random II	Random III
Mean I.H.	68.68	35.66	32.49	29.63
R.O. means	1	2	3	4
R. Primary		556	567.5	572.5
R. Random		347	335.5	330.5
R. Diff		209	232	242
R.O. R.	1	2^x	x	.

Thus the null hypothesis must be rejected and the alternative hypothesis accepted at a very impressive level of significance.

6. Leadership.

Finally, general leadership in public life was examined. Individual members were scored as follows viz. if they were at any time, members of any organisation they were scored 1 point for each organisation. If however, in an organisation they had at any time been elected to an executive committee in any capacity they were scored 2 points instead of the 1 for ordinary membership. If on the executive committee they had occupied a special office such as chairman or secretary, an additional 1 point was scored.

When all 92 women had been scored, it was found that 13 (14.13%) scored 1 point, 26 (28.26%) scored 2 points, 30 (32.61%) scored 3 points and 23 (25.00%) had scored 4 points. Thus none of these women were without some experience of community organisation but on the other hand there were no outstanding leaders able to score more than a total of 4 points.

The homogeneity of the groups, both primary and random were then computed and the comparative analysis is shown in Table 18.

Table 18. Leadership: Comparative Homogeneity.

	Primary	Random I	Random II	Random III
Mean I.H.	48.50	32.35	31.92	35.53
R.O. means	1	3	4	2
R. Primary		547	554.5	526.5
R. Random		356	348.5	376.5
R. Diff.		191	206	150
R.O. R.	1	3	4	2[x]

[x] U = 295.5 Z = 1.89 p = .03

Thus the null hypothesis may be rejected and the alternative hypothesis accepted that the primary groups show a higher homogeneity than the random groups at an impressive level of significance.

7. Community Needs as a Whole.

Again the mean homogeneity scores of all groups were taken and a final community organisation score computed for each.

Table 19 shows the comparative analysis.

Table 19. Community Needs as a Whole: Comparative Homogeneity.

	Primary	Random I	Random II	Random III
Mean I.H.	50.33	33.12	32.54	34.04
R.O. means	1	3	4	2
R. Primary		566	570.5	556.5
R. Random		337	332.5	346.5
R. Diff.		229	238	210
R.O. R.	1	3	4	2^x

^{x} U = 325.5 Z = 2.64 p = .004

Thus when this feature as a whole is examined, the primary groups show a clearly greater homogeneity at a very satisfactory level of significance and the null hypothesis must be rejected.

These findings illustrate clearly the special advantages of homogeneity in groups for the health educator. In this sphere of awareness of community needs and participation in public life, when considered at the level of primary groups as has been done here, we have a highly important point of confluence of the 2 major classes of group situations available to the community educator viz. the informal primary groups and the formal organised "action" groups.

The findings mean that primary groups will have a high homogeneity in respect to the absence of organisation members

as well as in respect to their presence.

But the special value of this finding is that if we were to follow up organisation members to their primary groups, we have a fair chance of finding that in these groups there is a relatively high clustering of other organisation members.

Having traced such groups we may have a weapon of double force.

For example, primary groups in which most of the members are also members of the Combined Group or of other organisations, or who are in formal leadership positions, are of value because education given at the level of effect on private life may be carried over to its effect on public life.

Thus where the educator frequently looks for formal organisations playing key roles in community welfare, and deals with these organisations in the formal situation say of a committee meeting, he could by making use of certain key primary groups, in which the members show a high level of community organisation, perhaps produce changes of a more fundamental nature than has been possible up to now.

It is interesting too, that although the null hypothesis has been rejected throughout, the more operatively important aspects for health education viz. organisation membership as a whole, Combined Group membership and Leadership, rather than awareness of needs, or church membership, show markedly more impressive levels of significance of the greater homogeneity of primary groups compared with random.

III. <u>Illness and Medical Services.</u>

Both reading habits and participation in public life are factors of importance not only for health education but for all community education whatever its content.

In the question of illness and the use of health and medical services however, we come to features of more obvious

relevance to health education in particular.

The assessment of group members concerned illness in their families, the degree of incapacitation involved, the action taken in treating the illness and the attitudes towards the general medical services of the Institute of Family and Community Health in particular which provides the main "general practitioner" service to this community.

Obvious as is the relationship of these factors to health, their importance can of course be exaggerated. Apart perhaps from the attitudes to the Institute, they concern essentially crisis situations that do not necessarily reflect everyday behaviour of which in the long run health or ill-health is a by-product.

Nonetheless, the greatest appeal of health and medical services to the public still resides in their capacity to handle a crisis and this in itself is of importance. Health education is undoubtedly concerned with the way people deal with illness, what sort of services they use and among Africans for example, the widespread use of unskilled services ranging from chemist to inyanga, constitutes a serious health problem.

An illustration of the magnitude of the problem is given in a report on a large general hospital in Durban (56) where over 50% of African patients used the chemist, 27% the herbalist, 13% the priest and 9% the inyanga. As the report shows the vast majority of these patients were carrying a heavy load of serious infections as well as long-term non-infectious disease.

The use of unskilled services then is important because it tends to delay, and often to deny to the patient altogether, effective medical care.

The index of homogeneity on all aspects of illness and medical services for each group of the primary and random sets, is shown in Appendix C.3.

1. Illness:

We shall deal first with illness as experienced by herself or her family for each of the women in the sample population.

Each woman was asked to describe the symptoms of the last illness experienced in her family. No reported illness had occurred more than 3 months earlier than the date of interview.

It is not claimed that a diagnosis was made on the basis of this description but the disease described was roughly classified as follows:-

(1) Gastro-intestinal (G) - where the main symptoms involved this system, usually described by mothers in terms of vomiting and/or diarrhoea.

(2) Respiratory (R) - where the main symptoms involved the respiratory system, such as influenza, common cold, etc. but it also included asthma.

(3) Exanthemata (E) - where the main symptom consisted of a skin rash and temperature. In some cases this might be measles, chickenpox etc. but it included reports of skin rash without a specific diagnosis.

(4) Pyrexia (P) - where the symptom was described only as "fever" or "feeling hot".

(5) Bodily pains (B) - where the main symptom, and it was usually the only symptom, was pain in some part of the body and generally of a muscular kind. "Stomach ache" was not included.

(6) Miscellaneous (M) - this included unclassifiable complaints usually of a vague nature such as "not feeling well."

(7) Nil (N) - these women could recall no recent illness.

Each of the 92 women was scored only once for the last illness.

It is a matter of some importance that only 4 (4.35%) of the women reported no illness. Thus nearly 96% of the families involved were able to report an illness in the past 3 months.

By far the highest frequencies were found in the gastro-intestinal (31 or 33.70%) and respiratory (30 or 32.61%) groups

of illnesses. Bodily pains were reported in 9 families (9.78%) exanthemata in 8 families (8.70%), and pyrexia in only 2 families (2.17%) while the remainder were in the "miscellaneous" or "nil" categories.

Table 20 shows the comparative homogeneity analysis of groups for these 7 categories.

Table 20. Illness: Comparative Homogeneity

	Primary	Random I	Random II	Random III
Mean I.H.	51.94	34.47	31.00	39.36
R.O. means	1	3	4	2
R. primary		516.5	548.5	505
R. Random		386.5	354.5	398
R. Diff.		130	194	107
R.O. R.	1	3	4	2^x

^{x} U = 274 Z = 1.35 p = .09

The null hypothesis is thus rejected and the greater homogeneity of the primary groups accepted at a very satisfactory level of significance.

2. Incapacitation.

While the degree of incapacitation suffered during illness depends presumably on the nature of the illness as well as its severity, it depends too probably on a complex of social and psychological factors as well. Greater or lesser tendencies towards invalidism probably exist in all people and it was decided to analyse incapacitation resulting from the reported illness.

Each reported case was classified simply into 2 categories vizl no obvious incapacition, the patient going about his daily round much as usual, and on the other hand, the patient going to bed or even to hospital.

Table 21 shows the analysis of homogeneity in respect to incapacitation.

Table 21. Incapacitation: Comparative Homogeneity

	Primary	Random I	Random II	Random III
Mean I.H.	41.80	35.33	28.57	23.60
R.O. means	1	2	3	4
R. Primary		473	513	538.5
R. Random		430	390	364.5
R. Diff.		43	123	174
R.O. R.	1	2^x	3	4

$^x U = 242 \quad Z = .54 \quad p = .29$

Thus the null hypothesis may be rejected although the level of significance of the greater homogeneity of the primary groups does not give much confidence in the difference.

3. Action and Service Use.

The answers given by the 92 women to the question as to what action they took with the reported illness were divided into 5 main categories set out below with the numbers and percentages of women classified in each. Each woman was placed into only one category. This procedure would have contained difficulties if in relation to the specific illness quoted, women reported having taken more than one form of action.

In fact however, none of the women quoted more than one of the following types of action except in the case of a combination of Institute or other qualified medical services and the chemist or home remedies. Where this happened, the woman was classified under Institute or other qualified medical care since she had at least sought skilled advice.

The women then were classified according to the following 5 categories.

(1) Use of the Institute for care. (I) 39 or 42.39%

(2) Use of other qualified medical services for care. (M) 26 or 28.27%

(3) Use of the chemist or of remedies at home. (H) 14 or 15.22%

(4) Use of inyanga or of prayers. (C) 5 or 5.43%

(5) No action taken at all. (N) 8 or 8.69%

The comparative homogeneity of groups analysed according to this feature is set out in Table 22.

Table 22. Action and Service Use: Comparative Homogeneity.

	Primary	Random I	Random II	Random III
Mean I.H.	58.01	45.29	38.05	46.46
R.O. means	1	3	4	2
R. Primary		521	554.5	508.5
R. Random		382	348.5	394.5
R. Diff.		139	206	114
R.O. R.	1	3	4	2^x

^{x} U = 277.5 Z = 1.43 p = .08

Thus the null hypothesis may be rejected and the alternative hypothesis at a satisfactory level of significance be accepted.

4. Attitude Towards the Institute.

Finally, the attitude towards the Institute of Family and Community Health was scored on the 8 items in the questionnaire as follows, viz.

Very satisfactory - 5 points

Satisfactory - 4 points

Do not know - 3 points

Rather unsatisfactory - 2 points

Very unsatisfactory - 1 point

It was thus possible to achieve a high favourability score of 40 points or an extreme unfavourability score of 5 points.

In fact, the distribution of scores clustered heavily towards the favourable side of the scale.

Thus only 8 (8.69%) women scored 25 points or less while at the other extreme 17 (18.48%) women scored 36 to 40 points.

Table 23 shows the comparative homogeneity when calculated on this scoring system.

Table 23. Attitude towards the Institute: Comparative Homogeneity.

	Primary	Random I	Random II	Random III
Mean I.H.	39.80	33.91	35.93	34.60
R.O. means	1	4	2	3
R. Primary		490	480	469.5
R. Random		413	423	433.5
R. Diff.		77	57	36
R.O. R.	1	4	3	2[x]

[x] U = 238.5 Z = .45 p = .33

We may then reject the null hypothesis but with little confidence.

5. Illness and Medical Services as a Whole.

The mean homogeneity scores of all groups on the 4 units of this factor were calculated and the comparative homogeneity of the final scores is set out in Table 24.

Table 24. Illness and Medical Services as a Whole: Comparative Homogeneity.

	Primary	Random I	Random II	Random III
Mean I.H.	47.89	36.80	33.29	36.01
R.O. means	1	2	4	3
R. Primary		547.5	572.5	552.5
R. Random		355.5	330.5	350.5
R. Diff.		192	242	202
R.O. R.	1	2[X]	4	3

[X] U = 316.5 Z = 2.42 p = .008

Thus taking this feature as a whole, the null hypothesis may be rejected and the alternative hypothesis accepted at a highly satisfactory significance level.

It seems clear then that particularly in regard to the type of illness and the use of services, the primary groups have a greater homogeneity than the random groups.

The homogeneity in regard to illness is particularly interesting although we cannot from the present data account for the homogeneity found. It is of course possible that the members of a group may tend to describe illnesses in a similar way in certain respects. But the symptoms of the classification used, were of a sufficiently distinctive nature to make this explanation unlikely.

Most of the conditions are of an infectious nature and it seems more likely that the physical proximity of members resulting from social relationships is the important etiological factor. Another possible explanation is that the causes of these diseases operate in a similar way for the members of a single group, thus contributing to a comparative uniformity of the resulting disease in that group.

Whatever the cause, the similarity of experience of illness

or at least of reported experience of illness, of the members of the same group is likely to be of value to the educator since it gives him a more or less common starting point for discussion not only of the prevention of such illness but also of the curative action to be taken. This curative action in itself showed the primary groups with a greater homogeneity and this of course, would further reinforce his position.

Moreover, this finding suggests that the primary groups of this study are a desirable target not only of health education but of all the methods of health and medical care.

IV. Diet.

Among the most important influences on health is diet. Its importance is thrown up particularly in South Africa where malnutrition is such a serious problem (8). But the nutritional state of people wherever they are is quite fundamental to any understanding of their health and diet is a constantly recurring concern of health educators all over the world. Testimony to its importance is the extensive work in this field by the World Health Organisation, the Food and Agriculture Organisation, and the Nutrition Institute of the Pan-American Sanitary Bureau.

In this study, we have selected three features of diet which are frequent subjects of health education.

Perhaps the most important single foodstuff mentioned in health education programmes is milk. Here we shall be examining the consumption of fresh milk as well as of sweetened condensed milk which is the poor man's substitute for fresh milk and one which nutritionists are inclined to condemn.

In addition, we have taken the variety of foodstuffs consumed by the families of the women in the sample. Variety of foods in terms of the main recognised food-groups is an important health factor.

The index of homogeneity on all aspects of diet for each group of the primary and random sets, is shown in Appendix C.4.

1. Fresh Milk.

The women of the sample were classified according to whether they gave fresh milk to their children to drink at 2 or more meals daily, at only 1 or at none.

Out of the 92 women, 40 (43.48%) gave fresh milk at 2 meals, 33 (35.87%) at 1 meal and 19 (20.65%) at no meals.

The analysis of comparative homogeneity of groups in respect to fresh milk consumption is set out in Table 25.

Table 25. Fresh Milk: Comparative Homogeneity.

	Primary	Random I	Random II	Random III
Mean I.H.	51.80	37.60	40.76	33.90
R.O. means	1	3	2	4
R. Primary		528.5	515.5	549
R. Random		374.5	387.5	354
R. Diff.		154	128	195
R.O. R.	1	3	2^{x}	4

^{x} U = 284.5 Z = 1.61 p = .05

Thus the null hypothesis may be rejected and the alternative hypothesis of the greater homogeneity of primary groups be accepted at a highly satisfactory level of significance.

2. Condensed Milk.

Mothers were also placed in 2 categories according to whether they reported the use of sweetened condensed milk as part of the diet. Only 15 (16.30%) of mothers reported that it was.

The comparative homogeneity of groups in respect to the consumption of condensed milk is set out in Table 26.

Table 26. Condensed Milk: Comparative Homogeneity

	Primary	Random I	Random II	Random III
Mean I.H.	71.32	66.14	63.70	67.30
R.O. means	1	3	4	2
R. Primary		468	473.5	466.5
R. Random		435	429.5	436.5
R. Diff.		33	44	30
R.O. R.	1	3	4	2[x]

[x] U = 235.5 Z = .38 p = .35

Thus although the null hypothesis may be rejected, the level of significance is very unimpressive.

3. Food Variety.

The diets reported by each of the 92 women were scored according to the foods in various food groups considered important by nutritionists. Following inspection of the diets, it was decided to score them in these terms viz. the minimal diet range was taken to be 1 type of cereal, 1 type each of animal tissue and pulses, and 3 types of fruit and vegetables. Such a diet scored 1 point. An extra point was scored for each type additional to this minimum.

For example, should a diet consist of the minimum in all respects except that there was an additional type of cereal making 2 cereals instead of one, an extra point was scored giving this diet a score of 2 points; if say, 4 types of fruit and vegetables were included instead of only 3, this would also score for that diet an additional point.

In fact, the diets did not in the way they were reported show any considerable range and in any event the reporting of diets is a notoriously unreliable procedure.

When all 92 diets had been scored, they were found to have a range from 1 to 5 points.

The comparative homogeneity of groups is shown in Table 27.

Table 27. Food Variety: Comparative homogeneity.

	Primary	Random I	Random II	Random III
Mean I.H.	34.18	30.21	34.14	29.27
R.O. means	1	3	2	4
R. Primary		477	436	496.5
R. Random		426	467	406.5
R. Diff.		51	-31	90
R.O. R.	2	3	1	4

Random set II shows a higher homogeneity than the primary groups and the null hypothesis is therefore confirmed.

4. Diet as a Whole.

When the mean homogeneity scores on the diet factors were computed, the comparative picture shown in Table 28 emerged.

Table 28. Diet as a Whole: Comparative Homogeneity

	Primary	Random I	Random II	Random III
Mean I.H.	52.43	44.96	46.17	41.52
R.O. means	1	3	2	4
R. Primary		488	486.5	517
R. Random		415	416.5	386
R. Diff.		73	70	131
R.O. R.	1	3	2[x]	4

[x] U = 255.5 Z = .88 p = .19

Thus the null hypothesis is rejected but with only a very fair level of significance.

The homogeneity of primary groups in relation to diet cannot then confidently be said to be greater than those of

random groups except in the case of fresh milk. This finding is, of course, important enough because for one thing, groups with clusters of non-consumers of fresh milk are necessary targets of education.

But the failure to show a difference in respect to variety of diet is disappointing if not wholly unexpected. The measure used was an extremely crude one in a field where a certain precision of measurement is necessary and there can be no real defence of the method used.

Whether the results would have been any different with more sophisticated measures, is pure speculation although the clear difference found with regard to milk does give some hope in this direction. In any event, the question of nutrition is so important for health services and for health education that the problem is worth intensive and more systematic investigation.

V. Infant Care.

Where diet holds a cardinal position in health so far as the content of education is concerned, infant care occupies a similar position of importance in terms of the developmental groups towards whom health services and health education are directed.

Infancy, and particularly early infancy is with the antenatal period, the most vulnerable time of life from the point of view of mortality. While there has been a striking reduction of the problem of high infant mortality rates in the West, the rest of the world still faces a tremendous problem (57).

Perhaps the most penetrating of South Africa's disease problems is revealed in infant mortality and particularly for Africans. The infant mortality rate for Europeans is about 33 per 1000 live births, for Asiatics about 60 and for Coloureds about 132. For Africans, however, it is probably

not less than 150 and some areas have reported figures higher than 300, although inadequate birth notifications may account for some of the high rates (7, 58). Kark and Chesler have reported too, on the local dimensions of the problem among Durban communities (59).

The problem is a complex one involving not a few specific factors but the whole complex of maternal care.

It is in the field of child health however, that preventive medicine has seen its finest achievements and it remains one in which the scope for preventive action is very wide (60).

We have selected here only very slender indicators of the field as a whole, but they are in themselves of some importance.

Originally it had been intended to ask of each woman in the sample whether she had a baby in the first 2 years of life in order to go into more detail about the care of her baby.

But it was decided that the mere presence of a baby in the home might be related to primary group membership.

In African communities, the mode of breast-feeding is essentially one of response to infant demand or the mother's feeling that her breasts need to be relieved. Time feeding at regular hours such as is still the common advice given to European mothers, is something very new to the African mother.

Thus in this study a distinction was made between those mothers who adhered to "demand" feeding and those who had adopted some form of what might be called "clock" feeding based on set times, usually a feeding schedule of say every 3 or 4 hours.

Finally, certain value judgments in relation to infants were tested and examined. It was hoped these would give some picture of the context of values within which the care of infants takes place.

The index of homogeneity on all aspects of infant care for each group of the primary and random sets is shown in Appendix C.5.

1. Presence of a Baby under 2 Years.

Mothers were classified into 2 categories viz. those who had at the time of the interview, an infant in the first 2 years of life and those who did not.

It was found that 59 (64.13%) of the 92 mothers did have infants at the time of interview.

The analysis of comparative homogeneity in respect to having a baby in the home is set out in Table 29.

Table 29. Presence of Baby: Comparative Homogeneity

	Primary	Random I	Random II	Random III
Mean I.H.	51.64	39.68	43.70	30.69
R.O. means	1	3	2	4
R. Primary		496.5	493	533
R. Random		406.5	410	370
R. Diff.		90	83	163
R.O. R.	1	3	2[x]	4

[x] U = 262 Z = 1.04 p = .15

Thus although there is only a fair level of significance, the null hypothesis is rejected.

2. Mode of Breast-feeding.

In connection with breast-feeding, mothers were questioned in relation to their last baby, and since all 92 women were or had been mothers, this question was not confined to those who had an infant at the time of interview.

Mothers were divided into 2 categories.

"Demand" feeders were those who said they made no use of the clock at all. "Clock" feeders included those who fed partly by demand and partly by the "clock" as well as those whose feeding times were almost entirely determined by the clock.

It was found that of the total population of 92, 53 (57.61%) were purely "demand" feeders, while 39 (42.39%) were clock feeders.

The comparative homogeneity analysis is set out in Table 30.

Table 30. Mode of Breast-Feeding: Comparative Homogeneity

	Primary	Random I	Random II	Random III
Mean I.H.	45.71	31.74	32.70	24.87
R.O. means	1	3	2	4
R. Primary		496.5	486	535
R. Random		406.5	417	368
R. Diff.		90	69	167
R.O. R.	1	3	2^x	4

^{x} U = 255 Z = .87 p = .19

Thus again, although only with a fair level of significance, the null hypothesis is rejected.

3. Values in Connection with Infant Care.

It will be seen from the questionnaire that mothers were given a number of values to arrange in order of precedence, viz. clothing, diet, physical safety, good discipline, cleanliness and protection against illness. For some of these, the total population of 92 were highly homogeneous in the level of precedence assigned to them. Diet for example was placed in the first 3 choices by nearly 90% of the mothers. Thus only the items of lowest choice were analysed.

Thus four values were taken which were comparatively rarely selected in the first 3 choices viz. protection against illness, physical safety, cleanliness and clothing.

The whole order of precedence given by each woman was checked and she was placed into one of 4 categories depending on which of the 4 values she gave precedence over the other 3.

It was found that 31 (33.70%) of the 92 mothers, put clothing (c) first, 27 (29.35%) put cleanliness (d) first, 25 (27.17%) put protection against illness (g) first and 9 (9.78%) put physical safety (s) first.

Table 31 shows the comparative homogeneity of the groups.

Table 31. Values: Comparative Homogeneity.

	Primary	Random I	Random II	Random III
Mean I.H.	43.30	33.92	36.09	39.09
R.O. means	1	4	3	2
R. Primary		508	492	479.5
R. Random		395	411	423.5
R. Diff.		113	81	56
R.O. R.	1	4	3	2^x

^{x} U = 248.5 Z = .70 p = .24

In this case then, the null hypothesis is again rejected though the level of significance does not justify great confidence in the finding.

4. Infant Care as a Whole.

The mean homogeneity in respect to all 3 items of infant care showed the comparative picture set out in Table 32.

Table 32. Infant Care as a Whole: Comparative Homogeneity

	Primary	Random I	Random II	Random III
Mean I.H.	46.88	35.11	37.50	31.55
R.O. means	1	3	2	4
R. Primary		514	500.5	550
R. Random		389	402.5	353
R. Diff.		125	98	197
R.O. R.	1	3	2^x	4

^{x} U = 269.5 Z = 1.23 p = .11

Thus the null hypothesis is rejected for infant care as a whole though with only a very fair level of significance.

Although the levels of significance for all items are not impressive, the greater homogeneity of the primary groups from a field work point of view seems to be established.

But again, since our indicators of maternal care are relatively slender, we have merely touched the fringe of a problem that needs far more systematic and intensive examination.

From the point of view of infant programmes, an established greater homogeneity of primary groups would have unusual importance. The implications would extend beyond its immediate usefulness for the health educator to the infant care sessions held by most health services. If primary groups as such, of mothers with infants were encouraged to attend, rather than individuals, the medical and nursing session might then have available for more detailed guidance on infant care, not an aggregate of mothers, but primary groups likely to discuss and accept health principles by internal transmission within the group.

Many infant sessions consist mainly of mothers who meet only at the time of the session and although their common experience and problems will lubricate to some extent their social relationships, as a whole they do not necessarily meet outside this situation. It would seem then that their potentialities for group education would not be as great as if a planned effort were made to have mothers belonging to the same primary groups at such sessions if a greater homogeneity over a wider range of aspects of child care could be established for primary groups.

As for the present study while it presents no conclusive proof of the greater homogeneity of primary groups, the consistent first place of the primary set over the random sets for the 3 aspects suggests that further investigation is more likely to confirm than to deny the alternative hypothesis.

VI. Sanitation.

Sanitation, the hygiene of the physical environment is perhaps the most characteristic concern of public health and one which is usually given a high priority rating due to its relationship to the infectious diseases which are the most dramatic contributors to high mortality rates.

Smillie (52) for example says "The sanitary control of the environment is the most important foundation stone of a community-wide public health program. The simple sanitary principles ... are so fundamental that they must always be the chief concern of the official health service."

The Western countries have developed a highly competent science of sanitary engineering and the achievement of this branch has resulted in great saving of life. The range and possibilities of modern sanitation have been discussed by Baity (61).

But the provision of sanitary facilities has frequently gone hand in hand with public education and attitude change in respect to sanitary behaviour in everyday life as was pointed out earlier and the care given to this aspect has been described by Derryberry (63).

In South Africa the sanitation problem remains a serious one (7) while the extent of the problem for the present community was described by Steuart (64).

In this study three main indicators of sanitary behaviour were examined viz., the disposal of household refuse or garbage, the protection of food and water against flies and dust, and the cleanliness of the home interior particularly the kitchen.

This section was the only one carried out entirely by observation. No questions were asked and each feature was scored in terms of objective criteria.

The index of homogeneity on all aspects of sanitation for each group of the primary and random sets is shown in Appendix C.6.

1. Garbage Disposal.

The home environs of each of the 92 women, were inspected and were classified into 2 categories. The one category included all those homes in which there were any signs at all of garbage being indiscriminately thrown in the garden or yard, the other, those in which a receptacle or even a hole in the ground were used either for final disposal or for eventual removal by the public removal system.

It was found that 42 (45.65%) of the 92 homes had garbage lying round the yard.

Table 33 shows the comparative homogeneity of groups in this respect.

Table 33. Garbage Disposal: Comparative Homogeneity

	Primary	Random I	Random II	Random III
Mean I.H.	35.24	27.83	28.78	28.57
R.O. means	1	4	2	3
R. Primary		472.5	479	470
R. Random		430.5	424	433
R. Diff.		42	55	37
R.O. R.	1	3	4	2[x]

[x] U = 239 z = .47 p = .32

While the null hypothesis is then rejected, it is done so on a very slender margin and the alternative hypothesis accepted with little conviction.

2. Cleanliness of the Home Interior.

The cleanliness of the home interior and particularly the kitchen, was assessed on a four point scale ranging through very satisfactory, satisfactory, unsatisfactory and very unsatisfactory.

The home of each of the 92 women was classified into one

of these 4 categories.

It was found that 9 homes (9.78%) were very satisfactory (VS), 45 (48.91%) were satisfactory (S), 30 (32.61%) were unsatisfactory (U), and 8 (8.69%) were very unsatisfactory (VU).

The comparative analysis of homogeneity is shown in Table 34.

Table 34. Home Interior: Comparative Homogeneity

	Primary	Random I	Random II	Random III
Mean I.H.	51.39	39.35	42.14	47.24
R.O. means	1	4	3	2
R. Primary		488	483	457
R. Random		415	420	446
R. Diff.		73	63	11
R.O. R.	1	4	3	2^x

^{x} U = 226 z = .14 p = .44

The null hypothesis is again only just rejected and the alternative hypothesis accepted without confidence.

3. Food and Water Protection.

Food and water protection were judged separately, but it was found on analysis that without exception, where food was adequately protected, so was the water.

The judgments were strictly applied. If food or water happened to be exposed at the time of arrival at that home even if apparently preparatory to eating or drinking, it was marked as inadequately protected unless the family or a member of it was found actually eating or drinking. The women of the sample were classified into 2 categories viz. whether or not the food and water in their home was adequately protected.

Table 35 shows the comparative analysis of homogeneity.

Table 35. Food and Water Protection: Comparative Homogeneity.

	Primary	Random I	Random II	Random III
Mean I.H.	50.90	30.37	27.30	35.45
R.O. means	1	3	4	2
R. Primary		547	563.5	518
R. Random		356	339.5	385
R. Diff.		191	224	133
R.O. R.	1	3	4	2^x

^{x} U = 287 Z = 1.67 p = .05

Thus the null hypothesis is rejected at a highly satisfactory level of significance.

4. Sanitation as a Whole.

The mean homogeneity of all groups was computed for the 3 different aspects of sanitation and the comparative homogeneity is shown in Table 36.

Table 36. Sanitation as a Whole: Comparative Homogeneity

	Primary	Random I	Random II	Random III
Mean I.H.	44.78	32.52	31.31	37.09
R.O. means	1	3	4	2
R. Primary		520	514.5	481
R. Random		383	388.5	422
R. Diff.		137	126	59
R.O. R.	1	4	3	2^x

^{x} U = 250 Z = .74 p = .23

Thus for sanitation as a whole, the null hypothesis is rejected but again with little confidence.

Because of the relatively high values placed on cleanliness by Western European communities one would expect that had this

investigation been applied to such a community, the primary groups would have shown a relatively high and significant homogeneity in respect to sanitation. This has not been the outcome with regard to this investigation of an African community.

But perhaps the important feature of the sanitation findings is the relatively high homogeneity in connection with the most vital aspect for health viz., food and water protection.

Indiscriminate garbage disposal and dirty home interiors are undoubtedly important but much of this importance is due to their leading to the contamination of food and water. Therefore, in finding a high and satisfactorily significant homogeneity for primary groups in respect to the presence or absence of adequate protection of food and water, the group becomes a necessary target of health services and of health education.

VII. Knowledge of Communicable Disease.

In discussing sanitation, we have already commented on the importance of communicable disease.

This is the only section of the questionnaire in which knowledge alone was tested.

The women of the sample were scored one point for each correct answer and the final range of total scores was from 2 to 10 points, 10 being the maximum possible.

Only 13 women (14.13%) scored 5 or less points and 14 (15.22%) scored 9 or 10 points.

The index of homogeneity for knowledge of communicable disease for each group of the primary and random sets is shown in Appendix C.7.

Table 37 gives the analysis of the comparative homogeneity of the 4 sets of groups.

Table VII. Communicable Disease Knowledge: Comparative Homogeneity.

	Primary	Random I	Random II	Random III
Mean I.H.	32.37	25.86	25.58	25.67
R.O. means	1	2	4	3
R. Primary		488.5	506	505
R. Random		414.5	397	398
R. Diff.		74	109	107
R.O. R.	1	2[x]	4	3

[x] U = 257.5 Z = .93 p = .18

Thus, although the level of significance is not impressive, the null hypothesis is again rejected.

The knowledge of communicable disease of course, need not necessarily have a functional importance for health since the motivation that drives daily behaviour is what finally influences the incidence of disease.

But at least the relatively higher homogeneity of knowledge of the primary groups allows the educator a common language and understanding during the educational process.

VIII. Years of Schooling.

When it was found that the primary groups were likely to occupy a consistent first rank position for homogeneity with most of the health education items to be assessed, it was decided as an afterthought, to check if possible, whether the primary groups revealed a superior homogeneity in terms of years of schooling.

It may seem strange that of all the items considered, the one with the most obvious relevance for education should be excluded.

It indicates for example a certain level of formal learning ability, of the complexity health education may assume and to what extent written materials and symbols in visual material

may be used.

Its importance however, can easily be over-estimated. Successful health education has been and is carried out with illiterate people or those with very low levels of schooling. Since a primary aim of health education is directed towards influencing certain relatively simple (in the intellectual sense) phases of daily behaviour dependent more on motivation than on standard of knowledge, the role of schooling in assisting favourable change, is probably considerably less than is popularly supposed.

Nonetheless, it is a background factor of undoubted relevance and might have exercised an unexpected influence on the verbal behaviour of the women of the sample.

Thus an attempt was made to re-contact the original 92 women. Since this involved a considerable amount of week-end and evening visiting some time after the original interviews, and since too, some women had moved to unknown addresses, the data are far from complete. Only 12 of the original groups with a total population of 48 women could be completed.

As a consequence, too, the 3 sets of random groups had to be specially re-compiled for this variable alone as was explained earlier.

It was found that the range of years of schooling was from 2 to 12, and of the 48 women making up the 12 groups, 30 (62.50%) had 6 or more years of schooling and the whole population could certainly be regarded as literate to some degree.

The 12 primary groups and their 3 respective sets of random groups were analysed for homogeneity of years of schooling of the members and the index for each group is shown in Appendix C.8. The comparative results are shown in Table 38.

Table 38. Years of Schooling: Comparative Homogeneity

	Primary	Random I	Random II	Random III
Mean I.H.	7.43	9.50	11.17	11.12
R.O. means	4	3	1	2
R. Primary		149.5	133	121
R. Random		150.5	167	179
R. Diff.		-1	-34	-58
R.O. R.	4	3	2	1

Thus in terms of years of schooling the homogeneity of the primary groups in this particular sample is lower than that of all the random sets.

This result is somewhat contrary to expectation although it should be remembered that in this township, families do not ordinarily have a free choice of their neighbourhood or neighbours.

If as Festinger (49) and Kuper (65) have shown, geographical proximity exercixes an important influence on primary group formation, then in respect to that in standard of education, this may be a contributing cause in a community where those who are barely literate may and frequently do live in almost face to face proximity with secondary school graduates.

At the same time Kuper's reservation must be recognised when he states that siting is, but is no more than, an important factor and by no means the sole determinant of group formation. The culture of the community and the free choice of individual friends must also be of importance. It may be, in the same way as the possibility was suggested for readers of news, that those of higher education play a special role in groups in relation to those of lower education, as gate-keepers for more advanced ideas and skills.

It is of some interest to see however, that although in terms of the total homogeneity index, the primary groups occupy

only the position of 4th in rank order, in respect to at least 2 indicators of homogeneity, their order is first.

In Table 39, the range of years of schooling in the groups has been analysed and also the "isolates", viz. those individuals who in the distribution of their group, occupy a class interval on both sides of which are vacant class intervals.

Table 39. Years of Schooling: Comparison of Range and Isolates.

		Primary	Random I	Random II	Random III
Range	Mean	5.42	6.08	5.92	5.83
	Range	4-7	2-9	2-9	3-9
Isolates:	Total	16	23	21	17
	% age	33.33	47.92	43.75	35.42
	Mean V[x]	2.31	3.00	3.00	3.06

([x] Number of vacant class intervals between the "isolate" and the nearest occupied class interval which has itself or with those adjacent to it, more than 1 member).

Although the differences involved are small and have no significance outside the samples being used here, nonetheless within these particular sets, the range of years of schooling of the members of the primary groups yields the lowest mean of all 4 sets as well as the smallest range of ranges viz. 3, as against 7, 7 and 6.

Moreover, an analysis of "isolates" shows similar features. The primary groups show a slight though again statistically not significant, superiority over the random groups. The percentage of isolates in the total primary group population was as seen in the table, 33.33 as against the nearest random set percentage of 35.42.

Not only however, have the primary groups less "isolates" but their "isolates" are as it were, less isolated. As the table shows, the mean number of vacant class intervals between isolates and non-isolates is 2.31, as against the nearest mean "distance" of 3.00 of random sets I and II.

This suggests that at least in the samples with which we are dealing, although in the random sets there is a greater tendency for people of like schooling to cluster together, the primary groups show as it were, a repugnance for extreme splits and for extreme deviates.

This has of course, some importance from an educational point of view. Of all these 4 sets, the primary group membership tends all to be within greaterreaching distance of each other than that of the random groups.

The contrast may be summed up in this way. The random groups appear to have a harder core of like members but with more extreme isolates so that education directed to them would find it "easy going" to deal with this relatively homogeneous core but have perhaps a tendency to exclude the isolate.

In the primary groups however, while there is not such a hard core, the members as a whole are sufficiently in "reach" for the group to be educated as a whole. They would thus appear to consist of diversity with less isolation and in this sense too may constitute potentially more promising educational material.

In any event, since the numbers we are dealing with are so small, even were these possibilities valid for this sample, we do not have any grounds for a wider generalisation.

CHAPTER IV

CONSIDERATION OF THE FINDINGS ON GROUP HOMOGENEITY

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Table 40 gives a summary of the findings on all variables in respect to the homogeneity of the sample groups. The rank order in terms of R and the level of significance of the difference found between the primary groups and the random set with the nearest degree of homogeneity are stated.

It was found that with respect to all variables except the reading of news and of religious material, the variety of food consumed at normal meals, and years of schooling, the primary groups have a greater homogeneity than the random sets. But at the same time it should be noted that with many of the variables the level of significance of the difference between the primary groups and the random, did not give much cause for confidence.

Nonetheless a relative consistency of greater homogeneity has been achieved in spite of the negative findings for reading habits in relation to news and topical articles, and particularly for years of schooling of the members where the sample groups were found to be the most heterogeneous.

Ordinarily one might have expected this to mitigate against a high homogeneity on many of the other factors.

On balance, then, in terms of practical field decisions, the selection of groups as done in this study, would seem to place at the disposal of the health educator a degree of homogeneity in his groups he would be unlikely to achieve by a random selection of individuals.

Particularly striking are the differences found in the sphere of illness and the use of services. This is a factor which is perhaps of the most obvious relevance to the problem of community health, and to epidemiology. It immediately suggests the importance of such groups as reservoirs of diseases of different kinds and as necessary targets both for medical

Table 40. All Variables: Comparative Homogeneity.

	RO_R	P
I. Reading	1	.15
1. News.	2	-
2. Fiction.	1	.27
3. Religious material.	2	-
4. Variety of material.	1	.24
II. Awareness of Community Needs and Participation in Public Life.	1	.004
1. Numbers of needs of which aware.	1	.31
2. Awareness of health/education needs.	1	.21
3. Membership of organisations.	1	.08
4. Exclusive membership of church organisations.	1	.12
5. Membership of "Combined Group".	1	.004
6. Leadership Experience.	1	.03
III. Illness and Medical Services.	1	.008
1. Recent illness of family members.	1	.09
2. Degree of incapacitation involved.	1	.29
3. What services were used or action taken.	1	.08
4. Attitude to Institute.	1	.33
IV. Diet.	1	.19
1. Fresh Milk.	1	.05
2. Sweetened Condensed Milk.	1	.35
3. Variety of food in normal meals.	2	-
V. Infant Care.	1	.11
1. Having a baby under 2 years of age.	1	.15
2. Method of breast-feeding.	1	.19
3. Values in relation to infant care.	1	.24
VI. Sanitation of the Home.	1	.23
1. Garbage disposal.	1	.32
2. Food protection.	1	.44
3. Cleanliness of home interior.	1	.05
VII. Knowledge about Communicable Disease.	1	.18
VIII. Years of Schooling.	4	-

care and health education as a group.

The case is further emphasised by the lesser but nonetheless present higher homogeneity in respect to certain aspects of diet, to infant care, to sanitation of the home and to knowledge about communicable disease.

These findings then suggest strongly that these groups are in fact small pockets of like ideas, attitudes and behaviour relevant to health and disease and therefore epidemiological units worthy of attention.

From an educational point of view, one of the more striking findings is the comparatively high homogeneity of the primary groups in respect to participation in public life. The significance of this finding is apparent in the light of our previous discussion of the role of community organisation in health and health education programmes.

To use a simple and rather fragmentary illustration let us take one of the commonest of health service aims in the community viz., an increase in the consumption of fresh milk.

To this problem, there may be considered 2 main aspects which are the public demand for milk and the organisation of a cheap, easily available supply. Taking the aspect of supply in this particular community, we might on the knowledge gained from this study, plan a campaign something like this.

Firstly, since the Combined Group is a large and powerful enough organisation to sponsor a supply scheme, we might as a first step, select those primary groups with a high homogeneity for combined group membership.

Primary groups IV and VII are such groups.

These 2 groups have a high homogeneity also in respect to milk consumption. But group IV has a homogeneity in terms of a high consumption of milk while group VII has a homogeneity in terms of a very low milk consumption.

As a group then, it does not seem unreasonable to suppose that number IV is likely to produce a more favourable response

to the suggestion of a scheme for cheap supply of milk, and by virtue of its Combined Group membership, to be open to the idea of persuading this organisation to take action. Group VII however, while it may not represent a centre of strong resistance to the plan, is really still at the elementary stage of making very little use of milk. It may well, in the early stages be a group to avoid or, on the other hand, a group to be met with a view not to persuading the members to sponsor a public plan but rather to discuss the value and available supplies of milk so far as their private homes and families are concerned.

A variety of analagous illustrations could be drawn from the findings on the 21 primary groups, but this is moving somewhat ahead of our immediate intention.

Apart from the possibilities inherent in this kind of use of groups, there does seem sufficient homogeneity in the sample groups in respect to the general content of health education to mean that the members of single groups have tended to avoid the sometimes educationally crippling diversity that often prevents a group learning as a group.

Perfect uniformity too, is not common and occurs when it does, only with the simplest variables so that the groups appear to retain sufficient heterogeneity in most respects, for differing viewpoints to be elicited in group discussion.

Although we are not in this study concerned particularly with the homogeneity of individual primary groups it is of some interest to see that there is considerable variation in the homogeneity of individual primary groups, for the different factors on which they were tested.

The descending rank order of homogeneity scores for each group was set out for each of the main factors except for years of schooling.

It was found that no primary group had its highest rank lower than 9 out of 21; no primary group had its lowest ranking higher than 11.

The mean range of rank orders was 14.60, with a range of ranges from 9 to 20.

Thus the individual primary groups showed a relatively high degree of variability in their homogeneity of various factors.

In summary, we may suggest that were we able to plot a chart of these groups within this community, that the resulting pattern would be related to a roughly corresponding pattern of knowledge, attitudes, behaviour and experiences important for health education.

These groups then would appear to have potentialities as epidemiological units.

CHAPTER V

GROUP HOMOGENEITY AND COHESIVENESS.

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GROUP HOMOGENEITY AND COHESIVENESS.

Introduction.

In discussing earlier the assessment of the educational potentialities of a group, it was said that the more likely a group was to carry out in daily life, an intrinsic self-educating function, the greater its possibilities from the educator's point of view.

Thus if we can establish a relationship at all between health education factors and more specifically social factors such as group cohesion or the selection of friends by individuals, it would be hard to avoid the general conclusion that this content is in some sense at least, a live social issue about which the individual will learn in the course of his social life.

It seems reasonable to suppose that this self-educating function is more likely to be carried out with respect to those characteristics which are directly related to the reasons for the group's existence. Thus, to take our earlier example, if the members of a group are friendly partly because of a similarity in political views, it is in relation to political views that the group is likely to exercise a self-educating function.

Controlled studies confirm this impression.

Schachter (66), for example, showed that where discussion is relevant to the functioning of the group, there existed stronger forces to communicate with and to influence fellow members.

As Festinger et al (49) report, "There are indications that information relevant to the immediate functioning of the social group will be communicated more frequently than information of less relevance. The variety of things which are relevant to the functioning of the group will thus have an

important effect on the number of different things about which the group develops standards and about which the group exerts pressures towards conformity."

Secondly, if this self-educating function is carried out, more particularly where it is a conservative force contributing to the maintenance of a group norm in relation to factors important for health and disease, then from a health point of view, such a group would be an important component of the total epidemiological picture of the community.

Thus, in assessing the epidemiological and educational possibilities of a group, the social relevance of content important for health and for health education needs to be examined.

Cohesiveness and Homogeneity.

Moving from the health education field for the moment, one of the most significant features of a group is its cohesiveness. The concept will be discussed in more detail later. For the moment, we shall accept the definition of Festinger (49) that is is the "total field of forces which act on members to remain in the group."

Among the studies showing the relationship of cohesiveness with uniformity in social groups is that of Schachter (66). Emerson (67) in a replication confirmed that "The central proposition tested by Schachter, that pressures toward uniformity in social groups vary directly with group cohesion was substantiated ..... within comparable levels of significance."

In another study Back (68) remarks in connection with his findings that "In the highly cohesive groups the discussion was more effective in that it produced influence, that is, group members changed more toward the partners' positions than they did in less cohesive groups."

Again too, Festinger (49) also showed a positive relationship between cohesiveness and group standard or degree of conformity of group members.

These studies are concerned mainly with small groups in which the members fall into a similar age or sex, social or economic status category and also with relatively minor segments of human interest just as does this study where the groups are all African housewives and the subject involved is mainly certain rather fragmentary aspects of health.

In this study, it has been shown that the primary groups have a greater homogeneity than the random in most respects tested, and this in itself strongly suggests that the health education matters on which the groups were tested, are related in some way to more specifically social factors.

But this is manifestly not enough to be able to say in what respects this health content is related to social forces, is important for the social life of the group or is a subject in which the group itself carries out as it were, a self-education function.

We must tread warily, for if we have not already, we may easily now begin to justify the criticism of Sorokin (69) that much of modern group work has yielded "painfully elaborated platitudes and poorly reiterated generalisations, discovered long ago and defined more accurately by the preceding social thinkers .....", a comment which no investigator in this field can afford not to take seriously.

We are faced by 3 possible theoretical alternatives.

These are that the comparative uniformity we have found in the primary groups is the product of

(a) Similar experiences of the members to which they have reacted independently but uniformly.

(b) A tendency to select friends and associates more from those who are similar to oneself, than from those who are dissimilar.

(c) Pressure by the group on its members to conform to a group standard.

It seems reasonable to assume that in any social group with any permanence or cohesiveness at all, not one but all 3 of these factors will be operating in one degree or another. The question then, can only reasonably be posed as which of these, or which combination of these, is playing the dominant role.

The factor of these 3 most obviously related to education is probably the third viz., pressure by the group on its members to conform. Could this factor be established, we would then be reasonably certain that a group, in the absence of the educator, would continue to educate itself, to digest as it were and to assimilate any new ideas he may have stimulated and to achieve new norms which represent a shift away from the centre of gravity of a previous norm.

But if it could be shown that there was a tendency to select friends and acquaintances according to their similarity, the educational significance would seem to be concerned mainly with the usefulness of the resulting uniformity. At the same time if friends are selected for certain characteristics one would expect again that there would be some force present helping either to perpetuate such characteristics or where change is being brought about, to maintain some kind of mutual adjustment between the individuals involved in respect to these characteristics. If this were not so, presumably there would be some strain placed on the friendship. This again then would be a spontaneous internal "teaching" function of the group of those involved in the mutual friendship choices.

Of least educational value would be the explanation that uniformity is related to similar experiences to which the members independently reacted. Here the educational importance would be almost entirely limited to the resulting uniformity and it would be difficult to postulate a group self-teaching function.

But it seems again perhaps unreasonable to assume that a factor such as this could possibly operate completely in a vacuum. Similarity of reaction to similar experiences, particularly where groups as a whole tend to have distinctive reactions from each other, suggests very strongly that the set to react has itself been conditioned by one or both of the other 2 factors viz. friendship choice, or pressure to conform.

This rather lengthy preamble has been necessary for 2 main reasons.

Firstly, there is a need to investigate these questions systematically. We need to know, at least with regard to health education, what the comparative roles of the 3 factors are in groups used by health educators and to subject groups in which each of the factors respectively plays a dominant role in producing homogeneity, to education in different types of content relevant for health so as to measure comparative educational effectiveness.

Secondly, this present study will be quite unable to achieve final answers and will have to rely for any postulations of the educational function of the primary groups in relation to their members, on the general and rather vague principle that health education content may be directly related to certain aspects of social dynamics as such.

Of course, there is one aspect which is of some significance, and that is the relative permanence of the primary groups in this study. Presumably, while only controlled studies can explain the precise dynamics of the process for different kinds of groups and different kinds of subject-matter, the longer a group persists, the longer the members are in social contact with each other on an everyday friendship basis, the wider the range of topics which are shared in discussion and except with postulations of a rigid, almost psychotic convervatism of the participants, this must be regarded as having a "teaching" and "learning" function.

The Nature of Cohesiveness.

To introduce our first attempt to offer some answers to these questions, we must examine the nature of cohesiveness.

Sorokin (69) lists the term "cohesion" (used he says, in lieu of the presumably more respectable terms "solidarity" or "integrity") as among recent "innovations" which "are either innoxious puerilities or obnoxious disorders of speech behaviour!" He says of them that "They certainly do not add anything to our knowledge of psychosocial phenomena or of the small groups and are, all in all, a big liability rather than a contribution."

There is little doubt that whether we accept his extreme view or not, there is some truth in the criticism as we shall later be called on to accept.

But this should not blind us to the fact that it is an essential and useful concept by whatever name the rose be called. Indeed, a working theory at least, of cohesiveness is almost indispensible for the group worker who must take into consideration the differences between groups in respect to the strength with which the members hold together. And cohesiveness is probably as good a generic term for this as any.

The layman of course, has very definite ideas about it and indeed a good deal of his description of his social life both formal and informal, is stated in terms of his pleasure or repugnance in voluntarily or involuntarily belonging to a group. When he is inside a group to which he is strongly attracted, his sense of satisfaction is plainly expressed. When he is outside a group he feels his exclusion and may even invest the term "clique" with a deep tone of hostility and contempt.

But while these naive conceptions of cohesiveness have reality in some form or another to all of us, the term used in a general sense, does conceal a complexity that emerges only when we begin to examine in detail its possible nature and functions.

For example, there is the question as to whether cohesiveness may itself be thought of as a unitary force or as a variety of different forces producing different effects.

It is assumed that to measure cohesiveness we must measure the attractiveness of the group for the members.

Measuring cohesiveness by means of some index of attractiveness can surely be done only, or perhaps mainly where the very reason for the group's existence may be defined in terms of its intrinsic attractiveness and not in terms of external ends it may gain or for instance its original formation in self-defence against external threats or dangers.

In the last resort, no matter how cohesiveness originated in any group, its ultimate test is the group's resistance to disruption, but as Sorokin (69) has said, a great variety of forces may keep a group together.

Gross and Martin (70) express serious doubts as to whether cohesiveness can be considered a unitary concept. They say that in order to support such a contention, we must "demonstrate empirically", that the different kinds of attractiveness of group membership are highly correlated in the same population so that they "may be viewed as possible representation of the same phenomenon."

They claim this has not been done.

Schachter (66) on the other hand, says of Back (68), whose work Gross and Martin criticise on precisely these grounds, that he "has demonstrated that cohesiveness, no matter what its source, can be considered a unitary concept. Whether cohesiveness is based on friendship, the valence of the activity, or group prestige, the consequences of increasing cohesiveness are identical."

Festinger (49) illustrates some of the fallacies of logic of which we must beware.

He asked of his respondents, whom they saw most of socially. Depending on the respondent's interpretation of the question viz., whether he believed he should confine himself to those

visiting his home on formal invitation or simply those neighbours who called in casually and regularly, one might expect, on the sheer chance created by geographical proximity, that residents within the same courts would see most of each other in terms of this question.

He remarks that "To be able to create and maintain group standards, a group must have power over its members. This power, the ability to induce forces on its members, has been called cohesiveness. If the group uses this power to make the members think and act in the same way, that is, if there are group standards, the homogeneity of the attitude and activity patterns should be related to the cohesiveness of the group."

This statement involves the most extraordinary circumlocution and states in the end the obvious fact that if a group uses its power to make a group conform to a norm, the group will have a norm.

Indeed, almost as if he intended it not to appear too obvious, he has introduced an element of doubt in using the term "should" instead of "must" in the latter part of his last sentence.

He now goes on to make the quite unwarranted assumption that he is in fact measuring the power to influence (or cohesiveness by his definition), by using as his criterion answers to the question who the group member sees most of socially.

When he does eventually achieve a positive and significant correlation between group scores on his index of cohesiveness and homogeneity, he again fallaciously assumes that the groups are exercising a pressure to conform.

This is a wrong conclusion for at least 2 reasons.

(1) All he has established is a relationship between frequency of seeing socially and uniformity in relation to a tenant's organisation.

(2) He has not shown that any pressure to conform existed and is not able on these findings to deny for example, the possibility that those with certain independently formed attitudes to the tenants' association as well as other related personality characteristics, tended to be attracted to each other with greater frequency in social situations.

Moreover, the positive correlation he found was not altogether surprising because he had on the one hand attitudes to and activity in an organisation essentially social in nature, and correlated with it on the other hand, a rough index of court sociability. As more than one of his deviates remarked, in saying how they were different from those supporting the organisation, they were not as "sociable" as the other members of the court.

Moreover, his use of the term cohesiveness, endows it with an uncontrollable versatility and at least 2 main meanings are attached to it viz.,

(1) That it is the resultant of all forces holding the group together or obversely, the "strength" it would muster in opposing disruption.

(2) That it is the power to influence the members.

Now these 2 meanings are not necessarily the same thing. The power to influence members may well for example, be confined only to those particular respects in which the group is attractive. Indeed, as a generalisation, it is hard to see how it holds water at all.

It is surely conceivable that a group held together on the basis of characteristic x, may well tolerate to an unusual extent, wide diversity among its members in relation to characteristicy. To give a rather gross example, a group held together by the financial advantages it gives its members, may well and probably will, tolerate a wide diversity of political opinion.

Thus exploration even of the scientifically more respectable investigators in the field involves us in conceptual entanglements from which it is hard to find a continuous path or weave an exit.

It seems obvious that one's claims in this field then, should be kept at the simplest possible level in which proof and speculation are distinguishable.

We shall in this study, try to make such a distinction.

A first effort in this direction will be to recognise with regard to our primary groups, that we shall at one stage be measuring a relationship between not cohesiveness and homogeneity, but between the actual characteristics measured viz., choice of friends, or of advisers when in trouble on the one hand, and homogeneity on the other.

We shall assume that choice of friends within a group is one measure of cohesiveness in the sense of meaning the result of forces holding the group together, but only as one measure of this. But we may not assume that this particular aspect of cohesiveness, or even that cohesiveness itself, is the same as the power to influence the members.

The Measurement of Cohesiveness and its Indicators.

In measuring cohesiveness through the medium of certain indicators we shall make use of the measuring methods adopted by other investigators.

The basic sociometric techniques are too well known to require lengthy introduction.

Developing through the early conception of Moreno (71) and the subsequent basic work of Jennings (72) and others (73, 74, 75), sociometric methods have achieved an important place in social studies.

Whatever the exact nature of the choice such as, who are your best friends, of whom do you see the most socially, with whom would you like to do a particular task, or who would you select as a leader, the usual measures of cohesiveness contain two features viz.,

(1) A proportion of choices made within a group either to those it would be possible to make within the group or to those made outside the group.

(2) Some correction for mutual choice.

Thus, for example, Dimock (76) in 1937 used a "friendship index" for small groups. This was the ratio of the number of selections made within one's club, when each member is asked to name his 10 best friends, divided by the number which could possibly have been chosen from within the club."

The measure used by Martin et al (77) involves a similar proportion but based now on the number of choices made within the group as a proportion of the number of choices made outside the group.

A major problem however, is the correction for mutual choice.

Festinger (49) says that "as the tendencies toward sub-group formation increase, we will expect to find more and more mutual choices. Thus the existence of mutual choices to some extent decreases the cohesiveness of the group as a whole."

He recognises that we cannot say how much, or at what stage, mutual choices detract from group cohesiveness.

The problem has been well summed up by Martin (77), and his remarks on this score will be quoted in full.

"The interrelationship of mutuality and cohesiveness as it affects the functioning of a group may bear a crude resemblance to that between temperature and humidity as it brings comfort or discomfort. It is not true, of course, that comfort results only as temperature and humidity vary together and, especially, in a linear fashion. When the temperature is rising, a point is reached when humidity must remain constant or even decrease if one is to remain comfortable. Thus it may be with the factors of mutuality and cohesiveness; for an increasing degree of cohesiveness, the number of reciprocal choices must remain constant or even decrease if the group is

to maintain or enhance its effectiveness in function.

Thus, there is certainly a relationship between mutuality and cohesiveness, especially as such qualities may affect the level at which a group functions. But the nature of that relationship is far too complex to be revealed by an analysis, based on an assumption of linearity ....."

The Measurement of Cohesiveness in this Study.

In this study, the sociometric questions involved 2 main elements.

(1) Those people with whom the member was "most friendly", and for how long they had been friendly.

(2) Those people to whom the member would go for advice if she had a personal problem.

The basic proportion in the formulae was that between the actual number of choices made within each group and the number of choices it would be possible to make within that same group.

Each of the sample groups was individually analysed in this way. It was found then that taking the 21 groups as a whole, the overall proportion of in-group choices to possible in-group choices in terms of friendship was 95 to 261 or 36.40%.

On the other hand, in terms of the members choice of those to whom they would go for help and guidance the proportion was only 84 out of 261 or 32.14%.

Before however, the exact nature of the formulae could be determined, certain issues had to be settled.

(1) How to score first, second and third choices.

(2) How to correct for mutuality.

The scoring of first, second and third choices commonly takes two forms viz., either ignoring the order of choice and scoring each the same or scoring all 3 choices differently, usually with 3 points for a first, 2 for a second and 1 for a third choice.

In both these methods there would appear to be invalid assumptions:-

(1) It might ordinarily be assumed that there is some difference between a first, and second choice and certainly between a first and a third. But equal weighting does happen to be a common standard procedure which is usually adequate for many purposes.

(2) Differential weighting however, may on the other hand be opposed not on the grounds of its arbitrariness but because although the differences between first, second and third choices may be appropriate enough, there would appear to be a larger difference between third choice and no choice at all than between the 3 choices of different ranks.

In this study, 3 types of scoring were tried, viz.

(1) Weighting all 3 choices the same.

(2) Weighting first, second, and third choice differently so that the difference between one choice and the next in rank order was one point and that between third choice and no choice was also one point, i.e. 3 points for first, 2 points for second, 1 point for third, and no points, of course, for no choice.

(3) Weighting first, second and third choices differently so that the differences between first, second and third choices were respectively the same but between third choice and no choice was somewhat larger, i.e. first choice 5 points, second choice 4 points, third choice 3 points, and no choice no points.

So far as the problem of mutuality was concerned, there are obviously various grades of mutuality or exclusiveness of pairs of individuals within any single group. These are considerably complicated if with regard to mutuality, one considers a mutual first choice as considerably more disruptive of group cohesiveness than say mutual third choices.

The primary groups in this study were examined in respect to five types of mutuality, all based on choices within each group.

1. Mutual first choice in which the individuals of the pair neither choose nor are chosen by others.

2. Mutual choice of any rank, in which the individuals of the pair neither choose nor are chosen by others.

3. Mutual first choice in which the members may or may not be chosen by, but do not themselves choose, others.

4. Mutual choice of any rank in which the members may or may not be chosen by, but do not themselves choose, others.

5. Mutual choice of any rank, in which the members may or may not be chosen by, and may or may not choose others but definitely excluding all pairs in which a member is involved in a mutual choice with a third person.

It will be clear that these types are not exclusive of each other; indeed they are graded so that type 5 includes all the other four types, type 4 includes types 3, 2 and 1 and so on.

Appendix D.1 gives the friendship choices within each of the primary groups.

When the groups were analysed in respect to friendship choice, the numbers of mutual choice pairs of the different types were as shown in Table 41.

Table 41. Number of Friendship Mutual Choice Pairs in 21 Primary Groups.

	TYPES				
	1	2	3	4	5
Number of Pairs.	0	3	4	7	15
Number of Groups.	0	3	4	7	12

Thus the number of pairs of types 1, 2 and 3 were too small markedly to effect the rank order of cohesiveness and only types 4 and 5 were eventually used in the formulae.

The correction for mutuality, that will be our guide in this study is that of Festinger (49).

As he remarks, "We would not want to subtract the mutual choices completely since the fact that they are mutual certainly does not completely nullify their contribution to the cohesiveness of the group. As an approximation, we shall correct the proportion of "in-court" choices by subtracting from the numerator of the fraction, one-half of the number of mutual choice pairs which occurred."

Cohesive Formulae Attempted.

The following formulae were attempted to see how they would fare in a rank order correlation between cohesiveness and homogeneity on the primary groups, viz.

I. Choice was scored on the friendship question alone and first, second and third choices were scored the same.

(a) $\frac{\text{In-group choice}}{\text{Possible in-group choice}} \times 100.$

(b) $\frac{\text{In-group choice - half number of mutual pairs type 5}}{\text{Possible in-group choice}} \times 100$

(c) $\frac{\text{In-group choice - half number of mutual pairs type 4}}{\text{Possible in-group choice}} \times 100$

II. Choice was scored again only on the friendship question but first, second and third choice carried respectively different points.

(a) Scoring: First choice 5, second choice 4, third choice 3.

$\frac{\text{In-group choice}}{\text{Possible in-group choice}} \times 100.$

(b) Scoring: First choice 3, second choice 2, third choice 1.

$\frac{\text{In-group choice}}{\text{Possible in-group choice}} \times 100.$

(c) Scoring: First choice 5, second choice 4, third choice 3.

$\frac{\text{In-group choice - Number of mutual pairs type 5}}{\text{Possible in-group choice}} \times 100.$

III. Choice was scored on the friendship question and modified by the period the pair had known each other.

Scoring: First choice 5, second choice 4, third choice 3.

Each in-group choice score was multiplied by the proportion of the length of time the pair had known each other, to a maximum of 36 months.

Then the following formula was used, viz.,

$$\frac{\text{Time modified in-group choice score - number of mutual pairs type 5}}{\text{Possible in-group choice score}} \times 100$$

IV. Choice was scored on the question about who would be approached to solve a personal problem.

All choices were scored the same.

$$\frac{\text{In-group choice - half number of mutual pairs type 5}}{\text{Possible in-group choice}} \times 100$$

Method and Preliminary Sorting.

A considerable amount of preliminary work was done to determine with which of the cohesiveness measures there were the best prospects of achieving a significant correlation.

The set of 21 primary groups was scored on each of the measures in turn. Making use of the Spearman rank-correlation coefficient (rho) and its corresponding significance test, the preliminary steps of computation were carried out with each formula for all the variables.

All these calculations are not recorded here. They constitute a bulky amount of data from which it was readily apparent that the majority of the proposed formulae would produce nowhere near a significant correlation between cohesiveness and homogeneity.

Those formulae involving choice of those to whom one would go for help in a personal problem, and those in which the period of friendship was a factor, showed throughout no prospect of success.

The nearest relationships occurred with the cohesiveness indices based only on the choice of friends.

The index producing the correlations approaching nearest to an acceptable level of significance was II(a) as described in the previous section,

viz., Differential scoring for first, second and third choices of 5, 4 and 3 points respectively and with no correction for mutual choice pairs.

Thus, the final index of cohesiveness consisted of the following:-

$$\frac{\text{Friendship choice score within the group}}{\text{Possible friendship choice score within the group}} \times 100$$

where first choice scores 5 points, second 4 points and third 3 points.

Appendix D.2 gives the cohesive index for each of the 21 groups using this formula.

The legitimacy of the procedure of seeking a formula that will give the most significant correlation may be questionable. Festinger (49) does this as well. But if the finally selected formula has meaning in terms of what it is trying to measure, then should it produce a significant relationship, such a relationship must be accepted.

The formula selected in this study has at least been able to do without the complication of taking account of mutual choice pairs and, although it is to some extent complicated by the differential weighting of choices, its meaning in terms of group cohesiveness based on friendship seems clear enough.

The Relationship between Cohesiveness and Homogeneity.

The null hypothesis will be that there is no relationship between cohesiveness as measured by friendship choice and homogeneity. The alternative hypothesis, a directional one, is that there is a positive relationship so that with greater cohesiveness so as there greater homogeneity.

The level of significance will be taken as .05.

Thus rank order correlations (Spearman rank-correlation coefficients) were computed between homogeneity scores and cohesiveness scores on the 21 groups, for each of the main variables and their units in turn. These are shown in Table 42 with their levels of significance.

Table 42. The Relationship between Cohesiveness (Friendship Choice) and Homogeneity on all Variables.

Variables	rho	p
I. Reading Habits.	-.09	.35
1. News	-.12	.29
2. Fiction	-.02	.46
3. Religious Material	.11	.31
4. Variety	-.31	.08
II. Community Needs.	-.08	.39
1. Number of Needs	.20	.18
2. Health/Education Needs	-.24	.14
3. Organisation Membership	-.05	.41
4. Church Membership	.12	.29
5. Combined Group Membership	-.99	.48
6. Leadership	.11	.32
III. Illness and Medical Services	.34	.07
1. Illness	.55	.006[X]
2. Incapacitation	-.14	.26
3. Action and services used	.26	.12
4. Attitude to Institute	.03	.45
IV. Diet	-.01	.48
1. Fresh Milk	-.11	.31
2. Condensed Milk	.20	.19
3. Food Variety	-.26	.25
V. Infant Care	.56	.006[X]
1. Presence of baby	.51	.01 [X]
2. Breast-feeding method	.25	.13
3. Values in infant care	.29	.10
VI. Sanitation	-.07	.37
1. Garbage disposal	.24	.15
2. Food protection	-.10	.33
3. Home interior	-.11	.31
VII. Knowledge of Communicable Disease	.17	.22

[X] Significant on one-tail test.

Thus, it is shown that the null hypothesis has been confirmed in all instances except for illness, infant care as a whole, and the presence of a baby in the home where the null hypothesis is rejected and the alternative hypothesis accepted.

CHAPTER VI

THE NATURE OF THE FINDINGS.

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The findings require careful interpretation.

In the first place when cohesiveness is measured in terms of choice of persons to whom one would go for help, or on friendship choice modified by the period of friendship, it has no apparent relationship in these primary groups to their degrees of homogeneity in respect of health education material.

This is true also of the major part of the material measured in relation to cohesiveness based on friendship choice alone, with a few important exceptions.

These exceptions are particularly important in view of our earlier analysis of the problem in that both illness and the presence of a baby are experiences which at least in themselves could hardly be considered as results of pressures to conform. Indeed, the findings show that in these groups, for all variables which could be regarded as most likely to be effected by group pressure, there is no effect from level of cohesiveness as we have measured it.

The relationship shown with illness might be explained on the grounds that the closer are friendship bonds in a group, the greater the chance of the members infecting one another with disease, the greater too their chance of being exposed to the same local environmental hazards and it could also mean that the homogeneity of illness in a group is a result of homogeneity of the various causes of those diseases in say similar practices of the members of that group.

Also, when people suffer from similar diseases and possibly share sympathy and advice, the more friendship bonds are cemented.

As for having a baby in the first 2 years of life, it does not seem unreasonable to suppose that the main factors involved are the similarity of experience and the closer friendship

bonds established as a result. But we should not rule out the speculation that to some extent the babies of one's friends encourage one to have a baby oneself.

This study however, as has been said, does not have definite answers to these questions.

As for the confirmation of the null hypothesis in all other respects, the explanation may lie in a number of directions, none of which we can delineate with certainty.

Before discussing the problem in detail, we must of course be reminded of the fact that in any event the wide variation in rank orders for each primary group on the different variables would itself account for wide variation in the degrees of relationship shown with a cohesiveness score that remained constant for each respective group.

In the first place, the primary groups in this study have been defined as a result of certain practical criteria in the field. They undoubtedly have some social reality in the sense that they were self-selected by the members in a reality situation.

The reality situation was however, of a peculiar kind (viz., discussion sessions on the problem of preventing obesity) and those members who were excluded on the grounds of lower attendance, would probably have among them persons who made up the central core of the group in other, and perhaps even most other situations. Thus, what there was of these groups is real enough, but the total group as a friendship unit for example was incomplete. The inclusion of the missing members may well radically have effected the cohesiveness scores based on friendship. But so might the cohesiveness scores been very different had the women not been confined to only 3 sociometric choices and this must be taken as a serious criticism of the procedure adopted.

Secondly, mere expression of friendship or of whom one

would go to for help, may not coincide at all with channels of influence in health matters in general. One might have expected some relationship between power to influence and those to whom one would go for help, but it must be remembered that the question as phrased may not have implied more to the people questioned than those to whom they would go if in financial trouble, advice about home economy and management, or about the loan of a household appliance or indeed any type of advice or assistance.

Thus, it is possible that in this society as in others, those to whom one would go for health advice may be rather different from those to whom one would go for advice in the daily round of other practical problems.

Certainly, the findings here show that the power to influence is probably not being measured by any of the kinds of indices we used.

Presumably too, the existence of a power to influence may not be used except in certain situations such as when a crisis threatens or the power to influence is "called forth" as it were.

It should be remembered that in most of the experimental situations described in the literature, the power to influence is given peculiarly favourable conditions of expression.

Festinger (49) compared attitudes and activity, and cohesiveness based on who was seen most of socially, in a situation where the tenants' organisation was a live issue at the time, building itself up and actively recruiting supporters. This, one would expect, would tend to show a positive relationship between his indices of uniformity and cohesiveness. This point gains special strength when we realise that his courts in the presence of this live issue may well have <u>behaved</u> as groups in the sense that they went into action by attending or avoiding meetings of the organisation and discussing the merits and demerits of the tenants' organisation.

This in itself would have meant that the higher the uniformity of a court, whether supporting or opposing the organisation as a whole, the higher would their social contact intensity be and it is precisely the latter which was used as his index of cohesiveness or power to influence.

The general point if valid for most of the other investigations. Sherif (48) for example, setting the pattern as it were, subjected his subjects to a group pressure. Thibaut (78) made his groups feel intensely their privileged or unprivileged roles.

With such work, we do not receive much light on what happens in everyday associations and friendships which are not subjected to "crisis" situations as groups and that is the problem of this study.

The groups may, and probably did never act as groups outside of the limited situation of discussions about obesity.

Whatever their degree of permanence as association complexes, co-ordination, action and even self-awareness as a single unified group probably had little reality for them.

In this respect, they are not groups at all in the defined way usually employed in small group work.

But this is not the end of the story.

Firstly, what friendships there were in these groups appeared to have a fair degree of permanence. Of 62 friendship bonds, both mutual and non-mutual, a mean of 42.86 (S.D. = 33.12) months of friendship was reported by these women.

Secondly, the short section toward the end of the interview schedule asking for general comments about the group, yielded interesting and relevant results and it is regrettable that this was not done with more system and detail.

It will be seen that the interviewer named the other members of the defined primary group and asked questions in relation to this group. The respondents of course, probably did not, in all cases, have only this named group in mind when

replying but might also equally be referring to members of his group whom we had excluded.

In reply to the question as to whether they and their group of friends were different from others, 70 (76.08%) thought they were different. Of these 70, 48 (68.57%) thought they were different because their friends had greater self-respect, a more moral code of behaviour or carried out stricter religious observances, 15 (21.43%) felt there was more mutual help in their groups, and 7 (10.00%) distinguished their circle on grounds of their greater interest in community affairs.

The comparatively high number of 48 who felt their groups were different on grounds of "respectability" is interesting in view of Kuper's (65) finding as he said, his "most useful criterion of selectivity" in the "status distinction in terms of roughness and respectability."

This however, apart from the fact that about 76% of the women felt their groups had a reality that distinguished them from other groups, gives these sample groups something more of reality than might have been expected.

Even more interesting was the response to the questions concerned with what topics they most discussed and whether they felt they influenced one another in these matters. Table 43 shows the numbers and percentages of women who mentioned topics which they discussed in daily life, and in which they felt they themselves and their friends had undergone mutual change.

Table 43. Topics of Discussion and Mutual Influence within Groups.
(n = 92)

	Number	Percentage
Child-rearing.	75	81.53
Illness.	53	57.61
Home economy and finance	48	52.17
Behaviour of husbands	28	30.44
Miscellaneous	5	5.44

Thus, in precisely those respects in which the closest, or indeed any relationship was found between homogeneity and cohesiveness, these women felt they discussed more and were influenced more than by other topics.

It appears then that illness and infant care are areas in which the primary groups do exercise a self-educating function.

Further Examination of the Relations between Homogeneity and Cohesiveness.

While to reach any very definite conclusions, it would be necessary to carry out further special investigations into the matter, it is of some interest to speculate on the reasons for the apparent absence of relationship between cohesiveness and homogeneity as measured in this study.

Taking cohesiveness again, as measured here through choice of friends, there are at least 3 possibilities worth consideration in connection with its relationship with homogeneity in these groups.

In the first place, we may assume that close friendship, whatever the grounds for selecting friends originally, does mean that some characteristics of the members would be the subject of conformity pressures. As was quoted earlier, these would be likely to include characteristics of significance to the group as a group. Where however, we are dealing with an informal everyday life circle of friends who do not necessarily, indeed may never act as a group, these characteristics would depend to a great extent on the personality make-up and emotional needs of the members.

In broad summary one might loosely say that they will be characteristics that matter to the individuals and on which their continuing relationship depends.

Secondly, however, it is also conceivable that among the characteristics that matter, pressure for conformity may not exist at all. What may exist is a pressure towards "non-conformity" due to the dependence of members on the perpetuation

not of similarities between them but of differences.

For example, the member who, unlike others of his group, reads a daily newspaper and then acts as a reporter to the others, or the member who occupies an executive position in an organisation of use to the members but in which they have no foothold themselves, or a member whose personality characteristics act in a complementary role in relation to those of the other members - in all these situations and many more, it is conceivable that tests of group uniformity would fail when such characteristics were examined.

Thirdly, there are surely those characteristics that simply do not matter, differences in characteristics indeed which the members tolerate with ease because their friendship and interdependence are based on other features altogether.

It is thus possible that if cohesiveness is measured by means of choice of friends, the greater the cohesiveness, the greater the discrepancies among members in certain respects simply because these differences are completely tolerated. It is not an unusual experience to hear people describe their close friends in terms of what their "faults" are.

But because these differences are tolerated, it does not necessarily mean that the group has no power to modify them. It may very well have an inexorable power, if once this power was called into action by a situation that stimulated the majority of members to begin applying pressure to conform.

It should be emphasised then, that because it has not been possible to demonstrate the power of the group to influence its members for so much of the health education content, this in no way proves that the power does not exist.

In any event, it might be argued that a rather complex set of relationships could exist between "friendship" cohesiveness and the characteristics of members. For example, it is not impossible that with certain characteristics, low homogeneity would be dynamically linked to high cohesiveness.

Indeed, with less friendship cohesiveness, there might well be a need for a greater homogeneity to compensate as it were for the looser friendship bonds. Certainly this would be true of many organisations within which at least a certain outward conformity is demanded such as a mode of dress or the expression of certain sentiments. But within the same organisation, interpersonal friendships may be very slender indeed compared with the interpersonal relationships of the members in their private lives outside of the organisation.

In any event, if all these variations are possible, we may be frequently faced with a non-linear relationship between cohesiveness and homogeneity.

It is not intended to investigate the general proposition in detail but a brief examination of the findings of the study in this light might be of interest.

In order to illustrate the point, the following procedure was adopted.

The 21 primary groups were arranged in rank order of cohesiveness on the same cohesiveness index for which the earlier computations were made. The 21 groups were then divided into 3 sets of 7 groups each, the first set consisting of the first 7 in the rank order list and called the "high cohesive" set, the second set consisting of the next seven groups and called the "moderate cohesive" set and finally, the last 7 groups were placed in a "low cohesive" set.

Each variable was then taken and the 21 primary groups ranked from 1 to 21 in order of homogeneity, the group with highest homogeneity receiving rank 1 and so on. The rank totals were then computed for each variable in the 3 sets independently, giving a score R. The lower the R score, the higher the homogeneity.

Appendix D.3 contains the basic data of the computations in comparing the high, moderate and low cohesive groups.

Figures 1 to 7 show the comparison of homogeneity between the high, moderate and low cohesive sets on each of the health

Comparison of Homogeneity of High, Moderate and Low Cohesive Groups in Terms of all Variables.

Fig. 1 Infant Care
Cohesiveness

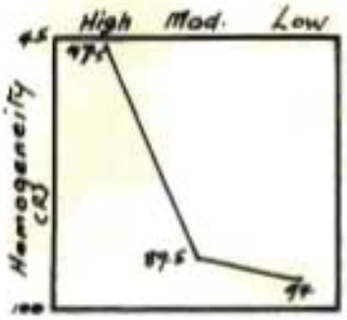


Fig. 2 Illness & Services
Cohesiveness

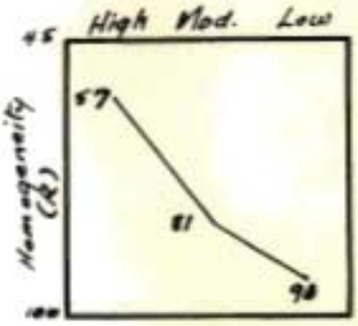


Fig. 3 Reading
Cohesiveness

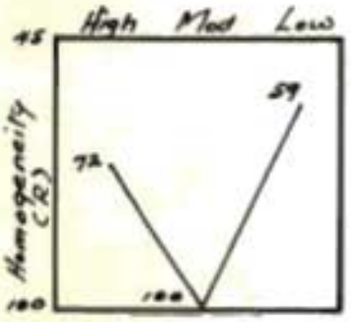


Fig. 4 Community Needs
Cohesiveness

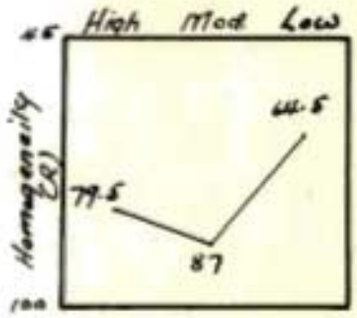


Fig. 5. Sanitation
Cohesiveness

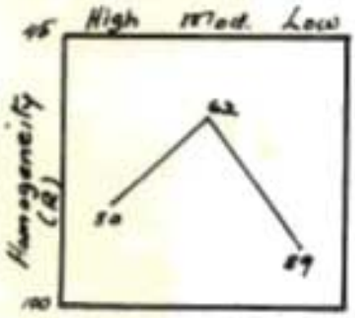


Fig. 6 Communicable Disease
Cohesiveness

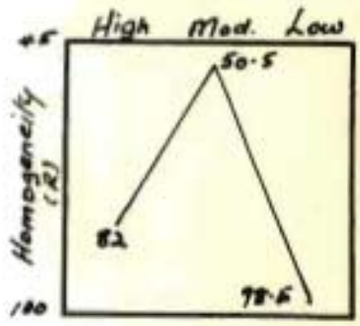
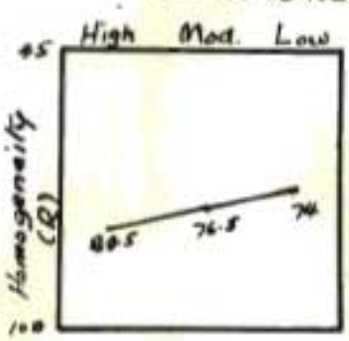


Fig. 7 Diet
Cohesiveness



Several points emerge from an inspection of these graphs.

1. We can dispense immediately with Diet (Fig. 7) which shows a slight reverse tendency throughout for high cohesive scores to go with low homogeneity.

2. Infant Care (Fig. 1) and Services (Fig. 2) show the general direction we would expect the curve to take with a positive linear relationship between these factors and cohesiveness, viz. increasing homogeneity with increasing cohesiveness.

We could assume on all the evidence that Infant Care and Illness are things that matter and groups cannot tolerate too great a divergence among members in respect to these factors.

3. Reading (Fig. 3) and Community Needs (Fig. 4) show interesting curves both for themselves as well as for their similarity.

The highest homogeneity occurs in the low cohesive set, and the lowest homogeneity by far in the moderate cohesive set, for both factors.

The relationship is clearly a non-linear one. Its precise nature cannot be specified on these data. The best that can be said is that there are obviously forces at work of which this study has taken no cognisance and the role of the reader and community participant in primary groups of this kind could bear with further study.

In any event, it is clear that with very low homogeneity, that is where readers and non-readers, or where community participants and non-participants are more equally mixed, there is a moderate cohesiveness suggesting that where a rough balance obtains, the members do have certain needs met by those different from them in these respects. But where there is a marked majority of one or the other, and homogeneity is therefore high, the group may have either a very high or a very low cohesiveness.

It is interesting that both these factors should show similar curves possibly involving as they do people who may act

as gatekeepers to the world of events outside, either by reading and relaying news, or by participating in events.

4. Sanitation (Fig. 5) and Communicable Disease (Fig. 6) again show a completely opposite picture. Their similarity too, is somewhat striking because their content is certainly related in terms of health but again from this data we cannot specify the exact nature of the relationship of homogeneity and cohesiveness.

This relationship is also obviously of a non-linear kind. High homogeneity tends to go with only moderate cohesiveness while low homogeneity can mean either very high or very low cohesiveness.

In summary then, we may say that only infant care and illness are compatible with a theory of pressure to conform to a group standard, and this in any event as was pointed out, is by no means established as the main reason for the homogeneity-cohesiveness relationship. The non-linear relationship that appears to hold for the other variables is compatible with the possibility that encouragement or tolerance of differences occurs in some groups with some variables.

Value of these Findings for Health Education and Health Services.

It could perhaps be said that at least in the traditional view of health and medical services, the treatment of illness and the care of infants occupy a central place and this is due both to public demand and to the decisions and findings of experts.

The findings of this study confirm the dominant role of illness and rearing children, among the health topics in the daily life of the women of this community.

It seems since these 2 spheres are major subjects of discussion and of mutual influence between friends, that both general services and health education need to treat these areas as at the least, starting points for broader aims of service.

For example, illness may frequently be discussed, but linking the illness to many of the factors with which health educators are concerned, such as diet or sanitation, is not as frequent as it would need to be in order to draw these aspects of illness into the sphere of influence as it were, of discussions about illness.

The practical implications for the women of this community are clear.

In making use of primary groups of this kind, much of the content of health education must be related strongly to illness and to child-rearing before it will become a subject of really effective self-education by groups.

Moreover, since these groups appear each to represent something of a small universe of illness and child-rearing, they must necessarily too be targets of service and of education.

CHAPTER VII

CHOICE STATUS AND THE HEALTH EDUCATION VARIABLES.

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Reasons for Investigating the Question.

One of the reasons for investigating the relationship between the choice status of members and their scores in various contents of health education, has already been stated viz. the need to find links between factors of importance for health education and social dynamics, as an indicator of the likelihood of this content being the subject of group self-education.

In addition, from a community programme point of view, there is also a need to examine the characteristics of those people around whom others cluster in the primary groups. These members are not necessarily also influential in changing others, although one would expect more influence to flow from high-choice persons. The characteristics of high choice persons should be a reflection of community values as well.

Experiences have been reported in which those supporting programmes that aim to introduce new ideas, are frequently people who are socially rejected in one way or another and by their very attachment to the programme endanger its success. (79)

One must therefore in a field situation make rather cautious use of those whose advantages are known only as the fact that they have pledged support to a programme. We need to make greater use of persons with high choice status within their own groups.

The use of "key" persons of this kind in field work is not new as Loomis and Beegle (80) have shown for rural extension workers.

Method of Assessing Choice and Health Education Status.

The choice status of each of the 92 women was estimated in terms not of a comparison with all the other women of the sample, but of the members of her own primary group. Each woman was scored on the proportion of times she was chosen to

times she could have been chosen within the limits of the number of women in her primary group. This proportion was multiplied by 100 to get a whole number. Thus the formula used was as follows:

$$\frac{\text{Number of times chosen}}{n - 1} \times 100$$

where n = number of members in that group.

Dealing then with each of the 21 groups in turn, the woman with the highest score was placed in the high choice status category. Only 1 group yielded more than 1 woman in this category and these 2 women tied for a top score in their group. All women who scored the lowest score (and there were a few groups with ties) were placed in a low choice status category. Finally, women scoring between these extremes were placed in a medium choice status category and these constituted of course, the most numerous of all categories.

A few groups were treated in an exceptional way. In one group of 3 women, one scored 67 and was placed in a high status category. The remainder all scored only 17 each, a figure somewhat below the usual medium score and these women were categorised in the low status class. Another primary group was left out altogether since all 3 of its members scored 50 each.

Thus 89 women were finally classed into the 3 choice status categories, 20 (22.47%) in the high choice class, 26 (29.21%) and 43 (48.32%) in the medium choice category.

Each of these 89 women was also assessed according to her "normal" or "deviate" status in relation to all the variables. Again, status was assessed in terms of the member's position within her own group and not in terms of the whole sample of 89 women.

While based on a similar principle, the method used for assessing status in terms of continuous and discrete scores was, of course, different in detail.

For continuous scores, all members within a group with the median score were classed as "norms". The others were given "deviate" status. For discrete scores, those who received the score of the majority, were classed as "norms" and the others as "deviates".

With most of the variables, both those with continuous and discrete scores, it was possible to give the deviates a "directional" score. Thus where their deviation was in the direction of knowledge, attitudes or behaviour more favourable to health services, they were scored +, and where in the opposite direction were scored -.

The extent of the deviation was not scored.

A "norm" or "deviate" status was then scored for every member on each of the 7 main variables viz. Reading, Community Needs, Illness and Services, Diet, Infant Care, Sanitation and Communicable Disease Knowledge.

This status was scored very simply by examining the member's status on the sub-units of that variable. For example, for Reading, this would be the reading of news, fiction, religious material etc. Those who had been classed as "norms" throughout were finally categorised as "norms" for that variable. Those who had deviated in any one of the units, were categorised as "deviates" for that variable.

The direction of the deviation was assessed simply on whether the member had scored a majority of +'s or -'s on those variables where a direction was taken account of.

There were no ties so this difficulty did not arise.

Each of the main variables will now be discussed in terms of the possible relationships between high-medium-law choice status on the one hand and norm-deviate score on the variable, on the other hand.

The null hypothesis then is that choice status is independent of score on the variables and this hypothesis will be confirmed where the chi-square probability is greater than .05.

I. Reading.

It will be seen from Table 44 that the high choice women have the largest proportion of deviates (70%) but the differences between the categories in this respect are not significant. Also, in this particular sample, the high choice status

Table 44. Comparison of Choice Status and Reading.

N = 89	Choice Status					
	High		Medium		Low	
	n	Percent	n	Percent	n	Percent
Reading Status						
Norms (n = 36)	6	30.00	21	48.84	9	34.61
Deviates (n = 53)	14	70.00	22	51.16	17	65.39
TOTALS	20	100	43	100	26	100

Chi-square = 1.97 df = 2 P > .30

category had more deviates in the positive direction of reading more and from a greater variety of sources than the other 2 categories. In the high choice group, 45% of the women deviated in the direction of greater reading as compared with 25.58% of the medium choice women, and 26.93% of the low choice women. Thus between high and medium choice persons there was in this respect a difference of 19.42% in favour of the high choice persons. The standard error of the difference was 12.96 however, and the critical ratio only 1.50 so that the difference was not significant.

At least within this sample, this finding is not incompatible with the possibility that extensive readers may tend to attract others who do not read as much.

We cannot however, from these data, do other than confirm the null hypothesis.

II. Community Needs.

The position with regard to community needs is similar to that of reading (Table 45). The high choice women again show the greatest proportion of deviates (80%) as compared with the medium and low choice women (55.81%) and 53.85%) but the

Table 45. Comparison of Choice Status and Community Needs.

N = 89	Choice Status: High n	High Percent	Medium n	Medium Percent	Low n	Low Percent
Community Need Status						
Norms (n = 35)	4	20	19	44.19	12	46.15
Deviates (n = 54)	16	80	24	55.81	14	53.85
TOTALS	20	100	43	100	26	100

Chi-square = 4.15 df = 2 $.10 < P < .20$

differences are not significant. Taking the direction of the deviation, the similarity to the position of reading is again present, those who deviate in the direction of greater awareness of community needs and greater participation in community affairs make up 45% of the high choice category, 32.56% of the medium choice category and 19.23% of the low choice category, a clearly linear relationship in this sample but not statistically significant although the 25.77% difference between high and low choice has a standard error of 13.55 and a critical ratio of 1.90.

Within this sample then, the finding is not incompatible with the possibility that the higher the member's participation in community affairs, the more likely is he to attract others.

Again however, from these data, we must confirm the null hypothesis of no established relationship.

III. Illness and Services.

Here the trend seemed to be reversed. The high choice status persons had the largest proportion not of deviates but of norms (40%), followed by medium choice (30.23%) and low choice (26.93%), an apparently linear relationship. Table 46 however, shows that these differences are not significant.

Table 46. Comparison of Choice Status and Illness/ Services.

N = 89	Choice Status: High n	High Percent	Medium n	Medium Percent	Low n	Low Percent
Illness/Service Status						
Norms (n = 28)	8	40	13	30.23	7	26.93
Deviates (n = 61)	12	60	30	69.77	19	73.07
TOTALS	20	100	43	100	26	100

Chi-square = 1.20 df = 2 $.50 < P < .70$

The direction of the deviation was not taken for this variable as illness and attitude to the Institute were not appropriate for such assessment.

Thus from these data the null hypothesis is confirmed.

IV. Diet.

With regard to diet, the high choice women (50%) and the medium choice women (51.16%) had higher proportions of deviates than the low choice women (42.31%) but as Table 47 shows, these differences were not significant.

Table 47. Comparison of Choice Status and Diet.

N = 89	Choice Status: High n	High Percent	Medium n	Medium Percent	Low n	Low Percent
Diet Status						
Norms (n = 46)	10	50	21	48.84	15	57.69
Deviates (n = 43)	10	50	22	51.16	11	42.31
TOTALS	20	100	43	100	26	100

Chi-square = .54 df = 2 $.70 < P < .80$

An apparently non-linear relationship emerged when those deviating in the direction of superior diets were examined. The medium choice women had the highest proportion of such deviates among their number (25.58%) while the high choice women had the least (10%). The difference, 15.58% had a standard error of 9.45 and a critical ratio of 1.65, being

therefore not significant and the null hypothesis is confirmed.

V. Infant Care.

The high choice and medium choice women showed the greatest proportions of norms among their numbers (50% and 51.16%) while the low choice women showed the least (38.46%). As Table 48 shows, however, no significant relationship could be established.

Table 48. Comparison of Choice Status and Infant Care

	Choice Status					
	High		Medium		Low	
N = 89	n	Percent	n	Percent	n	Percent
Infant Care Status.						
Norms (n = 42)	10	50	22	51.16	10	38.46
Deviates (n = 47)	10	50	21	48.84	16	61.54
TOTALS	20	100	43	100	26	100

Chi-square = 1.81 df = 2 $.30 < P < .50$

The direction of deviation was not assessed here as the sub-units of the variables, such as values about young children were not appropriate.

VI. Sanitation.

With regard to sanitation, a clearly non-linear relationship emerged. The category within which the largest proportion of deviates (44.19%) to all members in the category occurred was the medium choice, followed by low choice (23.09%) and high choice (15%). It is thus among high choice persons that the largest proportion of norms occur. As Table 49 shows, the relationship between choice status and sanitation scores is significant.

Table 49. Comparison of Choice Status and Sanitation.

N = 89	Choice Status: High n	High Percent	Medium n	Medium Percent	Low n	Low Percent
Sanitation Status						
Norms (n = 61)	17	85	24	55.81	20	76.91
Deviates (n = 28)	3	15	19	44.19	6	23.09
TOTALS	20	100	43	100	26	100

Chi-square = 6.70 df = 2 $.02 < P < .05$

There appeared also to be a relationship between choice status and scores in the direction of superior sanitation. No woman in the high choice category had superior sanitation to the rest of her group, and only 1 of the low choice women had. But among the medium choice women 25.58% had superior sanitation. The difference between high and medium choice categories of proportions of those with superior sanitation was 25.58%, with a standard error of 6.65 and critical ratio of 3.85; between medium and low choice status, 21.73% with a standard error of 7.65 and critical ratio of 2.84. Both these differences may then be considered significant.

Thus with regard to sanitation the null hypothesis is rejected and the alternative hypothesis that there is a relationship between choice status and sanitation score in general as well as superior sanitation may be accepted.

VII. Communicable Disease.

In contrast to sanitation, where the largest proportion of norms are in the high choice category, with knowledge of communicable disease, the highest proportion of norms occurs in the medium choice category (65.12%) as compared with the high choice (60%) and the low choice (50%). Table 50 shows, however, that these differences are not significant.

Table 50. Comparison of Choice Status and Communicable Disease Knowledge.

N = 89	Choice Status: High n	High Percent	Medium n	Medium Percent	Low n	Low Percent
Communicable Disease Status.						
Norms (n = 53)	12	60	28	65.12	13	50
Deviates (n = 36)	8	40	15	34.88	13	50
TOTALS	20	100	43	100	26	100

Chi-square = 1.58 df = 2 $.30 < P < .50$

The medium choice category had also the lowest proportion of deviates with superior knowledge scores (18.60%) as compared with the low choice category (23.08) and the high choice category (25%). These differences are slight and insignificant as well. For example the difference between high and medium choice categories for those making superior scores was 6.40% with a standard error of 11.36 and a critical ratio of .56.

Thus again the null hypothesis of no relationship must be accepted.

Conclusions.

Thus it is only with respect to Sanitation status that a significant relationship can be established on this sample, with the choice status of members and we may therefore suspect that the primary group does exercise some self-educating function in regard to this subject.

Presumably, too, this self-educating function will be somewhat in favour of conservatism at least in a group untouched by the educator because the high choice women showed the highest proportion of norms to deviates. The group would then be a desirable target of health education where this conservatism was tending to maintain a poor state of home sanitation.

The findings too, would be compatible with Festinger (49) and Schachter (66) in that the deviate tends to be more socio-

metrically isolated.

But it is important that with sanitation, the relationship is not a linear one since the medium choice group had the largest proportion of deviates as a whole, as well as those who deviated in the direction of superior sanitation.

Some of the other findings, though the differences were found not to be significant, appear to have a slight trend in a similar direction. For example with illness and use of services, the high choice category again showed the greatest proportion of norms, while with infant care and knowledge of communicable disease the greatest proportion of deviates were found in the low choice status groups.

But high choice status shows the greatest proportion of deviates as a whole, and in a positive direction in respect to reading and participation in community affairs.

If then we can assume that more reading and more community participation, puts a person in the position of being a contact point for his group, with the outside world, then this gate-keeping function appears to attract more choice. If so, it could well be that in these groups the "gate-keeper" defined by Lewin (81) becomes the "influential" defined by Katz and Lazarsfeld (28).

We might say, very tentatively then that our evidence is not incompatible with the possibility that high choice status, and therefore perhaps the direction that group self-education would normally take, is associated more with group norms than with deviation but it is also associated with greater accessibility to outside influence.

SUMMARY AND CONCLUSIONS

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This study emerged from a service situation where the opportunity offered to make use of groups of a rather more primary nature than are normally made use of in community health education outside of the family or kinship group.

The methods mainly employed in health education programmes usually consist of community organisation work with more formal groups of a secondary nature and of mass media with the community at large.

The re-discovery of the primary group in the social sciences and the impact of this development on thought in community health education is giving rise to new theoretical and practical possibilities. So far, these have been considered largely in terms of a new theoretical continuity between what were previously the rather distinctive fields of community organisation on the one hand and mass media on the other and thus to make a more sophisticated use of these methods in closer relationship with one another.

In this study, the possibility is considered of the direct exploitation by the educator, of primary groups themselves.

The method of selection of groups in this study however, is probably no more than a means of tapping the real primary groups whose complete dimensions lie concealed. But they were groups of people who had probably not met before as single groups and therefore the members were unlikely to think of themselves as formally constituted groups before the occasion of this study. Moreover, they were self-selected from people in everyday contact with one another as neighbours, acquaintances and friends, they met in the highly informal setting of a private home and at no time were they required to take concerted action as a group.

The more regular attenders of group sessions were selected for inclusion in the groups for purpose of the study simply because they were the ones making themselves more readily

accessible to the health educator.

The question to be considered then, was the extent to which such groups might be considered important for health education. It was assumed that the answer lay in enquiring whether these groups could be described as epidemiological units in the sense that each might constitute a small relatively distinctive universe of ideas, attitudes and practices likely to produce similar health and disease states in its members; that each too would tend to exercise a self-educating function for its own members in this respect.

If the groups could be described as such epidemiological units, they might then be considered not only as significant targets of health education, as indeed of all techniques employed in health services, but also as potentially useful media of health education.

In attempting an answer to this question, the first problem to be studied was whether these groups had a significantly higher degree of homogeneity than chance would allow, in respect to variables usually considered important for health and for health education.

The second problem to be studied was the extent to which these variables might be considered of social relevance in the sense that they were significantly related to those more specifically social forces that drew or held the members of the groups together.

The sample consisted of 21 groups with a total membership of 92 women each of whom was the subject of an interview/observation schedule to test her status in a number of fields important for health education.

In the investigation of the homogeneity of these groups, an immediate difficulty was encountered in the method of assessing homogeneity. A simple formula was developed and although it has certain defects and needs refinement, it appears to be quite a useful tool.

When refined, its usefulness might extend to all types of groups in assessing their epidemiological significance. For example, the family group with a series of individual clinical signs and symptoms and states of health, might well be such a group.

Once the formula was available, 3 random sets of 21 groups each, were created from the original 92 women to increase the conservatism of the test. The non-parametric Mann-Whitney U Test was used to examine the significance of the difference between the primary group set and the random set with the highest degree of homogeneity for each variable in turn.

The greater homogeneity of the primary groups for awareness of community needs and participation in public life, as well as for the illnesses reported by members and the services used, showed the most striking levels of significance. The primary groups did however show as well, a greater homogeneity for other variables including infant care, home sanitation, knowledge of communicable disease and some aspects of reading habits and of diet.

The primary groups ranked only second in order for the reading of news and topical articles and religious material and for the variety of food normally eaten in the home.

Moreover, they ranked last in homogeneity for the years of schooling of their members, a fact which along with the finding for the reading of news, seemed to make more significant the homogeneity of these groups in respects which might have been expected to correlate highly with education and reading habits.

Thus, although there was considerable variation in the significance levels for different variables, the consistent first ranking of the primary groups for homogeneity, with only the exceptions mentioned confirms the possibility that in these groups we have or are tapping similar health and disease producing units which also have a sufficient repugnance for

extreme heterogeneity to make them potentially important and useful objects as well as media of health education.

Of particular value was the finding of relatively marked homogeneity for the community organisation variable suggesting that achievements by formal organisations may be brought about by more direct contact with the primary groups formed by some of the members.

The marked homogeneity found for reported illnesses seems particularly to confirm the epidemiological importance of these groups.

In testing the social relevance of the variables, rank order correlations were computed between group homogeneity on each of the variables and group cohesiveness as measured by friendship choice.

Significant relationships were found to exist between group cohesiveness and illness as well as the presence of an infant in the home. This relationship was confirmed by the comments of the women on the topics which they discussed most with each other in daily life and with respect to which they felt their groups exercised some kind of interpersonal influence.

Illness and infant care then, would appear to be subjects of sufficient social importance for the group to exercise a self-educating function of its members in these respects and whatever topics the health educator may wish to introduce to a group, it seems possible that the more he can relate these topics to illness or care of the infant, the more likely will he be able to exploit this self-educating function of the group.

The relationship found with the presence of an infant in the home suggests also the potentialities of primary groups of mothers of young infants for all workers in maternal and child health programmes.

The absence of a significant relationship between group cohesiveness and group homogeneity in respect to the other variables seems to suggest that the health worker may easily

overestimate the importance attached to the usual content of health education by the people he is trying to educate.

In examining the possibility of a relationship between the choice status of individual members of groups and their scores on the variables, the chi-square test and the standard test of the significance of the difference between proportions were used.

A significant relationship was found only between sanitation of the home and choice status.

This suggests again, that sanitation is likely in some way to be the subject of a self-educating function of the group and certainly a subject of some importance for interpersonal friendships.

The findings in respect to homogeneity, and in respect to the possibility of a non-linear relationship between cohesiveness and reading of news on the one hand, and community organisation participation on the other, may be considered in conjunction with finding an absence of homogeneity for years of schooling.

It is possible that certain individuals find their place in a group because they are readers and relayers of news, because they participate more in public life and because they have a higher standard of education, thus being able to act as gate-keepers in respect to the group's contact and influence on the world outside itself. In other words, these would be respects in which the group demands heterogeneity rather than homogeneity.

From a health education point of view the problem needs to be investigated whether this is true, whether such individuals are gate-keepers for ideas of importance for health and also whether they are influentials or opinion-leaders at the same time.

Whatever theoretical value this study may have, it should be remembered that it was designed to meet an immediate service need of the health educator within the context of a field

programme.

Coser (82) refers to research into the nature of small groups as appearing to be "carried on under antiseptic conditions in which preoccupation with and contamination by the world at large are rigorously excluded." One may not entirely agree with him and indeed, this particular study may be suffering from an overdose of contamination.

Hans Zeisel (83) has spoken up for the social scientist who, recognising some of his findings and conclusions do not have significance by the ordinary statistical standards, proceeds to make an inference from his slender data.

This of course, makes pleasant reading for workers whose studies would not bear close examination and we have in this study moved near to danger in this respect.

But there is a difference between statistical proof of a postulation and the decision to act in terms of data which do not give this proof but are merely compatible with such a postulation.

It should be made clear that the findings of this study are valid only for the particular urban African community and the women in it, with which we have been concerned. The social and cultural differences between communities of various kinds are sufficiently marked to make generalisations dangerous.

The suggestion may be ventured however, that the findings of this study and of others are compatible with, if they do not finally prove, the postulation that groups of a primary friendship nature in private life are likely to be important epidemiological units worthy of the direct attention of health services in general and of health education in particular.

The members of such groups, as Kuper (65) and Festinger (49) have shown for other communities, do tend to come from geographically proximate homes. This means they are likely to be exposed to similar local health hazards including those created by themselves in their own homes and environs.

The members are likely to be in close physical contact with one another with fair frequency and hence to constitute a small universe for the transmission from person to person, of communicable disease.

Finally, the members tend to have a degree of homogeneity in respect to attitudes, knowledge and behaviour relevant for health and therefore likely to produce a certain similarity of states of health and disease of the members.

It should not be impossible as more is learnt about this field, for the mapping of social groups of a more primary nature in a community to correspond in some way to a mapping of the health and disease pattern of that community. This would place in the hands of health services, a weapon of untold value.

The present study with its special reference to health education, is an attempt to make some contribution to this field.

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APPENDIX A.1

Code Number and Number of Members of each Group in the Sample.

Code No.	No. of Members
I	3
II	3
III	3
IV	5
V	6
VI	4
VII	4
VIII	4
IX	4
X	4
XI	6
XII	3
XIII	5
XIV	4
XV	4
XVI	4
XVII	3
XVIII	6
XIX	5
XX	6
XXI	6
TOTAL	92

APPENDIX A.2

INTERVIEW/OBSERVATION SCHEDULE

Introduction

I would like to ask you some questions about what you think of certain matters which might help us give you a better health service.

Date: Name: Address:

Reading Habits

1. Do you ever read?

2. What books, magazines or newspapers do you read? How often?

3. What do you read in these?

News items.
Topical articles.
Fiction.
Religious matters.

Community Needs and Participation

1. With regard to Lamontville as a whole, what would you say the community lacks in the way of amenities or services?

2. To what organisations/clubs do you belong at the moment?

3. Taking those organisations of which you are or have been a member, do you or have you ever occupied a special position such as member of an executive committee or been a chairman, secretary, treasurer etc.?

Illness and Medical Services

1. Who was last ill in your family? How long ago?

2. What seemed to you to be the matter? Describe the symptoms.

3. Was it necessary to go to bed or hospital or did the person carry on as usual?

4. What action was taken?

If an outside service was used, what service was it?

5. In respect to the Institute of Family and Community Health, I shall mention various aspects of its service. Would you tell me about each, whether you think it is very satisfactory or very unsatisfactory, just satisfactory or unsatisfactory, or whether you do not know?

(1) Doctors' clinical care.
(2) Nurse-public relations.
(3) Appointment system.
(4) Nurses' care in the home.
(5) Midwifery service.

(6) Antenatal sessions.
(7) Mother and baby sessions.
(8) Health education service.

Diet.

1. Do you give your children fresh milk daily? If so, at how many meals?

2. Do you use sweetened condensed milk?

3. What foods do you ordinarily serve at each meal of the day? Give a typical menu for each.

Infant Care

1. Do you have at this moment a baby under 2 years of age?

2. How do you usually breast-feed your babies? When you feel they are hungry or need it? or at certain set times, such as every 3 or 4 hours?

3. Place these items in the order in which you think they are important for young children, saying the most important first and the least important last:-

Clothing.	Good discipline.
Diet.	Cleanliness.
Physical Safety.	Protection against illness.

Knowledge of Communicable Disease

1. Against which TWO of the following diseases may we be immunised by injection?

(1) Measles.
(2) Dysentery.
(3) Diphtheria.
(4) Common Cold.
(5) Whooping Cough.

2. Which TWO of the following diseases are infections of the respiratory tract?

(1) Smallpox.
(2) Tuberculosis.
(3) Typhus.
(4) Diphtheria.
(5) Bilharzia.

3. Which ONE of the following diseases can be carried by flies?

(1) Whooping Cough.
(2) Dysentery.
(3) Smallpox.

4. Which ONE of the following diseases can be carried by lice?

(1) Typhus.
(2) Ringworm.
(3) Typhoid.

5. Which ONE of the following diseases can be contracted by wading or swimming in infected water?

(1) Worms.
(2) Scabies.
(3) Bilharzia.

6. Which TWO of the following are diseases of the alimentary tract?

(1) Smallpox.
(2) Dysentery.
(3) Worms.
(4) Measles.
(5) Common Cold.

7. Which ONE of the following diseases may be caused by drinking contaminated water?

(1) Typhoid.
(2) Tuberculosis.
(3) Worms.

Friends

1. Who are the 3 people, in order of preference, with whom you are most friendly? How long have you been friendly with each?

2. If you had a problem of any kind, concerning yourself or your family, to which 3 people in order of preference would you go in the hope of receiving help?

(Give the name and address of each person and also whether they are related to you).

General Comments

Listen carefully to this list of people you know. (Read names of those selected for group inclusion). Try to think of them together, then tell me:-

1. Do you think this group is different from others in the community? If so, in what respects?

2. What topics do you usually discuss with these people when you see them?

3. Do they try to change your and each other's opinions about any matters? Do they ever succeed?

Sanitation
(Observation)

The following items to be scored:-

1. Are there any signs in the garden of this home, of garbage thrown about indiscriminately? If not, is there a receptacle or hole where garbage is placed?

2. Examine the home interior and kitchen, write a short description and rate as follows:-

Very Satisfactory	Satisfactory	Unsatis-factory	Very Unsatisfactory
Walls and floors clean.			Walls and floors dirty.
Kitchen: Dishes clean and stacked.			Kitchen: Unwashed dishes and remains of food left exposed.
Relative absence of flies.			Unusual number of flies.

3. With reference to food and water storage, say whether each is adequately protected at the time of the visit, from flies and dust.

APPENDIX A.3

Individual Key. Serial Numbers of 92 Women and the Groups to which they belong in the Primary and 3 Random Sets

Individual Serial Number	Primary Group	Random Sets		
		I	II	III
1	I	XXI	VIII	XXI
2	I	XI	XV	X
3	I	XII	VII	XX
4	II	XV	IX	VIII
5	II	XVIII	XIX	XI
6	II	I	VIII	XXI
7	III	V	VI	V
8	III	XIX	X	VII
9	III	XV	XVI	XV
10	IV	XI	IX	VII
11	IV	XIV	XIX	XIII
12	IV	XI	V	XI
13	IV	XXI	I	VI
14	IV	V	VI	XII
15	V	IX	XVI	IV
16	V	X	XIX	XII
17	V	XVI	XIX	XVIII
18	V	IX	XV	IV
19	V	IV	III	XX
20	V	III	XX	VII
21	VI	VI	II	XV
22	VI	II	X	XVII
23	VI	II	XX	XIV
24	VI	XXI	IX	XVI
25	VII	VIII	III	XVIII
26	VII	XVIII	XVIII	II
27	VII	XIII	XIV	XIII
28	VII	VIII	XVII	XIII
29	VIII	VII	XII	V
30	VIII	XI	X	X
31	VIII	VIII	IV	XI
32	VIII	XXI	I	XIII
33	IX	X	XIV	XIX
34	IX	I	XX	XIV
35	IX	XIII	XI	XVII
36	IX	V	III	III
37	X	VII	V	XIV
38	X	XX	IX	XVI
39	X	III	II	VI
40	X	XII	XX	VI
41	XI	I	V	V
42	XI	IX	IX	VII
43	XI	XI	V	IV
44	XI	XVIII	XIII	XII
45	XI	II	XVIII	XIII
46	XI	VI	XVIII	IV
47	XII	I	XX	XVIII
48	XII	XIII	XXI	II
49	XII	V	XXI	XIII
50	XIII	IX	XI	XIX
51	XIII	XV	XIII	II
52	XIII	X	XI	XVI
53	XIII	XVIII	VI	IX
54	XIII	XVII	XVI	II
55	XIV	XV	IV	X
56	XIV	IX	IV	I
57	XIV	XVI	XIII	X
58	XIV	VII	XVIII	VII
59	XV	XVII	XVIII	V
60	XV	XIII	II	VIII
61	XV	VI	XII	V
62	XV	V	XVIII	XVIII

Individual Serial Number	Primary Group	Random Sets		
		I	II	III
63	XVI	VIII	XI	XI
64	XVI	XVI	XV	XX
65	XVI	III	VI	XX
66	XVI	VII	IV	XX
67	XVII	XVII	VIII	III
68	XVII	XVIII	XVII	XVII
69	XVII	IV	VII	XX
70	XVIII	VI	XIV	III
71	XVIII	XVIII	XVI	II
72	XVIII	IV	I	XVI
73	XVIII	XII	XIII	II
74	XVIII	IV	VIII	VIII
75	XVIII	V	V	IX
76	XIX	XI	VII	XV
77	XIX	XX	XX	IX
78	XIX	XIX	XVII	I
79	XIX	XIX	II	XV
80	XIX	XI	IV	I
81	XX	XVIII	VII	X
82	XX	XIII	XII	XIV
83	XX	XXI	XX	XXI
84	XX	XIV	I	XV
85	XX	XIV	XI	XIX
86	XX	II	XIV	XVIII
87	XXI	XIX	XX	XX
88	XXI	XV	V	XVIII
89	XXI	XIV	XI	XIII
90	XXI	XVI	IV	V
91	XXI	IV	XIII	IV
92	XXI	XX	XIII	VI

APPENDIX A.4

Group Key. Code Numbers of 21 Groups in each of 3 Random Sets with Membership Composition of each in Terms of Individual Serial Numbers

Group No.	Serial Numbers of Members			
		Random Sets		
	Primary Groups	I	II	III
I	1	6	13	56
	2	34	32	78
	3	47	72	80
II	4	22	21	54
	5	23	60	67
	6	86	79	71
III	7	20	19	12
	8	39	25	36
	9	65	36	70
IV	10	19	31	15
	11	69	55	18
	12	72	66	43
	13	74	80	46
	14	91	90	91
V	15	7	12	7
	16	14	37	29
	17	36	41	41
	18	49	43	59
	19	62	75	61
	20	75	88	90
VI	21	21	7	13
	22	46	14	39
	23	61	53	40
	24	70	65	92
VII	25	29	3	8
	26	37	69	10
	27	58	76	20
	28	66	81	58
VIII	29	25	1	4
	30	28	6	42
	31	31	67	60
	32	63	74	74
IX	33	15	24	26
	34	42	38	73
	35	50	39	75
	36	56	42	77

Group No.	Serial Numbers of Members			
	Primary Groups	Random Sets		
		I	II	III
X	37	16	8	30
	38	33	22	51
	39	41	30	55
	40	52	84	81
XI	41	2	35	5
	42	10	50	31
	43	12	52	48
	44	30	63	57
	45	76	85	63
	46	80	89	65
XII	47	3	29	14
	48	73	61	16
	49	82	82	44
XIII	50	27	44	11
	51	35	57	27
	52	48	73	28
	53	60	91	32
	54	81	92	49
XIV	55	11	27	23
	56	84	33	34
	57	85	70	37
	58	89	86	82
XV	59	4	2	21
	60	9	18	76
	61	51	56	79
	62	55	64	84
XVI	63	17	9	9
	64	57	15	24
	65	88	54	38
	66	90	71	52
XVII	67	54	28	22
	68	59	68	35
	69	67	78	68
XVIII	70	5	26	17
	71	26	45	25
	72	44	46	47
	73	53	58	62
	74	68	59	86
	75	71	62	88
XIX	76	8	5	33
	77	40	11	45
	78	78	16	50
	79	79	17	85
	80	87	51	89

Group No.	Serial Numbers of Members			
		Random Sets		
	Primary Groups	I	II	III
XX	81	18	4	2
	82	38	10	3
	83	43	40	53
	84	45	47	64
	85	77	77	66
	86	92	83	69
XXI	87	1	20	1
	88	13	23	6
	89	24	34	19
	90	32	48	72
	91	64	49	83
	92	83	87	87

APPENDIX A.5

Key to Composition of 12 Primary Groups and 12 Random Groups in each of 3 sets, in terms of Individual Serial Numbers.

Members' Serial Numbers

Group Number	Primary Groups	Random Sets		
		I	II	III
I	1	6	13	56
	2	34	32	12
	3	86	60	36
II	4	39	25	7
	5	65	36	29
	6	7	31	59
III	7	14	55	61
	8	36	66	13
	9	62	12	39
IV	10	61	37	40
	11	29	7	8
	12	37	14	10
	13	58	65	58
	14	66	3	4
VII	25	25	81	60
	26	28	1	26
	27	31	6	30
	28	63	38	55
VIII	29	56	39	81
	30	33	8	5
	31	2	30	31
	32	10	84	57
IX	33	12	35	63
	34	30	63	65
	35	3	85	14
	36	82	29	11
X	37	27	61	27
	38	35	82	28
	39	60	57	32
	40	81	27	34
XIV	55	11	33	37
	56	84	86	82
	57	85	2	84
	58	4	56	9
XV	59	9	64	38
	60	55	9	35
	61	57	28	25
	62	59	26	62
XVI	63	5	58	86
	64	26	59	33
	65	8	62	85
	66	40	5	2

Group Number	Primary Groups	Random Sets		
		I	II	III
XX	81	38	11	3
	82	1	4	64
	83	13	10	66
	84	32	34	1
	85	64	40	6
	86	83	83	83

Individual Scores of the 92 Women of the Sample Groups on all Variables.

Main Variable Sub-Units	Reading				Community Needs						Illness/Services				Diet		
	News	Fiction	Relig.	Variety	Needs Aware	Hlth. Educ. Needs	Memb. Orgs.	Church only	Comb. Groups	Leadership	Illness	Action	Incap.	I.P.C.H.	Fresh Milk	Condensed Milk	Variety
Score range or Categories	Daily-D Occas.O	Yes - Y No - N	Yes-Y No-N	0 - 8 Items	0 - 6	Yes-Y No-N	0-6	Yes-Y No-N	Yes-Y No-N	1 - 4	C,R,E,P, B,M or N	I, M, H, C, Or N	Up - U Bed- B	23-40	2,1 or 0 meals	Yes - Y No - N	Grades 1 - 5
Serial Number																	
1	O	N	Y	2	6	Y	2	N	N	4	G	I	U	30	1	N	1
2	O	N	N	0	3	Y	2	N	N	3	G	I	U	29	1	N	1
3	O	N	N	0	2	Y	0	N	N	1	G	I	U	31	2	N	2
4	D	Y	N	8	2	N	3	N	Y	3	R	I	B	34	2	N	3
5	O	N	Y	1	3	N	1	Y	N	3	R	I	U	29	2	N	2
6	D	Y	N	6	2	Y	4	N	Y	4	R	I	B	27	2	N	5
7	D	N	N	1	1	N	1	Y	N	1	G	I	B	32	2	N	2
8	O	N	N	2	1	N	0	N	N	1	G	C	U	27	2	N	2
9	O	N	N	2	0	N	1	Y	N	1	M	C	B	33	2	N	2
10	D	Y	Y	3	4	N	2	N	Y	4	B	I	B	34	2	N	2
11	O	N	Y	1	2	N	2	N	Y	4	R	N	U	29	2	N	2
12	D	N	Y	2	4	N	1	N	Y	4	R	I	B	35	2	N	2
13	D	Y	N	2	3	N	2	N	Y	3	E	N	U	31	2	N	3
14	D	Y	N	3	2	N	3	N	Y	3	E	Y	B	31	1	N	3
15	D	N	Y	3	3	Y	2	N	N	4	G	M	B	29	2	N	3
16	O	N	N	0	1	N	1	Y	N	1	G	M	B	31	2	N	3
17	O	N	N	0	1	N	0	N	N	1	G	M	U	29	2	N	3
18	D	N	Y	2	1	N	1	Y	N	1	R	N	U	34	2	N	3
19	O	N	N	0	0	N	1	Y	N	1	E	I	U	31	2	N	2
20	O	N	Y	1	3	Y	1	Y	N	3	E	C	U	29	0	N	1
21	D	Y	Y	3	4	N	3	N	Y	4	R	M	B	31	1	N	4
22	O	N	N	0	3	N	2	N	Y	3	G	I	B	29	1	N	1
23	D	N	Y	3	4	Y	2	N	Y	3	R	M	B	26	2	N	2
24	D	N	N	2	3	Y	2	N	Y	3	G	M	B	25	1	N	3
25	D	N	N	4	4	N	5	N	Y	4	C	M	B	36	0	N	1
26	D	Y	N	3	3	Y	4	N	Y	4	R	M	B	35	0	N	3
27	D	Y	N	4	4	Y	2	N	Y	3	R	N	B	29	0	N	3
28	D	N	Y	3	3	N	3	N	Y	4	B	M	B	24	0	N	1
29	O	N	Y	2	2	N	1	Y	N	2	R	I	U	31	1	Y	4
30	O	N	Y	2	2	N	1	Y	N	2	R	I	U	31	2	Y	2
31	D	Y	Y	6	1	Y	4	N	Y	3	M	I	B	33	1	Y	3
32	D	N	Y	2	3	N	2	N	N	3	R	N	U	29	2	N	4
33	D	N	Y	4	4	N	2	N	Y	4	R	M	B	29	1	Y	3
34	O	N	N	0	3	N	1	Y	N	2	R	I	B	36	1	Y	2
35	O	N	Y	2	2	N	2	N	N	3	R	I	B	29	1	N	3
36	D	N	Y	3	6	Y	1	Y	N	3	R	M	B	28	2	N	2
37	O	N	N	0	2	N	2	N	N	3	R	I	U	29	2	N	4
38	D	Y	Y	3	3	N	1	Y	N	3	P	I	U	29	1	N	1
39	D	Y	N	3	2	Y	1	Y	N	2	E	I	U	29	1	N	3
40	D	Y	Y	5	1	N	2	N	N	2	P	H	B	29	2	N	4
41	O	N	Y	1	1	N	1	Y	N	1	B	M	U	28	0	Y	2
42	O	N	Y	1	2	N	1	Y	N	2	R	M	B	36	0	Y	3
43	O	N	Y	2	1	N	1	Y	N	1	B	M	B	25	1	N	3
44	D	N	Y	4	3	N	1	Y	N	3	N	M	B	29	0	Y	3
45	O	N	Y	1	2	N	1	Y	N	2	R	M	B	29	1	N	1
46	O	N	N	0	3	N	1	Y	N	2	G	M	U	29	1	N	1
47	O	N	Y	1	3	N	1	Y	N	3	R	I	B	30	2	N	3
48	O	N	N	0	2	N	1	Y	N	3	G	I	B	32	0	N	3
49	D	N	Y	2	2	N	1	Y	N	2	G	I	U	30	1	N	1
50	O	N	N	0	3	N	2	N	Y	3	B	I	U	28	0	Y	4
51	D	Y	N	3	1	N	1	Y	N	1	N	I	U	36	2	Y	3
52	D	N	Y	4	1	Y	1	Y	N	2	R	I	U	29	0	Y	3
53	D	N	Y	3	2	N	1	Y	N	2	R	M	B	29	1	N	4
54	D	Y	Y	3	3	N	1	Y	N	2	G	N	U	29	2	N	3
55	D	N	N	3	4	N	2	N	Y	3	E	I	B	38	0	Y	3
56	O	N	N	0	3	N	1	Y	N	3	E	I	B	36	0	N	1

Main Variable	Reading				Community Needs						Illness/Services				Diet		
Sub-Units	News	Fiction	Relig.	Variety	Needs Aware	Hlth.Educ Needs	Memb. Orgs.	Church only	Comb. Groups	Leader-ship	Illness	Action	Incap.	I.F.C.H.	Fresh Milk	Condensed Milk	Variety
Score Range or Categories	Daily-D Occas.O	Yes - Y No - N	Yes-Y No-N	0 - 8 Items	0 - 6	Yes-Y No-N	0-6	Yes-Y No-N	Yes-Y No-N	1 - 4	G,R,E,P: B,M or N	I, M, H, C, Or N	Up - U Bed-B	23-40	2,1 or 0 meals	Yes - Y No - N	Grades 1-5
Serial Number																	
60	D	Y	Y	3	2	N	1	Y	N	2	E	M	U	24	2	N	1
61	D	Y	N	3	3	N	2	N	Y	3	G	I	U	32	2	N	3
62	D	Y	Y	3	1	N	1	Y	N	1	B	M	U	24	2	N	1
63	D	N	N	2	2	N	1	Y	N	2	G	M	B	23	2	N	4
64	O	N	Y	2	3	N	1	Y	N	2	R	M	B	29	2	N	4
65	D	N	Y	3	2	N	1	Y	N	2	G	I	B	36	2	N	4
66	O	N	Y	2	2	N	1	Y	N	2	R	M	U	36	1	Y	2
67	O	N	Y	0	1	N	1	Y	N	2	M	H	U	28	2	N	3
68	D	N	Y	1	2	N	1	Y	N	2	G	M	B	26	2	N	2
69	O	N	N	2	1	N	1	Y	N	1	M	M	B	24	1	N	3
70	D	Y	N	2	4	Y	2	N	Y	4	R	H	U	39	1	N	4
71	O	N	N	0	1	N	2	N	Y	2	G	I	B	39	0	N	2
72	D	N	N	1	2	N	2	N	Y	3	M	M	B	33	2	N	2
73	D	Y	N	2	1	Y	2	N	Y	2	G	I	U	25	1	N	1
74	D	N	Y	3	2	N	2	N	Y	3	N	N	U	26	1	N	4
75	O	N	Y	1	1	N	2	N	Y	2	G	I	U	30	1	N	4
76	O	N	N	0	4	Y	2	N	N	4	G	H	U	30	0	Y	4
77	D	N	N	2	3	Y	4	N	Y	4	O	H	B	29	0	N	4
78	O	N	N	0	4	Y	3	N	N	4	G	I	B	30	2	N	3
79	D	N	Y	4	4	Y	1	Y	N	4	G	H	U	31	1	N	4
80	D	N	Y	4	2	N	3	N	Y	4	G	I	U	37	1	N	3
81	O	N	N	0	2	N	1	Y	N	2	E	C	B	32	1	N	2
82	D	Y	N	2	1	N	2	N	Y	3	R	H	U	39	1	N	4
83	D	N	Y	3	2	N	3	N	Y	4	R	H	B	40	1	N	3
84	O	N	Y	1	1	N	1	Y	N	2	R	H	U	32	1	N	1
85	D	N	N	1	2	N	2	N	N	3	G	H	U	36	0	Y	1
86	O	N	Y	1	1	N	1	Y	N	3	M	C	U	39	0	N	2
87	D	N	Y	7	2	Y	6	N	Y	4	G	I	B	34	2	N	4
88	O	N	N	0	5	Y	2	N	N	4	N	N	U	30	1	N	2
89	D	Y	Y	3	2	Y	3	N	Y	3	N	M	B	31	2	N	3
90	D	N	Y	3	2	N	4	N	Y	4	R	M	B	32	2	N	3
91	D	Y	Y	4	1	N	2	N	Y	3	M	M	B	32	0	N	2
92	D	Y	N	3	2	Y	4	N	Y	4	G	I	U	30	1	N	1

Main Variable Sub-Units	Infant Care			Sanitation			Communicable Disease	Years of Schooling
	Feeding	Baby Present	Values	Garbage Disposal	Food Protection	Home Interior		
Score Range or Categories	Demand-D Clock -C	Yes - Y No - N	I, C, S or D	Yes - Y No - N	Yes - Y No - N	VS, S U or VU	2 - 10	2 - 12 years.
Serial Number								
1	C	Y	I	Y	N	U	6	7
2	D	Y	S	Y	N	U	6	2
3	C	Y	I	Y	N	U	5	6
4	D	N	D	Y	N	U	10	10
5	D	N	I	Y	N	U	8	7
6	D	N	I	N	Y	VS	8	12
7	D	Y	S	N	Y	VS	5	5
8	D	Y	S	Y	N	U	3	4
9	C	Y	S	N	N	S	6	12
10	C	N	C	N	Y	S	8	5
11	C	Y	I	N	Y	S	10	4
12	D	N	C	N	Y	S	8	9
13	D	Y	C	Y	Y	S	8	8
14	C	Y	C	N	Y	S	9	10
15	D	Y	I	Y	N	U	7	-
16	D	Y	D	Y	N	U	2	-
17	D	N	C	N	Y	S	4	-
18	D	N	S	N	Y	S	3	-
19	D	N	I	N	Y	S	6	-
20	D	Y	S	Y	N	VU	4	-
21	C	Y	I	N	Y	S	7	-
22	D	Y	D	Y	N	VU	8	-
23	C	N	C	N	Y	S	7	-
24	C	Y	D	Y	Y	S	6	-
25	C	Y	I	Y	N	U	8	7
26	C	Y	D	N	Y	S	8	9
27	C	N	C	N	Y	S	7	6
28	C	Y	I	Y	Y	S	7	4
29	D	Y	D	N	Y	VS	7	10
30	D	Y	C	N	Y	S	7	5
31	C	N	C	N	Y	VS	9	12
32	C	Y	D	Y	N	U	9	6
33	C	N	I	N	Y	VS	8	9
34	D	Y	C	N	Y	S	4	3
35	C	N	C	N	Y	S	7	3
36	C	N	C	Y	Y	U	6	10
37	C	Y	C	Y	Y	S	10	4
38	C	Y	I	Y	N	U	9	3
39	C	Y	D	N	Y	S	9	8
40	C	Y	C	N	Y	S	9	6
41	D	Y	C	N	Y	S	7	-
42	D	Y	C	Y	N	U	6	-
43	C	Y	I	Y	N	U	8	-
44	D	N	D	N	Y	S	8	-
45	D	Y	C	Y	N	VU	7	-
46	D	Y	I	Y	N	U	7	-
47	D	Y	C	N	Y	S	8	-
48	D	Y	D	Y	N	VU	7	-
49	D	Y	C	Y	N	VU	5	-
50	D	N	C	N	Y	S	6	-
51	D	Y	I	N	Y	S	7	-
52	D	N	S	N	Y	S	7	-
53	C	Y	D	N	N	S	10	-
54	D	Y	D	N	Y	S	9	-
55	D	Y	I	N	N	U	7	8

Main Variable Sub-Units	Infant Care			Sanitation			Communicable Disease	Years of Schooling
	Feeding	Baby Present	Values	Garbage Disposal	Food Protection	Home Interior		
Score Range or Categories	Demand-D Clock -C	Yes - Y No - N	I, C, S of D	Yes - Y No - N	Yes - Y No - N	VS, S U or VU	2 - 10	2 - 12 years
Serial Number								
60	C	N	D	Y	Y	S	8	8
61	C	Y	I	N	Y	S	8	12
62	D	Y	S	N	Y	S	8	8
63	D	Y	D	Y	N	U	9	6
64	D	N	D	Y	N	U	8	4
65	C	Y	C	N	N	U	7	3
66	D	Y	C	N	N	U	5	7
67	C	N	D	N	Y	S	7	-
68	D	N	C	N	Y	VS	7	-
69	C	N	D	N	Y	VS	6	-
70	D	Y	D	Y	N	U	7	-
71	D	Y	C	Y	N	U	7	-
72	C	Y	D	Y	Y	S	6	-
73	D	Y	I	Y	N	U	7	-
74	C	N	I	N	N	U	7	-
75	C	Y	I	Y	N	S	7	-
76	D	Y	I	Y	N	VU	6	-
77	D	N	D	Y	Y	S	9	-
78	D	N	S	Y	Y	S	8	-
79	C	N	I	Y	Y	U	8	-
80	D	Y	D	Y	Y	U	10	-
81	D	Y	D	N	Y	S	7	3
82	D	Y	D	N	Y	S	8	6
83	C	Y	D	N	Y	S	8	8
84	C	Y	D	N	Y	S	7	4
85	D	Y	I	Y	N	U	5	6
86	D	N	C	N	Y	S	5	4
87	D	N	D	N	Y	U	8	-
88	C	N	D	N	Y	S	7	-
89	C	N	C	N	Y	S	7	-
90	D	N	C	N	Y	VS	6	-
91	C	N	D	Y	Y	VU	6	-
92	D	Y	D	Y	Y	VU	6	-

APPENDIX C 1.

Index of Homogeneity : Reading News

GROUP NO.	P.O.	RI	RII	RIII
I	100	22	100	22
II	22	22	100	22
III	22	22	22	100
IV	40	13.33	40	13.33
V	22	44.67	44.67	22
VI	33.33	33.33	100	100
VII	100	100	100	33.33
VIII	0	100	0	33.33
IX	0	33.33	33.33	33.33
X	33.33	0	100	0
XI	44.67	0	22	0
XII	22	22	22	22
XIII	40	13.33	40	40
XIV	33.33	0	33.33	0
XV	100	33.33	33.33	0
XVI	0	33.33	0	33.33
XVII	22	22	22	22
XVIII	22	22	0	22
XIX	13.33	13.33	40	13.33
XX	0	22	44.67	44.67
XXI	44.67	22	0	22

Index of Homogeneity : Reading Fiction

GROUP NO.	P.G.	RI	RII	RIII
I	100	22	22	100
II	22	100	22	22
III	100	22	100	22
IV	13.33	40	40	40
V	100	22	100	44.67
VI	33.33	33.33	33.33	100
VII	0	100	100	33.33
VIII	33.33	33.33	33.33	0
IX	100	100	22	0
X	33.33	100	100	33.33
XI	100	44.67	44.67	44.67
XII	100	22	22	22
XIII	13.33	13.33	13.33	40
XIV	100	33.33	0	33.33
XV	33.33	0	100	33.33
XVI	100	100	33.33	33.33
XVII	100	22	100	100
XVIII	22	44.67	22	44.67
XIX	100	40	40	40
XX	44.67	22	0	100
XXI	0	44.67	100	44.67

Index of Homogeneity : Reading Religious Material

GROUP NO.	P.G.	RI	RII	RIII
I	22	22	22	22
II	22	22	100	22
III	100	22	22	22
IV	13.33	13.33	40	40
V	0	22	22	22
VI	0	33.33	0	33.33
VII	33.33	0	100	0
VIII	100	0	33.33	33.33
IX	33.33	0	0	33.33
X	0	33.33	0	33.33
XI	44.67	22	0	0
XII	22	100	22	22
XIII	13.33	13.33	13.33	40
XIV	100	33.33	0	33.33
XV	33.33	100	0	33.33
XVI	33.33	33.33	0	0
XVII	22	100	22	22
XVIII	22	22	0	0
XIX	13.33	13.33	13.33	13.33
XX	0	22	22	0
XXI	22	22	22	0

Index of Homogeneity : Reading Variety

GROUP NO.	P.O.	RI	RII	RIII
I	24.53	7.93	60.37	17.82
II	3.58	9.95	60.37	20.21
III	60.37	24.53	10.18	60.37
IV	32.78	13.89	17.77	24.44
V	37.59	40.99	27.05	27.05
VI	21.14	21.19	30.73	21.19
VII	45.05	13.66	30.73	21.19
VIII	22.32	10.42	4.99	8.21
IX	10.42	21.19	40.99	40.99
X	10.43	23.15	40.99	21.19
XI	23.15	12.22	22.92	12.38
XII	29.73	24.53	60.37	10.18
XIII	22.22	13.33	24.44	30.07
XIV	25.32	30.73	21.19	21.19
XV	67.59	7.56	13.66	6.95
XVI	67.59	25.32	11.26	10.42
XVII	29.73	9.95	9.95	29.73
XVIII	24.80	9.17	24.80	12.22
XIX	7.41	6.29	18.98	13.33
XX	40.99	40.99	8.58	18.84
XXI	11.93	100	10.73	8.64

APPENDIX C 2.

Index of Homogenaity : Awareness of Numbers of Needs

GROUP NO.	P.C.	RI	RII	RIII
I	9.33	58.63	58.63	25.67
II	58.63	11.55	23.16	23.16
III	58.63	58.63	3.55	23.16
IV	31.11	31.11	25.20	18.67
V	17.50	18.16	16.97	23.10
VI	43.75	43.75	65.63	38.89
VII	43.75	100.00	19.69	17.50
VIII	38.89	17.50	13.68	100.00
IX	9.55	65.63	43.75	12.96
X	38.89	23.63	38.89	19.69
XI	25.67	38.89	52.11	52.11
XII	58.63	58.63	25.67	25.67
XIII	31.11	33.18	31.11	31.11
XIV	38.89	65.63	23.63	25.67
XV	17.50	9.55	29.17	23.63
XVI	65.63	15.91	13.12	13.12
XVII	58.63	11.55	25.67	58.63
XVIII	21.88	38.89	23.10	12.73
XIX	46.67	12.60	46.67	46.67
XX	43.75	25.67	23.10	38.89
XXI	23.69	23.69	38.89	14.43

Index of Homogeneity : Awareness of Health/Education Needs

GROUP NO.	P.G.	RI	RII	RIII
I	100	22.22	100	22.22
II	22.22	22.22	22.22	100
III	100	22.22	22.22	22.22
IV	100	100	40.00	40.00
V	22.22	44.44	44.44	100
VI	0	33.33	100	0
VII	0	33.33	0	0
VIII	33.33	33.33	0	100
IX	33.33	33.33	0	33.33
X	33.33	33.33	100	100
XI	100	22.22	22.22	22.22
XII	100	22.22	100	100
XIII	40.00	40.00	13.33	40.00
XIV	0	33.33	0	33.33
XV	100	100	33.33	0
XVI	100	0	33.33	0
XVII	100	100	33.33	100
XVIII	22.22	44.44	22.22	44.44
XIX	40.00	13.33	100	40.00
XX	100	22.22	44.44	22.22
XXI	22.22	22.22	0	0

Index of Homogeneity
Membership of Numbers of Organizations

GROUP NO.	P.G.	RI	RII	RIII
I	22.22	22.22	100	22.22
II	22.22	22.22	22.22	22.22
III	100	100	22.22	22.22
IV	40.00	13.33	40.00	13.33
V	44.44	22.22	0	0
VI	100	33.33	33.33	33.33
VII	100	33.33	33.33	33.33
VIII	0	33.33	33.33	0
IX	0	0	33.33	100
X	0	0	100	33.33
XI	100	22.22	22.22	44.44
XII	100	22.22	22.22	22.22
XIII	40.00	13.33	40.00	40.00
XIV	33.33	33.33	33.33	33.33
XV	0	0	33.33	0
XVI	100	0	0	33.33
XVII	100	22.22	22.22	22.22
XVIII	100	22.22	22.22	22.22
XIX	40.00	13.33	40.00	40.00
XX	0	22.22	44.44	44.44
XXI	100	22.22	22.22	44.44

Index of Homogeneity : Exclusive Church Membership

GROUP NO.	P.G.	RI	RII	RIII
I	100	22.22	100	22.22
II	22.22	22.22	22.22	22.22
III	22.22	100	22.22	22.22
IV	100	13.33	40.00	13.33
V	22.22	22.22	22.22	0
VI	100	33.33	33.33	33.33
VII	100	33.33	0	0
VIII	0	33.33	33.33	0
IX	0	0	33.33	100
X	0	33.33	0	33.33
XI	100	44.44	22.22	44.44
XII	100	100	22.22	22.22
XIII	40.00	13.33	13.33	40.00
XIV	33.33	33.33	33.33	33.33
XV	0	0	33.33	0
XVI	100	33.33	0	33.33
XVII	100	22.22	22.22	22.22
XVIII	100	22.22	22.22	0
XIX	40.00	40.00	13.33	40.00
XX	0	44.44	44.44	22.22
XXI	100	44.44	22.22	44.44

Index of Homogeneity : Membership of Combined Group

GROUP NO.	P.C.	RI	RII	RIII
I	100	22.22	22.22	22.22
II	22.22	22.22	22.22	22.22
III	100	100	22.22	22.22
IV	100	13.33	40.00	40.00
V	100	22.22	22.22	0
VI	100	33.33	33.33	0
VII	100	100	100	33.33
VIII	33.33	100	0	0
IX	33.33	100	33.33	100
X	100	33.33	33.33	33.33
XI	100	0	22.22	44.44
XII	100	22.22	22.22	22.22
XIII	40.00	40.00	13.33	13.33
XIV	33.33	0	33.33	0
XV	0	0	100	33.33
XVII	100	22.22	22.22	22.22
XVIII	100	22.22	22.22	44.44
XIX	13.33	40.00	40.00	13.33
XX	22.22	22.22	22.22	100
XXI	44.44	0	22.22	22.22

Index of Homogeneity : Leadership

GROUP NO.	P.G.	RI	RII	RIII
I	9.43	22.00	100	53.60
II	53.60	100	19.86	100
III	100	53.60	9.43	53.60
IV	48.00	16.00	26.67	22.86
V	19.14	22.00	18.86	18.86
VI	60.00	33.33	33.33	33.33
VII	60.00	60.00	16.07	14.29
VIII	40.00	33.33	33.33	40.00
IX	33.33	33.33	40.00	11.11
X	40.00	16.07	33.33	33.33
XI	33.33	44.67	53.60	40.00
XII	53.60	22.00	53.60	19.86
XIII	40.00	48.00	26.67	26.67
XIV	40.00	33.33	40.00	60.00
XV	14.29	11.11	33.33	25.00
XVI	100	10.71	16.07	33.33
XVII	53.60	19.86	19.86	53.60
XVIII	33.33	33.33	14.29	9.43
XIX	100	15.43	15.43	40.00
XX	33.33	18.86	33.33	33.33
XXI	53.60	33.33	33.33	23.93

APPENDIX C 3

Index of Homogeneity : Illness

GROUP NO.	P.O.	RI	RII	RIII
I	100	58.33	0	58.33
II	100	0	0	58.33
III	58.33	58.33	0	100
IV	31.11	46.67	28.00	28.00
V	38.89	35.00	23.33	38.89
VI	43.75	43.75	38.89	38.89
VII	38.89	65.63	38.89	38.89
VIII	65.63	38.89	0	38.89
IX	65.63	0	0	65.63
X	38.89	38.89	43.75	0
XI	23.33	38.89	23.33	35.00
XII	58.33	58.33	58.33	0
XIII	28.00	31.11	28.00	46.67
XIV	65.63	38.89	65.63	65.63
XV	38.89	0	38.89	43.75
XVI	43.75	0	65.63	0
XVII	58.33	0	58.33	58.33
XVIII	35.00	38.89	38.89	21.21
XIX	100	70.00	31.11	28.00
XX	35.00	23.33	35.00	38.89
XXI	23.33	38.89	35.00	23.33

Index of Homogeneity : Incapacitation

GROUP NO.	P.O.	RI	RII	RIII
I	100	100	22.22	22.22
II	22.22	22.22	22.22	22.22
III	22.22	22.22	22.22	22.22
IV	13.33	13.33	13.33	13.33
V	22.22	0	22.22	22.22
VI	100	33.33	100	33.33
VII	100	33.33	0	0
VIII	33.33	100	33.33	0
IX	100	33.33	0	0
X	33.33	0	33.33	0
XI	22.22	22.22	0	22.22
XII	22.22	22.22	22.22	100
XIII	40.00	40.00	13.33	13.33
XIV	33.33	33.33	0	33.33
XV	100	33.33	0	33.33
XVI	33.33	33.33	33.33	0
XVII	22.22	100	100	100
XVIII	22.22	44.44	0	22.22
XIX	13.33	13.33	40.00	13.33
XX	0	0	100	0
XXI	22.22	0	22.22	22.22

Index of Homogeneity : Action and Services Used

GROUP NO.	P.O.	RI	RII	RIII
I	100	100	55.55	100
II	100	0	55.55	55.55
III	55.55	55.55	0	0
IV	50.00	42.86	50.00	66.67
V	9.26	55.55	35.71	35.71
VI	62.50	35.71	62.50	35.71
VII	35.71	62.50	0	41.67
VIII	62.50	35.71	35.71	35.71
IX	41.67	41.67	41.67	35.71
X	62.50	35.71	35.71	62.50
XI	69.44	69.44	35.71	69.44
XII	100	55.55	55.55	55.55
XIII	42.86	25.00	42.86	25.00
XIV	100	35.71	35.71	35.71
XV	35.71	62.50	35.71	62.50
XVI	62.50	35.71	0	35.71
XVII	55.55	100	55.55	55.55
XVIII	31.25	20.83	47.62	20.83
XIX	50.00	28.57	28.57	42.86
XX	55.55	35.71	41.67	55.55
XXI	35.71	20.83	47.62	47.62

Index of Homogeneity : Attitude to Institute

GROUP NO.	P.O.	RI	RII	RIII
I	53.60	19.86	53.60	19.86
II	53.60	19.86	19.86	19.86
III	53.60	19.86	22.00	22.00
IV	64.00	40.00	48.00	26.67
V	40.00	33.33	44.67	53.60
VI	33.33	33.33	33.33	60.00
VII	14.29	33.33	33.33	60.00
VIII	60.00	10.71	100	14.29
IX	25.00	11.11	16.07	33.33
X	100	60.00	40.00	40.00
XI	11.90	33.33	28.57	18.86
XII	53.60	9.43	53.60	53.60
XIII	28.44	26.67	22.86	64.00
XIV	25.00	33.33	11.11	11.11
XV	33.33	40.00	33.33	60.00
XVI	10.71	33.33	33.33	33.33
XVII	9.43	100	9.43	19.86
XVIII	18.86	33.33	44.67	14.29
XIX	40.00	48.00	40.00	40.00
XX	53.60	44.67	33.33	28.57
XXI	53.60	28.57	33.33	33.33

APPENDIX C 4

Index of Homogeneity : Use of Fresh Milk

GROUP NO.	P.G.	RI	RII	RIII
I	50.25	50.25	100	19.80
II	100	19.80	50.25	17.86
III	100	19.80	17.86	50.25
IV	60.00	24.00	36.00	24.00
V	27.67	37.50	30.00	40.25
VI	56.25	56.25	37.50	37.50
VII	100	37.50	30.00	22.50
VIII	37.50	30.00	37.50	30.00
IX	56.25	22.50	56.25	37.50
X	37.50	30.00	37.50	30.00
XI	37.50	30.00	30.00	30.00
XII	19.80	50.25	50.25	19.80
XIII	24.00	24.00	45.00	24.00
XIV	30.00	30.00	37.50	37.50
XV	100	22.50	30.00	56.25
XVI	56.25	37.50	22.50	30.00
XVII	50.25	100	17.86	50.25
XVIII	40.25	30.00	30.00	30.00
XIX	24.00	60.00	100	24.00
XX	50.25	40.25	40.25	50.25
XXI	30.00	37.50	19.80	50.25

Index of Homogeneity : Use of Condensed Milk

GROUP NO.	P.C.	RI	RII	RIII
I	100	22.22	100	100
II	100	100	100	100
III	100	100	100	100
IV	100	100	13.33	100
V	100	100	44.44	22.22
VI	100	100	100	100
VII	100	0	33.33	100
VIII	33.33	33.33	100	33.33
IX	0	0	33.33	100
X	100	33.33	33.33	33.33
XI	0	22.22	0	44.44
XII	100	100	22.22	22.22
XIII	13.33	100	40.00	100
XIV	33.33	33.33	33.33	33.33
XV	100	0	100	33.33
XVI	33.33	100	100	33.33
XVII	100	100	100	100
XVIII	100	44.44	100	100
XIX	40.00	100	40.00	13.33
XX	44.44	100	100	44.44
XXI	100	100	44.44	100

Index of Homogeneity : Food Variety

GROUP NO.	P.C.	RI	RII	RIII
I	55.83	10.31	23.57	21.27
II	10.31	55.83	16.75	55.83
III	100	10.31	55.83	21.27
IV	50.00	42.86	66.67	42.86
V	47.86	20.63	35.71	20.63
VI	15.63	17.58	35.71	17.58
VII	11.90	35.71	35.71	35.71
VIII	35.71	11.72	8.33	17.58
IX	41.67	17.58	26.79	17.58
X	17.58	62.50	41.67	41.67
XI	35.71	31.25	31.25	31.25
XII	21.27	10.31	55.83	100
XIII	50.00	42.86	42.86	25.00
XIV	11.90	35.71	35.71	11.90
XV	26.79	62.50	11.72	21.09
XVI	26.79	35.71	41.67	35.71
XVII	55.83	21.27	23.57	23.57
XVIII	11.72	35.71	21.27	23.57
XIX	50.00	42.86	50.00	11.25
XX	20.63	11.72	35.71	20.63
XXI	20.63	19.53	20.63	18.67

APPENDIX C 5

Index of Homogeneity : Presence of Baby

GROUP NO.	P.G.	RI	RII	RIII
I	100	22.22	100	22.22
II	100	22.22	22.22	22.22
III	100	100	22.22	22.22
IV	13.33	40.00	13.33	13.33
V	0	44.44	22.22	22.22
VI	33.33	100	100	100
VII	33.33	100	33.33	33.33
VIII	33.33	33.33	33.33	33.33
IX	33.33	33.33	100	33.33
X	100	0	100	100
XI	44.44	22.22	22.22	22.22
XII	100	100	100	22.22
XIII	13.33	13.33	13.33	40.00
XIV	100	33.33	33.33	33.33
XV	0	33.33	0	33.33
XVI	33.33	33.33	100	33.33
XVII	100	22.22	22.22	22.22
XVIII	44.44	0	44.44	0
XIX	13.33	13.33	13.33	13.33
XX	44.44	22.22	0	22.22
XXI	44.44	44.44	22.22	0

Index of Homogeneity : Demand and Clock Feeding

GROUP NO.	P.G.	RI	RII	RIII
I	22.22	100	22.22	100
II	100	22.22	100	22.22
III	22.22	22.22	22.22	22.22
IV	13.33	40.00	40.00	13.33
V	100	0	22.22	22.22
VI	33.33	0	33.33	0
VII	100	33.33	0	33.33
VIII	0	33.33	33.33	0
IX	33.33	100	33.33	0
X	100	33.33	33.33	100
XI	44.44	44.44	22.22	22.22
XII	100	22.22	22.22	22.22
XIII	40.00	13.33	40.00	40.00
XIV	100	33.33	0	0
XV	33.33	33.33	100	33.33
XVI	33.33	33.33	33.33	33.33
XVII	22.22	22.22	22.22	22.22
XVIII	0	22.22	22.22	22.22
XIX	40.00	13.33	40.00	13.33
XX	22.22	22.22	0	0
XXI	0	22.22	44.44	0

Index of Homogeneity : Values about Young Children

GROUP NO.	P.O.	RI	RII	RIII
I	53.33	53.33	53.33	53.33
II	53.33	53.33	53.33	53.33
III	100	0	53.33	53.33
IV	64.00	33.33	40.00	40.00
V	9.52	33.33	33.33	9.52
VI	33.33	60.00	33.33	40.00
VII	33.33	40.00	40.00	33.33
VIII	40.00	33.33	60.00	33.33
IX	60.00	33.33	33.33	40.00
X	33.33	0	33.33	33.33
XI	40.00	19.05	19.05	33.33
XII	53.33	53.33	53.33	53.33
XIII	11.43	48.00	48.00	26.67
XIV	40.00	33.33	33.33	60.00
XV	33.33	33.33	40.00	60.00
XVI	40.00	33.33	0	33.33
XVII	53.33	53.33	0	53.33
XVIII	33.33	33.33	9.52	19.05
XIX	26.67	11.43	48.00	33.33
XX	44.44	9.52	40.00	19.05
XXI	53.33	44.44	33.33	40.00

APPENDIX C 6

Index of Homogeneity : Garbage Disposal

GROUP NO.	P.G.	RI	RII	RIII
I	100	100	100	22.22
II	22.22	22.22	22.22	22.22
III	22.22	22.22	22.22	22.22
IV	40.00	13.33	40.00	40.00
V	0	0	0	100
VI	0	0	100	0
VII	0	0	0	33.33
VIII	33.33	33.33	33.33	33.33
IX	33.33	0	33.33	33.33
X	0	33.33	0	100
XI	22.22	0	22.22	22.22
XII	22.22	22.22	100	22.22
XIII	100	13.33	40.00	13.33
XIV	0	33.33	33.33	33.33
XV	33.33	33.33	0	0
XVI	0	33.33	0	0
XVII	100	100	22.22	22.22
XVIII	44.44	22.22	0	44.44
XIX	100	13.33	13.33	13.33
XX	44.44	44.44	22.22	0
XXI	22.22	44.44	0	22.22

Index of Homogeneity : Food/Water Protection

GROUP NO.	P.C.	RI	RII	RIII
I	100	100	22.22	22.22
II	22.22	22.22	100	22.22
III	22.22	22.22	22.22	22.22
IV	100	13.33	13.33	40.00
V	0	22.22	22.22	100
VI	33.33	0	0	100
VII	33.33	0	0	33.33
VIII	33.33	0	0	33.33
IX	100	33.33	0	0
X	33.33	33.33	0	33.33
XI	22.22	22.22	22.22	22.22
XII	22.22	22.22	100	0
XIII	40.00	40.00	13.33	13.33
XIV	33.33	33.33	33.33	100
XV	100	33.33	33.33	33.33
XVI	100	100	33.33	0
XVII	100	100	100	22.22
XVIII	44.44	0	0	44.44
XIX	40.00	40.00	13.33	13.33
XX	44.44	0	44.44	44.44
XXI	44.44	0	0	44.44

Index of Homogeneity : Home Interior

GROUP NO.	P.O.	RI	RII	RIII
I	100	53,60	53.60	53.60
II	19.86	19.86	53.60	53.60
III	22.00	22.00	53.60	53.60
IV	100	22.86	16.00	40.00
V	33.33	35.71	66.40	53.60
VI	25.00	40.00	33.33	25.00
VII	60.00	33.33	14.29	33.33
VIII	33.33	33.33	33.33	60.00
IX	33.33	60.00	40.00	60.00
X	60.00	33.33	33.33	60.00
XI	33.33	33.33	53.60	35.71
XII	19.86	53.60	53.60	53.60
XIII	100	28.44	26.67	40.00
XIV	60.00	60.00	33.33	100
XV	60.00	40.00	60.00	33.33
XVI	100	60.00	40.00	60.00
XVII	53.60	53.60	53.60	9.43
XVIII	53.60	33.33	18.86	66.40
XIX	26.67	48.00	48.00	22.86
XX	66.40	22.00	66.40	44.67
XXI	18.86	40.00	33.33	33.33

APPENDIX C 7

Index of Homogeneity : Communicable Disease Knowledge

GROUP NO.	P.G.	RI	RII	RIII
I	60.30	17.67	12.38	12.38
II	24.36	12.38	60.30	24.36
III	12.38	4.42	24.36	27.00
IV	49.09	72.00	6.43	14.69
V	11.79	22.85	23.44	24.75
VI	40.91	67.50	3.44	21.09
VII	45.00	10.04	40.91	8.61
VIII	13.64	40.91	40.91	10.39
IX	10.39	45.00	11.25	40.91
X	67.50	18.00	9.04	100.00
XI	40.91	15.24	23.08	40.91
XII	12.38	12.38	60.30	7.22
XIII	13.29	72.00	32.73	7.35
XIV	30.68	10.04	21.09	5.00
XV	30.68	17.31	8.61	40.91
XVI	10.39	21.09	21.09	21.09
XVII	60.30	12.38	60.30	60.30
XVIII	74.70	23.44	24.75	18.46
XIX	17.72	17.28	2.82	30.00
XX	12.38	12.38	40.91	10.10
XXI	40.91	18.75	9.14	13.64

APPENDIX C 8

Index of Homogeneity : Years of Schooling

GROUP NUMBER	PRIMARY GROUPS	RANDOM SETS I	II	III
I	10.11	7.54	26.12	11.37
II	5.06	5.06	5.06	10.11
III	8.01	26.12	23.57	19.79
IV	6.31	6.25	7.46	14.91
VII	5.91	4.88	8.57	19.90
VIII	5.31	5.36	19.90	8.57
IX	9.75	19.90	9.75	5.31
X	5.91	11.49	8.57	15.53
XIV	5.91	9.13	2.65	9.10
XV	10.47	2.28	9.10	11.49
XVI	7.75	5.91	11.63	2.65
XX	8.67	10.11	1.66	4.67

APPENDIX D 1

Sociometric Friendship Choice Within Groups

GROUP NUMBER	MEMBER'S SERIAL NUMBER	SERIAL NUMBER OF THOSE CHOSEN IN ORDER OF CHOICE		
		1st	2nd	3rd
I	1			2
	2	1		
	3		1	
II	4	6		5
	5	4		
	6	4		
III	7	8		
	8			7
	9			
IV	10	14	13	
	11			
	12		10	
	13			10
	14	10		
V	15		16	
	16	15	19	
	17			
	18		19	20
	19			15
	20			
VI	21		22	23
	22	21		
	23			
	24			
VII	25			
	26	27		28
	27	28	26	25
	28	27		
VIII	29			
	30	31	32	
	31	30		
	32		31	30
IX	33		35	
	34	33		
	35	36		33
	36	35		
X	37			
	38	40		
	39	40		
	40	38	39	
XI	41	42	44	
	42			
	43			
	44	41		
	45	46		
	46			45
XII	47	48		
	48	47		
	49	47		48
XIII	50			
	51		50	
	52	50		54
	53			
	54			
XIV	55		56	
	56	55		
	57	58		55
	58	57		
XV	59			
	60	62		
	61			
	62			

GROUP NUMBER	MEMBER'S SERIAL NUMBER	SERIAL NUMBER OF THOSE CHOSEN IN ORDER OF CHOICE		
		1st	2nd	3rd
XVI	63			
	64			66
	65			
	66	64		
XVII	67			
	68	69	67	
	69		68	
XVIII	70	72	73	
	71			
	72	70		74
	73	70		
	74		75	73
	75			74
XIX	76	79		78
	77			76
	78	77		76
	79		76	
	80		76	
XX	81			85
	82	84	85	83
	83	82		
	84	82		
	85	81		
	86			
XXI	87	88		89
	88		87	
	89			
	90	87		91
	91		87	90
	92			

APPENDIX D 2

Index of Cohesiveness (Friendship) for the Sample Groups

GROUP NO.	COHESIVENESS SCORE	RANK ORDER
II	66.67)	1
XIII	66.67)	
VII	52.08	3
XVII	48.15	4
IX	45.83)	5
XIV	45.83)	
XIX	45.00	7
I	44.44)	8
XVIII	44.44)	
VIII	43.75	10
XX	41.67	11
X	39.58	12
XXI	37.50	13
IV	35.00	14
V	31.94	15
XI	30.56	16
III	29.63	17
VI	25.00	18
XIII	20.00	19
XVI	16.67	20
XV	10.42	21

APPENDIX D3

HIGH-MODERATE-LOW COHESIVE GROUPS WITH RANK ORDERS FOR COHESIVENESS AND FOR HOMOGENEITY OF ALL MAIN VARIABLES

GROUP NO.	COHESIVE R.O.	READING	COMM.NEED	SERVICES	DIET	INFANT CARE	SANIT.	C.D.
II (	1	21	16	2	4	1.5	18.5	11
	1.5							
XII (	2	8.5	2.5	5	13	1.5	18.5	17
VII	3	7	7.5	12	3	8	13	6
XVII	4	8.5	2.5	15	6.5	6.5	2	3.5
IX (	5	12	21	6	18	10	8	20.5
	5.5							
XIV (	6	2	18	7	20	3	13	11
XIX	7	13	12	10	16	17	7	13
	R	72	79.5	57	80.5	47.5	80	82

Moderate Cohesive Set
R.O. Homogeneity

I (	8	3	11	1	6.5	6.5	1	3.5
	8.5							
XVIII (	9	15	9	21	11	18	10	1
VIII	10	11	19	18	17	19	11	14
XX	11	18	17	16	15	11	9	17
X	12	20	15	4	10	4	13	2
XII	13	19	10	8	12	15	15	8
IV	14	14	6	13	5	16	3	5
	R	100	87	81	76.5	89.5	62	50.5

Low Cohesive Set
R.O. Homogeneity

V	15	10	14	20	8	12	21	19
XI	16	5	5	19	21	9	16	8
III	17	1	4	11	1	5	17	17
VI	18	17	7.5	3	9	14	20	8
XIII	19	16	13	17	19	21	6	15
XVI	20	6	1	14	14	13	4	20.5
XV	21	4	20	9	2	20	5	11
	R	59	64.5	93	74	94	89	98.5