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**Application of Qualitative Research in Public Health****Dr. Sarmila Mallik<sup>1</sup>**<sup>1</sup>Professor, Department of Community Medicine, Murshidabad Medical College, Behrampore, West Bengal**Corresponding Author:**

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**Introduction**

Qualitative research is a type of scientific research where in depth responses from the people are collected about the research topic. It seeks to understand the research problem or topic from the perspectives of the local population to whom it involves. Qualitative research is effective to collect rich textual information about the values, behaviour, opinions, custom, and social context of a particular population. These methods are also effective in identifying influence of some factors like ethnicity, gender, religion, socioeconomic status, social norms in the research problem, which might not be obvious from survey methods. The purpose of doing qualitative study is to learn about these people, places, events, activities and generate new understanding.<sup>1</sup>

So we get the answer of 'why' and 'how' rather than 'what' or 'how many' in this type of study. From quantitative survey, we can gather data about how many people are smoking or what the type of smoking is. But qualitative methods help us to interpret why people do not stop smoking even after knowing the harmful effects of smoking or what are the barriers for compliance to dietary restrictions and physical exercise in the treatment of diabetes.

From the time immemorial, qualitative research methods are being used in the disciplines of social sciences, nursing, psychiatry etc. However in recent years there is a growing interest of using these methods in the field of public health and operation research. Some of the important

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reasons for this revival of interest are: 1) growing realization of unsuitability of survey research methods in the context of developing countries where population is predominantly illiterate and where The latest trend in the field of research is combined use of quantitative and qualitative research methods (mixed method design). This design helps us to understand better the reality of a given situation and provides

magnitude of non-sampling errors is high in surveys, 2) increased interdisciplinary team work and 3) demand of quick results from the ethnographic work.<sup>2</sup>

chance for better interpretation of quantitative data. But according to Morse<sup>3</sup>, it is the area where there is largest abuse of qualitative data as methodological principles are not properly followed or not understood.

## Types of qualitative research methods:

The data collection methods in qualitative research ranges from highly structured

systematic techniques to highly flexible people centred participatory techniques. These are divided into 3 broad headings which can be used in combination in a research project.

### I. Participatory research (PR) technique

Participatory methods offer *collective educational process* for both the researcher and the people, where people functions as stakeholders for their empowerment. Apart from using in different types of social and economic issues, PR techniques are now being increasingly used in community based health and development projects, where local community members are involved in need assessment, prioritising health intervention and preparation of a health or development plan. In the field of medical education it can be also be utilised as a teaching learning tool for medical students to get them oriented to community health problems, behaviours and customs. Most frequently used participatory methods are Social Mapping, Pair Wise Ranking,

Seasonal Calendar, Cobweb Diagram, Trend Analysis, Venn Diagram and Transect Walk.<sup>4</sup>

But participatory exercises cannot be considered only as a data collection technique. It is also an important tool for strengthening the action-experience-learning cycle of the community.

Case study: A non-government organization, Mother and Infant Research Activities (MIRA) in rural Nepal, involved women self help groups through participatory research for planning perinatal care services.<sup>5</sup>

### I. In depth techniques

These are in depth flexible discussion with a person or a group to gather information about the community or research topic. Some commonly used methods are Focus Group Discussion (FGD), Key Informant

Interviews (KII) and In-depth Interview (IDI).

Case study: IDI was conducted in six district hospitals of West Bengal with different stakeholders to identify the barriers of

implementing norms of postnatal stay as recommended by NRHM after institutional

delivery.

## I. Systematic techniques:

These techniques can be used with almost any qualitative research methods such as focus group or participatory research to collect systematic and structured data on a specific research issue. This approach is based on the principle that people make sense of their words by grouping their observation or experiences in class known as “domain”. Examples are Free listing combined with Pile sorting, Delphi panel. Free listing exercise can be useful when a

qualitative study is performed before a quantitative survey to identify local terminology to prepare questionnaire or understanding the dynamics in an unexplored research topic.<sup>6</sup>

Case study: In qualitative research for exploration for various reasons for

malnutrition, free list and pile sort exercise were used with the Anganwadi workers in a rural area of Maharashtra.<sup>7</sup>

## Some commonly used participatory research methods:

### 1. Social mapping

This type of PR can be used to collect demographic data and to visualise the social and physical environment of a locality. For a new researcher, it helps him to develop rapport with community before any participatory project work to be undertaken. From this exercise potential participants for the FGD or KII can also be selected.

Here the community members will draw a map of the locality depicting all important landmarks. This is even possible by the illiterate persons if locally available materials are used for drawing. Preparation

of map can be followed by a transect walk into the village.

Case study: Before planning health services and community oriented teaching services in the field practice area, department of community medicine of a medical college undertook social mapping exercise. Apart from getting the information about physical characteristics of the locality, they also received idea about various health related issues like drainage system, breeding sites of mosquito, quality of drinking water, prevalent communicable and non communicable diseases in the community.<sup>8</sup>

### 2. Transect walk:

The researcher will have a walk with the community members throughout the locality to have a visual impression of physical and social characteristics of the locality, availability of healthy services, basic sanitation. This is also a guide to the

community members to utilise the available resources, need assessment and plan for an intervention.

Case study: A transect walk with the primary school teachers in a village could

explore the personal hygiene practices of the villagers which was used to devise a need based health education intervention for

### 3. Seasonal diagram

This time related PR method can be used to comprehend the changes occurring in different periods of the year relating environmental conditions, income availability, expenditure, disease etc. This method also helps the community to understand the interrelationship of these activities in their day to day life, even if they are illiterate. Based on this exercise the time

### 4. Pair wise ranking:

This technique can be utilized to identify community preference comparing a few pair of factors. Priority of the community will be determined among few options. But limitation of this method seems that it is too simplistic method for decision making purpose.

Case study: By pair wise ranking the self

### 5. Cobweb diagram

This PR method, also known as spider diagram, is a visual tool to compare performance of different groups on multiple indicators or performance of a group or individual on multiple indicators over time. Each arm denotes an indicator and lines of different colours can be used to express performance of different groups. Cobweb diagram is best drawn with 5-6 indicators. Too many indicators will make the diagram more complicated.

### 6. Trend analysis

This method will help to understand the trends related to different variables over a time period, depicted through community perception.

Case study: In rural Maharashtra, a PR

school children with active involvement of school teachers and children.<sup>9</sup>

frame for intervention to combat in the actual period of stress can be framed.

Case study: In rural Maharashtra, the seasonal calendar exercise with the mothers of severely malnourished children was undertaken to explore the seasonality of childhood illness, availability of money, free time, food and access to loan across twelve months in a year.<sup>10</sup>

help group (SHG) women identified the need of a hand pump in their village and motivated the panchayat to install it in a village of Wardha. They also shared their achievements with other SHGs and this success story also inspired other village SHGs to approach panchayat for construction of drainage.<sup>11</sup>

Example: The researcher can involve the community members to evaluate the performance the ASHA in their locality by identifying several indicators like home visits for newborn babies, motivation for institutional delivery, accompanying the sick newborns to referral centres, family planning activities and express in a cobweb diagram.

technique with adolescent girls was undertaken to prepare health education messages related to menstrual hygiene and explored the trend of change over the period

by using trend analysis techniques involving

adolescent

girls.<sup>12</sup>

## 7. Force field analysis

This PR method will help to identify the positive and negative forces working over a problem. The community can itself identify the hindering forces to implement an intervention program.

Example: To implement 3 months rural posting of internees in community medicine effectively, the force field analysis with the stakeholders can identify the positive and negative forces for this problem.

## 8. Focus Group Discussion

It is a group discussion of approximately 6-12 persons guided by a facilitator during which the members of the group talk freely and spontaneously about a certain topic.<sup>13</sup>

This research method helps to develop research hypothesis and facilitates to formulate questionnaire for a survey; explore community perception in a sensitive topic and find out solution for an unexpected problem in an intervention.

The purposively selected homogenous participants will sit in a circular way in a homely atmosphere and the facilitator will introduce the topic stating the objective after warm up session. He/ she will continue the discussion with broad open ended questions with probing and encourage every member to participate actively, but should not be judgemental. Whole session should not last for more than 1- 1 ½ hours. A human recorder will write all the conversations in their own verbatim. If the session is audio recorded, the recorder will complement his field notes with taped transcripts to prepare the final transcripts. Non verbal

communication of the participants is also noted by the recorder to supplement his field notes. Sociogram can be drawn by an observer to ensure even participation of each member and can give hints to the facilitator to involve a non-participating member or restrain a dominant one.

Advantages of FGD include that it captures real life data in a social setting, flexible, having high face validity<sup>14</sup>, generates quick results, less costly and reveals information which might not have been anticipated by the researcher himself.

Disadvantages of FGD are also obvious like difficulty to form the group, having control over the session, need of a skilled moderator, troublesome differences within the group and data analysis. Moreover the results cannot be generalised.

Case study: In Purulia district of West Bengal, FGD with a group of health worker (F) was conducted for SWOT analysis of functioning of emergency referral transport.

## 9. In depth interview

In depth interview is useful when researcher wants detailed information about one's thoughts and behaviours which is not possible to obtain by other data collection methods like survey. The interviewee feels

comfortable to share his views in a relaxed environment. But sometimes the responses may be biased when the interviewee wants to show the superiority of the program or his excellent performance. Cautious efforts

should be made during selecting study design, creating data collection instrument and conducting interview to minimise bias. The process may be time consuming as one has to conduct interview, transcribe and analyse the results. Interviewer must be properly trained in effective interviewing techniques, such as probing, avoiding leading questions, using proper body language and not disclosing their personal opinions. Results of in depth interview cannot be generalized because of small sample size and not using random sampling technique.<sup>15</sup> In depth interview technique however provides valuable information when supplemented with other methods of data collection.

The general process of data collection methods is also followed in conducting in depth interview like plan, develop

instrument, collect data, analyse data and disseminate findings. The interview protocol i.e instructions to be followed during interview should be circulated to all interviewers to maintain consistency. Interview guide will contain the list of questions with informed consent form.

In depth interview is more exploratory than Key Informant Interview.

Example: To elicit the emotional problems of a cancer patient in terminal phase, KII can be conducted with doctor and nurse while IDI with patients or care givers of the patient.

Case study: In a slum area of Delhi, IDI was conducted to assess household practices that can affect neonatal health and neonatal danger signs from the perspective of caregivers and health workers.<sup>16</sup>

## Sampling and sample size in qualitative research method<sup>6,17</sup> :

This research method depends on purpose of study and it is not meant to test hypothesis, rather to identify unexplored area of research or getting insight of a problem by generating new hypothesis. Determination of sample size is difficult here due to absence of any mathematical formula. The process of data collection is continued till the point of saturation when no added information is obtained from FGD or interviews. Sampling frame is not defined here, even not needed.

Non probability sampling technique like purposive sampling, convenience sampling, quota sampling and snow ball sampling are followed in qualitative research. Sample size is not fixed prior to study, because it may change based on the new information generated after every segment of interview. Generalization is not possible and not aimed also.

## Analysis of qualitative data:

Widely used method for qualitative data analysis is content analysis.<sup>18</sup> Here the text data is systematically classified into codes, themes or patterns. In qualitative research, *triangulation* of different methods is recommended for better interpretation and validity of data.

Step 1: The raw data is transformed into written text known as **Transcription**

Step 2: **Defining the coding unit** which might be words or sentence or concept or paragraph

Step 3: **Coding of all text data.** To check consistency of coding inter coder agreement should be developed.

Step 4: **Formation of Categories** which are derived from three sources a. Data itself b. previous related studies c. theory

Step 5: Text data needs repeated reading for better exploration of its dimension and properties and for **drawing conclusion**

Step 6: For **report writing** one should maintain a balance between description and

interpretation. Caution should be made that researcher should not mix his personal opinions to bias the results.

Content analysis can be done by software like Atlas-ti, Nvivo, while free listing and pile sorting by Anthropic.

**Comparing quantitative and qualitative research:**

Quantitative and qualitative research methods differ primarily in their analytical objectives, types of questions, data

collection instruments, type of data generated and degree of flexibility.<sup>19,20,21</sup>

**Table 1: Comparison of quantitative and qualitative research**

Characteristics	Quantitative research	Qualitative research
General frame work	Seeks to confirm hypothesis about phenomena  Structured framework with rigid style	Seeks to explore phenomena  Semi structured framework with flexible style
Research objectives	Measuring phenomena. Answers how many, where, when	Describing phenomena. Answers why and how
Sample size	Large	Small
Question format	Close ended	Open ended
Data format	Numerical	Textual
Analysis	Statistical	Analytic and interpretative
Flexibility in study design	Study design stable from beginning to end.  Participant responses do not influence which questions the researcher will ask next.  Study design is subjected to statistical assumptions and conditions	Some parts are flexible.  Participant responses affect which questions the researcher will ask next.  Study design is iterative i.e data collection and research questions are adjusted according to what is learnt.

**Ethical issues:**

The qualitative studies are now more being conducted and published, so its importance from ethical point of view is also on rise. Qualitative research is subjected to bias through the attitude and qualities of the researcher, social desirability factors and conditions of worth.<sup>22</sup> One set of qualitative study researchers have thinking that the ethical issues are not applicable to them as they are not making any mistake or harms to the people they study. On the other hand, some researchers rigidly enforce the bioethics practices. Between these two extremes the qualitative researches should make a balance of principles of ethical issues. Whenever we conduct a research on people, the wellbeing of the study participants must be our priority.<sup>21</sup>

ICMR has provided ethical guidelines for biomedical research on human subjects but without referring to qualitative research. Richards et al<sup>23</sup> have argued on need of ethical guidelines in qualitative research in

health science. So unless we have clear cut principles, it is very difficult for the ethics committee to provide clearance to the qualitative study.

Qualitative research is an important tool to study perception, attitude and behaviour of the community and also for examining the social process over time. Its uniqueness lies in its flexibility where any time researcher can modify the research design. Compared to other research methods it is inexpensive also, can be initiated with a researcher with his notebook and pen.

Qualitative research has several limitations also. It is not an appropriate method to arrive at a statistical decision for a large population. It has potential problem with reliability and that is why generalizability. In spite of its limitations, it has a very important place in medical, health service and operational research and practice of evidence based medicine.

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