CHAPTER-III
METHODOLOGY

The need for assessing the knowledge of TBAs on identification of high risk mothers was made clear in the earlier chapter. In addition, the TBAs were to be evaluated for their ability to recognize the risk status of the pregnant women during antenatal, intranatal and post-natal period. The methodology includes the choice of research approach, the preparation of the tool for the collection of data related to the objectives set for the study and the selection of the sample from the state of Orissa.

Research Approach

An evaluative survey approach was utilized to explore whether the TBAs have adequate knowledge about maternal risk factors and assessment of the severity of the risks. Survey research is "that branch of research activity that focuses on the status quo of some situation and which normally collects this information directly from the group (or members of the group) that is the object of investigation" (Polit and Hungler, 1978, p. 195). The researcher had planned the study to explore the knowledge of the TBAs on which very little information was available.

Various reports indicated that there has been studies on various programmes for TBAs with regard to the content of the course as well as duration of the course. Since, these were also TBAs who had not undergone any training it was found reasonable to assess their awareness and ability to recognize the risk status as the basis for determining future action.

The evaluative research is a specific form of applied research whose primary goal is not generating new knowledge but rather testing the application of knowledge (Suchman, 1973, p. 29). The present study approach involved the process of collecting and analysing data related to the knowledge of the TBAs on the risk of the pregnancy and child birth, and the severity of the risk status which involved application of knowledge to practice as well as the ability to judge severity state.
In addition to the verification of knowledge level to identify risk status, a correlative approach was adopted to study the relationship between knowledge and other extraneous factors such as age, literacy, years of experience in midwifery practice, the source of knowledge to practice midwifery, approximate number of deliveries, training period and type of training and its relationship to the practice of midwifery by the TBAs. As a precondition to an evaluative study, it was necessary to assume a criteria against which the level of the knowledge could be determined. A conceptual framework reported in chapter one provides the criteria for assessment (Figure 1.1).

Setting

This study was undertaken in the rural setting of Orissa. At the time of the investigation, there were 27 districts with the total population of 31660 lakh within the land area about 155,707 square kilometers (Fig. 3.1). Nearly 56.6 percent of the state population were living below the poverty line. The tribal population and scheduled castes constituted 16.21 percent and 22.2 percent of total population of Orissa, respectively. The tribal areas of the state constituted 44.7 percent of the total land areas of the state. They were mainly the weaker sections of the society (Government of Orissa, 1993-94, p. 121). Tribals and scheduled caste are mostly backward and continue to live below the poverty line for many years (Government of Orissa, 1993-94, p. 124). Male and female ratio was 1000:972 according to 1991 census (Government of Orissa, 1993-94, p.1).

The distribution of population of villages revealed that out of 46553 villages, 30905 were having less than 500 population and 9805 villages were between 501 to 999 population, which was an indication of scattered nature of the villages in rural area (Government of India, 1991, p.9). Low density coupled with small villages widely scattered had the problems on providing services close to the habitation (UNICEF, 1991, p. 8). Further, there were twelve languages spoken by the people, where 16 percent of the people were non-Oriya speaking (Panda, 1994, p. 12).
The public transport facilities in the state were very poor and only 15 percent of the villages were connected with all weather roads. This reveals that there was poor communication facilities in relation to the other states of the country. Similarly, availability of the buses on road in Orissa was only eleven per lakh population in 1992-93, where as in all India level it was 687 per lakh population (Government of Orissa, 1993-94, p. 71). Literary rate was only 40.96 percent with 34.40 percent of female literary.

Health statistics revealed that according to 1991 census, the growth rate was 20.06 percent during the period of 1981-91 (Government of Orissa, 1993-1994, p. 136). Birth rate was 28.8 per thousand live birth in Orissa in 1991 (Government of Orissa, 1993-94, p.89) where as in rural area, birth rate was found to be 30.7/1000 live births in 1989 (Government of India, 1991, p.18). As per 1991 census infant mortality rate of the state was 122/1000, live births were 126/1000 live births in rural Orissa which was on the top of all other states of the nation (Government of India, 1991, p. 24).

General fertility rate was 3.9 which is slightly higher of rural area i.e., 4.1 as per 1986 data (UNICEF, 1991, p. 13). There were 232 Primary Health Centres according to the records of March 31st 1993 (Government of Orissa, 1993-94, p.199) and 5626 subcentres were functioning in the state according to the information of 3.6.1991 (Government of India, 1991, p. 14).

Population For The Study

All the traditional birth attendants of the villages under 232 Primary Health Centres of 27 districts of Orissa who were conducting deliveries in the rural areas during the period under investigation, were the selected population for the study. Exact number of TBA population conducting deliveries in the state could not be obtained due to non-availability of the data.
Criteria for Inclusion in the Study

* Practising TBA as confirmed by MPHW(F), HA(F), Anganwadi workers or other TBAs.

* TBAs who were able to walk up to the subcentre or village Anganwadi, able to hear and see adequately.

* TBAs who were willing to participate in the study and were available in the village at the time of the visit.

Sampling Techniques

Multistage random sampling technique was used in selecting the sample for the study (Appendix.7). As the name implies, this method refers to a sampling procedure which is carried out in several stages (Saravanavel, 1989, p. 126; Elhance et al., 1988, p.19-23 and Gupta, 1992, Pp. 1081-82).

Instead of enumerating all sampling units in the selected clusters, one can obtain better and more efficient estimates by resorting to sub sampling within the clusters. It is more flexible as compared to other methods and it is simple to carry out. It is also administratively convenient as it permits the field work to be concentrated by covering a large area (Gupta, 1992, Pp. 1081-82).

In the first stage, out of 27 districts three districts were selected randomly. These were Ganjam, Mayurbhanj and Sundargarh. Ganjam is situated in the south-east of Orissa with a population of 27,04,056 with rural population of 22,80,303 which is 9.98 percent of the state population. The female and male ratio was 1000:1009. Around 16 percent and 9 percent of its population were scheduled castes and scheduled tribes, respectively. The population growth of the district was 18.31 percent. There were 25 Primary Health Centres (PHC) in the district according to the report of the Directorate of Health Service, Orissa (Government of Orissa, 1993-94, p. 199). However, the list provided by the district head quarter (CDMO Office) contained 22 PHCs.

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Mayurbhanj which is situated in the eastern side of the State had 18,84,580 total population and rural population of 17,68,331. It consisted around 58 percent of tribal population and seven percent of scheduled caste with male and female ratio of 1000:979. The growth rate of the population in the district was 19.14 percent during the period of 1981 to 1991. There were 16 Primary Health Centres in the district (Government of Orissa, 1993-94, p. 199) (Figure 3.3). But, the list provided by the district headquarter (CDMO, Office) contained 17 PHCs.

Sundargarh is situated in the northern side of the State with total population of 15,73,617 of which 10,48,612 were tribal population. The district had 50.74 percent of scheduled tribes and 8.78 percent of scheduled caste population, respectively. The male and female ratio was 1000:936 with growth rate of 17.62/1000 population. The district had 12 PHCs (Government of Orissa, 1993-1994, p.199) (Figure 3.4).

Out of these three districts Mayurbhanj had the highest tribal population, i.e., around 58 percent and Ganjam had maximum of scheduled caste population (16%).

In the second stage of sampling two subdivisions were selected from each district. There were three subdivisions namely Berhampur, Chhatrapur and Bhanjanagar in Ganjam; four in Mayurbhanj namely Baripada, Kaptipada, Karanjia and Rairangpur; whereas in the district of Sundargarh there were three subdivisions i.e., Sundargarh, Panposh and Bonai.

The simple random sampling technique was used to select the sample subdivision; i.e., two subdivisions were selected from each district by using lottery method. Thus Berhampur and Chhatrapur of Ganjam district; Kaptipada and Karanjia from Mayurbhanj district; and Sundargarh and Banai of Sundargarh district were selected as sample subdivision to be included in the study (Appendix 7).
In the third stage the sampling of Primary Health Centres was done. One PHC from each sample subdivision was selected as sample PHC for the study by using simple random sampling technique as shown in the Appendix-7. Thus Kukudakhandi of Berhampur subdivision and Municipentha from Chhatrapur subdivision (2) of Ganjam district; Khunta from Kapatipada subdivision and Sukuruli from Karanjia subdivision of Mayurbhanj district (2); and Subdega from Sundargarh and Koira from Banai subdivision of Sundargarh district (2) were selected as sample PHCs for the study. Thus, total six PHCs were selected as sample PHCs for the study.

In the fourth stage, all the subcentres of each PHC under study were selected for the study. This consisted of total 109 subcentres which were spread over three districts of Orissa.

Finally, all available TBAs of each subcentre were selected as sample for the study. Thus 524 TBAs from the villages under all the subcentres were included in the study.

**Methods of Data Collection**

In community health a good deal of information could be obtained by directly questioning the people who are illiterate or who have low general education. The alternative methods would have been observation, which was found not feasible under the circumstances, as neither the TBAs nor their clients would have liked the investigator to witness the care given by the TBA. More over, it would have been difficult and time consuming to observe the performance of the TBAs during the delivery of antenatal, intranatal and postnatal care. Hence, interview technique was selected for the study.
Table 3.1

Distribution of Test Items in the Tool

<table>
<thead>
<tr>
<th>Areas</th>
<th>Items (score)</th>
<th>Risk (KR)</th>
<th>Severity (SS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meaning of high risk pregnancy</td>
<td>1 (KR₁)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Need for antenatal screening</td>
<td>1 (KR₁)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Antenatal risk conditions:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical</td>
<td>4 (KR₂)</td>
<td>4 (SS₁)</td>
<td></td>
</tr>
<tr>
<td>Medical</td>
<td>7 (KR₃)</td>
<td>7 (SS₂)</td>
<td></td>
</tr>
<tr>
<td>Obstetric</td>
<td>13 (KR₄)</td>
<td>13 (SS₃)</td>
<td></td>
</tr>
<tr>
<td>Warning signs</td>
<td>4 (KR₅)</td>
<td>4 (SS₄)</td>
<td></td>
</tr>
<tr>
<td>Intratnatal risk conditions</td>
<td>10 (KR₆)</td>
<td>10 (SS₅)</td>
<td></td>
</tr>
<tr>
<td>Postnatal risk conditions</td>
<td>6 (KR₇)</td>
<td>6 (SS₆)</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>46 (KR₈)</td>
<td>44 (SS₇)</td>
<td></td>
</tr>
</tbody>
</table>

**Development of research instrument:** A structured interview proforma was prepared (Appendix-5) based on the conceptual framework presented in Chapter-I. The instrument was initially written in English and was then translated to Oriya language. Local colloquial terms were used both in English and Oriya proforma. Some of the terms which were specific for tribals, the proforma was again modified according to the local tribal dialect taking the assistance of the Health Worker(F), the Anganwadi worker or the other TBAs (Appendix-6).

The interview schedule had 90 items with a total score of 90. Out of these 46 knowledge items and 44 were the items seeking response on severity status.
Forty four knowledge questions had equal number of associated severity items. The knowledge questions required the response "Yes" or "No". The answer "Yes" carried one score and "No" as zero score; and the severity question required response as mild, moderate and severe. The correct response scored "one" and incorrect as "zero". The accuracy of the risk status of an item was validated by the experts. The remaining two items on knowledge dealt with "meaning of high risk pregnancy" and "need for antenatal examination for high risk assessment". The scores on knowledge of risk is referred in the text as 'risk score' or KR and on knowledge of severity as "severity score" or SS. Forty six knowledge and 44 severity items were categorized under eight and six areas respectively as listed above (Table 3.1).

First pre-testing of the tool was done during July 1993 on 14 subjects and it was found that the response columns were not clear; specially for statistical purpose. The tool was modified in consultation with the experts.

Validity and Reliability of the Research Instrument. Validity: Content validity of the tool was tested by consulting available literature in relation to the maternal high risk conditions to be applicable for the community level workers.

Further, the tool was sent to ten subject experts in nursing and social and preventive medicine for checking relevancy and accuracy of the content. Out of ten experts only six could reply within the expected time. A reminder was sent to get the response from the remaining experts but only one tool was received. Thus making a total number of subject expert as seven (Appendix. 9).

One member, each from education and statistics were also consulted for the scoring system and response format. On the basis of the comments of the subject experts minor modifications were made in the language. The experts agreed on all the items except one which required modification, in terms of the accuracy of response. The item "Is pale look of the mother with breathlessness and easy fatigue a risk to the pregnant mother?" The severity status was graded initially as 'mild'
was graded as 'severe' by two experts. The modified tool was sent to four medical experts from the field of obstetric and gynaecology for critical appraisal of the score on severity status. This further required modification of one item related to labour such as "before how many weeks/months if labour pain starts is risk to the mother"?. It was initially graded as "severe" which was converted to "mild".

**Reliability:** The reliability constituted a major threat to validity and it comes from the necessity for dependability in measurement. Thus, all educational measurement instruments need to be tested to find out the extent to which data is dependable. To test reliability of the interview schedule, split-half method was selected which is a test for internal consistency.

The final form of the test was administered to 30 TBAs of Bhatakumarada PHC of Ganjam district (other than the sample area) during the month of March, 1994. The Spearman-Brown-Prophecy formula was used for correlation and the correlation coefficient was found to be significant ($r_{(28)} = 0.92$).

**Pilot study:** A pilot study was implemented during the last week of March 1994 on ten TBAs in the similar setting of the villages under the PHC, Belagaun of Ganjam district. It was conducted with the purpose of getting familiar with the terrain, being aware of the problems to be solved before starting the survey of three districts and also for trying out procedure to be adopted for the data collection. Since the tool was found to be both reliable and valid, the instrument was expected to be the final form.

The sample size was restricted to ten, keeping in mind the availability of time and cost of the study feasibility. However, the investigator realized that it was difficult to get an appointment schedule from the TBAs, as they wanted the investigator to try to contact them at the time of data collection only. Further, it was found out that it would be difficult to get the names and addresses of all the TBAs as no such list existed and many of them did not want their names to be
During the pilot study, letter for permission were sent to the Chief District Medical Officers (CDMOs) (Appendix. 1) and permission was obtained to contact the Medical Officer in-charge of the PHC before collecting data. Medical Officers informed that only one TBA was available from each subcentre who was appointed by PHC to help the HW(F). Initially, it was decided that the TBAs will be called in batches to the PHC for the collection of data. Further, it was noted that the distance between the PHC from the subcentre varied from five kilometers to around sixty kilometers and more over all villages were not connected by roads. Therefore, it was decided to visit each selected sub-centre and contact the TBAs through the HW(F) and HA(F).

Methods of data collection: Prior to the data collection, during the month of March, letters were sent to the CDMO of each sample district and permission was obtained (Appendix. 2-4).

One to three subcentres could be visited by the researcher per day depending on the availability of transport and distance. On the request of the investigator, the Medical Officer of PHC informed the health personnel working under the PHC to extend cooperation for the project, at the monthly meeting held in the PHC. The HW(F) and HA(F) informed the TBAs of the areas after explaining the purpose of the study and date. Time and place was scheduled. The PHC administration also provided transport whenever possible; otherwise the investigator used public transport, bicycle, rickshaw, motorbike, that is whatever form of vehicle was available for travel. At a few places the investigator had to walk as no vehicle was available to reach the subcentre from the main road, which was about four to six kilometers.

In some subcentres, the help of the Anganwadi workers was obtained where TBAs were more acceptable to the Anganwadi workers. While collecting the data from the interior villages and in some tribal areas, the TBAs found it
difficult to understand the translated words as mild, moderate and severe. The illustration of division of rupees in annas was used to convey the meaning; namely less than 8 annas meant for 'mild', 8 to 12 annas represented 'moderate' and more than 12 annas denoted 'severe'. In other areas, a pictorial scale of three circles of different size was used for 21 tribal TBAs to explain the risk as mild, moderate or severe (Appendix. 10).

Before interview, the purpose of the interview was explained to all the TBAs in general with self introduction. Thus a sense of confidence was developed among the TBAs. This was done in the presence of HW(F) and HA(F) based on their availability. A separate place was selected for interview and privacy was maintained. The procedure is mentioned below.

* A comfortable place was selected.
* Privacy was maintained.
* Subjects were made to be comfortable and relaxed.
* General informations were asked i.e., age, literary, of practice etc., related to personal data as per interview schedule.
* High risk questions were asked after giving general information related to pregnancy and child birth.
* Questions were asked as per interview schedule.
* The respondents were asked each risk item and the corresponding severity item, simultaneously.

* The severity item related to risk was asked only if the respondant answered the corresponding risk item correctly. Otherwise 'zero' score was given for severity item assuming that they have no knowledge on "severity status".
* Each question was repeated to help them to recall.
* The TBAs were encouraged to answer the questions when they showed reluctance i.e., at times they would say "what do I know?" I only help when they call.

* Responses were recorded as per interview schedule during the interview.

* At the end of the interview questions asked by the TBAs were clarified to facilitate their participation.

After completion of all the interview in each centre a small tea party was arranged. During this time the TBAs, in general showed interest and asked for some information related to pregnancy and child birth. Their questions were answered by the researcher for their satisfaction. At times some of their problems related to practice, remuneration for their service and training. They were heard patiently and when possible the researcher explained the situation. Approximate time spent for interview varied from 15 minutes to one hour. The wide variation in interviewing time was due to the language difficulty, mainly in case of some tribal TBAs who spoke only tribal languages such as Munda and Sadri. Some times the risk factors had to be explained with illustration and examples.

Problems Faced during Data Collection

* Period of data collection was extended due to some administrative problems of the PHC.

* Subcentre Batachhatrapur of Municipentha PHC and main centre, Sarkata and Krupasindhupur subcentres of Kukudakhandi could not be included in the study due to non participation of the HW(F) and HA(F).
* Few trained as well as untrained TBAs did not participate as they complained that Government health service did not support them financially.

* Though single visit to the subcentre was planned some of the subcentres were visited twice where the participation of health team members was poor.

* Interview of 22 tribal TBAs was difficult due to their ignorance in following the Oriya language. Hence, help of the community people, Anganwadi worker or HW(F) was taken to facilitate interview.

* Pictogram or example of percentage of a rupee was used for some of the TBAs to assess the risk status.

Plan of Analysis of Data

It was planned to analyse the knowledge and severity data with descriptive statistics i.e., mean, media, percentage, percentile. Further, chisquare was considered suitable for finding the relationship of dependent variables with selected variables: district, PHC, age, literacy, experience, source of knowledge, approximate deliveries conducted per year, training i.e., duration and type of training related to practice and year of last training.

Summary

An evaluative survey was carried out on 524 TBAs to assess their knowledge to identify the risk conditions, and their severity of risk status during antenatal, intranatal and post natal period. The study was undertaken in the rural setting of Orissa by using multistage random sampling technique. Three districts out of 27 districts of Orissa were selected during the first stage. In the second stage of
sampling two subdivisions of each district were selected at random from which one PHC from each subdivision was further selected as sample PHCs for the study. Thus Kukudakhandi and Municipentha from Ganjam district; Khunta and Sukuruli from Mayurbhanj district; and Subdega and Koira from Sundargarh district were selected as sample PHC for the study. Lastly 109 sub centres of sample PHCs were selected as sample areas for the study. All the TBAs who were present during the data collection period were included in the study. The interview schedule was prepared by referring literatures and by consulting with the experts of nursing and community health. Validity and reliability of the tool were tested. The tool was found valid and reliable \( r = 0.92 \). Further, a pilot study was carried out to find out study feasibility and anticipated problems. After obtaining the necessary permission from the administration and making contacts with HW(F) and HA(F) and Anganwadi workers, TBAs were contacted. One to three subcentres were visited per day as per convenience and availability of the transport. Certain problems were experienced during data collection, these were administrative problems in extending help in time, non-participation of very few HW(F) and HA(F) and making the TBA understand the meaning of the words i.e., mild, moderate and severe. The data was planned to be analysed by using descriptive and inferential statistics.