CHAPTER -3

RESEARCH METHODOLOGY

Background of study area

According to the National Population and Housing Census 2011 (2011) the total population of Chepang is 68,399 out of which urban residents are 1655. Similarly, region wise population is 311 in mountain, 38,506 in hill and 29,882 in Terai. The Central Development Region has 63,765 population of Chepang. The race is highly marginalized indigenous group mostly resided on rural areas.

The study was based on The Pragmatic Worldview because researcher wanted to be problem centred and used the mix data tools to gather the in-depth knowledge on subject matter (Karki, 2015).

The study was based on comparative and cross sectional design. The study was carried out in Chitawan and Makawanpur districts from Sep. 2014 – March, 2015 among the 1250 respondents. Respondents were selected from 3-5 years children of Chepang and Non-Chepang households from Chitawan and Makawanpur districts. The country is divided into three geographical areas: mountain, hills and terai. Chitawan district is representing from inner terai and Makawanpur is representing from hills. Ethical approval was taken from the Nepal Health Research Council for data collection and written consent was taken from the each respondent. Census method was applied to select 3-5 years children from Chepang community of Siddipur, Darechok, Saktikhor, Jalbire, Darhakhani, Korak, Lothar, Piple, Kaule, Pithuwa, Chandibhanjyang, Kabilas, Jutpani, Ratnanagar city and Padampur VDCs of Chitawan and Raksirang, Palase, Kakada, Khairang, Kalikatar, Manhari, Dadakhark, Gogane,
Basamadi, Hadikhola and Padampokhari VDCs from Makawanpur districts. 3-5 years age children and household mothers were key respondents of this study.

3.1 Methodological issues

“There are mainly two approaches to measure the incidence of malnutrition among vulnerable groups of the society: (i) Calorie/nutrition intake approach, and (ii) Anthropometric approach” (K.P. V. C., 2011, p. 78). In the case of calorie content in the food, dietary approach is taken. But over the years it has been agreed upon that anthropometric approach is a better measurement than calorie approach. The present study focused on anthropometric approach which is considered as more reliable measurement over calorie intake approach due to the subsequent dregs.

Nutritional anthropometry has been defined as "measurements of the variations of the physical dimensions and the gross composition of the human body at different age levels and degrees of nutrition” (Shetty, 2004). There are two types of anthropometric measurement: growth and body composition. For both children and adults, this measurement has been widely used (Shetty, 2004, p. 1). There are several advantages of nutritional anthropometric measurement. As Shetty (2004, p. 2) has summarized them below:

ADVANTAGES OF NUTRITIONAL ANTHROPOMETRY

1. Methods are precise and accurate, provided standardized techniques are used
2. Procedures use simple, safe and non-invasive techniques
3. Equipment required is inexpensive, portable and durable, and can be made or purchase locally
4. Relatively unskilled personnel can perform measurement procedures
5. Information is generated on past nutritional history
6. Methods can be used to quantify the degree of undernutrition (or overnutrition) and provide a continuum of assessment from under-to overnutrition.

7. Methods are suitable for large sample sizes such as representative population samples.

8. Methods can be used to monitor and evaluate changes in nutritional status over time, seasons, generations, etc.

9. Methods can be adopted to develop screening tests in situations such as nutrition emergencies to identify those at high risk.

Thus, this study used nutritional anthropometrical design to assess the nutritional status of the targeted respondents.

3.2 Research design

"A research design is the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure (Kothari, 2009)". A research design provides the framework for the collection and analysis of data. This research was an explorative based on mixed method. Through such research we can analyse the various factors which motivate people to behave in particular manner or which make people like or dislike in food intake in Chepang community of Chitawan and Makawanpur districts of Nepal. This study was non-experimental cross sectional.

Primary data were collected by using the structured questionnaires and focus group discussions. Simple frequency distribution was applied to identify the nutrition status of 3-5 years children. Comparative study was conducted between the Chepang
and Non-Chepang communities. As well as through FGDs qualitative data were collected and narrated.

Quantitative data, cross-sectional survey method has been used. A well-structured questionnaire and measurement of weight and height were used to determine the nutritional status of children of socio-economic, environmental, demographic and household deprivation on nutritional status of the 3-5 years children in rural areas of Chitawan and Makawanpur districts in Chepang communities. It was compared with Brahman/Chhetri of 3-5 years children. Census method was used for questionnaire survey from Chepang population 3-5 year children household for data collection. The key informants were 3-5 years children households.

Quantitative data were gathered by structured questions containing height, weight and mid-upper arms circumference (MUAC) measurement. The anthropometric measure as well as Department of Health and WHO standards were used for the determination of nutritional status of 3-5 years children. Standard deviation of score (Z-score) for weight-for-age (WAZ), height-for-age (HAZ) and weight-for-height (WHZ) were calculated.
### Table 2 Research design

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<td>To analyse trend and pattern of nourishment among 3-5 years children.</td>
<td>Questionnaire</td>
<td>Primary</td>
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<tr>
<td>To analyse the medical health behaviour of parents.</td>
<td>Questionnaire FGD</td>
<td>Primary</td>
<td>Chi-square Narration</td>
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<td>To examine the linkage of socio-economic status and extent of nourishment among 3-5 years children rural areas of Chitawan and Makawanpur.</td>
<td>Questionnaire</td>
<td>Primary</td>
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<tr>
<td>To explore the level of school readiness among 3-5 years children in the study areas.</td>
<td>Questionnaire</td>
<td>Primary</td>
<td>Chi-square</td>
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The details of the analysis are given in Chapter Four under Findings and Discussions.
3.3 Sampling universe

To address the present study with reference to set research questions, 3-5 years children from Chepang and non-Chepang communities were considered as population. The respondents of the study were from Chitawan and Makawanpur districts. The main purpose of this study was to find out the nutritional status of 3-5 years children of Chitawan and Makawanpur districts. The dummy sample was taken in same communities and same number from other caste 3-5 years children for comparative data analysis.

3.4 Sampling design:

All the items under consideration in any field of inquiry constitute a universe or population. This study was based on exploratory research. In the study it was concerned on exploring the factors affecting nutritional status, mother’s attitudes and practices, and school readiness among ECD. The data were collected from the Chepang community from Chitawan and Makawanpur districts of 3-5 years children. At the researching time census sampling method was used.

3.5 Sample size

In Nepal, densely populated areas of Chepang are Chitawan, Makawanpur and Dhading districts. These districts are located in the Central Development Region. Out of these three districts, Chitawan and Makawanpur districts were chosen as study areas. From Chitawan 15 Village Development Committees (VDCs) and 11 VDCs from Makawanpur districts were chosen. The total number of respondents was 1250.
3.5 Types of data sources

For present research work, primary as well as secondary data were used. Research was broadly classified into two sections. Various statistical tools were used to analyse the primary and secondary data.

3.6 Data collection strategy

The data were collected through structured questionnaire survey as well as FGDs. The data were collected by primary and secondary resources.

3.7 Tools of collecting primary data

The primary data were collected through structured questionnaire survey. The detailed of questionnaire is attached in Appendix I. Primary question provides information about a specific aspect of the topic. The question is directly involved self and answer or data collection directly related person e g 3-5 years children information taken or collected face-to-face is called primary information. It plays great role in research outcome. To collect the primary data, beside the questionnaire, focus group discussion was also conducted.

3.7.1 Focus Group Discussion

A focus group discussion (FGD) is an in-depth field method that brings together a small homogenous group to discuss topics on a study agenda (Timsina, 2008). Focus group discussion was used to generate opinions of health workers, teachers, and Aama Samuha (mother's group) regarding nutritional status of children aged 3-5 years, mothers' attitude and practices, and school readiness of children.
The FGD involved steps such as planning the entire study, deciding what types of groups were needed, selecting facilitator, developing facilitator’s guide and format for recording responses, preparing individual FGDs, conducting FGDs and analysing and interpreting FGD results (Timsina, 2008).

The researcher conducted 10 focus group discussions at different locations involving 108 people altogether. The FGDs were conducted for up to 105 minutes. All the key points of the discussions were noted down. Finally, the overall discussion was summarized and the participants were thanked for their participation and support.

3.7.1.2 Arm circumference "insertion" tape

The MUAC tape (see figure) is a simple and reliable method of assessing MUAC and can, with training, be used by all level of health workers. Teaching-aids At Low Cost (TALC) has been producing MUAC tapes for over 10 years and they have stood the test of time, with over a quarter of a million having been distributed. They are made from plasticized paper and are almost indestructible (Morley, 2012).

MUAC is the circumference of the left upper arm and is measured at the midpoint between the tips of the shoulder and elbow. To measure:

i. Bend the left arm, find and mark with a pen the olecranon process and acromion.

ii. Mark the mid-point between these two marks.

iii. With the arm hanging straight down, wrap a MUAC tape around the arm at the midpoint mark.

iv. Measure to the nearest 1 mm.

3.7.1.3 Measuring height and weight of children

Nutritional status of children can be measured by height for age and height for weight. For this purpose all the respondents' (3-5 years children) height was taken by using measuring tape. First of all data collector put the tape on the wall horizontally.
After that each child was made stand and taken height. A picture of measuring height is given in Appendix. Similarly, weight of each child was taken by using spring balance scale. A picture of taking weight is also given in the Appendix.

3.7.2 Tools of collecting of secondary data

Secondary data means data that are already available i.e. they refer to the data which have already been collected and analysed by someone else. When the researcher utilizes secondary data, then can to look into various sources from where he can obtain them. In this case researcher is certainly not controlled with the problems that are usually associated with the collection of original data. Secondary data may either be published data or unpublished data. Published data are usually available by:

1. Government
2. Foreign government or international bodies
3. Technical and trade journals
4. Books, newspapers and magazines
5. Reports
6. Reports prepared by scholars, universities and economist
7. Public records and statistics historical document

The information or questions elicit information which relate directly to the topic, i.e. the information is of secondary importance in support of document e.g. literature review. Various literatures relevant to the people interaction, published or unpublished researches in Nepal and elsewhere were reviewed for the collection of secondary data. Review of literature of relevant documents related to the 3-5 years children research data were collected and reviewed.
3.9.4 Cronbach's Alpha test:

Total major 91 questions were included for the Cronbach alpha test which showed the 89 per cent valid. This is shown in below table:

Table 3 Reliability statistics

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<td>Cronbach's Alpha</td>
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If alpha is too high, it may suggest that some items are redundant as they are testing the same question but in a different guise. A maximum alpha value of 0.90 has been recommended (Streiner, 2003).

3.7 Formations of questionnaires and checklist

Tools of collecting Primary Data: The information was collected directly from the respondents of different groups by using the following tools:

Questionnaires: A list of questionnaires to answer nutritional status of children, mothers' attitudes and practices, and school readiness of ECD children was developed and sent to each selected respondents to collect their views. There was range of response questions (close ended questions, providing limited answers to specific responses or on a numeric scale). This tool was used to collect the quantitative data. To administer the questionnaires, mothers of 3-5 years children were respondents of this research. The formulation of questionnaire was prepared on log –frame (Appendix II) on the basis of objectives of the study.

Tools of collecting Secondary Data: Various statistical tools were also used to collect and analyse the secondary data.
a. Document Review: Different libraries of university, and organizations were visited to collect the related documents.

b. Web Search: The information related to outside regions (other parts of Nepal and Globe) was studied from internet. Topic related journal articles, periodicals records and reports, electronics/internet search, was carried out.

c. Various policies from national organizations were dealt in details by referring various government publications and reference books, journals, and published data from time to time.

3.9 Reliability and validity test of research instruments

Content validity of the questionnaire was addressed by identifying items from the literature and through assessment by both experts and participants in the pilot test. The questionnaire and checklist were sent to a number of experts and supervisor for their comment and recommendations. Based on their suggestions, the questionnaire was revised.

3.9.1 Language translation-back-translation

The questionnaire was translated into Nepali and Nepali version was again translated into English. If the English translation was correct and gave the same meaning as the original, it was considered as valid, if some deviation, the researcher had discussed with the translator and found the cause and improved the questionnaire again before data collection. The translation was carried out by freelance translator.
3.9.2 Discussion with expert

Content validity of the questionnaire was addressed by identifying items from the literature and through assessment by both experts and participants in the pilot test.

The questionnaire was sent to a number of experts and supervisor for their comment and recommendations. Based on their suggestions, the questionnaire was revised.

3.9.3 Pilot study

The questionnaires were piloted among the 38 participants. Similarly, discussion was held among the expert, supervisor and target population. Necessary adjustment of the questionnaires was made according to the feedback received from the pilot test.

3.10 Stages in data analysis

After collection of raw data, different stages were made to come up to interpretation. Mainly, six stages were made like checking the questionnaires, sorting out and reducing information collected to manageable proportion, summarising the data in tabular form, analysing factors so as to bring out their salient features, interpreting the results converting data into statements, proportions or conclusions which ultimately would answer the research questions, and writing or presenting the report. A diagram of stages in data analysis is given below.
Table 4 Stages in data analysis

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<th>Stages in data analysis</th>
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<td>Data Processing</td>
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<td>Coding</td>
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<td>Data distribution</td>
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<td>Tabulation</td>
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<td>Bivariate</td>
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<td>Data analysis</td>
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<td>Diagrammatic presentation</td>
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Source: (Ahuja, 2010, p. 304)

3.11 Data analysis

Both bivariate and multivariate analysis were employed to identify the determinants of underweight, stunting and wasting in 3-5 year children in rural areas of Chitawan and Makawanpur districts from Chepang communities. The collected information was analysed and interpreted. It helped in synthesizing the result of the work. On the basis of WHO scale, MUAC less than 115 mm is severe (red), 115 mm to 125 mm is moderate and above 125 mm is normal. This standard was used to analyse
the data. Similarly, weight for age and weight for height were analysed on the basis of WHO standard.