CHAPTER-II

METHODS AND DESIGN

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CHAPTER II
METHODS AND DESIGN

2.1 Introduction:

The present study seeks to probe into the intricate realities pertaining to the women conductors working in Bangalore Metropolitan Transport Corporation [BMTC]. This work is a systematic research in the study of transport sector where women are working as conductors, firstly to observe, measure and record information on women conductors’ nature of work, problems faced by working women due to the dual role they play and the resulting health issues if any. Secondly to arrange and organize this information, find out the significance and generalization of facts found and recorded in a documented format. Keeping in view the main objectives of the study elaborated in the preceding chapter, the methods that suit best for the purpose of the present study are chosen and adopted. A brief account of these methods of inquiry and analysis are presented in this chapter.

The Hypothesis, Objectives of study, Statement of the problem, methodology and limitations for this research have been discussed and field experience also added in this chapter.

2.2 Conceptual Definitions:

Definition of conductor is almost common but has other synonyms like ticket collector, ticket collecting officer, ticket counter official etc.

i). Women Conductor:

A public transport vehicle is one which carries people around 50 in number from one place to another for a price. The Bus will be driven by a trained and licensed person whose job is only designated to drive the vehicle in the already planned routes. Another person in the vehicle is authorized to
sell the tickets to the commuters at different rates depending upon the
distance of travel and other paper work. In addition, the responsibility of
safety of passengers at the time of alighting and boarding the bus by
signaling the driver (manually until automation) falls in the purview of this
person. The person who performs this job is known as conductor; by gender
the female performing this job is called as women conductor. This central
person or group presents this study. Permanent employees are those who are
on pay roles of the organization and draw salary on scale basis.

Whereas, the trainees are recruited under apprentice basis for a period
of two years on probation, with a consolidated pay of Rs. 2400/- per month
excluding OT (over time duty) pay. Approximately they get Rs. 3000/- per
month. They are considered as permanent employees or their probation term
may be extended.

ii). Commuter:

A person who travels by public transport, here in this study the BMTC
regularly from his/her place of residence to work or any other destination is a
commuter. This commuter would buy tickets or would possess bus pass to
travel legally and is not a ticket less traveler. This component is essential
because ticket and pass enables the person to either have interaction or will
be able to observe the behavior of conductors while in transit.

In the study, regular commuters are consulted and data is obtained
from them along with irregular or occasionally travelling people.

iii). Administrators of BMTC:

Administrative officials who are in direct contact with the conductors
like Labour Welfare Officer, Chief Traffic Controller, Depot Managers, Traffic
inspectors and Assistant Traffic Managers come under this category. These
officers were also consulted to obtain relevant data for this study.
2.3 Variables:

After the overview of available literature on the issues pertaining to working women, it is evident that there is plethora of information and literature available. However, it is true that there are no single issues or limited issues disturbing working women. These issues are already confounded and studying such phenomena is not an easy task. It one tries to probe into one issue then slowly it starts unfolding itself and many more multidimensional concerns start haunting and bothering which are equally important to understand and need solutions. To make the study practicable and the issues which can be addressed in a framework and with all limitations with regard to existing resources like, time, money, man power, man hours, academic and administrative limitations the following dependent and independent variable have been identified.

**Dependent Variables:**

a. Problems of Occupational Stress.
b. Personal and Family health (Both Physical and social).
c. Job Satisfaction.
d. Efficiency.
e. Societal Perceptions.

**Independent Variables:**

a. Age.
b. Education.
c. Income.
d. Length of service.
e. Family adjustments.
f. Marital status.
g. Timings of work.
h. Work environment.
i. Views and perceptions of Administrators.
j. Public perceptions and response.
All available forms of analyses are being carried on based on these dependent and independent variables.

2.4 Methodology:

A systematic inquiry and application of appropriate methods, which have an important bearing on the collection of reliable and accurate data is very much necessary for research. The main concentration of the present study is to make an intensive inquiry of various aspects of challenges of women workers in transport industry by the use of empirical approach. For the present study, data from both primary and secondary sources are collected and used.

The unit of study is an organization namely, Bangalore Metropolitan Transport Corporation [BMTC] in Bangalore city, Karnataka, India. Information about the research has been collected through personal interview of women bus conductors at various depots of BMTC, using questionnaire method.

a) Source of data:

The study involves the data collected from the primary as well as secondary sources. The primary data were collected from the BMTC women bus conductors, Commuters and Officers of the organization.

The secondary data were collected from the files, records, and annual administrative reports of the organization. Other sources of secondary data were collected from BMTC central office, KSRTC Central office and KSRTC library, Labour Department, Government of Karnataka. Journals, Monographs published by Central Institute of Road Transport, Pune, Books and other unpublished research materials having a bearing on the present study, Libraries of Bangalore University, ISEC, NIAS and other institutions.

Various E-journal Database provided by UGC e-consortium were like Ebsco, Emerald, Springer, Kluwer, J-gate and many other e-journals data bank, annual review, Questia, Google scholar, etc. were made use of for the
purpose. The University software to locate books and sources in Bangalore University library, the OPAQ was used regularly to obtain data.

b) Tool development:

The primary data has been collected from women bus conductors, commuters and officers of BMTC, constituting the major source of primary data for the study. For this purpose 3 comprehensive interview schedules intended to be the principal instruments for obtaining necessary information were prepared;

1) Women bus conductors.
2) Commuters.
3) Officers of BMTC.

The questionnaires were put to pilot study comprising 30 women conductors and 20 commuters. The questions which were reported as inappropriate and difficult to understand and which had poor response were revised and reframed to meet the requirements.

The interview schedule for women bus conductors (respondents) consisted of 6 parts. The first part dealt with socio-economic background of the respondents including personal data, the second part dealt with motivational factors, job satisfaction and working environment, the third part of the questionnaire dealt with professional challenges, fourth part dealt with personal and household challenges and fifth part with opinion of wider society on respondent’s occupational positions.

Separate schedules were used for the commuters to assess the opinion of the commuters on respondents’ service and similar schedule was used to get opinion of BMTC officers on respondents.

c) Study area:

The study area covered Bangalore city limits of 40 sq kms, the details of which is graphically presented.(annexure no
About Bangalore:

Bangalore is the capital of the Indian state of Karnataka located on the Deccan Plateau. It is situated at an average of 3018 feet above sea level and covers an area of 741 Kms. With an average annual rain fall of 1217 mm. It is India’s third most populous city and fifth most populous urban agglomeration. It is popularly known as Silicon Valley of India because of its position as the nation’s leading IT exporter.

Bangalore got its name from the expression “Benda kalooru”, which means “the place of boiled beans”, in Kannada, the City’s main, official language. It was founded by a local chieftain Kempegowda in 1537 and in course of time it formed part of Tippu Sultan’s domain, ranking second only to his capital Srirangapattana, was fortified and became a flourishing commercial centre. Being a strategic point in the central part of South India, the British entered Bangalore and transformed it into a civil and military station in 1809. By 1831, the administration of the city was taken over by the British. In 1862 two independent municipal boards were established. Bangalore city Municipality in the West and Bangalore Civil and Military Station Municipality in the East, Later both were merged (http://en.wikipedia.org, 2010).

Bangalore stepped into the modern world in the late 20th century and in just about a few decades saw an all-round, unprecedented development in IT industry, education, science and technology and in many more fields.

The industrial development gathered momentum in the 1930’s, with the establishment of a number of industrial units and after independence came the giant public sector units like, HAL, BEL, BHEL, HMT, BEML, ITI and other state owned public sector units. And then the burst upon Bangalore with a bang was the Information Technology (IT). Thus, about mid-90’s. Aerospace, telecommunications and defense organizations were located in the city. The major IT BT companies such as Infosys, Wipro and Biocon are situated in Bangalore. With that, the City leapt straight on to the international scene (World Gazetteer, 2010).
The impact of IT explosion in the City is there for all to see and feel. To take one example, it contributed a handsome 35 percent of the country’s software exports in 2005-06.

It is only natural that this furious development has been accompanied by an equally furious increase in population, changing the City’s social, cultural and economic profile as never before. The population was a mere 1.6 lakhs in 1901, which jumped to 4 lakhs in 1941, to 10 lakhs in 1951 and 17 lakhs two decades later. It further rose to 29 lakhs in 1981 and 33 lakhs in 1991 and 43 lakhs in 2001 and now in 2011 it is estimated to 70 lakhs. Bangalore is a major economic and cultural hub and fastest growing major metropolis. The growth rate of Bangalore city has risen to 38 % during the 1991-2001 next to New Delhi. Today Bangalore is the country’s fifth largest city in India.

Employment opportunities are increased due to concentration of industries in Bangalore which has attracted people to migrate from different parts of Karnataka and India to Bangalore. It is well connected by Railways, national Highways and International Airport. Many educational institutions established in and around the city have contributed for large scale skilled labour available in the labour market.

Interestingly, or rather regrettably, the rate of population explosion has been overtaken by the rate of growth of vehicles. The number of vehicles went up from four lakhs in 1987 to 22 lakhs in 2005, with two lakhs of them being added ever year.

The main modes of communication are two and three wheelers, cars and public transport. The public transport is provided solely by BMTC, which plays a key role in the City’s social and economic life.

The study area of this research is situated in and around of Bangalore city, this comprises of 40 sq km geographically. This is very vast area where the BMTC consists of 36 depots and 1100 women conductors scattered in these depots. For the convenience of collecting data the researcher has used
the stratified sampling technique. The researcher has divided the study area in 5 parts (North, South, West, East & Central) for collecting data. Therefore the researcher has selected 20 depots from the above divisions and has chosen 15 respondents from each depot, where the sample size is fixed to 300. For the collection of primary data from the samples the researcher had to visit all the depots where the women conductors are working. Prior to this the researcher has got the permission of depot managers from each selected depots and met the women conductors. In this stage the researcher has put lot of time, energy and patience and also interacted with samples very carefully, in explaining the purpose and need of research.

**d) Sample design:**

Based on the requirements of the study, a target population was identified and based on the operational definition of a ‘woman conductor’. The organization selected for the purpose of the study is the BMTC. For the convenience of collecting data and ensuring the representativeness of the sample, stratified random sampling technique was used. The universe of study consists of women conductors in public transport especially in connection with BMTC. The details of the organization and the personnel are spelt in chapter 4. The following information is drawn for extracting sample.

By the year 2010, a total of 1100 women conductors were recruited (both permanent and Trainees) and some more appointments were made subsequently. Out of 1100 women conductors in this study 300 respondents sample has been selected, which constitutes 27 percent of the total workforce of women bus conductors in BMTC. Among these selected 300 samples, 250 are permanent employees and 50 are trainees. The BMTC has 36 depots in Bangalore out of which 20 depots are selected further; samples are randomly drawn from the 5 divisions namely- North, South, East, West and Central of Bangalore city. From every division 60 samples were randomly selected and out of which 60 samples were again randomly selected 15 samples in each depot. The following table gives the details. Though each zone has different number of women conductors it is not equally distributed, and hence the
sample drawn is also not proportionate, rather it is stratified random sample technique, giving proper representation, based on geographical locality, class and people or commuters background.

### TABLE 2.1: SAMPLE STRUCTURE FROM DIFFERENT DEPOTS

<table>
<thead>
<tr>
<th>Sl.No.</th>
<th>Divisions</th>
<th>Samples from each Depots</th>
<th>Total sample in division</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>North zone</td>
<td>15 15 15 15</td>
<td>60</td>
</tr>
<tr>
<td>2</td>
<td>South zone</td>
<td>15 15 15 15</td>
<td>60</td>
</tr>
<tr>
<td>3</td>
<td>East zone</td>
<td>15 15 15 15</td>
<td>60</td>
</tr>
<tr>
<td>4</td>
<td>West zone</td>
<td>15 15 15 15</td>
<td>60</td>
</tr>
<tr>
<td>5</td>
<td>Central zone</td>
<td>15 15 15 15</td>
<td>60</td>
</tr>
<tr>
<td></td>
<td>Total sample</td>
<td></td>
<td>300</td>
</tr>
</tbody>
</table>

1. **North Zone** situated in north of the Bangalore city where 4 depots are selected. They are,
   a) Depot - 8, Yeswanthapura.
   b) Depot - 9, Peenya.
   c) Depot - 11, Yelahanka.
   d) Depot - 26, Yeswanthapura.

2. **South Zone** situated in south of the Bangalore city where 4 depots are selected. They are,
   a) Depot - 4, Jayanagar.
   b) Depot -12, Kengeri.
   c) Depot - 13, Katriguppe.
   d) Depot -21, Rajarajeswari Nagar.
3. **East Zone** situated in east of the Bangalore city where 4 depots are selected. They are,
   a) Depot - 19, Electronic city.
   b) Depot - 23, Kalyana Nagar.
   c) Depot - 24, K R Puram.
   d) Depot - 25, H S R layout.

4. **West Zone** situated in west of the Bangalore city where 4 depots are selected. They are,
   a) Depot - 16, Deepanjali Nagar.
   b) Depot - 17, Chandra Layout.
   c) Depot - 28, Hebbel.
   d) Depot - 31, Sri Gandada Kauvalu (Summanahalli).

5. **Central Zone** situated in central of the Bangalore city where 4 depots are selected. They are,
   a) Depot - 2, Shanthi Nagar.
   b) Depot - 3, Shanthi Nagar.
   c) Depot - 6, Indira Nagar.
   d) Depot - 7, Subash Nagar.

**e) Data analysis:**

Enquiry is essentially in the nature of qualitative study. The process of collecting, organizing and classifying information in order to arrive at reliable inferences is the aim of the task of data analysis. To aid this various Statistical techniques of Univariate analyses like averages, percentage, tables, the data obtained from the primary source are presented in tabular form of frequency,
and cross tables of $I \times I$ and $n \times n$ multivariate cross tables. The analyses of data will be better in the more segmented cross tables with advanced statistical tools. Statistical packages like SPSS, MS office excel statistical and other Bivariate and Multivariable analysis are incorporated.

**f) Time Schedule for Data collection:**

The problem in collecting data was not a small one. As the respondents are all working and obtaining information or seeking appointment and discussing the issues of research was not all that easy. There were times when problems of permission from higher authorities and reluctance of respondents to reveal the realities pertaining their professional and family issues arose. By and large researcher had scheduled the collection of data to be over by 6-9 months. As designed, the primary data collection was carried out in around 7 months, 6 months was used for data collection from women conductors and 15 days for commuters and around a week for officials, of course with prior appointment.

**g) Data representation and analysis:**

The primary data collected is presented both in tabular and graphical forms.

Tables ranging from Univariate, Bivariate ($1 \times 1$) and Multivariate ($n \times n$) are used depending upon issue, data and gravity of the variations visible. Data wherever, required were dissected to probe the matter more sociologically by introducing many more independent variables. Graphs which explain better than tables were used in appropriate places with continuous and discrete data, especially where they are not clubbed into groups. It is interesting to understand and also to analysis through Box plots, scatter diagrams along with bar charts, pie charts, and the like. The trends and patterns are more visible and easily understandable through such graphs.

Statistical analyses were made especially where there are associations between the variable are carried out to understand the objectives of the study.
and also to prove or disprove the hypotheses of the study. Statistical analyses ranging from Univariate, Bivariate to multivariate are carried out to understand the dependency syndromes of ever changing and fluid social realities.

Similarly, theoretical analyses are inferred on the basis of the already formulated theoretical foundations along with new dimensions which have emerged in the subsequent studies. It is however not an attempt to visualize the problem from any single theoretical framework, rather multiple theoretical approach was adopted to explain different phenomena as no single theory or frame can explain all the trends and developments.

Conclusion and suggestions are drawn based on multiple perspectives of data, studies and experiences of both existing and already said in literature. In addition futuristic postulations are drawn keeping the probable changes that are emerging in all fields so far.

Women are no longer a weaker sex and subjugated entity, they on the contrary have proved beyond doubt that they can challenge both nature and social constraints in terms of potential to perform and excel.

It is only a matter of time and social stigma which are holding them with chains. Nevertheless, any society, modern, or tradition or a society like India which is in transition has not remained silent. The responses to all such challenges are the testimony to their potential and ability to prove beyond time and space.
2.5 Objectives of the study:

1. To understand the socio-economic profile of women workers of transport industry.

2. To understand the factors responsible for their entry in to the industry.

3. To understand the need for change in the structure of the transport workforce with reference to gender (feminization).

4. To access the kind and level of difficulties, as well as harassment faced by the women conductors.

5. To study the impact on their social and health aspects because of their dual role and occupational stress.

6. To understand the commuters’ response to the women conductors.

7. To study the impact on the organization in terms of performance, quality of work, service and profitability.

8. To understand the legislation in this regard and to make necessary suggestions.
2.6 Hypotheses of the study:

To have a clear cut idea and focused approach following hypotheses are formulated which need to be proved true or disproved as null hypotheses.

**H1:** Economic aspect is the major aspect which is forcing women to work outside their household, which include income rising to meet expenditure, and to manage the increase in the cost of living.

**H2:** Education, awareness and opportunities (legislative) have opened new spaces for women apart from conventional work place.

**H3:** Financial and social freedom is the significant aspect which drives women to work

**H4:** Women conductors tend to face more problems than any other working women

**H5:** Women conductors are forced to perform dual roles without relaxation

**H6:** The organization is performing better in all aspects.

**H7:** Commuters are satisfied with the women conductors with respect to their service.

**H8:** Women conductors are more committed to their job than their counterparts.
2.7 **Statement of the problem:**

The transport sector has long been considered men’s working world. Women were away from transport employment till recently. From 2-3 decades women have rushed to the transport workforce and they have concentrated in lower strata in this workforce especially as bus conductors in different parts of the country. The nature of work in transport industry is entirely different from other occupations. They have to work in different shifts; women working with male counterparts, more interaction with public, and lack of leisure, etc… in this background traditional Indian women are inevitably entering to this sector due to the socio-economic conditions. Since the women are working in new environment facing many challenges and problems and the socio-economic force behind has led them to enter this occupation and also seek job satisfaction.

The study has also focused on occupation stress and health hazards due to their dual role and their problems regarding rearing of their children and difficulties in their domestic work. The study also focused on the perspective of the society about the women who work in the men’s working sector.

The study also made an attempt to assess the quality of the work of women bus conductor in transport sector. The opinion of commuters, administrative officers of the BMTC organization and the views of the wider society has taken into consideration regarding their work efficiency. Finally this thesis evaluates the changing structure of the working force in India scenario.

2.8 **Field experience:**

Field investigation is an important step in the process of sociological research. Scientific research requires accurate and objective data for concerned research area. The main purpose of the research is to find the truth which may not exists in a way one wishes to see in a particular field.
Collecting data for research within a limited period of time was one of the challenging tasks for the researcher.

While collecting the data from the field the researcher has come across many difficulties, challenges and obstacles. The major obstacles have been shared in this study, so that this might reflect light on the future research in this field.

2.8.1 Nature of work and shift timings:

Another important challenge for the collecting data from the field is nature of work and shift timing of women conductors. BMTC has assigned different shifts from 6.00 AM-10.30 PM especially for women conductors. The women conductors who generally go for the 1st shift early in the morning need to be present in the depot 30 minutes prior to the shift schedule to collect the bags, trip sheets and other materials. Owing to this the respondents were not responding for collecting the data due to the work pressure. This situation was repeated in all trips, hence the researcher could not find sufficient time to interact with samples. Apart from this the nature of work of the samples is mobile and busy interacting with commuters, therefore the researcher could not get the chance to collect the data while they are on duty. Moreover the BMTC organization doesn’t provide permission to collect or interact with them. Owing to this the researcher sometimes spent whole day at depots to meet the respondents. In the last shift (10.30 pm) the samples did not like to spare time due to hurry returning home. When the researcher requested them to respond some respondents replied, social complications may rise due to the attitudes of their husbands and family members. Most of the respondents were socially and culturally still backward and there exist social stigma over working women in the society.

Therefore samples would not like to spend time after their work completion. Despite such difficulties, the researcher has taken this step as a challenge and collected the data and spent lot of time and maintained patience throughout the process.
2.8.2 Anxiety and shyness attitudes of the respondents:

During the collection of data, the researcher has observed that the respondents had anxiety and shyness attitudes while giving their opinions. When some questions were asked regarding, attitudes of higher officials, co-workers, sexual harassment and grievances about the organization, the respondents were reluctant or completely denied to answer openly.

In the same way for questions regarding their family members (husband & family members) freedom to spend salary and about some health issues, the respondents expressed anxiety and shyness. By this attitude researcher was not satisfied about the responses provided by the respondents.

2.8.3 Problems beyond the hypotheses of the study:

Researcher found some of the problems which are not touched in interview schedule, even though the pilot study was conducted. Among them some of the problems are identified to the nature of work.

Researcher observed that the marriages of the respondents were delayed due to the nature of work and in some cases it is found that the working women in this profession are getting late marriage and are prone to divorce. The problems regarding health issues were expressed from respondents to researcher, which were not asked in the questionnaire.

From the above experiences, researcher expresses that; he has accumulated the data regarding the women conductors’ successfully with a great hard work, patience and interest. Researcher from the close observations of the respondents has identified several problems existing but could not cover all the problems due to the need to confine to the limits of the framed hypothesis and also due to time limitation. Researcher is interested to share the knowledge with the persons who are interested to proceed with the research in this field.
2.9 Limitations of the study:

1. A number of issues chosen for an in depth study in this research work are purely of a highly personal nature, too delicate and private. Some of the responses collected analyzed and reported in this may lack accuracy. However, every conceivable effort is made to check up veracity of the statements of this research study.

2. Collecting data from the samples of this study was another challenge faced. The respondents are working in different shifts from 6 am to 10 pm and they were always on the move, since they are in the bus for work. Moreover, it is not easy to collect information especially when they are on duty, since they find very little or no time at all while issuing tickets to passengers. Hence, it was very difficult to interview them for long duration for collecting data frequently.

3. This study has been confined to the road transport industry only. It is pertaining only to women working in road transport sector especially those employed in the BMTC. This is because the problems of women in other transport industries like airways, railways, waterways might not be similar to the working conditions of women in the road transport sector. Women bus conductors of BMTC have been considered as a case study in this study.

Conclusion:

The methodological questions which arose in this chapter, and the way the researcher went about collecting information from the respondents has been a very difficult, yet fulfilling experience. The methodology selected to garner information from the respondents has been apt in collecting the desired information in keeping with the spirit of scientific enquiry.