

## **Chapter 4: Research Methodology**

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### 4.1 Introduction to Research Methodology

The research methodology guarantees that the study follows rigorous scientific standards and provides a clear rationale for selecting the specific methods and tools employed. The choices made during the research process—whether in selecting participants, collecting data, or choosing analytical techniques—are critical for answering the research questions and achieving the study's objectives.

Research methodology is defined as a systematic approach employed to conduct research in a scientifically sound manner. It outlines the steps, strategies, and techniques used to collect, analyze, and interpret data to address a specific research problem. A well-structured research methodology ensures the reliability, validity, and accuracy of the research findings, and it provides a clear path along with framework for the entire study.

In the context of this research, which investigates the factors influencing brand switching behaviour in the prepaid telecom sector in South Gujarat, the research methodology plays a critical role in defining the approach taken to examine the various influences on consumer behaviour. This chapter provides a detailed explanation of the methodology used to explore consumer decision-making processes, particularly focusing on why certain prepaid telecom users decide to remain loyal to their service providers while others opt to switch brands.

The research methodology for this study includes several important components, such as:

1. **Research Design** – This sub section outlines the overall approach to the research, specifying whether the study is exploratory, descriptive, or explanatory in nature. The research design guides the structure and flow of the study.
2. **Sampling Plan and Methods** – Here, the sample size, sampling frame, and selection criteria for participants are discussed. The sampling method ensures that the sample is representative of the target population and that the data collected will be reliable and meaningful.
3. **Data Collection Methods** – This part describes the instruments used for gathering data, such as surveys or interview. The process of designing the questionnaire, including item selection and structure, is outlined in this section. The nature of questions included, and the type of data to be collected from respondents.
4. **Data Analysis Techniques** – After collecting data, the next vital step is to analyze the data and to derive insights. This section explains the statistical tools and techniques,

such as regression analysis, factor analysis, and correlation analysis, used to process and interpret the data.

5. **Hypothesis Testing** – This part covers the formulation of hypotheses on the basis of study of literature review and theoretical frameworks. It also explains the process for testing the validity of the hypotheses through various statistical tests.
6. **Ethical Considerations** – The methodology section includes information on how ethical standards were upheld during the study, including participant consent, data confidentiality, and adherence to ethical guidelines.

Each of these components contributes to creating a coherent structure that ensures the research objectives are met, data is collected in a rigorous manner, and results are interpreted with scientific precision. The methodology chapter provides transparency in how the research was conducted, allowing other researchers or stakeholders to assess the study's validity, reliability, and applicability.

The research methodology not only ensures that the study is based on sound scientific principles but also justifies the choice of research methods and tools used. The choices made during the research process—whether in selecting participants, collecting data, and choosing analytical techniques which are critical for answering the research questions and achieving the study's objectives.

#### **4.1 Research Problem**

In the highly competitive prepaid telecom market, brand switching behavior presents a significant challenge for telecom operators, especially in dynamic urban areas like South Gujarat. Despite the availability of multiple mobile service providers, the prepaid segment faces persistent churn, with many consumers frequently switching brands. The telecom industry in South Gujarat is marked by fierce competition among major players such as Jio, Airtel, Vodafone-Idea, and BSNL, each offering similar prepaid telecom products and services. As a result, customer retention becomes a critical problem for these operators, with the constant threat of customers leaving for better deals or improved services offered by competitors.

Brand switching behavior is a key area of focus for telecom companies, as it directly impacts profitability, customer base stability, and overall brand loyalty. Understanding the reasons behind this behavior is crucial for operators seeking to improve their customer retention strategies and minimize churn. While a considerable amount of research has been conducted on brand loyalty and switching behavior in various industries, the prepaid telecom sector,

particularly within the context of South Gujarat, remains underexplored. Many studies have focused on large-scale, pan-India data but often overlook the regional variations and unique factors that influence consumer decisions in specific locations like South Gujarat.

The problem lies in the complexity of factors that influence a consumer's decision to switch telecom brands. In South Gujarat, customers' motivations for switching may stem from a combination of price sensitivity, network coverage issues, poor customer service, and the ever-changing promotional offers from telecom companies. Furthermore, Social influences, including peer pressure, familial recommendations, and individual experiences, have been shown to play a pivotal role in shaping consumers' brand switching decisions. The diversity of the customer base in South Gujarat, including different income levels, ages, educational backgrounds, and cultural influences, adds another layer of complexity to the issue.

At the same time, many telecom companies in South Gujarat may lack a deep understanding of the specific reasons behind this churn. Without proper insight into why customers are switching, telecom operators are at a disadvantage in creating effective retention strategies. Some operators may focus on price-based offers, while others may emphasize network performance, but both approaches may miss the mark if they do not align with what consumers in South Gujarat truly value when making their decision. Consequently, standardized approaches to customer retention often yield limited effectiveness, as they fail to account for the diverse needs and preferences of different consumer segments.

This study aims to address this gap by systematically identifying and analyzing the key factors driving brand switching in the prepaid telecom market within South Gujarat. By exploring both tangible aspects, such as pricing and network quality, as well as intangible factors, such as consumer satisfaction, trust, and emotional attachment to the brand, this research will provide a comprehensive understanding of the problem. Understanding the reasons behind brand switching at a local level will not only offer valuable insights to telecom operators in South Gujarat but also contribute to broader marketing and customer retention strategies that can be applied in other similar urban markets.

### **Problem statements identified by telecom companies in current blood bath in competitions**

1. To retain and enhance consumer loyalty there by reducing the threat of secondary brand switching companies are offering attractive packages, which affect the profitability of primary prepaid companies.
2. Basic brand switching decisions in prepaid telecom is done by customers on assessing determinants like network and connectivity issues, commitment failures, price

inconveniences and dissatisfaction in customer service, lower schemes and benefits as compared to competitors.

3. Brand switching behavior of customers in prepaid telecom is increasing day by day due to above reasons and hence companies are facing many problems like customer churn, loss of market share and low profitability.
4. Heavy competition and free voice calling and free Daily 2GB data plans provide by the competitors

Moreover, there is a need to identify the broader implications of brand switching, such as how it affects the profitability of telecom companies, their market positioning, and the overall competitive landscape. While some consumers may switch brands in response to promotional offers, others may leave due to dissatisfaction with customer service or the inability of their current provider to meet their evolving needs. Therefore, a more holistic approach is required, one that considers a range of factors—from service quality and pricing to customer service experiences and brand perceptions—that influence a consumer's decision to switch.

In summary, the research problem centers around understanding the multiple factors driving brand switching behavior in the prepaid telecom sector within South Gujarat. By analyzing the specific causes of churn, current study aims to provide actionable insights that telecom companies can use to enhance their customer retention efforts, improve service offerings, and tailor make their marketing strategies to better cater to the needs of consumers in South Gujarat.

## **4.2 Research Questions**

This study seeks to investigate the factors that influence brand switching behavior in the prepaid telecom market across the districts of South Gujarat. The key questions are as under :-

1. **What are the primary factors influencing brand switching among prepaid telecom consumers in South Gujarat?**

This question seeks to identify the main drivers, such as pricing, service quality, and customer experience, behind brand switching.

2. **How do pricing, customer service, and network quality impact brand switching decisions?**

This question explores the role of key service aspects like pricing, network reliability, and customer service in influencing consumer decisions to switch brands.

3. **Does there exist a relationship between demographic factors (age, income, education) and brand switching behavior?**

This question examines whether certain demographic groups have more propensity to switch brands based on demographic factors such as age, income, and education.

4. **What role do promotional offers and advertisements play in brand switching behavior?**

This question assesses how marketing communications, including promotional deals and ads, affect consumers' brand-switching decisions.

5. **How does customer satisfaction, trust, and perceived value influence brand switching?**

This question explores the impact of psychological factors viz- satisfaction, trust, and perceived value on consumers' decisions to switch brands.

#### **4.3 Research Objectives**

The primary objectives of this study are:

1. **To identify the factors affecting brand switching behavior of current mobile users** – The study will analyze the key determinants that lead consumers to switch from one prepaid telecom brand to another.
2. **To analyze the preference and behavior of consumers in the context of brand switching** – This will explore how consumer preferences influence their decision to switch telecom brands and the behavior patterns involved.
3. **To analyze the problems faced by the customers leading to churn in and churn out from the prepaid mobile service providers** – The research will identify the common issues that drive consumers to discontinue services with their current provider and seek alternatives.
4. **To analyze the relationship between age and brand switching behaviour** – The study will investigate if demographic factors, particularly age, plays an important role in influencing consumers' decisions of brand switching for prepaid telecom.
5. **To recommend strategies through which cellular networking companies can create customer loyalty** – Based on the findings, the research will suggest strategies that telecom companies can implement to reduce churn and enhance loyal base of customers.

#### 4.4 Hypotheses

Based on the research objectives, the following hypotheses will be tested:

- H11: Price sensitivity significantly influences brand switching in the prepaid telecom market in South Gujarat.
- H12: Service quality, including network reliability and customer service, significantly affects brand switching behavior.
- H13: Promotional offers and marketing strategies significantly influence consumers' decisions to switch brands.
- H14: Demographic factors like age, income, and education levels are correlated with the likelihood of brand switching.
- H15: Higher levels of customer satisfaction and trust reduce the likelihood of brand switching.

#### 4.5 Research Design

The research design of the study is both Exploratory and Descriptive in nature as per the definition of exploratory research which states that Exploratory research is a type of research conducted to investigate a problem or situation when there is limited existing knowledge. It's used to gain insights, generate ideas or formulate hypotheses for further study and not provide conclusive answers too. Here the study explores the important factors, which are influencing the Churn behavior of consumers. The study does not limit itself with the external factors such as Delight, Product, Service etc., but also includes some of the intrinsic factors related to the consumers such as educational background, geographical location, socio economic background, gender etc.

The study is also Descriptive in nature as the research tries to describe the characteristic of the consumers and also the reason for consumers staying with the same service provider or switching from one service provider to another.

The research design for this study is **descriptive** in nature, aimed at providing a detailed account of the factors influencing brand switching behaviour among prepaid telecom consumers in South Gujarat. Descriptive research is used when the objective is to describe the characteristics of a particular phenomenon or the relationship between variables. In this study, the goal is to identify and describe the key factors that drive consumers to switch from one telecom provider to another, as well as to explore the reasons why some consumers remain loyal to their current providers.

This approach is suitable because it helps to understand the "what" and "why" behind consumer actions without manipulating variables or trying to establish causal relationships. Rather than hypothesizing about cause-and-effect relationships, this study focuses on examining the existing factors influencing consumer behaviour and reporting these factors in a clear and systematic way.

The descriptive research design allows for the collection of quantitative data to determine the prevalence of specific behaviors, attitudes, and opinions about telecom services. It also accommodates qualitative insights to gain a deeper understanding of consumer motivations, experiences, and perceptions regarding brand switching.

Through this design, the research will systematically describe consumer characteristics, behaviour patterns, and preferences that are correlated with brand switching. It will also assess how factors like price sensitivity, service quality, network reliability, customer satisfaction, and trust influence brand loyalty and switching intentions.

This design is particularly useful for identifying the key drivers of brand switching, such as network quality, service dissatisfaction, price sensitivity, and psychological factors (e.g., satisfaction, trust). By providing a clear and objective description of these factors, this approach allows telecom companies to identify areas for improvement and devise strategies that address the specific needs of their customer base.

#### **4.5.1 Rationale for Descriptive Research Design**

The descriptive research design was chosen for this study because it enables a comprehensive analysis of the current state of brand switching behavior without manipulating variables or introducing experimental conditions. It allows for the collection of both qualitative and quantitative data that can be used to describe consumer preferences, experiences, and perceptions in detail.

This design is particularly useful for identifying the key drivers of brand switching, such as network quality, service dissatisfaction, price sensitivity, and psychological factors (e.g., satisfaction, trust). By providing a clear and objective description of these factors, this approach allows telecom companies an opportunity for identifying areas for improvement and devise strategies that address the specific needs of their customer base.

Unlike experimental research designs that attempt to establish cause-and-effect relationships, descriptive research is ideal for capturing and reporting consumer behavior in its natural setting. In the case of prepaid telecom users in Surat and surrounding areas, a descriptive approach will provide valuable insights into why consumers choose to switch from one brand

to another and how various factors, such as service quality and pricing, influence their decision-making process.

#### **4.5.2 Rationale of Exploratory Research**

The rationale for adopting an exploratory research approach in this study stems from the limited availability of prior research specifically focused on consumer brand switching behavior in the South Gujarat zone. While brand switching has been widely studied in broader contexts, regional variations — driven by cultural, economic, and demographic differences — remain underexplored. Exploratory research allows for a flexible and open-ended investigation into the key factors that influence consumer decisions to switch brands in this specific geographical setting. This approach enables the researcher to identify emerging trends, develop a deeper understanding of consumer motivations, and generate insights that can guide future empirical or quantitative studies. It is particularly suitable for uncovering variables and patterns that may not be evident through a structured or hypothesis-driven methodology.

The key points of the above Rationale for Exploratory Research are as under

1. Lack of existing localized studies which are South Gujarat Focus.
2. Need to identify **unknown or context-specific factors**
3. Want to explore **consumer motivations and behavior**
4. Setting the stage for future in-depth research

#### **4.6 Sampling Plan and Method**

The sampling plan plays a crucial role in the success of any research, as it determines the group of individuals from whom data will be collected. A well-designed sampling plan ensures that the sample accurately reflects the population, thus enhancing the generalizability of the research findings. This section outlines the sampling plan and sampling method employed in this study, providing a clear strategy for selecting respondents from the prepaid telecom user base in the South Gujarat region.

##### **4.6.1 Population and Sampling Frame**

The population for current research topic consists of prepaid telecom users in South Gujarat, specifically from the 4 cities of Surat, Navsari, Valsad, and Vapi. These four cities were chosen because they represent diverse demographics, with a mix of urban and semi-urban populations, making them ideal for understanding consumer behavior in the prepaid telecom market.

- **Prepaid Telecom Users:** The population includes individuals who currently use or have used prepaid telecom services in these cities, with a focus on consumers who have switched brands or are likely to switch.
- **Sampling Frame:** The sampling frame is a broad representation of prepaid mobile users within these four cities. It excludes postpaid users and focuses on those who actively use prepaid mobile services.

#### 4.6.2 Sampling Method

Given the objectives of the study and considering the nature of the data collection, a non-probabilistic sampling technique known as quota sampling was chosen. Quota sampling is suitable because it ensures that specific demographic segments are adequately represented in the sample, without requiring random selection of individuals. This approach allows for the collection of data that is representative of various demographic groups, ensuring diversity in the sample while focusing on the specific research objectives.

- **Quota Sampling:** Quota sampling involves dividing the population into distinct subgroups (or strata) based on important characteristics (e.g., age, income, education level, gender) and then selecting a predetermined number of respondents from each subgroup. This technique ensures that the sample reflects the demographics of the population and helps avoid overrepresentation or underrepresentation of any group.

#### 4.6.3 Sample Size Calculation

The sample size for this study was determined using a confidence level of 99% and a margin of error of 4%. This ensures that the results are statistically reliable and have a high degree of accuracy.

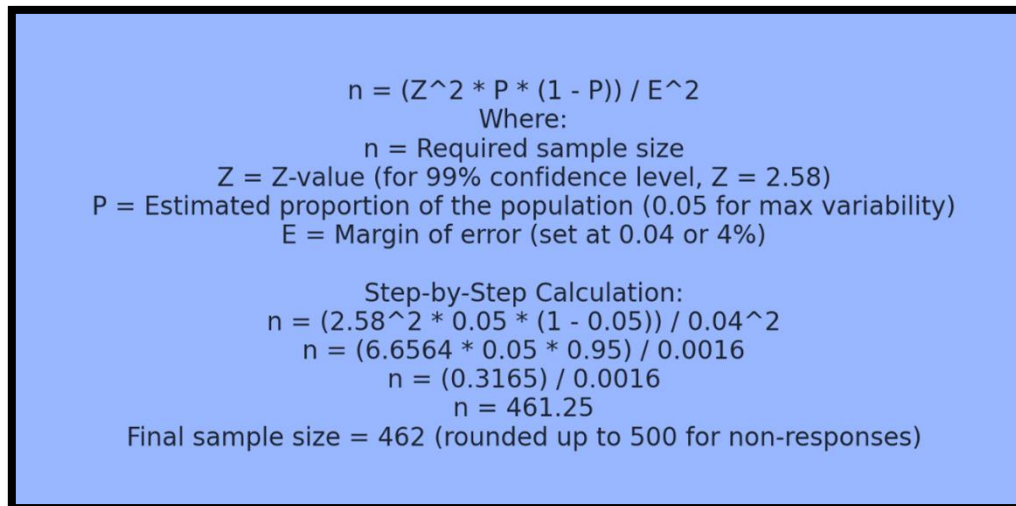
The formula for sample size calculation for a finite population is:

Sr no	Name of city	Population
1	Surat	5204090
2	Navsari	187464
3	Valsad	190596
4	Vapi	133528
	Total	5715678

Source of data <http://www.indiacensus.net/states/gujarat>

### Method for sample size calculation

- For Confidence Level:99%  $Z=2.58$
- Population Size: 5715678 ,Margin of Error: 4%
- Ideal Sample Size: 461 rounded off to sample size of 500 respondents


$$n = (Z^2 * P * (1 - P)) / E^2$$

Where:  
n = Required sample size  
Z = Z-value (for 99% confidence level, Z = 2.58)  
P = Estimated proportion of the population (0.05 for max variability)  
E = Margin of error (set at 0.04 or 4%)

Step-by-Step Calculation:

$$n = (2.58^2 * 0.05 * (1 - 0.05)) / 0.04^2$$
$$n = (6.6564 * 0.05 * 0.95) / 0.0016$$
$$n = (0.3165) / 0.0016$$
$$n = 461.25$$

Final sample size = 462 (rounded up to 500 for non-responses)

*Figure 2 Sample size Calculation*

The source of the above formula is from Statistical Methods for the Social Sciences by Agresti and Finlay.

Rounding up the sample size, the final sample size is set at **500 respondents**. The respondents will be selected from each of the four cities in South Gujarat as follows:

- **Surat:** 200 respondents
- **Navsari:** 100 respondents
- **Valsad:** 100 respondents
- **Vapi:** 100 respondents

These numbers were chosen to reflect the distribution of prepaid mobile users across different cities in the region.

#### 4.6.4 Inclusion and Exclusion Criteria

##### Inclusion and Exclusion Criteria

To ensure the sample represents prepaid mobile users effectively, the following inclusion and exclusion criteria were applied:

**Inclusion Criteria:**

- Consumers who have been using prepaid telecom services for at least 6 months.
- Individuals aged between 18 and 60 years.
- Consumers from Surat, Navsari, Valsad, and Vapi.

**Exclusion Criteria:**

- Post paid telecom users.
- Individuals who have not used prepaid telecom services or have used them for less than 6 months.
- Consumers outside the age range of 18-60 years.

**4.6.5 Data Collection Process**

Data collection will be carried out using **designed structured questionnaires**, which will be distributed to the respondents in the four cities of Surat, Navsari, Valsad, and Vapi. The questionnaire will consist of closed-ended questions (for quantifiable data) and open-ended questions (to capture consumer insights and experiences). A mix of online and offline surveys will be employed, with the survey being available both on Google Forms (for online respondents) and in paper format (for in-person respondents).

The respondents will be approached through public spaces, such as shopping malls, local telecom stores, and community events, to ensure a diverse sample. The survey will be administered by trained research assistants, who will explain the purpose of the study and ensure that respondents provide informed consent.

**4.6.7 Data Handling and Ethical Considerations**

To uphold ethical standards, this study follows key principles:

- **Informed Consent:** Participants will be fully briefed on the study's purpose and their voluntary involvement, with consent obtained prior to participation.
- **Confidentiality:** Personal information and responses will remain confidential and used solely for research purposes.
- **Data Security:** Data will be stored in password-protected files, accessible only to authorized personnel.

A quota sampling method will be used to select a representative sample of 500 prepaid telecom users from Surat, Navsari, Valsad, and Vapi, ensuring demographic diversity in age, income, education, and gender. Data will be collected via designed structured questionnaires using both online and offline methods. This sampling and data collection approach is

designed to ensure reliable, valid insights into brand switching behaviour in South Gujarat's prepaid telecom market.

The sampling plan for this study ensures that a representative sample of 500 prepaid telecom users is selected from the four cities in South Gujarat: Surat, Navsari, Valsad, and Vapi. The quota sampling technique will be used to ensure the sample reflects diverse demographic characteristics such as age, income, education, and gender. The calculated sample size of 500 respondents ensures the reliability and validity of the findings. Data will be collected through structured questionnaires, with a mix of online and offline survey methods. The study's sampling design and data collection approach aim to provide a comprehensive understanding of the factors influencing brand switching behavior in the prepaid telecom market.

#### **4.7 Sample Size Calculation**

Determining an appropriate sample size is essential for ensuring the reliability and validity of the study's findings. The sample size determines how well the sample represents the population, the accuracy of the estimates, and the statistical power of the analysis. In this study, a sample size of **500 respondents** was calculated using a **confidence level of 99%** and a **margin of error of 4%**. This approach ensures that the results obtained from the sample will be statistically significant and can be generalized to the larger population of prepaid telecom users in South Gujarat.

##### **4.7.1 Sample Size Distribution Across Cities**

The study will collect data from the four cities in South Gujarat, with the following proportional distribution based on their population size and expected number of prepaid telecom users:

- **Surat:** Given its large population, Surat will contribute **200 respondents**.
- **Navsari:** As a smaller city, Navsari will provide **100 respondents**.
- **Valsad:** Similarly, Valsad will contribute **100 respondents**.
- **Vapi:** The final **100 respondents** will come from Vapi.

This proportional distribution ensures that the sample includes a diverse set of participants across the different cities in the region.

## 4.8 Data Collection Methods

### Primary Data:

The primary data for this study will be collected through a structured questionnaire designed to measure consumers' attitudes, perceptions, and behaviors regarding brand switching in the prepaid telecom market. The questionnaire will consist of both closed-ended and open-ended questions. Closed-ended questions will focus on measurable data, such as service satisfaction, pricing sensitivity, and brand loyalty, while open-ended questions will allow respondents to elaborate on their reasons for brand switching or loyalty.

To ensure construct validity, the questionnaire will be designed based on previous studies and reviewed by experts in the field. A pilot test will be conducted with a small sample of respondents to refine the questionnaire and ensure that it effectively measures the intended variables.

### Secondary Data:

Secondary data has been sourced from academic journals, books, telecom industry reports, and relevant online sources. This data will help contextualize the findings of the study and provide insights into market trends, industry practices, and existing consumer behaviour models in the telecom sector.

## 4.9 Hypothesis Formulation and Testing

The study is designed to test the following **five hypotheses** related to brand switching behavior in the prepaid telecom sector:

- H0 (Null Hypothesis 1): There is no significant relationship between age and brand switching behavior in the prepaid telecom market.
- H1 (Alternative Hypothesis 1): There is a significant relationship between age and brand switching behavior in the prepaid telecom market.
- H0 (Null Hypothesis 2): There is no significant relationship between price sensitivity and brand switching behavior.
- H1 (Alternative Hypothesis 2): There is a significant relationship between price sensitivity and brand switching behavior.
- H0 (Null Hypothesis 3): There is no significant relationship between network quality and brand switching behavior.
- H1 (Alternative Hypothesis 3): There is a significant relationship between network quality and brand switching behavior.

- H0 (Null Hypothesis 4): There is no significant relationship between customer satisfaction and brand switching behavior.
- H1 (Alternative Hypothesis 4): There is a significant relationship between customer satisfaction and brand switching behavior.
- H0 (Null Hypothesis 5): There is no significant relationship between trust in telecom providers and brand switching behavior.
- H1 (Alternative Hypothesis 5): There is a significant relationship between trust in telecom providers and brand switching behavior.

### **Factor Analysis:**

Factor analysis will be employed to identify underlying dimensions of consumers' attitudes and behaviors toward brand switching. The Kaiser-Meyer-Olkin (KMO) test and Bartlett's Test of Sphericity will be used to assess the adequacy of the data for factor analysis.

## **4.10 Data Analysis Techniques**

The data collected through structured questionnaires will be analyzed using a combination of descriptive statistics, inferential statistics and factor analysis. These techniques are designed to provide a comprehensive understanding of the factors influencing brand switching behavior among prepaid telecom consumers in South Gujarat.

### **1. Descriptive Statistics**

Descriptive statistics will be used to summarize and describe the basic features of the sample data. This will help present the data in a more understandable and interpretable format, providing insights into the general trends and patterns observed in the sample. The following key descriptive statistical measures will be used:

- **Mean:** The mean (or average) will be calculated for quantitative variables, such as satisfaction ratings or price sensitivity, to get an overall idea of how respondents feel or behave on average.
- **Standard Deviation:** This measure will be used to understand the spread or variability of the data. A higher standard deviation indicates that the data points are more widely dispersed from the mean, whereas a lower standard deviation signifies that the data points are more closely clustered around the mean.
- **Frequency Distribution:** This technique will be used to summarize categorical variables such as gender, age group, or telecom brand preference. It will show how

frequently each category or value appears in the data set, providing a clear view of the distribution of responses.

These descriptive statistics will help identify key patterns and basic trends in the sample data, enabling researchers to report on the general characteristics of the respondents.

## **2. Inferential Statistics**

Inferential statistical techniques will be employed to draw conclusions about the broader population based on the analysis of sample data. These methods facilitate the testing of hypotheses and the evaluation of relationships between variables, enabling the determination of statistical significance. The study will utilize the following inferential statistical procedures

The following inferential statistical methods shall be applied

- A. Correlation analysis will measure the strength and direction of relationships between variables, such as price sensitivity and brand switching. A positive correlation indicates both variables increase together, while a negative correlation shows one increases as the other decreases.
- B. Regression analysis will examine the relationship between brand switching behaviour (dependent variable) and factors like price sensitivity, network quality, and customer satisfaction (independent variables). It helps identify key predictors and measure how strongly these factors influence switching decisions

**Hypothesis Testing:** Inferential statistics will also be employed to test the study's hypotheses. This will involve conducting Analysis of Variance (ANOVA) to compare the mean differences across groups—for example, examining variations in brand switching behavior among distinct consumer segments—and assessing whether these differences are statistically significant.

**3. Factor Analysis :** Factor analysis will be utilized to identify the underlying latent dimensions that influence brand switching behavior, thereby reducing the observed variables into a smaller set of interpretable factors. Since consumer decision-making is often driven by a complex set of variables, factor analysis will help simplify the data by grouping related variables together into factors. These factors can represent broader constructs such as:

- **Service Quality:** Combining variables like network reliability, coverage, and speed.
- **Pricing:** Combining variables related to price sensitivity and perceived value for money.

- **Customer Satisfaction:** Grouping variables like overall satisfaction, loyalty, and service experience.

By identifying these underlying factors, factor analysis will help uncover the key drivers of brand switching behavior and provide insights into the most vital aspects of the service that influence consumer choices.

- **Kaiser-Meyer-Olkin (KMO) Test:** The KMO test will be employed to assess the adequacy of the data for factor analysis. This measure evaluates the proportion of variance among variables that might be common variance. A KMO value closer to 1 indicates a higher degree of sampling adequacy and suggests that factor analysis is appropriate, whereas a value closer to 0 implies that the data may not be suitable for factor extraction.
- **Bartlett's Test of Sphericity:** This test will assess the null hypothesis that the correlation matrix is an identity matrix (i.e., no relationships between variables). A significant result suggests that the data is suitable for factor analysis.

#### 4. Validity Testing

To make sure the data and the study's results are trustworthy, reliability and validity testing will be conducted:

- **Validity Testing:** Validity testing ensures that the research instrument accurately measures the intended constructs. To assess construct validity, factor analysis will be conducted to verify whether the items group together in a manner consistent with the theoretical structure—ensuring that the questions align with and effectively measure the underlying factors they are intended to represent. ( example - specific factors like service quality or price sensitivity)

#### 4.10 Summary

Chapter 4 outlined the methodology of research used in this study, providing a detailed explanation of the research design, sampling plan, data collection methods, and data analysis techniques. This study adopts a mixed-methods methodology, integrating both exploratory and descriptive research designs to provide a holistic understanding of consumer behaviour to gain an overall holistic approach in understanding of the factors affecting brand switching behavior in the prepaid telecom market in South Gujarat. A sample size of 500 respondents will be selected from four cities in South Gujarat—Surat, Navsari, Valsad, and Vapi—utilizing a quota sampling technique to ensure a demographically diverse and representative

sample. Data will be collected using carefully designed structured questionnaires comprising both closed-ended and open-ended questions, facilitating quantitative analysis alongside the extraction of qualitative insights into consumer behavior. The analysis will involve descriptive statistics to sum up the sample data and provide an overview of trends, while inferential statistics, including correlation analysis and regression analysis, will be used to explore the relationships between various factors like price sensitivity, network quality, and customer satisfaction with brand switching behavior. Factor analysis will identify underlying factors such as service quality, trust, and perceived value that influence consumer decisions. Furthermore, reliability analysis will be undertaken to ensure the internal consistency and robustness of the survey instrument. Overall, the methodology is structured to examine the relationship between demographic and service-related factors and brand switching behavior, offering valuable insights into the dynamics of the prepaid telecommunications market of south Gujarat. To validate the factor structure, Principal Component Analysis (PCA) may be conducted to confirm the alignment of extracted components with the theoretical constructs underpinning the study.