CHAPTER-III

Research Methodology

3.1. Introduction

Research methodology generally consists of methods to enunciate a problem, to formulate hypothesis, to collect data and analyse facts and thereby reach conclusions in the form of solutions or generalizations (Kothari, 2004). The present chapter discusses the research methodology applied for deriving desired results for the study. This chapter discusses sampling design, data collection procedure, variables adopted to measure the objectives, the statistical techniques applied and hypotheses tested for the objectives.

3.2. Type of Research

Type of research refers to a systematic approach used to investigate a phenomenon, guided by the study's objectives and methodology. It defines the nature of data collection, analysis, and interpretation, ensuring the validity and reliability of findings (Kothari, 2004). Research can be categorized into various types, including analytical, empirical, quantitative, and qualitative, depending on whether it aims to explore, describe, explain, or analyse a subject (Creswell & Creswell (2017). In this study, different research types are applied to address specific objectives, providing a structured and comprehensive analysis of Family Business Resilience (FBR) in Assam, as represented in Table 3.1. The first objective follows a descriptive and analytical approach with quantitative elements. The second objective is analytical and empirical, emphasizing quantitative analysis. The third objective integrates quantitative and qualitative methods to compare resilience factors in Family Business (FB) and Non-Family Businesses (NFB). This comprehensive approach ensures a robust understanding of FBR in Assam.

Table 3.1: Type of Research

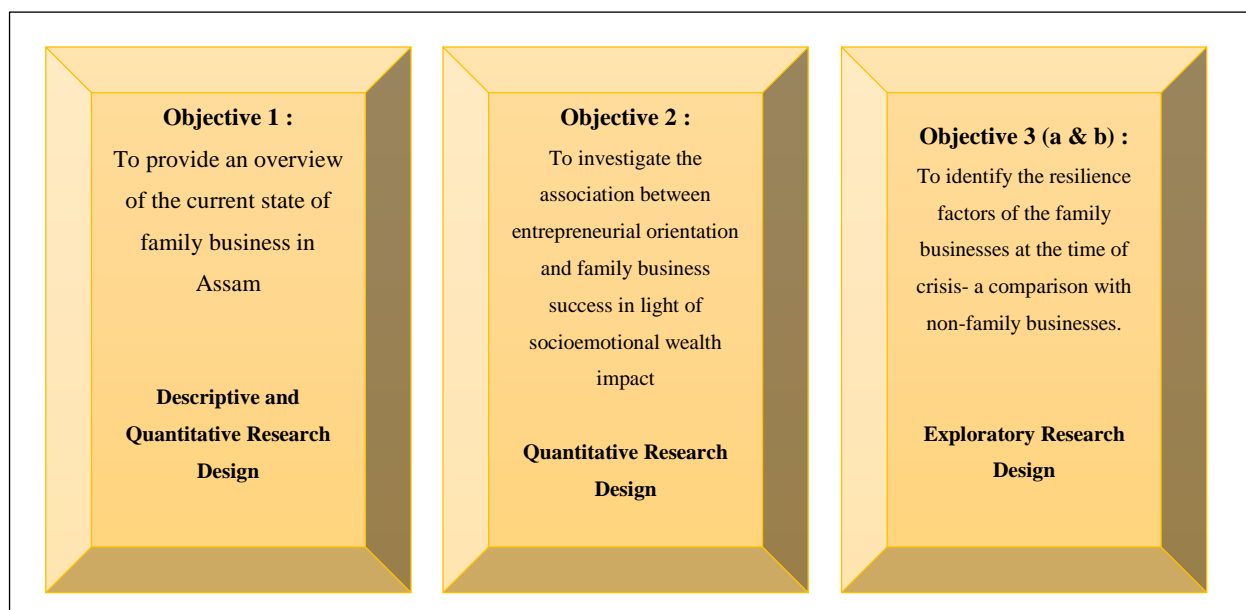| Objectives	Type of Research
1	Analytical, Descriptive, Fundamental, Empirical, Quantitative
2	Analytical, Empirical, Quantitative
3	Analytical, Empirical, Quantitative, Qualitative

Source: Compiled by the researcher

3.3. Research Design

A well-defined research design is crucial for efficient and effective data collection, analysis, and resource utilization (Kothari, 2004). Broadly, social science research may adopt exploratory, descriptive, experimental, or quantitative approaches depending on the research problem (Yin, 2017; Creswell & Creswell, 2017; Trochim & Donnelly, 2006).

The current study integrates descriptive, exploratory, and quantitative research designs in line with its three objectives.

- Objective 1 signals a descriptive intent, aimed at presenting a baseline profile of family businesses in the region. A descriptive research design was therefore adopted to capture demographic, structural, and operational characteristics. While descriptive statistics formed the core, supplementary statistical and qualitative analyses were incorporated to allow for group-level comparisons and richer insights into contextual variations. This design was particularly suitable for establishing a foundational understanding of the study context.

- Objective 2 indicates an explanatory orientation, focusing on testing hypothesised associations and causal pathways. Accordingly, a quantitative explanatory design was employed, with structural equation modelling providing the analytical foundation. This design allowed for analysing direct and mediating effects of socioemotional wealth on the EO-performance relationship, offering both statistical rigour and theoretical depth.

- Objective 3 reflects an exploratory and comparative intent, appropriate for uncovering resilience dimensions and contrasting them across business types. An exploratory design was therefore adopted. A systematic literature review informed the conceptual framework of resilience, which was then tested empirically through comparative analysis. The design combined descriptive elements to highlight similarities and differences, with exploratory components to surface resilience strategies specific to the COVID-19 context.

The objective-wise research design is diagrammatically represented in Figure 3.1.

Figure 3.1: Objective-wise Research Design

| Objective 1 : To provide an overview of the current state of family business in Assam

Descriptive and Quantitative Research Design | Objective 2 : To investigate the association between entrepreneurial orientation and family business success in light of socioemotional wealth impact

Quantitative Research Design | Objective 3 (a & b) : To identify the resilience factors of the family businesses at the time of crisis- a comparison with non-family businesses.

Exploratory Research Design |

The detailed methodology for the three objectives is stated below.

3.4. Methodology

Methodology used for the study is divided into three parts, namely sampling details, data collection and data analysis. The data analysis is discussed separately for all the three objectives to make it easier to understand.

3.4.1. Sampling Details

The objective's sampling details are examined across three sub-sections: sampling design, sampling technique, and sample size.

3.4.1.1. Sampling Design

- *Population:* The target population for the study is all family and non-family businesses operating in Assam. Assam was chosen as the study area due to its unique socio-cultural diversity, the strong presence of community-based family businesses, and its economic dependence on MSMEs, which form a significant portion of the state's enterprise landscape. Additionally, the region's exposure to frequent socio-political disruptions, natural calamities, and the COVID-19 crisis made it a relevant setting for examining business resilience. As highlighted by Kothari (2004), a population refers to the entire collection of elements relevant to

a research study. In this case, due to the constantly evolving nature of businesses and the absence of a comprehensive registry of family business in Assam, the population can be considered infinite. An infinite population signifies that the exact number of family businesses in the state is unknown. Unlike a finite population where we can potentially list all elements (e.g., students enrolled in a university), an infinite population presents challenges. The unknown size makes it impossible to study every family business in Assam. To overcome this hurdle, researchers rely on sampling techniques to draw a representative subset of the population and use statistical methods to generalize findings to the larger group (family business in Assam).

- *Sampling element and sampling unit:* In this study, the fundamental unit of the population from which data is gathered is termed the element of the population. Specifically, in this context, the elements are represented by MSMEs (micro, small, and medium enterprises). A sampling unit, on the other hand, could be a state, village, household, or individual, depending on the research design and objectives. However, in the current study, the sampling unit aligns with the sampling elements, meaning that each MSME serves as both the unit of analysis and the unit from which data is collected. This simplifies the sampling process as each MSME directly represents a single unit of study, eliminating the need to delineate between different sampling units and elements.

- *Time Period for the Study:* The field study is conducted during June' 2023 to May' 2024.

- *Extent:* The survey is conducted within the territorial boundaries of Assam. Assam is the geographical extent for all the objective (Figure 3.2).

Figure 3.2: Map of Assam showing Study Area
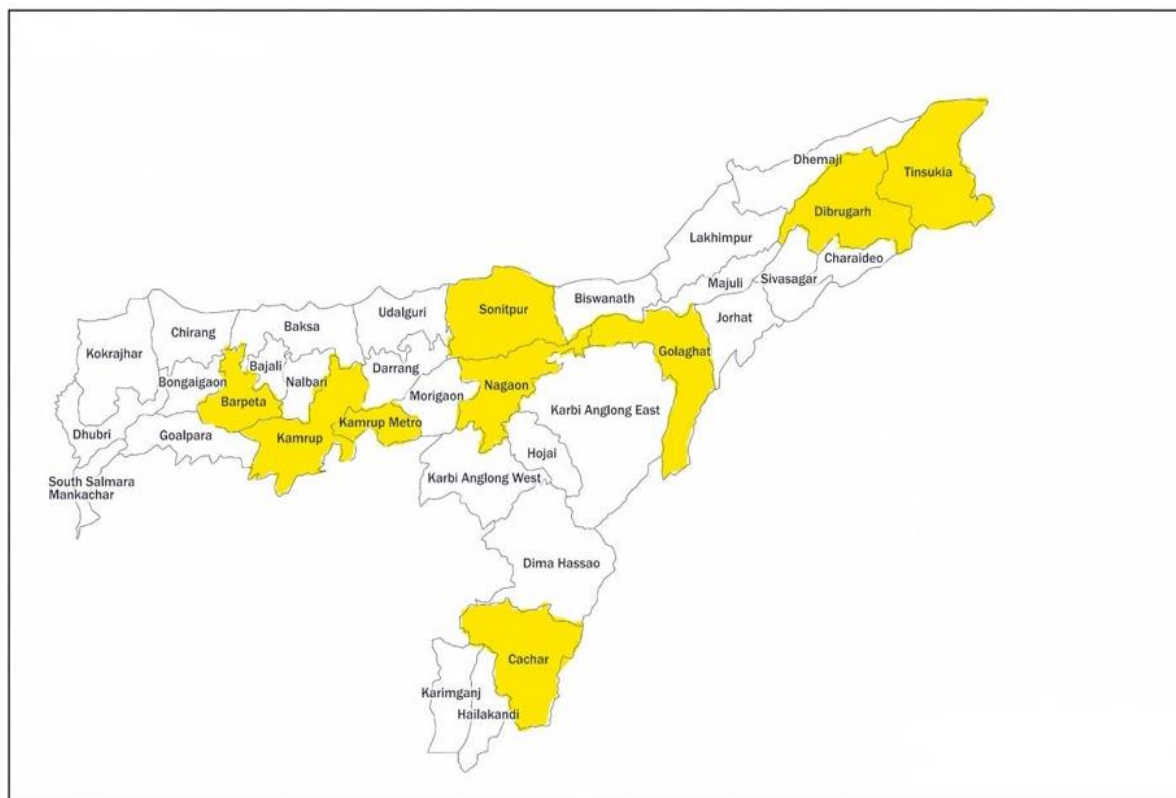
Source: Dreamstime.com

3.4.1.2. Sampling Techniques:

This study employs a multistage sampling technique to select respondents for all three research objectives. This method is well-suited for situations where the population is geographically dispersed and categorized into subgroups (Babbie, 2020). Here is a breakdown of the sampling process:

Stage 1: Stratified Sampling by District - Data Collection:

The first stage involved stratified sampling based on Assam's districts. Data on registered Udyogs i.e. industy or enterprises registered under the Ministry of MSME's Udhyog Aadhar/registration system was retrieved from the MSME Dashboard. To ensure adequate representation and meaningful analysis, nine districts with the highest number of registered Udyogs were selected. These districts account for approximately 65% of all registered Udyogs in Assam and contribute significantly to the state's GDP. Each district formed a distinct stratum within the overall MSME population. The selected districts and their respective number of registered enterprises are presented in Table 3.2

Table 3.2: Districts under the Sample

S/No.	Districts	No. of Udyog Registered
1	Kamrup (M)	5724
2	Nagaon	2625
3	Kamrup	2167
4	Sonitpur	1347
5	Barpeta	1316
6	Dibrugarh	1299
7	Tinsukia	1215
8	Cachar	1087
9	Golaghat	1011

Source: MSME Dashboard

Stage 2: Data Source

The complete list of registered MSMEs was obtained directly from the MSME Department for each of the nine selected districts. This ensured the use of authentic, up-to-date, and official data for sampling.

Stage 3: Organising the List

Within each district (stratum), all registered MSMEs were first arranged alphabetically and then grouped by location. This organization of the sampling frame enhanced accessibility and logistical ease for data collection during fieldwork.

Stage 4: Systematic Sampling

A systematic sampling technique was employed within each district. Each MSME was assigned a unique serial number. Based on the desired sample size and total number of MSMEs, a fixed interval (e.g., every 5th enterprise) was determined, and MSMEs were selected accordingly. This method ensured that each enterprise had an equal and unbiased chance of being included in the study.

Stage 5: Data Collection (**Questionnaire Administration**)**:**

Finally, the selected MSMEs were approached for data collection. Structured questionnaires were administered in person. The process was carefully monitored to ensure consistent administration across districts and maintain the quality of the data collected.

The respondents for FB are limited to members of FB in Assam who are actively involved in the management and operations of the business. Specifically, the respondents include either the business promoter (the founding or senior family member) or a next-generation family member who is currently engaged in the business. In cases where both the promoter and the next-generation family member are working together in the business, the response was collected from the next-generation member. This approach was followed to capture the perspective of successors who are likely to take over or already share leadership responsibilities, as their views are important for understanding the continuity, adaptability, and future direction of the FB. For NFB, the respondents are mostly the owners or partners who actively manage the business. They are involved in daily work and important decision-making. These people were chosen because they understand the business well, including how it runs, the problems it faces, and how it performs.

Stage 6: Classification by Family Business

Following the multistage sampling process, the researcher further classified the selected MSMEs into two categories: family-owned and non-family-owned businesses. This classification was essential for addressing the study's research objectives.

The classification was based on a systematic evaluation of the ownership and management structures derived from the MSME data. To ensure conceptual and empirical clarity, the researcher applied a set of criteria grounded in well-established definitions of FB. The classification criteria are summarized in Table 3.3.

These criteria helped distinguish FB in a nuanced and research-driven manner. Specifically, businesses were classified as family-owned if they met the following key conditions:

a. They were owned, operated, and managed by two or more family members who are related by blood, marriage, or adoption.

b. They had been in operation for more than three years, ensuring adequate experience and maturity.

c. The combined family ownership stake exceeded 50%.

d. The business employed at least five individuals (non-family member), ensuring a level of formal organizational structure.

e. Where available, self-perception as a FB was also used as a supporting indicator.

Table 3.3: Criteria Used to Identify Family-Owned Businesses

Factor	Definition	Applied in this Study	Citation
Ownership	Family members hold significant ownership or control over the business.	Family members must hold more than 50% ownership.	Handler (1989); Sirmon & Hitt (2003); Nicholson and Lashley (2016).
Management	Active involvement of family members in day-to-day operations or management.	A minimum of two family members must be involved in the management.	Handler (1989); Sirmon & Hitt (2003)
Self-Perception	The business self-identifies as a family firm.	Self-perception considered during classification.	Chrisman, Chua, and Sharma (2005)
Succession	Plans for business leadership to pass to the next generation.	Not considered in this study.	Sharma et al. (1997); Wennberg et al. (2011)
Business Age	Business must be operational for a minimum period to reflect stability.	Business must be at least 3 years old.	Study Criterion
Business Size	A minimum and maximum number of employees to ensure organizational structure.	between 5 to 55 employees	Study Criterion

***Source:** Compiled by the Researcher*

This classification framework not only aligns with scholarly definitions but also ensures relevance to the regional and cultural context of MSMEs in Assam.

To ensure diversity and representativeness in the analysis, the study includes micro, small, and medium enterprises (MSMEs) operating in Assam. The classification is based on the number of employees, ranging from 5 to 55, which captures the lower to mid-range of MSMEs. While the Government of India classifies MSMEs based on investment and turnover (Ministry of MSME, 2020), employee size is widely accepted in academic research as a reliable proxy for firm size, particularly in resource-constrained and informal settings (Ayyagari et al., 2007).

Including businesses with at least five employees ensures a minimum level of formal organizational structure and operational complexity, while the upper limit of fifty-five employees captures the transition from small to medium enterprises. This range was deliberately chosen to maintain a balanced representation of micro and small/medium businesses and to facilitate meaningful comparative analysis across size categories. Such stratification allows the study to explore variations in entrepreneurial orientation, socioemotional wealth, and success outcomes across different business sizes, thereby enriching the understanding of size-specific dynamics in FBR and strategic behaviour.

3.4.1.2. Sample Size:

An appropriate sample size is crucial to ensure the data collected adequately represents the target population of FB in the state. Two primary factors are considered when determining the sample size for this study:

1. *Review of past literature:* Analysing sample sizes employed in similar research studies provides a starting point for establishing an appropriate range for objective 1.

2. *Sampling criteria and population representation:* The sample size needs to be sufficient to capture the diversity of FB across Assam's districts while adhering to the established criteria for identifying family-owned businesses (as outlined in section 3.5.1.2).

The sample sizes used in previous studies are analysed to establish an appropriate range for these objectives. A review of relevant studies on FB yielded the following sample sizes (Table 3.4).

Calculating the average of these sample sizes yields a value of 194.25. Rounding this to a whole number suggests a possible sample size range of 170 to 220 based on prior research. However, it's important to consider this as a starting point and not a definitive value.

Table 3.4: Review of Sample Sizes in Family Business Research

Author	Sample Size
Poh Yen Ng (2019)	150
Romero (2020)	173

Hernandez-Perlines et al. (2021)	106
Schepers et al. (2014)	232
Rosecka and Machek (2023)	133
Danes et al. (2009)	311
Stafford (2013)	282
Zukowska (2021)	167

Source*: Compiled by the researcher*

In addition to the review of past research, several statistical guidelines can be considered for sample size determination:

- **Roscoe's Rule of Thumb (1975):** For behavioural research, this rule suggests a sample size greater than 30 but less than 500.

- **Nunnaly's Sample Size Adequacy (1978):** This suggests a sample of 300 respondents is sufficient for assessing measurement scales (Dykema et al., 2020).

- **Cochran's Sample Size Formula (1977):** This formula is applicable for situations with large populations. It considers factors like confidence interval, desired margin of error, and population variability. Cochran (1977) developed a formula for calculating sample size in situation with large population.

$$n = \frac{z^2 pq}{e^2}$$

where,

"n= sample size"

"z= critical value of the standard normal distribution for a given confidence interval"

"p= the estimated proportion of an attribute that is present in the population"

"q= 1-p"

"e= margin of error or proportion of sampling error"

In the case of an unknown population, the confidence interval for determining a sample size is set at 95% with a 5% margin of error and assuming a maximum variability of 50% (p=0.5) according to Cochran's formula. The required sample size is calculated as follows:

"z= 1.96 (critical value at 95% confidence level), p= 0.5, q= 1- 0.5 = 0.5, e= 0.05". So,

$$n = \frac{(1.96)^2(0.05)(0.05)}{(0.05)^2} = 384.16$$

Thus, the sample size comes out to be 384 units. Some statistical experts provided rules for determining sample size on the basis of parameters or variables used in the study. Nunnally (1987) suggested having at least 10 cases per variable. Similarly, other statisticians provided rules in line with the above mentioned researcher. Bentler and Chou (1987) suggested a 5:1 ratio of observations to number of parameters. Bollen (1989) provided a rule of thumb to use 10 observations per parameter. As suggested by the rule of thumb, the number of observations per variable should be at least 10. The researcher has proposed 13 variables. Thus, complying with the rule, the sample size is above 130. While the reviewed literature and statistical guidelines provide a range, it's crucial to consider the specific context of this study. Given the geographically dispersed nature of businesses in Assam and the need to capture diversity within family-owned businesses across districts, a sample size of 170-230 might not be sufficient. Therefore, considering robustness, generalizability, and potential for non-responses or incomplete data, a sample size of 500 is proposed for each subgroup (FB and NFB) for a total of 1000 businesses. The total sample size of 1000 will be proportionally distributed among the nine selected districts based on their relative contribution to Assam's Udyog registrations (as shown in Table 3.5). This approach ensures each district has a fair chance of being represented in the sample.

Table 3.5: Sample Size Distribution Across Districts

S/No.	Districts	GDP 2018-19 (Rs in Lakhs)	No. of Udyog	Population (as per census 2011)	Percentage	Sample Size
1	Kamrup (M)	3209136	5724	12,53,938	32	320
2	Nagaon	1528097	2625	28,23,768	15	150
3	Kamrup (R)	1461115	2167	15,17,542	12	120
4	Sonitpur	962165	1347	19,24,110	8	80
5	Barpeta	1364724	1316	16,93,622	7	70
6	Dibrugarh	2429788	1299	13,26,335	7	70
7	Tinsukia	2474012	1215	13,27,929	7	70
8	Cachar	1540765	1087	17,36,617	6	60
9	Golaghat	1047974	1011	10,66,888	6	60
Total			17791	Total		1000

Source: Compiled by the Researcher

3.4.2. Data Collection

Data for all the objectives are collected through primary sources. The research instrument used for the survey is questionnaire where respondents are provided with the relevant questions for assessing all the variables under study for all the objectives. The questionnaire framed for both the types of business FB and NFB are same so as to allow comparison. The questionnaire begins with a short introduction of the researcher and the research purpose. The questionnaire have three types of questions to capture a range of data:

- **Dichotomous:** These questions offer two answer choices (e.g., Yes/No).

- **Multiple Choice:** These questions provide a set of answer options for respondents to select from.

- **Likert Scale:** These questions use a Likert scale to gauge respondents' level of agreement or disagreement with a statement "(e.g., strongly disagree, disagree, somewhat disagree, neutral, somewhat agree, agree, strongly agree)".

All businesses were visited in their respective offices or industries. A total of 964 surveys were distributed, and 793 responses were received, yielding a response rate of 82%. After excluding responses due to missing data, inconsistencies, or duplication, 740 valid responses were retained for analysis (436 FB and 304 NFB).

Pilot Study

A pilot study was conducted in May 2023 to assess the questionnaire's effectiveness and identify any challenges faced by participants. The pilot targeted both family-owned and non-family-owned businesses in Kamrup metro, Kamrup rural, and Sonitpur districts of Assam. A sample of 48 FB and 41 NFB participated, representing a total of 89 pilot participants. These numbers were smaller versions of the planned 500 participants from each business type in the main study. The pilot revealed issues with some question wording, clarity, and length. Based on this feedback, the questionnaire was revised to improve the language, question structure, and flow. Redundant questions were also removed to streamline the survey. To ensure the questionnaire produced consistent results, we employed internal consistency reliability testing. Cronbach's alpha, a widely

accepted measure for internal consistency (Cronbach, 1951), was calculated for both FB and NFB. The results, presented in Table 3.6, yielded Cronbach's alpha coefficients of 0.912 and 0.872, respectively. These values suggest a high level of internal consistency for the questionnaire in both business types.

Table 3.6: Reliability Statistics

Stakeholder	Results		
	Cronbach's Alpha Value	Cronbach's Alpha Based on Standardized Items	Number of Items
Family Business	.797	.912	50
Non-Family Business	.700	.872	32

Source: Compiled by the Researcher

3.4.3. Data Analysis

The data analysis for each objective is outlined separately below to ensure clarity and focus on the specific aspects being studied.

A. Data Analysis for Objective 1

Objective 1 seeks to understand the current state of FB in Assam. Descriptive statistics are utilized to summarize key findings and provide an overview of the demographic and structural characteristics of FB. This section offers a deeper understanding of FB in Assam by using descriptive statistics, focusing on frequency distributions, measures of central tendency, and measures of dispersion.

(a) Frequency and Percentages

The distribution of FB across various categories is assessed using frequency and percentage calculations. The formula applied for calculating percentages is:

$$Percentage = \frac{\text{Frequency of Category}}{\text{Total Frequency}} \times 100$$

Key analyses include:

- **Industry distribution**: Business are categorized into sectors such as manufacturing, services, wholesale/retail, construction/real estate, and agriculture to identify industry concentration.

- **Business size**: Businesses are classified as small, medium, or large to highlight size distribution.

- **Generational makeup**: The generational stage of businesses (e.g., first-generation, second-generation, third-generation or beyond) is examined to understand legacy trends.

- **Succession planning**: The percentage of businesses with formal succession plans is calculated to evaluate preparedness for leadership transitions.

(b) Demographics:

Demographic characteristics are analysed to understand ownership diversity:

- **Community distribution**: The ethnic composition of FB owners (e.g., Assamese, Bengali, Marwari, Nepali, Punjabi and Bihari) is assessed.

- **Gender representation**: The proportion of male-led and female-led businesses is examined to reveal gender dynamics in leadership roles.

(c) Ownership Structure

Organizational structure: FB are categorized based on governance models such as controlling owner, sibling partnership, or cousin consortium.

Geographic orientation: Businesses are classified based on their operational reach local, regional (north-eastern), national, or global.

(d) Measures of Central Tendency (Mean and Median)

Measures of central tendency, specifically the mean and median, are used to summarize key business characteristics. The mean and median values for employee numbers were estimated using grouped frequency data, which provides approximate measures of central tendency. This approach may introduce some limitations in precision, and results should be interpreted accordingly. Key variables analysed include:

- **Age of Businesses**: The average and median age are calculated to understand business longevity.

- **Number of Employees**: The workforce size is assessed using mean and median values.

  a) Mean (Average) for grouped data:

$$Mean = \frac{\sum fimi}{\sum fi}$$

Where,

- fi = frequency of the ith group,

- m_i = midpoint of the ith group

- $\sum fi$ = total frequency

  b) Median for grouped data:

$$Median = L + \left(\frac{\frac{N}{2} - F}{f_m}\right) \times h$$

Where,

- L = Lower boundary of the middle class

- N = total number of observations ($\sum f_i$)

- F = cumulative frequency before the median class

- f_m = frequency of the median class

- h = class width (size of the median class interval)

(e) Statistical Tests

To explore patterns and test for significant differences across groups, the following inferential statistical methods were employed:

i. **Chi-Square Test with Cross Tabulation**: Cross-tabulation was used to examine the relationship between categorical variables, particularly to assess the association between succession planning practices and the community background of business owners. The Chi-square test was applied to determine whether these associations were statistically significant.

ii. **Kruskal-Wallis H Test**: As a non-parametric alternative to ANOVA, the Kruskal-Wallis H test was used to evaluate whether there were statistically significant differences in employee-related outcomes such as loyalty, commitment, and participation in decision-making across different community groups. This test was appropriate due to the ordinal nature of the data and the assumption of non-normal distribution.

(f) Thematic Analysis

The open-ended responses were analysed qualitatively to uncover recurring themes such as "succession planning," "market competition," and "labour shortages." These responses were systematically coded and grouped into categories to better organize and understand the challenges faced by FB. The analysis followed an iterative process, involving repeated and thorough examination of codes, underlying meanings, and relationships between categories. This systematic approach ensured a comprehensive understanding of the data and enhanced the validity and reliability of the research (Miles & Huberman, 1994).

B. Data Analysis for Objective 2

2nd objective of this study is to inspect the association among Entrepreneurial Orientation (EO) and Family Business Success (FBS) in light of Socio Emotional Wealth (SEW). The methodology of this objective is divided into two parts, first part contains the variables adapted and the second part contains the statistical technique adopted.

(a) Variables Adopted

Variables for objective 2 are presented below in Table 3.7. The table also identifies the sources from which these variables were adopted.

Table 3.7: Variables for Objective 2

Nature	Variable	Measurement of Variables	Source Adopted
Independent Variable	Entrepreneurial Orientation	Risk-taking (3 items), Proactiveness (3 items) and Innovativeness (3 items)	Covin and Slevin (1989)
Independent Variable	Socio-emotional Wealth	REI Scale - renewal of family bonds (3 items), emotional attachment (3 items) and identification of family members with the firm (3 items)	Hauck et al., 2016
Dependent Variable	Performance	Growth in sales, Growth in Profit, Growth in market share, Growth in return on capital and Growth in number of employees	Wilkund and Shepherd (2003), Kraus et al. (2012), Kellermanns et al. (2012), Naldi et al. (2007) and Chirico et al. (2011).

Source: Compiled by the Researcher

In table 3.7 it can be seen that 3 variables are taken into consideration for analysing objective 2. The sources from where the variables are taken have also been shown in the table. Last, the measurement used for each of the variables is stated in table 3.7.

(b) Development of Hypothesis:

This section elaborates on the development of hypotheses to examine the relationship between EO, SEW, and FBS. The hypotheses are formulated based on theoretical underpinnings and existing empirical evidence, focusing on both direct and indirect relationships.

(i)   Direct Impact of EO on Family Business Success

EO represents a business's strategic posture, encompassing dimensions such as RT, IN, and PR. EO has been linked to superior business performance, as it fosters innovation, enhances competitive advantage, and identifies new market opportunities (Alegre & Chiva, 2013; Ferreira & Coelho, 2020). In the context of , EO can play a transformative role, enabling business to adapt to changing market dynamics while maintaining their competitive edge. Studies suggest that businesses with a strong EO tend to achieve higher profitability, growth, and market performance (Covin & Slevin, 1991; Rauch et al., 2009).

However, often face unique challenges, such as risk aversion and resource constraints, which might moderate the strength of this relationship. Nevertheless, EO is hypothesized to have a positive influence on FBS:

H1: *Entrepreneurial Orientation (EO) positively influences Family Business Success (FBS).*

(ii)   Direct Impact of EO on SEW

SEW represents the non-financial value that family owners derive from their business, including emotional attachment, family control, and the perpetuation of family values. The relationship between EO and SEW is critical, as EO- driven initiatives often necessitate strategic changes that align with family objectives. PR and IN, dimensions of EO, may enhance SEW by preserving family legacy and fostering the reputation of the business. Similarly, RT, when aligned with family goals, can reinforce the family's emotional attachment to the business. Prior research suggests that EO enables to pursue strategies that maximize their socioemotional priorities such as family identity and legacy and emotional attachment (Berrone et al., 2012). Hence, the following hypothesis is proposed:

H2: *EO positively influences SEW.*

(iii)   Direct Impact of SEW on FBS

SEW influences how prioritize goals and allocate resources. Businesses that prioritize SEW often exhibit long-term orientation and stronger resilience, which can positively impact performance, particularly in uncertain environments. However, the SEW-performance relationship is multifaceted. While high SEW can enhance commitment, trust, and stakeholder relationships, excessive focus on SEW may hinder profitability if non-economic goals conflict with strategic imperatives (Gómez-Mejía et al., 2007). Despite these complexities, SEW is hypothesized to positively impact FBS by fostering stability, stakeholder loyalty, and long-term sustainability:

H3: *SEW positively influences FBS.*

(iv)   *Indirect Impact of EO on FBS via SEW (Mediation)*

EO and SEW are intricately linked in , with SEW potentially serving as a mediating mechanism between EO and success. While EO drives innovation and growth (Martínez-Bobillo et al., 2021; Sorama & Joensuu-Salo, 2023), the presence of SEW ensures that entrepreneurial initiatives align with the family's values and objectives, minimizing resistance and fostering cohesive decision-making (Rosecka & Machek, 2023). For instance, EO- driven strategies that emphasize risk-taking and proactiveness might yield better performance outcomes when underpinned by SEW, as it provides a framework to balance innovation with family priorities. The goal is to determine whether the presence of SEW enhances or explains the effectiveness of EO in driving performance, particularly in the context of where non-financial goals are central to strategic behaviour.

H4: *SEW mediates the relationship between EO and FBS.*

Through these hypotheses, the study aims to provide a nuanced understanding of how EO and SEW interact to influence FBS, offering valuable insights for theory and practice

(c) Normality Test

Before proceeding with statistical analysis, the normality of the data was assessed using both the Kolmogorov-Smirnov and Shapiro-Wilk tests. Testing for normality is an essential step in validating the assumptions of multivariate analysis and ensuring the reliability of results. The outcomes are presented in table 3.8.

Table 3.8: Normality Test

Dimensions	Items	Kolmogorov-Smirnova			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
EO	We are willing to take new chances on new ideas	0.227	436	0.000	0.860	436	0.000
	We are willing to take risk to enter new markets	0.209	436	0.000	0.865	436	0.000
	We are willing to invest resources to develop/introduce new products/services	0.220	436	0.000	0.878	436	0.000
	We introduce new products/services more	0.226	436	0.000	0.885	436	0.000

	quickly than our competitors						
	Our business is quick to seize opportunities and take the lead in the industry	0.208	436	0.000	0.899	436	0.000
	We actively seek to stay ahead of competitors through proactive strategies	0.240	436	0.000	0.888	436	0.000
	We are always on the lookout for new technologies that could help our business	0.241	436	0.000	0.863	436	0.000
	We are always looking for new business opportunities	0.231	436	0.000	0.859	436	0.000
	We actively introduce improvements and innovation in our business	0.248	436	0.000	0.839	436	0.000
SEW	Continuing family legacy and tradition is an important goal	0.169	436	0.000	0.907	436	0.000
	Transfer of business to the next generation is an important goal	0.161	436	0.000	0.916	436	0.000
	No evaluation of the investment on a short term basis	0.202	436	0.000	0.907	436	0.000
	Strong emotional bonds between family members	0.236	436	0.000	0.880	436	0.000
	Maintaining family harmony and cohesion is a priority	0.230	436	0.000	0.880	436	0.000
	There is a feeling of warmth for each other in the family business	0.243	436	0.000	0.880	436	0.000
	There is a feeling of strong emotional attachment to the business	0.220	436	0.000	0.883	436	0.000
	The business represents a significant part of our family's history and heritage	0.200	436	0.000	0.869	436	0.000
	Family members are proud to tell others that we are a part of the family business	0.205	436	0.000	0.866	436	0.000
PER	Growth in Sales	0.259	436	0.000	0.808	436	0.000
	Growth in Profit	0.213	436	0.000	0.875	436	0.000

Growth in Market share	0.182	436	0.000	0.927	436	0.000
Growth in return of capital	0.188	436	0.000	0.927	436	0.000
Growth in no. of employees	0.184	436	0.000	0.885	436	0.000

Source: *Compiled by the Researcher*

(d) Statistical Technique Applied

To examine the relationship between EO, SEW, and FBS, this study employs Partial Least Squares Structural Equation Modelling (PLS-SEM). The decision to employ Partial Least Squares Structural Equation Modelling (PLS-SEM) in this study is based on the characteristics of the dataset and the methodological strengths of PLS-SEM in addressing these characteristics. A one-sample Kolmogorov-Smirnov test was performed to evaluate the normality of the data, revealing that the data did not follow a normal distribution (Berger and Zhou, 2014). Specifically, the p-value obtained from the test (as shown in table 5.2) was below the significance threshold of 0.05, indicating a significant deviation from normality. Given this result, PLS-SEM was chosen over Covariance- Based SEM (CB-SEM), which assumes multivariate normality for accurate parameter estimation (Hair et al., 2017). PLS-SEM ability to handle non-normal data, combined with its suitability for exploratory research, predictive modelling, and small to moderate sample sizes, made it the most appropriate choice for analysing the relationships among the constructs in this study.

The following steps, as illustrated in Table 3.9, were systematically followed during the PLS-SEM analysis:

Table 3.9: Steps Followed in PLS-SEM Analysis

Steps	Description
Step 1: Model Specification	Defined both higher-order and lower-order constructs in line with theory.
Step 2: Modelling Approach	Two-stage approach is adopted to estimate HOC, where latent variable scores from LOC were used as indicators for HOC in the structural model.
Step 3: Measurement Model Evaluation	Indicator reliability and internal consistency are evaluated using Cronbach's Alpha and CR. Assessed convergent validity through AVE, and discriminant validity using both the HTMT ratio and the Fornell-Larcker criterion.

Step 4: Structural Model Evaluation	Assessed structural relationships by estimating path coefficients through bootstrapping (5,000 subsamples). Additionally, evaluated explained variance (R^2), effect size (f^2), and predictive relevance (Q^2).
Step 5: Hypothesis testing and Interpretation	Tested direct and indirect effects, examined the statistical significance of path coefficients (based on *t*-statistics and *p*-values), and interpreted the mediating role of SEW in the EO-FBS relationship.
Step 6: Multi-Group Analysis	Conducted MGA to compare path coefficients across business categories (e.g., micro vs. small/medium) and assess structural invariance.

*HOC- Higher Order Construct; LOC- Lower Order Construct; CR- Composite Reliability; AVE- Average Variance Extracted; SEW- Socio-emotional Wealth; EO- Entrepreneurial Orientation; FBS- Family Business Success.

Source: Compiled by the researcher

Mediation Analysis:

Mediation implies that SEW acts as an intermediary variable through which EO affects FBS. Specifically:

i. **Direct Effect**: The effect of EO on FBS is measured.

ii. **Indirect Effect**: The effect of EO on FBS through SEW is analysed.

iii. **Total Effect**: The sum of the direct and indirect effects is examined to understand the overall influence.

Mediation is supported when the indirect effect (EO → SEW → FBS) is significant. If the direct effect remains significant alongside the indirect path, partial mediation is indicated. If the direct path becomes insignificant, full mediation is confirmed. Path coefficients generated by the PLS algorithm are used to assess the strength and significance of these relationships. Bootstrapping procedures are applied to test the robustness of the paths.

Multi-Group Analysis (MGA):

In addition to testing the structural model and mediation, a Multi-Group Analysis (MGA) was conducted to determine whether the structural relationships differ across micro and small/medium enterprises. This comparison is crucial for identifying size-based variations in how EO and SEW influence FBS. Due to the relatively small sample size for medium enterprises (n = 49), the small and medium categories were

combined to enhance statistical power and ensure a more balanced group comparison (Hair et al., 2017).

C. Data Analysis for Objective 3

This objective aims to identify and compare the resilience factors adopted by FB and NFB. It also investigate how these factors changed pre-covid and post-covid, highlighting potential shifts in general resilience strategies and those specifically related to the covid-19 pandemic. The methodology for this objective is divided into two parts: 1st the variables used is discussed followed by the statistical analysis.

(a) Variables used

The variables used in the study leverages a comprehensive literature review of 226 papers focused on FBR. Based on this review 29 factors have been identified that contribute to a FB's ability to adapt and thrive during challenging times. These statements serve as the framework for analysing the resilience factors employed by FB and NFB in objective 3 and is depicted in table 3.10.

Table 3.10: Resilience Factors and Measurements

| Statements	Source
Free support from family members in running the business	Zukowska et al (2021)
Use of family members' personal assets (car, flat, etc.) to support the business	Zukowska et al (2021)
Securing a new loan with family members' private assets	Zukowska et al (2021)
Family members providing monetary support (loans, recapitalization)	Eddleston et al (2012); Zukowska et al (2021)
Family members working without pay	Eddleston et al (2012)
Family members agreeing to delay their remuneration	Eddleston et al (2012)
Continued involvement of family members helps in quick crisis management	Eddleston et al (2012)
Members/Employees ability to identify new opportunity	Pompei et al (2019); Santoro et al (2021)
Members/Employees capacity to work harder in times of crisis	Abdelzaher et al (2018)
Employee's loyalty and commitment	Abdelzaher et al (2018); Santoro et al (2021)

Statements	Source
Retaining valuable employees in tight labour markets while paying less than competitors	Le Breton-Miller and Miller (2022)
Easy access to financial assistance during of crisis in the community	Leppaaho and Ritala (2021)
Easy access to technical assistance during of crisis in the community	Leppaaho and Ritala (2021)
Strong and longstanding relationship with external stakeholders	Rodriguez et al (2013); Calabro et al (2021)
Long term involvement of members/employees	Kachaner et al (2012)
Healthy relationship between members and employees	Rivo-Lopez et al (2020)
Focus on long-term goals over short-term goals	Fernandez-Moya et al (2020)
Clear vision and focus on goals during uncertainty	Cano-Rubio et al (2024)
Viewing challenges as learning opportunities	Maurer et al (2021); Faghfouri (2021)
Free flow of communication in the organization	Zahra (2022)
Various measures to cope with crisis	Cano-Rubio et al (2024)
Effective conflict management during crises	Eckey and Memmel (2023)
Fast reactivity in crisis situation	Eckey and Memmel (2023)
Less formal control and flexible work structure	Cano-Rubio et al (2024)
Employee participation in decision-making	Block and Ulrich (2023); Mzid et al (2019)
Clearly defined roles and responsibilities	Allioui et al (2023); Memmel et al., (2023)
Government aid and support was provided	Schwaiger et al (2021); Stafford et al (2013)
Support from industry associations or groups	Haynes et al (2018)
External collaboration and initiatives received	Gallagher et al (2023)

Source: *Compiled by the Researcher*

(b) Statistical Technique Applied

To address Objective 3, which involves comparing resilience factors between FB and NFB, the statistical analysis was conducted in three distinct phases. An overview of the analytical steps undertaken is presented in figure 3.3.

Figure 3.3: Overview of the Analysis for Objective 3
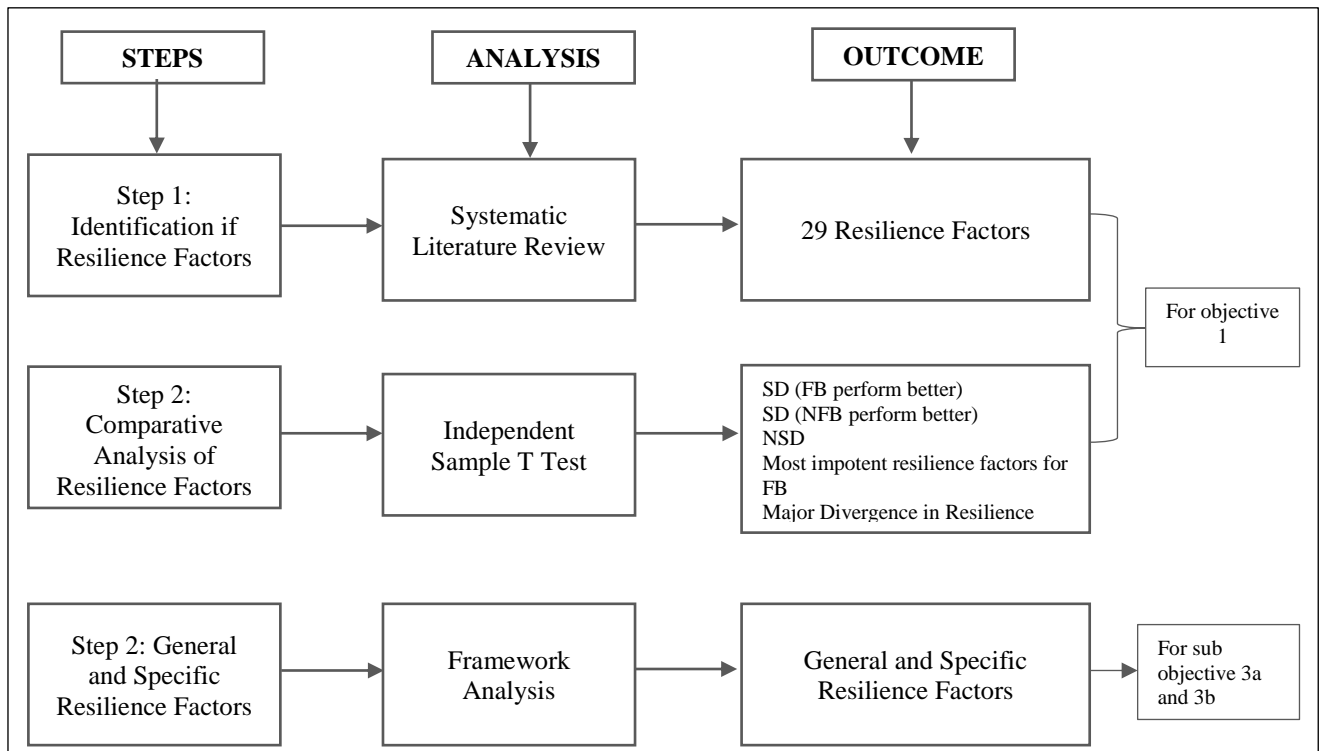
SD: Significant Difference, NSD- Non-Significant Difference, FB- Family Business, NFB- Non-Family Business

Source: Compiled by the researcher

Part 1: Literature Review

To identify the critical factors influencing business resilience a systematic literature review (SLR) was conducted. Given the multidimensional nature of resilience in family businesses, a systematic and transparent approach was necessary to ensure comprehensive coverage and rigor in identifying relevant constructs. The review process was guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework (Moher et al., 2009; Mai & Thai, 2024), which enhances the transparency, comprehensiveness, and replicability of systematic reviews. PRISMA was chosen because it provides a structured procedure for screening and selecting literature that directly informs the development of the empirical instrument used in the quantitative phase of this study. The framework outlines essential components, including the formulation of a clear research question, well-defined inclusion and exclusion criteria, and systematic procedures for data extraction and synthesis. This process resulted in the extraction of 29 resilience-related statements, which formed the basis for the development of the survey instrument. A flow diagram, as recommended by the PRISMA guidelines, illustrates the stages of identification, screening, eligibility, and inclusion of studies

(Sierra-Correa & Cantera Kintz, 2015). The application of the PRISMA framework in this review process is illustrated in Figure 3.2. The insights gained through this systematic approach directly informed the research design, ensuring that the subsequent quantitative phase was grounded in a comprehensive and empirically validated set of resilience factors.

Figure 3.4: Flow Diagram (PRISMA Framework)
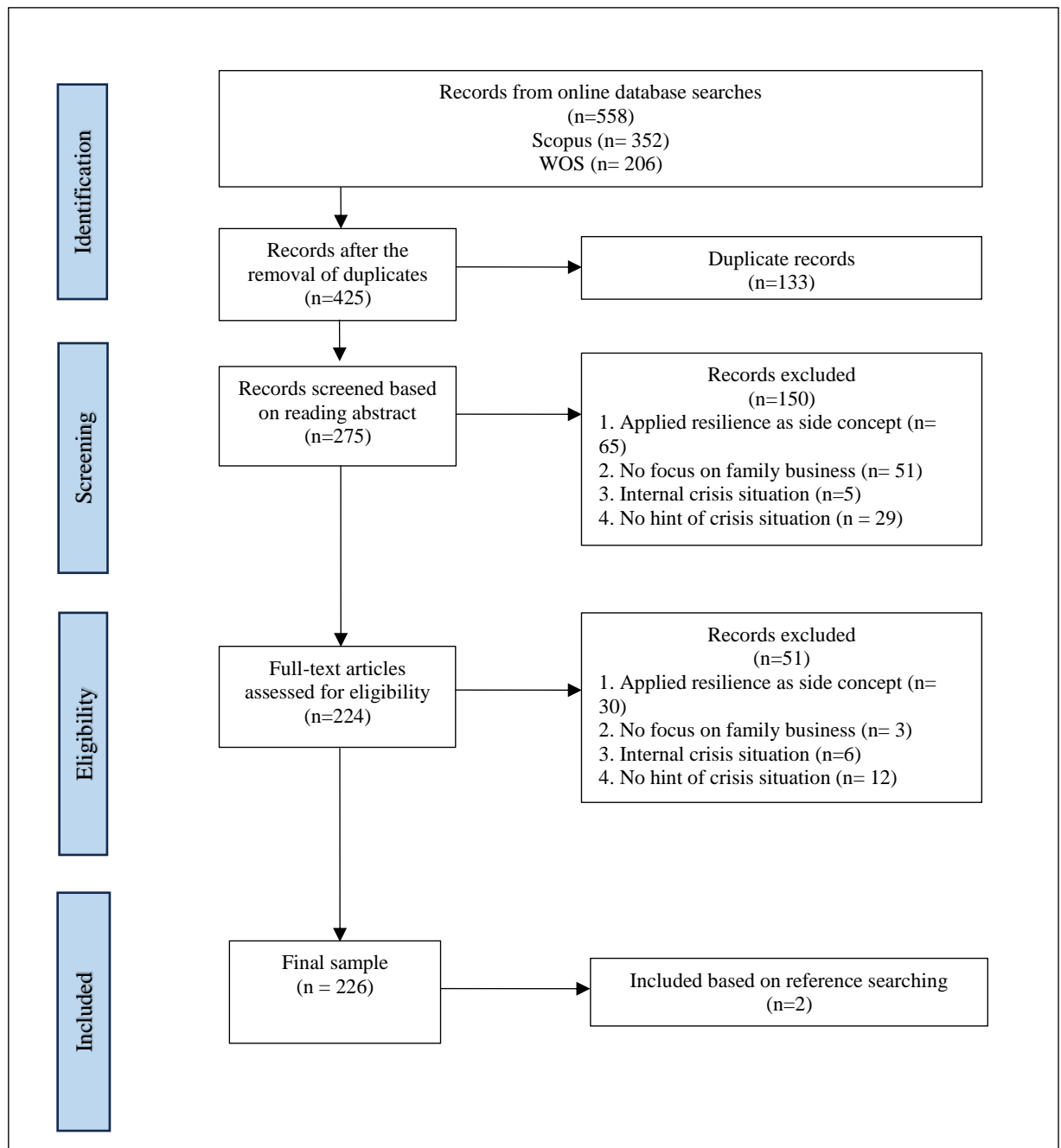
Part II: Quantitative Analysis

To compare the resilience factors between FB and NFB, the study employed an Independent Sample T-test, appropriate for confirming variables such as those measured on a 7-point Likert scale. Before performing the t-test, a normality assessment was carried out to ensure the validity of the results. Normality was evaluated using skewness and kurtosis values, which helped determine whether the data distribution met the assumptions required for the t-test. Based on these assessments, the t-test was then applied to compare the mean resilience scores between FB and NFB across each of the four dimensions.

A) Assessment of Normality

To determine the suitability of parametric statistical analyses, the normality of the data was assessed using skewness and kurtosis values for both FB and NFB groups. According to established guidelines (Kim, 2013), for large samples (n > 300), absolute skewness values exceeding 2 and absolute kurtosis values exceeding 7 indicate significant departures from normality. In the FB data, skewness values ranged from -1.082 to 0.975, while kurtosis values ranged from -0.075 to 1.073. Similarly, in NFB data, skewness values ranged from -0.973 to 0.973, and kurtosis values ranged from -1.087 to 0.751. Since all skewness values fall within the acceptable range of ±2, and all kurtosis values remain well below the threshold of 7 (table 3.11), the data for both groups can be considered approximately normal. Given that the sample size for both groups exceeds 300, the assumption of normality is not violated. This justifies the use of parametric statistical techniques, including the independent sample t-test, for comparing the means of the two groups in further analysis. The table below presents the results of the normality assessment for both FB and NFB, based on Skewness and Kurtosis values.

Table 3.11: Assessment of Normality using Skewness and Kurtosis

Parameters	Family Business (N=436)		Non-Family Business (N=304)	
	Skewness	**Kurtosis**	**Skewness**	**Kurtosis**
1. Free support from family members	-1.006	0.624	0.067	-1.087
2. Use of family members personal asset	-0.979	0.669	0.569	-0.479
3. Securing a new loan with family members private assets	-0.664	0.141	0.660	0.015
4. Family members providing monetary support	-0.601	-0.019	0.771	0.285

5. Family members working without pay	-0.823	0.184	0.026	-0.820
6. Family members agreeing to delay remuneration	-1.073	1.069	0.108	-0.781
7. Continued presence of family members in the business help to quickly manage the crisis	-1.082	1.073	-0.462	-0.917
8. Members/Employees ability to identify new opportunities	-0.518	-0.445	0.722	-0.234
9. Member/Employees capacity to work harder in times of crisis	-0.758	0.057	0.409	-0.922
10. Employee's loyalty and commitment	-0.887	0.492	0.822	0.165
11. Retaining valuable employees in tight labour markets while paying them less than competitors	-0.929	0.489	0.432	-0.516
12. Easy access to financial assistance in the community during crisis	-0.888	0.065	0.571	-0.580
13. Easy access to technical assistance in the community during crisis	-0.894	0.266	0.428	-0.822
14. Strong and longstanding relationship with external stakeholders	-1.002	0.531	-0.162	-0.898
15. Long term involvement of employees	-0.88	0.321	0.265	-1.003
16. Healthy relationship between family members and employees	-0.903	0.873	-0.056	-1.056
17. Focus on long-term goals over short term goals	-0.772	0.314	0.595	-0.565
18. Clear vision and focus on goals during uncertainty	-0.856	0.768	-0.545	-0.588
19. Viewing challenges as opportunities	-0.987	0.913	-0.69	0.016
20. Free flow of communication in the organisation	-0.845	0.443	-0.420	-0.428
21. Variety of measures to cope with crisis	-0.659	0.556	0.116	-0.685
22. Effective conflict management during crisis	-0.487	-0.075	0.073	-0.624
23. Fast reactivity in crisis situation	-0.736	0.408	0.017	-0.751
24. Less formal control and flexible work structure	-0.778	0.233	-0.148	-0.907
25. Employees participation in decision making	-0.566	-0.442	0.465	-0.633
26. Clearly defined roles and responsibilities	-0.990	0.816	-0.973	0.528
27. Government support	0.974	-0.052	0.305	-0.887
28. Industry Support	0.975	0.158	0.629	-0.587
29. External Collaboration	0.864	-0.206	0.845	-0.163

Source: *Compiled by the Researcher*

Independent sample T Test

An independent sample t-test was conducted to compare the resilience factors for FB and NFB using 29 parameters. The analysis aimed to determine whether FB exhibit significantly higher resilience than NFB in specific aspects or whether there are areas where NFB perform better.

(i) Calculation of Mean Scores

The mean scores for resilience factors were computed separately for FB and NFB to assess their relative strengths in crisis management. By analysing these scores, the resilience factor with the highest mean was identified as the most critical factor contributing to business sustainability. This key factor represents the strongest resilience attribute within each business type. Additionally, the mean difference between FB and NFB provided insights into which type of business exhibits a higher presence of a particular resilience factor. A significant positive or negative mean difference indicates whether FB or NFB demonstrate superior resilience in specific areas, helping to distinguish their respective crisis management capabilities.

(ii) Levene's Test for Equality of Variances

Before interpreting the t-test results, Levene's test for equality of variances was conducted to determine whether the assumption of equal variances holds. This test assesses whether the variance of resilience factors is similar between FB and NFB. If Levene's test is significant ($p < 0.05$), it indicates that the variances are unequal, and the "equal variances not assumed" row is used for interpretation. Conversely, if Levene's test is not significant ($p > 0.05$), it suggests that the variances are approximately equal, and the "equal variances assumed" row is selected when the results of Levene's test show no significant difference in group variances ($p > 0.05$), meaning the assumption of equal variances holds true. This step ensures that the appropriate statistical approach is applied when analysing differences in resilience factors between the two business types.

(iii) Hypothesis Testing

The hypothesis testing for resilience factors between FB and NFB was conducted using an independent sample t-test.

Hypotheses:

- *Null Hypothesis (H$_0$): μFB = μNFB* (There is no significant difference in the mean score of resilience factors between FB and NFB)

- *Alternate Hypothesis (H$_1$): μFB ≠ μNFB* (There is a significant difference in the mean score of resilience factors between FB and NFB

The significance level (α) was set at 0.05, indicating that any p-value below this threshold would lead to the rejection of the null hypothesis.

t-test formula:

$$t = \frac{X^1 - X^2}{\sqrt{\dfrac{S_1^2}{N_1} + \dfrac{S_2^2}{N_2}}}$$

where:

- X1, X2 are the sample means of FB and NFB

- S_1^2, S_2^2 are the sample variances

- N1, N2 are the sample sizes.

This test helps assess whether the observed differences in resilience practices across FB and NFB are statistically meaningful.

Here, μFB represents the mean resilience score for FB, and μNFB represents the mean resilience score NFB. If the p-value obtained from the t-test is less than 0.05, the null hypothesis is rejected, indicating that the resilience factor differs significantly between FB and NFB. This result suggests that one business type exhibits a stronger presence of the given resilience factor compared to the other.

(iv) Interpreting the T-Test Results

The t-value represents the standardized difference between the means, where a higher absolute t-value indicates a stronger difference in resilience factors between FB and NFB. The p-value determines the statistical significance of this difference; if $p < 0.05$, the

difference is considered significant, suggesting that one business type exhibits a higher level of the resilience factor. Additionally, the 95% confidence interval (CI) provides a range within which the true mean difference is expected to lie. If the confidence interval does not include zero, it confirms the statistical significance of the observed difference.

(v) Categorization of T-Test Results

The results of the independent sample T-test have been categorized into three main groups based on the statistical significance and direction of the mean difference.

Part III: Qualitative Analysis

The second part of the study addresses sub-objectives 3(a) and 3(b) through a qualitative research approach, employing framework analysis to examine resilience factors in both FB and NFB. Framework analysis offers a structured method to categorize and compare resilience strategies under normal circumstances and during the COVID-19 pandemic. This approach enables the identification of general resilience strategies as well as crisis-specific adaptations. A total of 30 businesses were selected using purposive sampling, ensuring representation across various sectors and business types. The sample included an equal number of 15 FB and 15 NFB, distributed as in table 3.12.

Table 3.12: Sector-Wise Distribution of Sampled Businesses for Framework Analysis

Business Type	Family Business (n=15)	Non-Family Business (n=15)	Total (n=30)
Manufacturing	3	3	6
Retail & Wholesale	3	3	6
Services	3	3	6
Agriculture	3	3	6
Tourism and Hospitality	3	3	6

Source*: Compiled by the researcher*

This balanced distribution across business types ensures equal representation, allowing for meaningful comparisons between FB and NFB. Additionally, the inclusion of diverse sectors such as manufacturing, retail, services, agriculture, and tourism captures a wide spectrum of resilience strategies and experiences during both normal and crisis periods. Primary data was collected through semi-structured interviews with business owners and

key decision-makers. The interviews focused on resilience strategies applied in both regular operations and during the covid-19 crisis. Each interview lasted between 30 to 45 minutes and was audio-recorded, transcribed, and systematically coded for analysis. The interviews explored five core resilience factors: social capital, financial capital, organizational culture, human capital, and external assistance.

The framework analysis followed five key stages:

I. First, the familiarization stage involved reviewing interview transcripts to identify recurring themes, patterjns and key points to business resilience.

II. Second, a thematic framework was developed by categorizing responses into five predefined resilience factors. These included: Human capital, which referred to employee skills, training initiatives, and retention strategies; Organizational culture encompassing leadership styles, adaptability, and employee motivation; Social capital, highlighting the role of family networks, community-based support, and stakeholder relationships in ensuring business continuity; Financial capital, which involved access to funding, financial planning, and mechanisms for financial stability; and External assistance, referring to government policies, industry collaborations, and the receipt of financial aid or support programs.

III. Third, the indexing process involved systematic coding of responses according to the thematic framework.

IV. Fourth, the charting stage entailed developing a comparative matrix to analyse and contrast resilience strategies across FB and NFB, as well as general versus crisis-specific strategies during COVID-19.

V. Finally, the mapping and interpretation stage identified patterns, key differences, and emerging themes to generate insights into how businesses adapted during crises while maintaining long-term resilience.

This analytical process offered a structured yet flexible approach to distinguish between general resilience strategies and those specifically developed in response to the COVID-19 crisis, highlighting how different types of businesses navigated uncertainty and sustained operations.

3.5. Chapter Summary

This chapter dives deep into the methods used throughout this research project. It explores the different types of research, the chosen research design, specific details about sampling, the employed model for analysis, and the techniques used to collect and analyse data. Importantly, the chapter justifies the selection of each method, explaining how it aligns with the study's objectives. Given the quantitative nature of the research, specific details regarding sampling and hypotheses are provided for the required objectives. *Objective 1* focuses on FB in Assam and utilizes descriptive statistics to create a demographic profile, providing a snapshot of their current status. *Objective 2* explores the relationship between EO, FBS, and SEW within FB. This objective employs PLS-SEM analysis to examine these connections. *Objective 3* aims to identify and compare the resilience factors of both FB and NFB. This objective utilizes quantitative analysis (independent t-tests) to compare factors between groups and qualitative analysis (framework analysis) to gain deeper insights through open-ended responses. Finally, the chapter concludes by discussing the specific statistical tools used in the quantitative analysis of objective 3, justifying their selection based on their capabilities and suitability for the chosen techniques. This comprehensive overview of the research methodology ensures transparency and strengthens the foundation of the study.