3. RESEARCH METHODOLOGY

Flow Chart

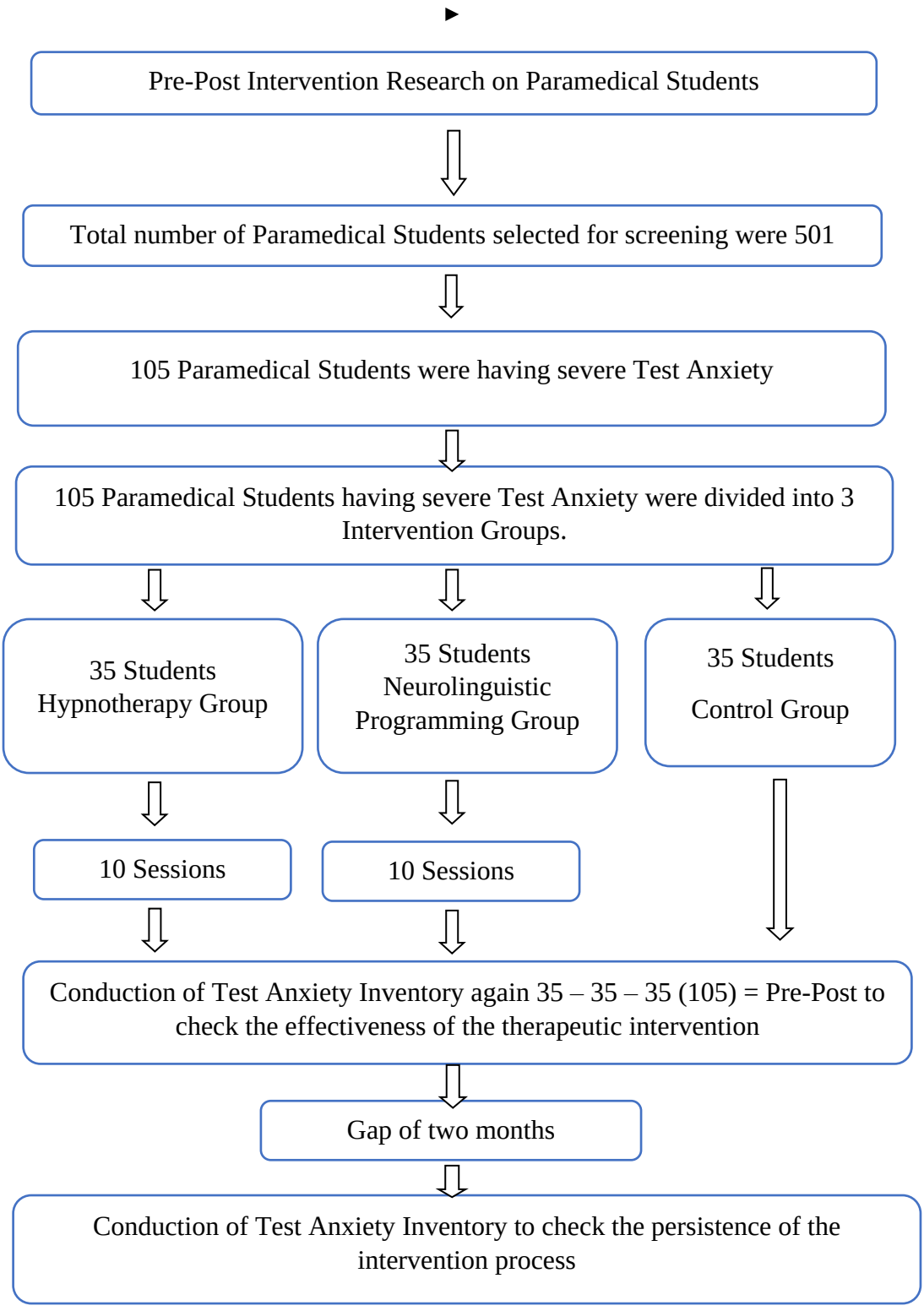

Figure 3.1. Flow Chart

3.1. Rationale of The Research:

Examination stress and test anxiety are pervasive problems in modern society. As the information age continues to evolve, test scores will become even more important than they are today in evaluating applicants for demanding jobs and candidates for admission into highly competitive educational programs. Test anxiety generally causes decrements in performance and undermines academic achievement, the development of effective therapeutic interventions for reducing its adverse effects will continue to be an important priority for counselors, psychologists, and educators.

Over the past few decades, there has been an upsurge of interest in test anxiety research among psychological and educational researchers. Hundreds of researchers have investigated the nature, antecedents, correlates, and consequences of test anxiety and the literature is prodigious. A wealth of studies relating to various facets of test anxiety has appeared in some of the premier journals in psychology and education. Test anxiety has become a major topic of research interest in education and various subareas of psychology, including personality and social psychology, educational and developmental psychology, cognitive psychology, health psychology, counseling, and clinical psychology.

With the burgeoning interest and massive research on various aspects of test anxiety, and the progress achieved by researchers in understanding its nature, determinants, consequences, and different therapies to deal with test anxiety, students are bombarded with so many therapeutic options therefore, the time seems ripe for summarizing the concept of test anxiety and start focusing on the comparison of various therapeutic methods to overcome test anxiety, which will help them decide which therapy is most effective. As a result, we can help the anxious students to perform and achieve to the best of their abilities.

3.2. Objectives of The Study:

The primary and secondary objectives of the study are mentioned below:

Primary Objectives:

1) To study the effectiveness of Hypnotherapy on Test Anxiety among Paramedical students.
2) To study the effectiveness of Neurolinguistic Programming on Test Anxiety among Paramedical students.

3) To compare the effectiveness of Neurolinguistic Programming and Hypnotherapy in the context of Test Anxiety among Paramedical students.

4) To investigate which effect is more persistent after 2 months among Paramedical students.

Secondary Objectives:

- To identify the factors affecting Test Anxiety among Paramedical students such as:
    - Gender
    - Age
    - Birth Order
    - Education of Mother
    - Education of Father

To achieve the objectives of the study the following hypotheses were formed:

3.3. Hypothesis

- [Group A – Hypnotherapy - 35 participants]
- [Group B – Neurolinguistic Programming - 35 participants]
- [Group C – Control Group - 35 participants]

Table 3.1. Research Hypothesis

Hypothesis 1	There will be no significant difference in the pretest scores and post-test scores of Group A [Hypnotherapy Group].
Hypothesis 2	There will be no significant difference in the pretest scores and follow-up scores of Group A [Hypnotherapy Group].
Hypothesis 3	There will be no significant difference in the post-test scores and follow-up scores of Group A [Hypnotherapy Group].
Hypothesis 4	There will be no significant difference in the pretest scores and post-test scores of Group B [NLP Group].
Hypothesis 5	There will be no significant difference in the pretest scores and follow-up scores of Group B [NLP Group].
Hypothesis 6	There will be no significant difference in the post-test scores and follow-up scores of Group B [NLP Group].
Hypothesis 7	There will be no significant difference in the pretest scores and post-test scores of Group C [Control Group].
Hypothesis 8	There will be no significant difference in the pretest scores and follow-up scores of Group C [control Group].
Hypothesis 9	There will be no significant difference in the post-test scores and follow-up scores of Group C [Control Group].
Hypothesis 10	There will be no significant difference in the post-test scores of Group A [Hypnotherapy Group] and Group B [NLP Group].
Hypothesis 11	There will be no significant difference in the post-test scores of Group B [NLP Group] and Group C [Control Group].
Hypothesis 12	There will be no significant difference in the post-test scores of Group A [Hypnotherapy Group] and Group C [Control Group].
Hypothesis 13	There will be no significant difference in the follow-up scores of Group A [Hypnotherapy Group] and Group B [NLP Group].
Hypothesis 14	There will be no significant difference in the follow-up scores of Group B [NLP Group] and Group C [Control Group].
Hypothesis 15	There will be no significant difference in the follow-up scores of Group A [Hypnotherapy Group] and Group C [Control Group].

3.4. Research Methods:

For any research study, the methodology used is of immense importance specifically the design of the study as it helps to answer the research questions and control the variance. The present study was conducted in phases using Multigroup design where the groups were 1. Group A: those who were given Hypnotherapeutic Intervention, Group B: those who were given NLP, and Group C was the Control Group. The second design was the pre-test and the post-test, where the participants' scores on pretesting were compared with those of the post-test scores.

3.4.1. Variables:

Anastasi in 1988 reported that a variable is any state in scientific research that may vary in capacity and condition. For example, a self-report degree of test anxiety is a variable that can alter because of various determinants. Precisely, test anxiety variations in individuals over a period. Often test anxiety develops as an assessment situation, such as an exam in a class. In essence, of a logical viewpoint analysis, length, place temperature, and period of day are variables or states that can vary in volume. Blending, self-governing, subservient, arbitrator, administration, reconciling, and suppressor are the standard variables observed in test anxiety research.

3.4.1.1. Independent Variable:

The independent variables in Test Anxiety are perceived conditions of variation in the dependent variable(s). In this research, the researcher has incorporated Demographic variables: age, gender, birth order, education & occupation of parents, along with the Therapeutic Techniques, as Independent Variables. Therapeutic Techniques are on three levels:

Table 3.2. Independent Variables in Therapeutic Techniques

Independent Variables	Therapeutic Techniques
Independent Variable 1	Hypnotherapy
Independent Variable 2	Neurolinguistic Programming
Independent Variable 3	Control Group

3.4.1.2. Dependent Variable: Test Anxiety

Spielberger (**1980)** noted that dependent variables are examples of some responses or the considered influences of the self-governing variables. In test anxiety, a traditional variable dependent is the Inventory of Test Anxiety.

One can infer that measurements on a dependent variable are conditioned upon the advantages of an independent variable (a therapy), which occurs in variations on the subordinate variable to understand an easy case of one healing relaxation therapy. Suppose we were selected to have two stages of this treatment. For uniformity, let us pretend that the researcher had a group of learners undergoing test anxiety and we chose to perform a random sampling of the learners into two groups. The researcher could manage one group and practice the second as a referent or instrument group, therefore, the independent variable should have two steps-treatment and administration. Further, patterns on the dependent variable rely upon the value or scale of the variable which is independent. Thus, the researcher assumes learners in the therapy group have test anxiety at lower levels compared to the Control Group. In gist, dependent variables depend upon the stages of an independent variable which perpetually has at least two levels.

3.4.1.3. Control variable:

Control variables are independent variables that the researcher does not need to influence the results of a research study. Besides, control variables are blending variables that a researcher needs to take into a record in a research inquiry. A researcher normally requires to hold a control variable steady. In this research control variables are divided into two criteria.

- **Inclusion Criteria**:

  - Age of the students (17 to 25 years)
  - Students of the paramedical field in Baroda only were considered for the study.
  - Paramedical Students from bachelor's first year to master's final year were included in the research.
  - The researcher included only Physiotherapy, Pharmacy, and Nursing departments in the Paramedical field in this research.

- The Paramedical students having severe test anxiety levels were included in the intervention program.
- The English language was kept as a medium of instruction throughout the intervention program; hence care was taken that the student participants be familiar and comfortable with English.
- The intervention program was arranged in a manner to conduct a significant test after the intervention and before the follow-up session, this provided a deeper understanding of their anxiety level.
- The suggestibility of students was checked before taking them for therapeutic intervention.

○ **Exclusion Criteria:**

- The Paramedical student participants were not suffering from any mental disorder.
- The Paramedical student participants were not undergoing any other anxiety or anxiety-related treatments.
- The Paramedical students who were not comfortable or familiar with the English language were not included in the intervention program.

3.4.2. Research Criteria

3.4.2.1. Research Sample:

- Test Anxiety Inventory was implemented on 501 Paramedical students
- In this research paramedical field included only physiotherapy, pharmacy, and nursing departments. 35 students in each group were randomly selected as a research sample.
- Students from the first-year bachelors' program to master's final year i.e. whose age was from 17 years to 25 years were included in the first phase of the research.
- Students of 3 colleges participated in the research. **Research sites** were:
  - Parul University
  - Sigma Group of Institutes
  - BITs Education Campus

3.4.3. Sampling Techniques:

3.4.3.1. Multi-phase Sampling Technique

The researcher used the multi-phase sampling technique in this research. The **entire research sample** was considered (All registered students studying in Physiotherapy, Pharmacy, and Nursing department from the first year of bachelor's program to masters final year, in the above mentioned five colleges of Baroda) for the first phase i.e. for screening the population.

3.4.3.2. Purposive Sampling Technique

For the second phase, the Purposive Sampling Technique was used, since this research targeted a certain kind of group. i.e. students affected by test anxiety.

3.5. Research Tool:

3.5.1. Test Anxiety Inventory (TIA)

The tool used was the **Test Anxiety Inventory** prepared by Anjuli Verma and Darshini Shah (2006). It covered a larger domain of effect of test anxiety and stress than existing tools. This tool measured the cumulative effect of test stress and anxiety on students in terms of physiological, emotional, cognitive, and interpersonal effects. It also measured the sources of test stress in terms of parental pressure, peer pressure, and self-pressure. The tool contained items that measured negative as well as positive effects of test stress and anxiety on students. It also measured the support given by parents and peers during test time.

Sapp (1993) analyzed that traditionally, test anxiety, as estimated by the Test Anxiety Inventory (TAI), consists of two components: worry and emotionality. Worry is the psychological anxiety about performing whereas being emotional is the physiological response to anxiety. Sarason in 1980 aimed at cognitive while a test circumstance or training place can end in reduced training and achievement. Typically, test anxiety produces requirements on the consciousness by splitting attention into task-relevant and task-irrelevant cognition and practices.

3.5.2. Reliability:

Cronbach's Alpha was done for finding reliability. The Alpha for Part 1 was 0.79 and the Alpha for Part 2 was 0.81. The Alpha coefficient of the full scale was high at 0.87.

3.5.3. Validity:

The validity by the Guilford Method was found to be 0.93

3.5.4. Norms:

The norms were constructed.

3.5.5. Test Anxiety: 12 Dimensions Outcome-based Score Module Components

Table 3.3. Test Anxiety: 12 Dimensions Outcome-based Score Module

Test Anxiety Dimensions	Outcome-based Score Module Components
Dimension 1	Negative Physiological Effect
Dimension 2	Positive Physiological Effect
Dimension 3	Negative Emotional Effect
Dimension 4	Positive Emotional Effect
Dimension 5	Negative Cognitive Effect
Dimension 6	Positive Cognitive Effect
Dimension 7	Negative Interpersonal Effect
Dimension 8	Negative Parental Pressure
Dimension 9	Positive Parental Support
Dimension 10	Negative Peer Pressure
Dimension 11	Positive Peer Pressure
Dimension 12	Self-Pressure

3.6. Research Design: Pre-Post Experimental Design (Intervention)

3.6.1. Research Procedures

The procedure in this research was conducted in three phases:

Table 3.4. Research Procedures in Three Phases

Phase	Research Procedure
Phase 1	Screening Phase
Phase 2	Intervention Phase
Phase 3	Follow-up Phase

1.6.1.1. Screening Phase

- Administering test anxiety test on 501 paramedical students, using "Test Anxiety Inventory" – a tool developed to measure Test Anxiety by Anjuli Verma and Darshini Shah (2006).
- Collection of data and analysis of the same to screen the population.
- Selection of the students who scored above average and high in the test anxiety test.

1.6.1.2. Intervention Phase

- After taking the consent of the participants, the head of the Departments, and the parents of student participants the researcher has initiated the Intervention Phase.
- The number of students was divided equally into 3 groups, using a matched group design. In this phase, it matched based on group mean and standard deviation scores that they achieved on test anxiety inventory.
- The suggestibility level of the students was checked and those who were found to be highly or moderately suggestible were given preference for participating in the intervention program. Hull CL (1933) mentioned Suggestibility in Hypnotherapy in his empirical approach to hypnosis. The researcher used the Heavy - Light

technique to check the suggestibility levels of Paramedical students having severe Test Anxiety.

- Conduction of an intervention program using techniques of Hypnotherapy and Neurolinguistic Programming in Group A and Group B respectively.
- Group C was considered a Control Group - Group C.

Table 3.5. Intervention Phase (n=105)

Group	Intervention Phase Therapy	Participants
Group A	Hypnotherapy	35 participants
Group B	Neurolinguistic Programming	35 participants
Group C	Control Group	35 participants

- Designing of Intervention Module. (References: Index – Flow Chart)
- The Intervention Program was conducted for 10 sessions.
- Administration of the Test Anxiety test post-intervention program again.
- A comparison of the result was done and the effectiveness of the technique in dealing with Test Anxiety was checked.

1.6.1.3. Follow-up Phase

- This test anxiety test was conducted again as a follow-up after 2 months to check whether the effect persisted beyond interventions

Statistical Analysis of Treatment Data

The obtained data were analyzed using descriptive statistics like mean and standard deviations and inferential statistical techniques like Chi-Square Test, Mann-Whitney U Test, and Wilcoxon Test. The results are described and discussed in the next chapter.