III. METHODOLOGY

Research methodology is a technique used to organize a study and collect, process, and evaluate data. It is the strategy for finding the answers to the research questions and resolving some of the challenges that arose during the investigation (Polit & Beck, 2017).

Research methodology thoroughly describes the techniques used and the circumstances surrounding the data collection, focusing on the connection between the data and the research topic (De Vos *et al.*, 2015).

3.1 Overview

This chapter presents a detailed description of how samples were selected, along with the criteria, development of the intervention package, and its implementation. This chapter gives complete detail on the statement of the problem, research gap, objectives, hypotheses, description of variables, and operational definitions. The other part of the methodology focused on the research approach and complete details of the research design based on phase.

3.2. Description of the variables
3.3. Operational definitions
3.4. Phase-wise study
3.4.a. Phase I
- **(i)** Research approach
- **(ii)** Research design
- **(iii)**Pilot study

3.4.b. Phase II
- **(i)** Area of the study
- **(ii)** Research sample

3.4.c. Phase III
- **(i)** Research tool
- **(ii)** Reliability and Validity
- **(iii)** Ethical approval

3.4.d. Phase IV
- **(i)** Instruction given
- **(ii)** Data collection
- **(iii)**Development and implementation of intervention programme

3.4.e. Phase V
- **(i)** Statistical analysis

3.2 DESCRIPTION OF THE VARIABLES

In the present research nine independent variables and one dependent variable were taken to analyse the influence of the study objectives and are presented in Figure 3.1:

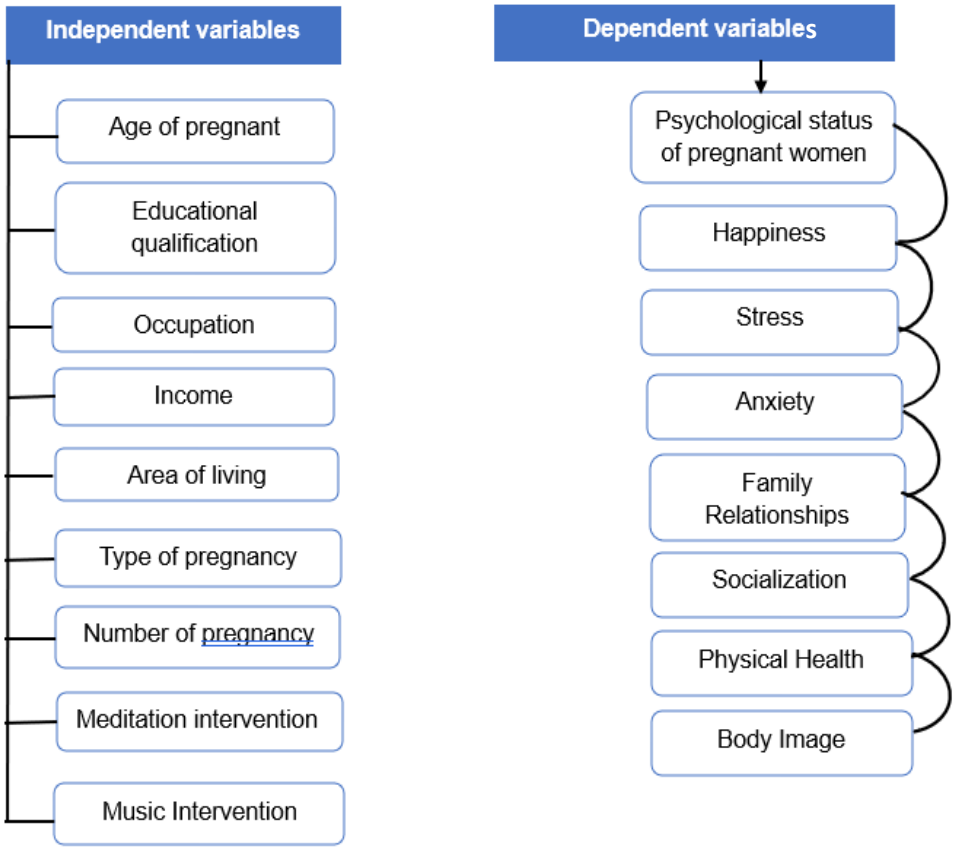


Fig. 3.1: Variables of the study

3.3 OPERATIONAL DEFINITIONS

The terms and concepts utilized in the research are operationally defined to specify precisely how and in what context they are employed. The definitions provided align with the focus of the current study.

1. **ANXIETY:** Symptoms of the musculoskeletal system, autonomic arousal, situational anxiety, and subjective perception of apprehensive arousal (Lovibond & Lovibond, 1995).
2. **BODY IMAGE:** Body image is defined as one's internal representation of his or her outer appearance. It refers to the meaning that pregnant women assign to their bodies and their bodies and the satisfaction or lack thereof that they experience in relation to their physical appearance (Grogan, 2008).

3. **EFFECTIVENESS:** It refers to determining the extent to which yoga therapy achieves the desired effect in reducing stress levels among pregnant women and improving pregnancy outcome.
4. **FAMILY RELATIONSHIPS:** The family is a crucial institution in the formation of human personality. It is a supergroup for kids' mental development (Adsul, 2015). A recent study has demonstrated that family plays a critical and substantial part in forming a healthy personality by meeting basic needs. Family, the initial unit of society, influences an individual's total development, including cognitive, social, and emotional development (Pawar & Adsul, 2015).
5. **HAPPINESS:** In operational terms, happiness or subjective wellbeing is a person's assessment of the quality of their own life (Diener & Suh, 1997). Happiness is a pleasant emotional state that each person defines for themselves. Since happiness is seen as subjective, it is sometimes used synonymously with subjective wellbeing (Baumgardner & Crothers, 2012).
6. **MEDITTAION:** Meditation, is an ancient exercise of the mind, body and soul and has been employed for centuries. Meditation increases calmness, induces relaxation, and improves psychological balance fosters coping strategies and focuses the mind. Meditative practices focus on the interactions among the brain, mind, body, and behaviour (Trama, & Cheema, 2016).
7. **MUSIC:** Music is useful for the relaxation process. Music has the power to calm and regulate brain waves, as well as influence respiratory rhythms, heart rate, and blood pressure, it may also stimulate the production of endorphins, which in turn can produce a feeling of comfort. In addition to being calming, music lowers pulse, systolic blood pressure, and discomfort. This is because music influences the limbic system, which is the hub for controlling emotions (Purwati, 2019).
8. **PHYSICAL HEALTH:** Physical health is the ability of a woman's body to adapt and support the growth and development of the foetus while minimizing the risks to the woman and the foetus. This definition emphasizes the body's adaptability during pregnancy (Gould et al., 2012).
9. **PREGNANT WOMEN:** A woman under gestation period of development while carrying an embryo and later foetus. It last about 280 days or 40 weeks.
10. **PSYCHOLOGICAL STATUS:** Psychological status refers to a mental state characterized by an individual's feelings, emotions, thinking, and perceptions. This may affect individual states such as stress, emotions and behaviours surrounded by the environment. However psychological well-being is an individual's ability to assess

their life in terms of thought, emotion, or feeling (Diener, 2000). It conveys how frequently people experience good or bad moods and emotions, as well as whether they have a beneficial or detrimental outcome. Subjective, social, psychological, and health-related behaviours are all components of psychological well-being, which is a dynamic notion that impacts an individual's emotional state, which is crucial for foetal development and childbirth (Ryff et al., 2006).

11. **QUASI-EXPERIMENTAL RESEARCH:** Quasi-experimental research involves controlling certain factors of the phenomena under inquiry but is not totally experimental. In this situation, studies and target groups are not chosen randomly, but from existing groups or communities. This ensures that the data collected is relevant and that information, views and opinions of the population are integrated into the study.
12. **SOCIALIZATION:** Parents and social institutions are typically the major agents of socialization; socialization refers to the mechanism through which individuals acquire the norms, regulations, and ideologies linked to their familial and societal contexts (Taylor, 2006).
13. **STRESS:** Stress is a detrimental emotional sensation characterized by anticipated physiological, biochemical, cognitive, and behavioural modifications designed to either notify the individual of the stressful occurrence or aid them in adapting to its aftermath. This experience can trigger a cascade of responses across various systems in the body, impacting both mental and physical well-being. (Baum, 1990). Stress induces psychological discomfort, which modifies bodily functions and may have immediate or long-term adverse effects on health (Taylor, 2006).
14. **TRIMESTER:** It represents a duration of three months while a woman is pregnant, with each period characterized by distinct stages of foetal growth (Better Health Channel, 2023). A woman who is pregnant will have to face 3 trimesters until delivery.

3.4 Phases

The present study encompasses following phases for conduct of the study and data analysis.

3.4.a) Phase I

(i) RESEARCH APPROACH

The present study used a quasi-experimental research methodology to demonstrate a cause-and-effect link between an intervention and an outcome. Since the experiment is conducted after group formation, quasi-experimental designs are also known as follow-up designs or post hoc experiments. The independent variable has already occurred, so the experimenter examines the effect after it occurs. The term quasi means ‘as if’ or ‘to some

extent'. Thus, a quasi-experimental design is similar to an experiment but lacks at least one of its distinguishing features (Singh & Singh, 2021).

Quasi-experiment is a study technique in which the investigator must choose individuals from preexisting groups based on various circumstances. It is a scientific research approach commonly employed in the social sciences. 'Quasi' means 'likeness' or 'resemblance,' hence quasi-studies have qualities similar to actual experiments that seek interventions or therapies. The absence of random assignment distinguishes this empirical technique. Another distinguishing feature of this experimental approach is the use of time series analysis, both interrupted and uninterrupted. Experiments designed this way are known as quasi-experimental designs (Mcburney & White, 2007). In this study, an intervention was planned and implemented.

In present study, intervention modules were planned and included randomized individuals in experimental and control groups administering the pre-test to all respondents in both groups. The experimental group was rerandomized into music and meditation intervention. It was ensured that both control and experimental groups experience the same conditions, with the exception that the control group will not receive the intervention. The post-test was administered to all respondents in both groups, and the amount of changes in the values of psychological status in pre, mid and post-test was assessed for each group separately.

The intervention period began in the second trimester and continued until the 8th month of pregnancy, which is the third trimester. Meditation and music intervention were administered during the period from 4^{th} month to the end of the 8^{th} month of pregnancy and each trimester i.e., in pre (1^{st} trimester), mid (2^{nd} trimester), and post intervention (3^{rd} trimester), pregnant women's psychological status was assessed through a self-constructed tool (Pregnancy Psychological Status Scale) and the outcomes of the meditation and music intervention on psychological status of pregnant women were thoroughly analysed.

(ii) RESEARCH DESIGN

A research design is a methodical approach for studying a scientific problem (Kothari, 2009) that assures the acquired data contributes to answering the targeted research question. Present study applies quasi-experimental research design that follows step-by-step methods to achieve the objectives and hypotheses set.

(iii) PILOT STUDY

For the pilot study, the Pregnancy Psychological Status Scale (PPSS) was initially composed of 72 items. After undergoing face validity, the scale was refined to 50 items across seven dimensions: anxiety (8 items), stress (10 items), depression (7 items), emotions (7 items), socialization (5 items), personal relationships (7 items), and in-law-family relationships (6 items). This revised 50-item tool was then utilized for the pilot study, which involved 66 pregnant women at different stages of pregnancy. These participants were selected from government and private hospitals in Coimbatore city, having been admitted between December 2019 and January 2020. The psychological status of these women was categorized as good (scores between 184-250), average (117-183), or poor (50-116). The results indicated that the majority of the respondents, 68.20%, had good psychological status, while the remaining 31.80% had average psychological status, with no participants classified as having poor psychological status.

Significant differences in psychological status were observed based on occupation (F=11.216, p<0.001), area of living (X^2=17.023, p<0.001), and stages of pregnancy (X^2=16.641, p<0.001). Specifically, housewives *(*M=204.94, SD=25.41) reported better psychological status compared to private and government employees. Additionally, pregnant women living in rural areas (Mean rank=42.70) had better psychological status than those residing in urban and semi-urban areas. Furthermore, women in their first trimester (Mean rank=42.92) exhibited better psychological status than those in their second and third trimesters. However, no significant differences in psychological status were found across various age groups, levels of education, family types, types of pregnancy, or number of pregnancies.

Following reliability and validity testing, the PPSS was further refined to 40 items across seven dimensions for the main study: happiness, stress, anxiety, family relationships, socialization, physical health, and body image. For the initial assessment, data were collected from 300 first-trimester pregnant women. The results revealed that the majority of these women fell into the moderate and low psychological status categories. Moreover, the findings demonstrated that psychological status significantly differed based on independent variables such as age, education, income, occupation, and type of pregnancy.

The researcher observed key aspects such as the time required to complete the scale, the comprehensibility of the item language, and potential challenges related to ambiguity. Consequently, an intervention plan was planned to enhance their psychological status,

which involved the implementation of meditation and music intervention. Based on a thorough understanding of the psychological factors influencing pregnant women's well-being, the researcher developed two intervention modules—meditation and music intervention and implemented them according to a well-structured schedule. This intervention module was administered to the experimental group. After the intervention program, an analysis utilizing appropriate statistical methods was conducted to gauge the measurable impacts of music and meditation intervention on the psychological status of pregnant women.

3.4.b) Phase II

(i) AREA OF THE STUDY

The current investigation was carried out in Lakhimpur district of Assam. The researcher selected Lakhimpur as the area for data collection and intervention for three reasons: first, the study was conducted during the COVID-19 pandemic, which made it impossible to obtain permission to carry out the research in the original PhD study area, even after the second wave.; second, there has been no prior clinical practice of music and meditation in Lakhimpur district of Assam, and no records of such practices exist. Third, the researcher was concerned about the safety and reduced risk among pregnant women while planning this intervention package.

Lakhimpur, situated in the northeast corner of Assam, is a scenic area along the banks of the Brahmaputra River. The Brahmaputra is navigable for steamers throughout the year up to Dibrugarh and during the monsoon season up to Sadiya. Noteworthy tributaries within the district are the Subansiri, Ranganadi, and Dikrong rivers. Predominantly reliant on agriculture, the district is particularly known for paddy cultivation, referred to locally as Lakhsmi, with 'pur' connoting abundance. The economic activities in Lakhimpur are predominantly agricultural, focusing on crops like rice, tea, mustard, and sugarcane. It stands out as a hub for "muga silk," a type of golden thread fabric, unique to this region in the northeast. The district's landscape is mainly characterized by tropical rainforests, with significant forest reserves including Ranga, Kakoi, Dulung, and Pava. Bounded by the Brahmaputra River to the south, the district's key rivers are Subansiri, Ranganadi, and Dikrong. Historical records from the Lakhimpur district Gazette trace its inception back to a proclamation in July 1839 by the then-Governor General. Positioned in the northeastern part

of Assam, Lakhimpur falls within the coordinates of 26°48' to 27°53' north latitude and 93°42' to 94°20' east longitude, sharing borders with Arunachal Pradesh's Siang and Papumpare districts to the north, Assam's Dhemaji District and the Subansiri River to the east, Jorhat District's Majuli sub-division to the south, and Sonitpur District's Gohpur sub-division to the west. The district spans a total area of 2277 square kilometers, with 2257 being rural and 20 urban area.

In October 1971, Lakhimpur district was reorganized into two sub-divisions: Dhakuakhana and North Lakhimpur. The North Lakhimpur sub-division encompasses four police stations, namely North Lakhimpur, Boginadi, Laluk, and Bihpuria, while the Dhakuakhana sub-division is home to Dhakuakhana and Ghilamara police stations. As per the 2011 Indian census, the population of Lakhimpur stood at 10,40,644 individuals, comprising 529,674 men and 512,463 women, residing in 204,307 households. The sex ratio in Lakhimpur district averages at 968, with a population density of 457 per square kilometre according to the 2011 census.

As per the 2011 Census data, urban areas accommodate 8.8% of the total population, whereas 91.2% reside in rural regions. Urban areas exhibit an average literacy rate of 86.9%, while rural regions record a rate of 76.2%. Moreover, the sex ratio in urban parts of the Lakhimpur district stands at 939, contrasting with 970 in rural areas. The overall literacy rate in Lakhimpur district tallies at 77.2%, with male literacy at 70.9% and female literacy at 60.09%. Within the North Lakhimpur Circle, 95,713 individuals were part of the workforce, with 72.8% engaged in primary occupations (employment exceeding 6 months) and the remaining 27.2% involved in Marginal activities for survival under six months. Out of the 95,713 individuals engaged in Main Work, 26,903 were identified as cultivators (owners or co-owners), and 1,646 were categorized as agricultural labourers based on the 2011 census.

(ii) RESEARCH SAMPLE

The sample represents the group of people, objects, or items that are taken from the larger population for the measurements. It is a subset unit of the population selected for participation in the research study.

The Antenatal Care (ANC) registration status in Lakhimpur District demonstrates the following patterns:

In the financial year 2019-2020, a total of 21,485 pregnant women registered for ANC services. The subsequent financial year, 2020-2021, saw a slight increase with 21,790 registrations. Moving to the financial year 2021-2022, the number of ANC registrations further rose to 22,253. However, in the most recent financial year, 2022-2023, there was a decrease in ANC registrations, totalling 20,596.

These figures serve as indicators of the number of pregnant women actively seeking antenatal care services in Lakhimpur District during each respective financial year. The data provides valuable insights into the utilization of maternal healthcare services over time, aiding in the assessment of trends and the planning of healthcare resources to meet the needs of expectant mothers in the region.

In 2023, Lakhimpur district witnessed a birth rate of 16,693, constituting 16.69% of the population, reflecting significant population growth. Simultaneously, the death rate was 3,781, accounting for 3.03% of the total population, indicating the number of deaths during the year. These demographic indicators provide insights into the district's population dynamics, aiding in social and economic planning.

The sample for the present research study were pregnant women under first trimester (from 1-3 months). To select the research sample, purposive sampling method was adopted. A total of 300 pregnant women were selected from primarily from government, including sub-centres and private hospitals of the Lakhimpur district of Assam, following the acquisition of proper prior permissions and consent from the respective healthcare institutions. The present study covers a total sample of 300 pregnant women which comprises of 2.5% of total registered population in ANC. The researcher directly approached the potential participants, clearly explaining the study's objectives and outlining the data collection procedure. Upon receiving informed written consent from pregnant women, they were requested to complete the demographic characteristics and obstetric variables information, along with the Pregnancy Psychological Status Scale (PPSS) questionnaires. For the purpose of sample selection, strict inclusion and exclusion criteria were applied. Out of the 300 pregnant women, 200 pregnant women were selected randomly for the intervention programme, and 100 samples were excluded due to not meeting inclusion criteria, declining to participate due to COVID-19, and did not complete an initial assessment. Also, these 200 pregnant women were selected among those who scored moderate to low psychological well-being.

The intervention program was accompanied by written consent from participants, and the researcher personally reached out to them to obtain it. Initially, 200 pregnant women who were willing to participate in the intervention programme were chosen as the control and experimental groups with each 100 members. Both groups were chosen from different hospitals and were kept uncontacted each other. Control group participants were informed to collect data for 2 more trimesters to their psychological well-being. Experimental group participants were informed about the two intervention programmes separately with detailed description along with conditions to fulfil the criteria. The meditation and music intervention, initially 45 sand 55 respondents were selected. Later, due to reasons such as loss of follow-up, discontinuing minimum participation, unwillingness, and lack of interest in participation, and leaving an online intervention group in between the sessions, finally 30 in each experimental group were selected. Similarly, control group was consisted of 100 respondents initially. Due to unwillingness of participation, loss of follow up and low access to technology, same like experimental group have also 30 in each group were allotted in control group. Therefore, the post intervention programme was administered and assessed for 120 respondents totally, under which 60 control and 60 experimental groups were chosen.

Inclusion criteria	Exclusion criteria
• 1st trimester pregnant women • Age between 18-40 years • Normal pregnancy • 1st /2nd /3rd pregnancy	• Not willing to participate. • Less than 18 and more than 40 years. • Pregnant women with better psychological status. • Pregnant women with complications • IVF/IUI pregnant women • Previously participated pregnant women for pilot study Places other than Lakhimpur.

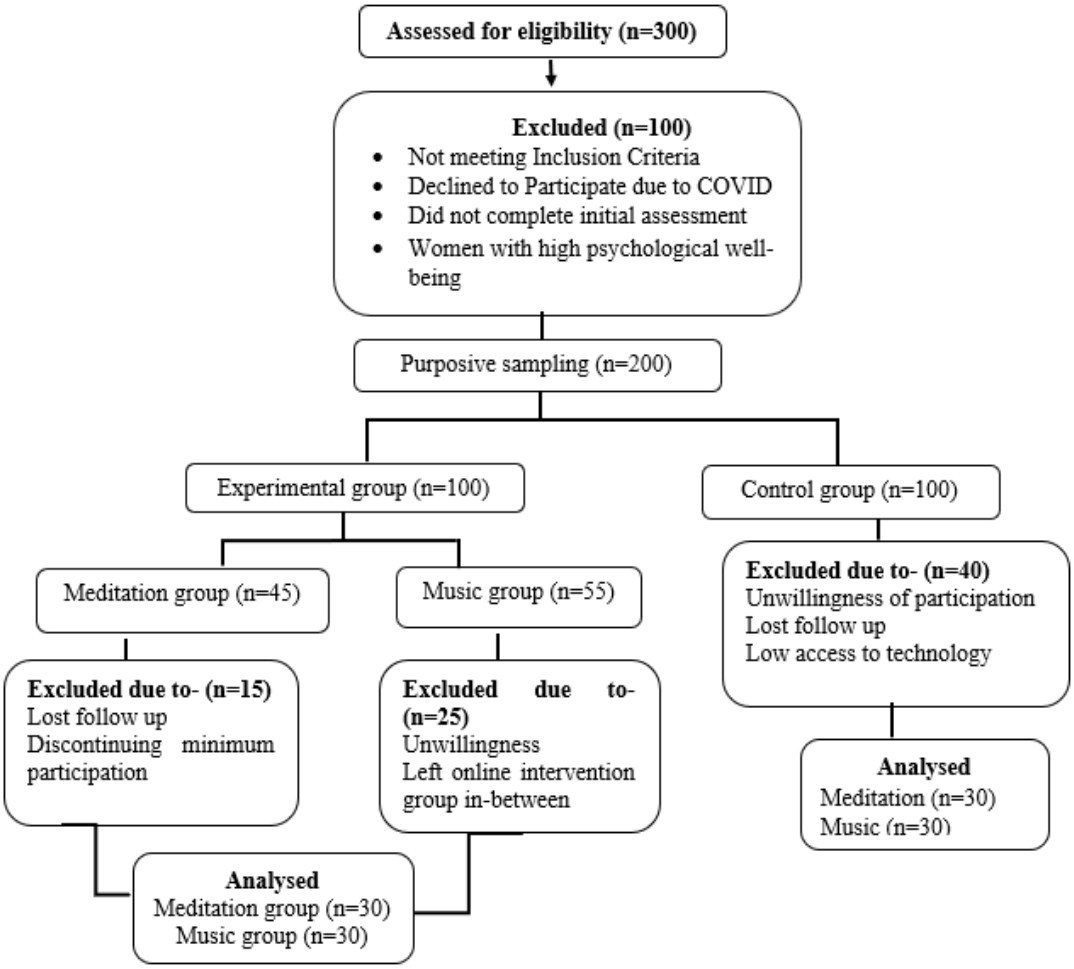


Fig.3.2 Intervention population plan

3.4.c) Phase III

(i) RESEARCH TOOL

The following self-constructed tools were used for the present study:

1. Socio-demographic profile

2. Pregnancy Psychological Status Scale.

1. Sociodemographic profile: The sociodemographic profile includes pregnant women's age, education, occupation, income, type of family, area of living, type of pregnancy and number of pregnancy.

2. Pregnancy psychological status scale:

A scale was designed to assess the psychological status of a pregnant woman. The scale was applied to both the experimental and control groups. It had an Assamese and an English version. There were 40 items related to the well-being of pregnant women.

The tool '**Pregnancy Psychological Status Scale (PPSS)'** was developed by taking a step-by-step approach, which effectively provides information regarding study objectives. The following steps were followed in designing the questionnaire:

- Goal and objective of the questionnaire
- Type of questions (open-ended or closed-ended) suitable for the researcher study samples
- Statements meant only for pregnant women
- Length and order of the questions
- Pretesting the questionnaire via Pilot study for validity & reliability

The attachment theories and mothers' psychological adaptation during pregnancy was collected and prepared the tool based on the available standardized tool such as Beck's Depression Inventory Scale, State-Trait Anxiety Inventory (STAI) by Spielberger (1976), Psychological Well-being (42 items) (Ryff, 1989), etc. The Pregnancy Psychological Status Scale was designed based on these questionnaires as well as earlier research on the subject and interviews with pregnant women during the pilot study about their feelings, thoughts, and experiences during this period. Additionally, the statements on psychological status were framed with careful consideration and the researcher's experience. Initially, a total of 72 items related to pregnancy psychology were prepared, which had to be rated on a three-point scale with 1,2 & 3 indicative of 'Yes', 'Sometimes' & 'No'.

The tool was validated by experts from different fields, such as academicians, gynaecologists, psychologists, and counsellors. Using the internal consistency method, only those items were chosen on which the rating was the same amongst all the experts. Using this principle, 40 items were selected from a total of 72 items. The remaining statements were discarded due to low score and unanswered statements during pilot study. The selected statements were not touching nor harming the emotions of women while responding to it. Utmost care was taken while framing each statement. A total of 40 items were assessed for potential inclusion in the final analysis and were categorized into seven distinct dimensions: Happiness (4 items), Stress (10 items), Anxiety (7 items), Family Relationships (FR) (5 items), Socialization (4 items), Physical Health (PH) (6 items), and Body Image (BI) (4 items). Out of 40 items, 17 were recognized as true-keyed, whereas the remaining 23 were categorized as false-keyed, with detailed explanation presented in Table 1. A 4-point Likert scale was adopted to respond to each statement: often, sometimes, rarely, and never. This comprehensive approach ensured the systematic administration of the tool and the collection of pertinent data for the study.

Table 1

Dimensions of psychological status and its items

Sl. No.	***Dimension***	***Total statements***	***Serial number of the items in the schedule***
1	Happy	4	1, 17, 31, 39
2	Stress	10	4*, 8*, 12, 16*, 21*, 25*, 30, 33*, 36*, 40*
3	Anxiety	7	2*, 11, 14*, 18*, 23*, 27*, 32*
4	Family relationships	5	3, 7*, 20, 26*, 29
5	Socialization	4	9, 5, 24*, 37
6	Physical health	6	5, 10*, 13, 22, 34, 38*
7	Body image	4	6*, 19*, 28*, 35*

Scoring:

Positive items- The response are scored as ‘Often’ -4, ‘Sometimes’ - 3, ‘Rarely’ - 2 and ‘Never’ - 1 respectively.

Negative items (*)- Similarly, for negative items, ‘Often’ as 1, ‘Sometimes’ -2, ‘Rarely’ – 3 and ‘Never’ as 1 respectively.

Total scores range between 40-160, thus indicating that the higher the score, the better the psychological status, and the lower the score, poorer the psychological status among pregnant women. The scores are divided into three categories based on the scores obtained. The categories are as follows:

Category	*Scoring*
Low	40-80
Moderate	81-120
High	121-160

Pregnant women's psychological status was divided into three categories: high, moderate, and low.

- **High psychological status** (scored between 121 and 160) means that the woman is happy, able to cope with stress and anxiety, has strong family relationships, is better able to socialize, has good physical health, and has a positive body image.
- **Moderate psychological status**, with a score ranging from 81 to 120. It indicates pregnant women have average levels of happiness, average levels of stress and anxiety management, average family relationships, moderate levels of socialization, average physical health, and body image.
- **Low psychological status** (with a score ranging from 40 to 80). It indicates that pregnant women are less happy, have trouble coping with stress and anxiety, have poor socialization, poor family relationships, poor physical health, and have a negative body image.

(ii) Reliability & Validity

The degree of consistency and stability with which a test measures the intended outcome is referred to as its reliability. In other words, a test is considered dependable if it exhibits consistency both within and across time. Cronbach's α (alpha), a coefficient of reliability that gauges the internal consistency or dependability of a test result, was used to calculate the reliability (Table 1). displays the typical values for Cronbach Alpha.

This is followed by Table 2. which shows the value of Cronbach alpha acquired, which is interpreted as an acceptable score.

Table 2. Cronbach's alpha interpretation

Cronbach's alpha	**Internal Consistency**
$\alpha \geq 0.9$	Excellent
$0.8 \leq \alpha \leq 0.9$	Good
$0.7 \leq \alpha \leq 0.8$	Acceptable
$0.6 \leq \alpha \leq 0.7$	Questionable
$0.5 \leq \alpha \leq 0.6$	Poor
$\alpha \leq 0.5$	Unacceptable

Table 3. Cronbach alpha values for Reliability Level

Shows the value of Cronbach alpha that was acquired for all the variables Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	No. of Items
0.703	0.705	40

Cronbach's alpha reliability 0.70, Cronbach's Alpha based on standardized items is 0.71. Content validity was established with the opinion of experts in the field of investigation. The reliability co-efficient of Cronbach's alpha in the above table indicates that the scores of the participants are having reliable values. The value indicates the suitability of both Assamese and English scale for further phase of the main study.

(iii) ETHICAL APPROVAL

The research committee of the Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore has given the approval for the selected statement of the problem for study and methodology during the proposal presentation with approval No. AUW/IHEC/HD-21-22/XPD-26. The Human Ethics Committee of Lakhimpur Medical College and Hospital, Lakhimpur, Assam (Approval No. LMC/IEC-21/12/01) has given approval for the conduct the study. Formal Permission was obtained from Directorate of Health Services of Lakhimpur district and Hospitals, pregnant women, and their families to conduct the study. Permission obtained from the supervisor and RAC members from the institute where the study has been registered. Each individual subject was informed about the purpose of the study. Informed written consent was dually signed and obtained from the samples. The sample had the freedom to withdraw from the study at any time. No physical or psychological harm involved in this study. Confidentiality was assured for study sample.

3.4.d) Phase IV

(i) INSTRUCTION GIVEN

Once the necessary consents were secured from both the pregnant women and hospital authorities, the researcher engaged in one-on-one interactions with the pregnant women and their families. The participants were handed the questionnaire and instructed to read it carefully before completing it. On average, participants took approximately 10-15 minutes to fill out the questionnaire, which consisted of 40 items. These items required the pregnant women to indicate the frequency of certain emotions using options such as 'Often,' 'Sometimes,' 'Rarely,' and 'Never.' The samples were instructed to read the scale carefully and respond to the factors by marking (✓) in the relevant columns provided.

(ii) DATA COLLECTION

Once the topic and interests for research was selected, the tool for data collection along with demographic details were also selected and decided. Lakhimpur district of Assam was selected to conduct the study. Permission was sought from the Joint Director of

Health Services, Lakhimpur for data collection and intervention programme. The researcher got permission to conduct the study in 5 hospitals in which one hospital is a government hospital and remaining are private hospitals. The data for the present investigation was collected from pregnant women from the suggested hospitals. After the selection and finalising the tool for data collection, the process of translation from English to Assamese was carried out with the help of language expert, who knew English and Assamese. Implementation of the method included four steps. The Assamese translated tool was also showed to a health professional who was familiar with the terminology of the area covered by the tools with knowledge of English and Assamese. After obtaining oral/written informed consent from the participants, the tools were administered.

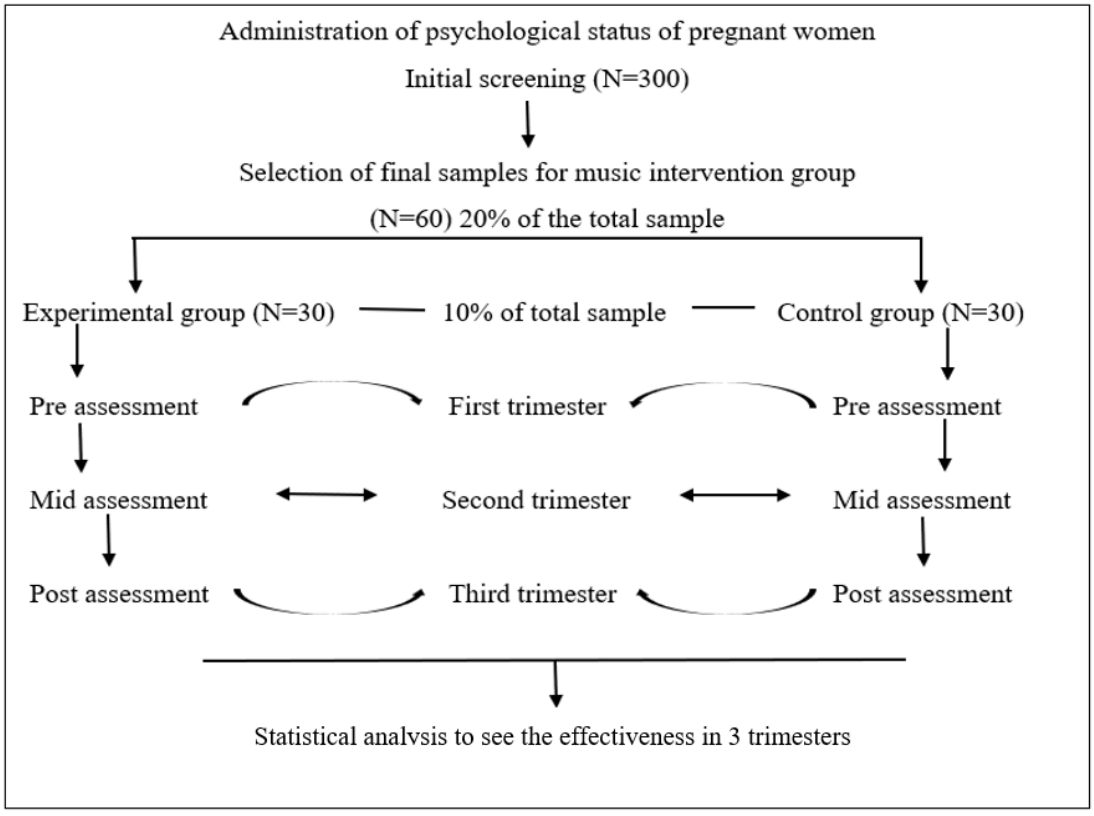


Fig. 3.3 Flow chart for Music intervention

A total of 300 of first trimester pregnant women were selected from Government and private hospitals and sub-centres in Lakhimpur district of Assam state. The respondents of the study were given instructions before they responded to the scale. While asking them not to ponder too much on any one item, there was no time limit given as to the completion of the scale. The participants who did not match the study criteria and who did not consent were excluded. Data were collected at baseline which was during first trimester of pregnancy, after the sixth and eighth months of pregnancy of post intervention programme.

After the data collection was over, the data was coded, checked for completion, and readied for analysis. SPSS version 21 was used for statistical analysis.

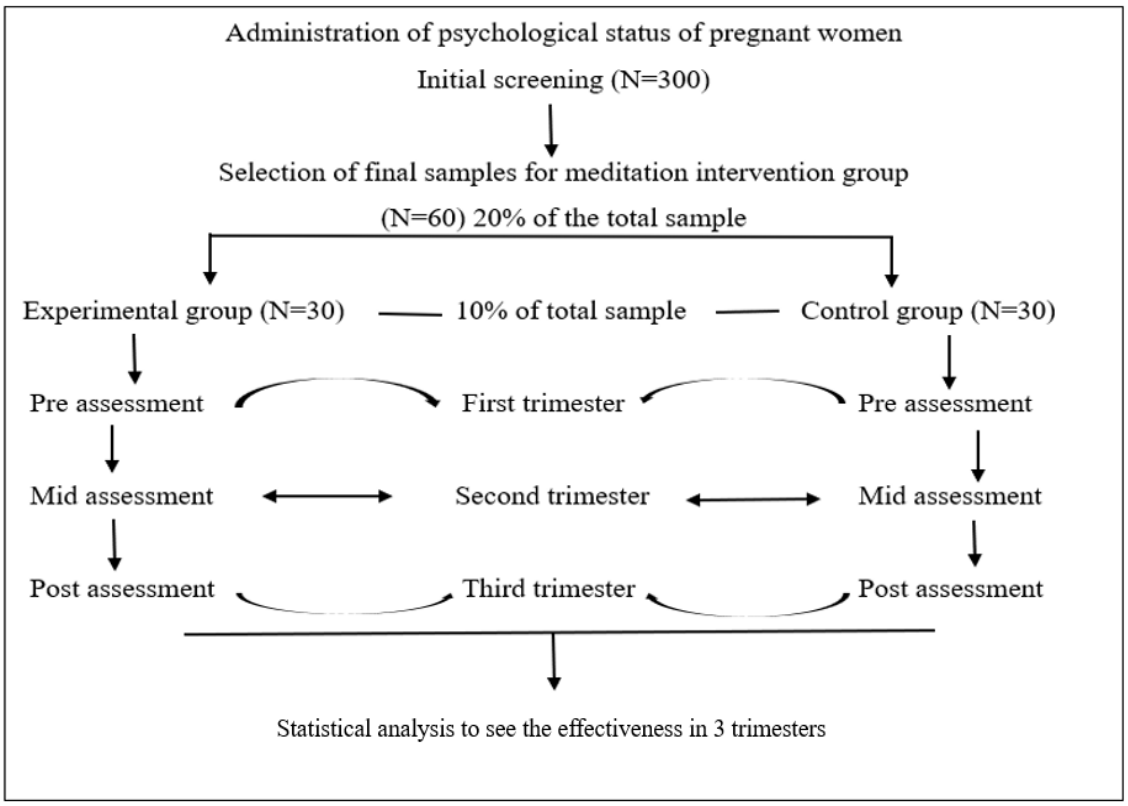


Fig. 3.4 Flow chart for meditation intervention

Table 4

List of Hospitals visited for data collection

Sl. No.	Name of the Hospitals	Government /Private
1	North Lakhimpur Civil Hospital/ Lakhimpur Medical College and Hospitals.	Government
2	Royal treat Nursing Home	Private
3	Dr. Amiya Maternity and Infertility Research Centr	Private
4	Saumerpith Nursing Pvt. Ltd.	Private
5	Avaneesh Hospital	Private
6	Chutiakari Sub-Centre	Government
7	Rongajaan Sub-Centre	Government
8	Azad PHC	Government

(iii) DEVELOPMENT AND IMPLEMENTATION OF INTERVENTION PROGRAMME

The intervention module aimed to offer a holistic technique to improve the psychological status of pregnant women. The intervention programme was conducted for a period of 5 months and the following sessions were allotted for the intervention program and each session was undertaken for 45 minutes to one hour during weekdays.

a. Meditation intervention - 14 sessions

Meditation intervention was conducted offline after the second wave of the COVID-19 pandemic. Initially, it was planned to offer both interventions online; however, due to reasons such as the ease of following offline meditation, limited Internet access, and its suitability for beginners, the intervention was held in person. The number of meditation sessions was determined based on existing literature, recommendations from experts, and the availability of pregnant women. Since the intervention coincided with the harvesting season in Assam, where many families are agriculture-based, a significant number of pregnant women were unable to participate. Considering these factors, the researcher decided on 14 sessions for the meditation intervention.

b. **Music intervention - 20 sessions**

Music intervention was conducted online. Based on recommendations from music experts, including music educators, a classical singer and a composer, existing literature, gynecologists, and the availability and willingness of pregnant women, it was scheduled for 20 sessions.

Each session was cautiously structured so that the activities and training covered all dimensions. Each session was timed and respondent responses were collected after each activity. The outcome of each training session was recorded.

The intervention was undertaken among 120 pregnant women and based on the initial assessment, respondents' willingness and persons not incorporated in other intervention sessions were opted and divided into control group (60) and experimental group (60). The control group was maintained as such without administering any intervention package. The experimental group was assigned meditation (30) and music intervention (30) with a deliberative schedule. In the initial phase, a face-to-face meeting was held for both groups, during which a detailed description of the intervention protocol and the minimum duration of participation were elucidated to them. The procedure was commenced in the second trimester (fourth month) of pregnancy.

Development of Intervention

Types of music and meditation were distinguished and finalized to use on pregnant women based on the researcher's expertise, previous research articles, health care workers and consultation with experts in the respective fields.

(i) Music intervention

After a thorough review of relevant articles and seeking advice from experts in the respective fields, including two music educators, one composer, and one classical singer and advice from gynaecologists, the pre-recorded music was selected for the music intervention group. The

music intervention included nature music, instrumental music, folk music of Assam, Garbha Mantra, Hindi classical instrumental music and lullabies. The pre-recorded music CD was reviewed by the experts, who made suggestions for improvements, resulting in the refinement and completion of the music to be given to the pregnant women.

Table 5: Module for Music Intervention

Type of Music	Description
Natures Music	Nature sounds like waterfalls, raindrops, rivers and oceans, wind, bees sound, birds chirping, a combination of guitar and raindrops, etc.
Instrumental Music	Sounds of flute, a combination of sitar and meditation ragas, romantic and relaxing saxophone music, relaxing piano and veena, table music, etc.
Folk music	Bihu geet, Biya naam, Dihanaam, Goalparia Lukogeet etc.
Garbha Mantra/Indian Classical music	Different Indian classical ragas such as Bhairav Raga, Bairagi Raag, Malkauns Raga, Yaman, Raag Todi, Pandit HariPrasad raga, etc.
Hindi Filmy Music	Based on the demand and interest of the pregnant women, the investigator has included different soothing music from filmy songs.
Lullabies	Assamese Nisokoni Geet e.g., Amare Moina Hubo; Bor sorar murote bokul phul fulise; Joonbai ae beji eti dia; Rodali ae, rod de; Xiyaali aye nahibi rati Ture kaane kati logame baati; Bogoli e xoba holoi nogoli kio; O phul O phul nuphulo kio; Twinkle Twinkle Little star; All through night; Amazing Grace Swing etc.

1. Nature's Music: Numerous studies have found that natural sounds reduce levels of stress and anxiety (Amiri et al., 2017; Largo-Wight et al., 2016). According Nussbaum (2008), sounds can activate involuntary canters in the central nervous system, influencing emotional and intellectual cognition via transmitting to higher areas of the brain. Nature sounds, such as ocean waves, streams, thunderstorms, and birds, have a strong relationship to human behaviour as it evolves (Nishida & Oyama-Higa, 2013).

The study has used pre-recorded nature music, such as waterfalls, raindrops, rivers and oceans, wind, bees buzzing, birds chirping, and a combination of guitar and raindrops, to the music experimental group, which is associated with creating a calming and soothing environment, for pregnant women.

Waterfalls & Raindrops: The sound of waterfalls is frequently considered pleasant and connected with serenity. The quiet pitter-patter of raindrops may be soothing and is

commonly utilized to produce a sense of serenity. According to the observations and feedback of selected pregnant women, falling water and the sound of raindrops with light piano background music can have a variety of effects on psychological and physical health, including relieving stress and anxiety, increasing concentration, improving sleep quality, and promoting a positive mindset throughout the pregnancy period.

Rivers and Oceans: The rhythmic sounds of rivers and oceans may provide a sense of continuity and flow. According to Dr. James Wilson, a well-known sleep specialist, the calming quality of the ocean soundscape encourages relaxation, offering the ideal atmosphere for a good night's sleep. It is a safe and natural solution for sleep problems. Listening to ocean sleep sounds might put us in a state of full relaxation. The sound of waves breaking on the coast produces a fascinating melody that sends us into a profound state of relaxation. The repetition of the sound, mixed with the immensity of the ocean, creates a sensation of spaciousness and serenity.

Furthermore, the sound of ocean waves might elicit pleasant memories and connections. For many individuals, the ocean represents vacation, relaxation, and an escape from the stresses of daily life. Listening to ocean sleep sounds allows you to connect into these pleasant feelings and create a mental environment favourable to rest and rejuvenation (Aura Health Team, July 2023).

Wind sound: The soft rustling of the wind may be soothing and stimulating. It can provide a sensation of freshness and remind one of the natural worlds outside, establishing a connection with nature.

Bees Buzzing: The soothing humming of bees may lend a natural touch to the environment. It's a soft sound that might add to a serene setting.

Birds chirping: The lovely melodies of birds chirping are frequently connected with the waking of nature. It can generate a good and uplifting environment, bringing forth feelings of joy and rebirth. Bird singing has become a popular kind of sound therapy that can help people, particularly people who are stressed by noise pollution. It reduces stress and promotes positivity and it helps pregnant women to pay attention to their auditory surroundings and focus on one sense at a time.

Combination of Guitar and Raindrops: The combination of a soft guitar tune and rainfall can result in a lovely blend of natural and musical sounds. The guitar gives a personal touch, while the rains provide a relaxing and rhythmic effect. It is thought that exposing the

growing infant to these soothing sounds may improve their well-being, as well as provide pregnant moms with a sense of peace and relaxation. Individual tastes may differ; thus it is critical to select sounds that resonate well with the persons involved.

2. Instrumental Music: Gentle instrumental music may relax and positively affect both the mother and the infant, resulting in a quiet and happy setting. Calming and soothing music with a slower speed can aid in relaxation and stress reduction. According to research, music therapy might benefit the infant throughout labour and delivery. The calming tones can assist regulate the baby's heart rate and produce a state of calm. Listening to instrumental music while pregnant may be a relaxing and enjoyable experience for both the mother and the unborn child. It is critical to select music that encourages relaxation and a happy environment. Flute, sitar, meditation ragas, saxophone, piano, veena, and tabla are all beautiful options.

Flute Music: The flute's delicate and melodious tones can induce relaxation and peace. **Sitar and Meditation Ragas:** Sitar music, particularly in traditional ragas used for meditation, has a calming impact on the mind and body.

Saxophone Music: Romantic and peaceful saxophone music may assist in creating a calming and delightful environment, lowering tension and anxiety.

Piano and Veena: The soothing and varied piano sounds, paired with the melodic tones of the veena, may create a relaxing environment for relaxation.

Tabla Music: The rhythmic rhythms of the tabla may be energizing and give a depth of anchoring rhythm to the whole musical experience.

While selecting instrumental music, the following points should be considered during pregnancy (Aggarwal, 2023)**:**

1. Loud music may cause stress rather than relaxation. Therefore, the volume of the music should be mild to avoid discomfort.
2. The choice of music should be personally enjoyable and soothing.
3. Combination of instrumental music with relaxation techniques such as deep breathing or meditation enhances the calming effect.
4. Due to individual preferences, different types of instrumental music work best for pregnant women.

3. Folk Music: Folk music is described as music that is now in the repertoire of folk, primitive, and tribal societies in India's countryside. It is the module that expresses the

complete feeling in the form of musical melodies that fly past the ear. Kumar (2021). The current study picked Assamese folk music based on recommendations from specialists. Assam's folk music is as diverse as its culture. Different kinds of folk music reflect the folk people. Mahapurux Sankardeva and Madhavdeva's Indian Classical and religious music have given beautiful stones to the coronet of Assamese folk music. Some of the prominent folk music of Assam that has been chosen to present to the music group include the following:

Bihu Geet: The Bihu festival is central to Assamese culture, and Bihu geet are the songs sung during it. Bihu songs describe the carnival of life. Mild Bihu geet can benefit both pregnant ladies and the foetus. It fosters an affinity to one's own culture.

Kamrupiya Lokageet: It is a prominent genre of Assamese folk music that is mostly sung in lower Assam. These songs are based on various human emotions, particularly those of everyday people.

Goalporiya Lokageet: It is a type of Assamese folk music primarily performed in the Goalpara region of Assam. It is essentially a poetic song by Goalpara about love.

Bianaam: Bianaam is another prominent kind of Assamese folk music. These are essentially wedding songs heard throughout the wedding and are often enjoyable for the bride and groom. These songs recount the legendary events of King Baana and his daughter Usha, who married Anniruddha, Lord Krishna's grandson. Women people, in particular, sing these societal songs.

Dihanaam: It is a collective prayer in honour of the Assamese saint Sankardev. In Assam, Dihanaam is mostly performed by women and accompanied by musical instruments such as Negera, Taal, Khol, and handclapping.

4. **Garbha Mantra/Indian Classical Music:** Garbha mantra, also known as Garbha Sanskar music, is the practice of playing particular types of songs and mantras during pregnancy in order to benefit the unborn baby's growth and disseminate favourable vibrations throughout the area. During this period, Indian classical music is highly recommended. Listening to Indian classical music throughout the third trimester of pregnancy has improved the baby's cognitive abilities.

The calming sounds and rhythmic patterns can help to create a peaceful and pleasant environment for both mother and baby. It is widely believed that listening to Indian classical music during pregnancy will assist in lowering stress and anxiety levels, which can benefit the baby's emotional development (Shah, 2024).

Listening to ragas helps you relax when pregnant and boosts your energy. Surprisingly, physicians encourage listening to this style of relaxing music for the general development of your unborn child. During the lovely nine months, Ragas was regarded as the ideal music to listen to by both the mother and her infant. Ragas such as Bhairav Raga, Garbha Samvardhini Raga, Malkauns Raga, Raag Yana, Raga Jog Eshwari, Garbha Sankar music, Pandit Hari Prasad raga, and Yaman are beneficial to a baby's health (P.P. Shri Praveen Nathji Maharaj, 2021).

Raga Bhairagi: This raga helps to keep the heart healthy, letting it to pump more blood for the unborn baby's development. Music is the 'naad'-sound that links people to the 'brahma'-cosmos. As a result, this raga facilitates a deeper connection between the newborn and the mother.

Raga Todi: This raga relieves tension and provides tranquillity; it keeps the mind quiet, reducing the effects of changed hormone levels, eventually allowing the mother to deal with the symptoms more effectively and without annoyance (iMumz Expert Panel, 2023).

Raga Bhairavi: Pandit Jasraj, an Indian classical musician, describes Bhairav as a "morning raga, and solemn peacefulness is its ideal mood." It has a solemn tone and conveys seriousness, introversion, and a devout mindset (The Times of India, 2016).
Raag Malkauns: It is sung in the tiny hours of the morning, sometime after midnight. Raga music has a calming and seductive influence. It offers pregnant ladies a sense of serenity and relieves any stress and anxiety. (The Times of India, 2016).

Raag Yaman: The pleasant sound of Raag Yaman generates beneficial vibrations that benefit the baby's mind and body while he or she is still in the womb. The peaceful and soothing sensations produced while listening to Raag Yaman will be passed to the infant via the mother. Raag Yaman also relieves tension in pregnant ladies (Aditya Ranade 2020).

5. Hindi Filmy Music: The investigator selected calming and gentle music from Hindi filmy songs based on pregnant women's preference.

6. Lullabies: Listening to lullabies can reduce prenatal tension and anxiety (Baltaci et al., 2023). A lullaby is a calming tune or melody that is usually played or sung to help a newborn fall asleep. According to studies, lullabies, particularly those sung by mothers or other females, have therapeutic benefits that help them sleep, eat better, and regulate their cardiac and respiratory systems. Lullabies can aid in the development of communication abilities and encourage linguistic and cognitive behaviour. The mother sings a lullaby to her

infant and allows her emotions to flow through it. In Assamese culture, lullabies are called 'Nisukoni Geet' or 'Dhai Naam'. They are an integral part of Assamese folk songs (Rajkhowa, 2022). Some are as follows:

"Amare Moina Xuba aa,
Barire Bagari Ruba aa
Barite Bagari Poki Xaribo,
Amare Moina butali khabo"

The lullaby above is a common one used by mothers and grandmothers while sleeping. This is a beautiful lullaby that will warm everyone's heart. Lullaby characters are often inspired by natural elements such as the sun, moon, butterflies, stars, tigers, rain, and birds. They can be taken from the divine, the universe, or nature to create an imagined image in the child's head (Dutta, 2022).

"Junbai aa, beji eti diya
Beji nu kelei, mona silabolai,
Monano kelei, dhon bhoraboloi
Dhonno kelei, hati kiniboloi
Hatinu kelei, uthi furiboloi".

Some lullabies are used to cradle, child in various situation like to stop crying, relaxing. (Dutta, 2022)

"Bor sorar murote bokul phul phulise
Nitou tinipahi xore
Moinar mukholoi saboke nuari
Hira ki mukuta jole."

In this lullaby the natural elements of the landscape of Assam are used as metaphor to describe the child (Rajkhowa, 2022).

Based on the observation, the music experimental group noted that exposure to Raag resulted in a noticeable decrease in anxiety and stress levels. Immense pleasure and a sense of tranquility were reported when listening to lullabies and Assamese folk music. Lullabies, in particular, fostered a deep emotional connection with the concept of a baby. Nature's sounds were found to enhance both sleep quality and concentration levels.

Table 6: Online Music intervention/ follow-up session

Month	Week	Type of Music	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
November	1	Natures	e.g. Forest Birds sound	Night Rainfall	Soft flowing River	Water sounds, streams, rains	Ocean waves with relaxing flute	Wind, birds sound with mild piano
	2	Natures	Repetition					
	Online session through Google Meet every 15 days							
	3	Indian Classical/ garbha Sanskar	e.g. Raag Bhairav	Bhoopali raag	Raag Yamna	Raag Bhairav	Raag Bageshri	Raag Yamna
	4	Classical	Repetition					
	Online session through Google Meet							
December	1	Instrumental	Morning flute music	Peaceful sitar music	Relaxing piano music	Instrumental Veena with classical ragas	Flute with the sound of nature	Ocean waves with piano
	2	Hindi Music	Based on respondents' demand- mild and soft Bollywood instrumental music					
	Online session through Google Meet							
	3	Instrumental	Repetition	-	-	-	-	-
	4	Nature+Instrumental	Repetition	-	-	-	-	-
	Online session through Google Meet							

January	1	Classical	Repetition of same music given before.
	2	Lullabies	Children's lullaby songs for easy sleep and stress-free
	Online session through Google Meet		
	3	Hindi Music	Mild and soft Bollywood instrumental music
	4	Folk Music	Assamese folk music, e.g., bihunaam, bargeet, biyanaam etc.
	Online session through Google Meet		
February	1	Natures	Repetition of same music given before.
	2	Classical	
	Online session through Google Meet		
	3	Garbha Mantra	Repetition of same music given before.
	4	Folk Music	
March	1	Hindi Music	Repetition of same music given before.
	2	Lullabies+Instrumental	
	Online session through Google Meet		
	3	Folk Music	Repetition of same music given before.
	4	Classical+GarbhaMantra	

Implementation

The researcher availed the help of different music trainers during initial interventions and later the researcher facilitated music intervention for the rest of the sessions. Music intervention was conducted online due to COVID-19, convenience and affordability, less time commitment, suitability for remote locations, accessibility for individuals with physical limitations, and other factors. To ensure that the intervention group would consistently be exposed to the positive effects of music through the entire eight months of pregnancy, a WhatsApp group was created and 15-20 minutes of pre-recorded music were uploaded daily. Every week, a different musical theme was chosen. In-between offline interventions were also carried out for the convenience of pregnant women. A 30- to 45-minute online session was conducted via Google Meet every 15 days to track their progress. The music group was instructed to listen to it whenever they wanted. Every time they worked, cleaned, or cooked; they would listen to it on repeat. Music CDs were provided to the respondents for convenient access. They were requested to follow up, so daily intervention sessions were documented on a sign-off sheet. In addition, routine sessions were supplemented with basic interactive activities. The Pregnancy Psychological Status Scale was used to evaluate the psychological status of the control and experimental groups at each trimester.

(ii) Meditation intervention

The meditation intervention consists of breathing exercises that emphasize the breath, relaxation methods, deep belly breathing, loving-kindness meditation, and various pranayamas like Bhramari & Omkar Pranayama, Dirgha, and Shitali Pranayama, and visualize meditation. The researcher holds a meditation diploma and, based on previous studies, personal knowledge, and discussions with a meditation trainer and gynaecologist, selected the meditation techniques, which were then evaluated by meditation experts and a gynaecologist.

Table 7: Module for Meditation Intervention

Techniques	***Steps***	***Precautions***	***Duration***	***Research efficacy***
Relaxation	• First, get comfortable. One can either sit or lie on the sideway. • Start paying attention to breathing. • Focus on keeping the breathing slow and easy. • Let breathing settle to a depth and rate that is smooth and	-	3-5 mins and increase gradually	It reduces stress, improves overall well-being, and supports a healthy and comfortable pregnancy journey.

Techniques	*Steps*	*Precautions*	*Duration*	*Research efficacy*
	comfortable. • Enjoy the feeling of peace that comes from this kind of breathing.			
Deep breathing	• Consciously moving breath to the belly and diaphragm. • Take slow, deep breaths and feel the air enter the nose. • Exhale fully before inhaling again. • If any distraction or tension, simply focus back on breathing.	Avoid practicing this exercise too often if pregnant women suffer from heart disease or high blood pressure	3-5 mins every day and increase gradually	It reduces stress, promotes relaxation, enhances oxygenation, and manages various discomforts, contributing to the overall well-being of both the mother and the developing baby.
Deep belly breathing	• Breathe normally for a minute. • When it feels right, take a deep breath through the nose and out through the mouth. • Now, put one hand on the chest and one hand on the belly and notice the body's movement on the inhale and the exhale. • Continue the process	If one is uncomfortable, it can be skipped, or normal breathing can be done. Avoid if there is belly pain.	3-5 mins daily	It reduces stress, promotes relaxation, and improves oxygen flow, which helps to normalize high blood pressure among pregnant women.
Dirgha Pranayama	• Sit straight. • Take slow, long, deep breaths within, and let the belly deflate like a balloon. • Breathe in again, but this time, keep the focus on the chest and let it expand and deflate after exhalation. • Combine the steps above and	Avoid practicing this exercise when they have nasal inflammation or nasal infections.	3 to 5 rounds	It promotes deep relaxation, reduces stress, and enhances oxygenation, which can support the well-being of both the mother and the

Techniques	*Steps*	*Precautions*	*Duration*	*Research efficacy*
	open the low, mid, and high chambers of the lungs through inhalations and exhalations.			developing baby.
Shitali Pranayama	• Sit comfortably by aligning the neck, spine, and head. • Do diaphragmatic breathing while keeping the eye closed for several minutes. • Open the mouth and curl the lips into an "O." • Inhale deeply as if we are drinking through a straw. • Direct the focus towards the cooling sensation of breathing. • Pull back the tongue and close the mouth while we exhale completely through the nostrils.	Not suitable for those who suffer from low blood pressure. Pregnant women should listen to their bodies and avoid overexertion.	The duration can vary depending on individual comfort and practice. However, one can start with 5 to 10 rounds of each pranayama and gradually increase the duration if one feels comfortable.	It helps to alleviate pregnancy-related discomforts like hot flashes and promotes a sense of calm and well-being in expectant mothers.
Bhramari pranayama	• Sit straight in the padmasana or Sukhasana and press the tragus with the thumb. • Place index fingers on the forehead, and with the remaining fingers, close the eyes. • Starts inhaling through both the nostrils deeply and slowly. • By keeping the mouth closed, exhale by making a humming sound bee-like humming sound, and say 'OM' in a soft humming sound. • Feel the body and experience positive energy.	Heart disease mother should not hold their breath for long. Pranayama is done on an empty stomach. If anyone feels dizzy while practicing, stop and start normal breathing. Should maintain a gap of 5 hours between the	The duration can vary depending on individual comfort and practice. However, one can start with 5 to 10 rounds of each pranayama and gradually increase the duration as long as one feels comfortable. Pregnant women	It is beneficial to reduce stress and anxiety and promote mental well-being while helping prepare the body for childbirth.

Techniques	*Steps*	*Precautions*	*Duration*	*Research efficacy*
		meal or lunch. It is better to practice in the morning fresh air.	should listen to their bodies and avoid overexertion.	
OmKar	• Sit on the Padmasana and Close the eyes, and the spine should be straight. • Breathe deeply through the nose till the diaphragm is full of air, and exhale. • While exhaling, chant the word OM. • Make sure to keep the sound of "O" long and the "M" short (OOOOOOOOm). • Udgeeth Pranayama or OMKAR is very simplest pranayama among to all pranayama.	• If one is uncomfortable, skip it or take normal breathing instead of deep breathing. Avoid if anyone get belly pain.	5 mins daily and increase gradually	It is beneficial during pregnancy as it promotes relaxation, reduces stress, and creates a sense of inner peace and connection with the growing baby.
Anulom-Vilom	• Sit in a Sukhasana position. One should keep the spine straight and shoulders relaxed. • One should use Gyan Mudra (index finger and thumb touching) with the other three fingers extended or simply rest the hand on the knee, palm facing upward. • Close the eyes to help with focus and relaxation. • Begin by exhaling deeply to empty the lungs. • One should use the right thumb to close the right nostril and the right ring finger to close the left nostril. • Close the left nostril and inhale slowly and deeply through the right nostril.	• Practiced on an empty stomach in the morning or evening or both conveniences. • One should avoid if having breathing problem.	Practice initially for 5-6 mins in empty stomach or after 4-5 hours of having food. Gradually increase the duration.	Anulom Vilom, when practiced safely, can be beneficial during pregnancy by promoting relaxation, reducing stress, improving breathing, and fostering emotional well-being.

Techniques	*Steps*	*Precautions*	*Duration*	*Research efficacy*
	• Close the right nostril with the right thumb and simultaneously release the left nostril. • Exhale slowly and completely through the left nostril. • Inhale slowly and deeply through the left nostril. • Again, close the left nostril and release the right nostril. • Exhale slowly and completely through the right nostril. • Continue this pattern of inhaling and exhaling, switching nostrils after each breath. Make sure breaths are deep and even, and focus on the breath. • To end the practice, finish by exhaling through the left nostril and then release both nostrils. Open eyes and sit quietly for a moment, observing how it feels.			
Loving-kindness meditation or Metta meditation	• Sit or lie down in a comfortable position in a quiet and peaceful environment. One can use cushions to support the body if needed. • Close both eyes to reduce distractions and go within. • Begin by taking a few deep breaths. Pay attention to the breath as it naturally comes in and goes out. Breathe gently and naturally, without forcing it. • One should picture oneself and the baby in her womb. Generate feelings of love, care, and compassion for oneself and the child. Say to oneself,	• At any time, but beneficial in the morning. • One should be physically comfortable. Can use cushions for support if needed. • If anyone has any	• It takes around 8-10 minutes Based on one's interest, can increase the timing. • Adjust the duration as per the comfort and availability.	• It is a beautiful practice for pregnant women to foster self-compassion, reduce stress, and cultivate a sense of connection and well-being for both themselves and their unborn child.

Techniques	*Steps*	*Precautions*	*Duration*	*Research efficacy*
	silently or aloud: "May I be happy, may my baby be happy, may we be healthy and safe." • Shift the focus to the loved ones, such as partners, family, and friends. Send them positive wishes: "May you be happy, may you be healthy, may you be safe." • One should think about the people that may not have strong feelings for, like acquaintances or neighbours. Offer them your well-wishes: "May (name) be happy, may (name) be healthy, may (name) be safe." • Gradually include people one may have conflicts with. The intention here is to let go of negative feelings and wish them well: "May (name) find happiness, may (name) find health, may [name] find safety." • Widen the circle of loving-kindness to involve all living beings. Imagine one's positive energy radiating to the world: "May all beings be happy, may all beings be healthy, may all beings be safe." • As one recites these phrases, focus on genuinely feeling the love, compassion, and positive energy those are sending out. Imagine a warm, loving light radiating from your heart and enveloping those the pregnant women are thinking of. • Spend as much time as one is interested and repeat the	medical concerns or specific pregnancy conditions, consult the healthcare provider before starting any new meditation practice.		

Techniques	*Steps*	*Precautions*	*Duration*	*Research efficacy*
	phrases for as many rounds. • Slowly bring the awareness back to the breath. Open eyes and take a moment to appreciate the positive emotions and love that may generated.			
Visualize meditation	• Sit in a comfortable place. Use cushions for added comfort if needed. • Begin with a few deep breaths. Inhale through the nose and exhale slowly through the mouth to relax the body and mind. • Close both eyes and consciously relax each part of the body. Feel the tension melting away with each breath. • Imagine a peaceful and safe environment. It could be a beautiful garden, a beach, a mountain, or any place where one feels completely relaxed and at ease. • Along with this imagination, one should focus on the sensory details such as colours, textures, and scents, and feel the warmth of the sun or the coolness of the shade. • Slowly focus on the baby within the womb. Imagine the baby as a source of light and warmth, settled safely within the pregnant women. • Pregnant women should send love, warmth, and positive energy to the baby. For example, "May my baby be	• If pregnant women feel tired or dizzy, they should take a break or choose a different time to practice. • Pregnancy can sometimes lead to fatigue, so be flexible with the duration of the practice. One may find shorter sessions more suitable and gradually extend based on	• It takes around 7-8 minutes. • Adjust the duration as per the comfort and availability.	It can help pregnant women relax, bond with their baby, and create a sense of inner peace during their journey to motherhood.

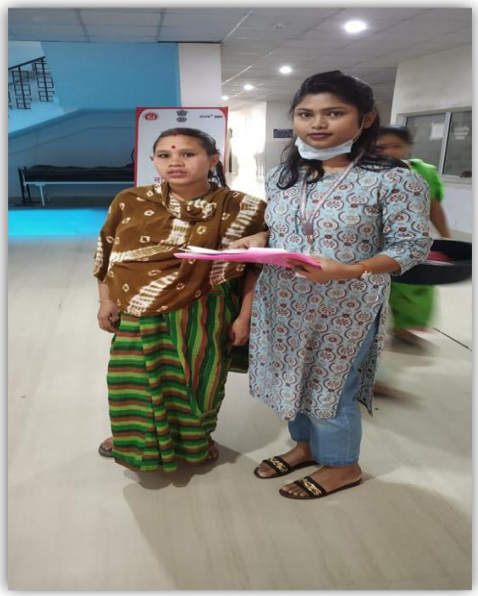
Techniques	*Steps*	*Precautions*	*Duration*	*Research efficacy*
	happy, healthy, and safe. I love you." • Pregnant women should feel the connection between them and the baby. • If any emotions arise during this visualization, one should allow them to surface and release. • Slowly scan the body for any remaining tension or discomfort. Imagine breathing out that tension with each exhale. • Visualize a warm, soothing energy flowing through the body, releasing any remaining tension, and promoting a sense of positivity. • Gradually bring the awareness back to the present. Thank the baby for the connection. • Rub the palms of both hands, cover the face, and gently open the eyes. • Take a moment to reflect on the experience and the positive emotions it generated.	comfort. • If anyone experiences discomfort or unusual sensations during meditation, it is important to stop and consult a healthcare provider. • Choose visualizations that promote relaxation • and positivity. Avoid any imagery that induces stress or anxiety.		

Plate - 1

Glimpse of Data Collection

Plate - 1 (contd..)

DATA COLLECTION FROM THE CONTROL GROUP



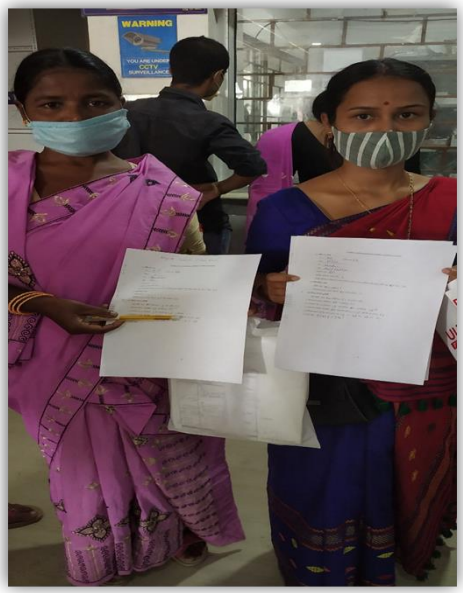
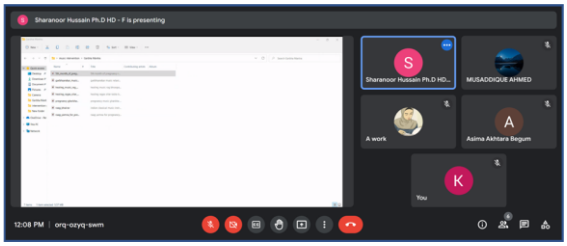
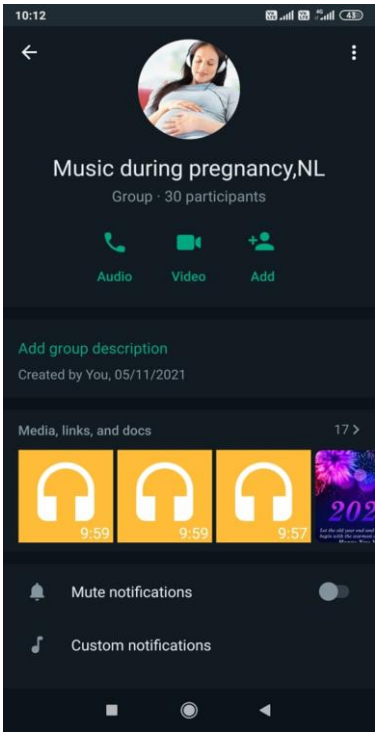
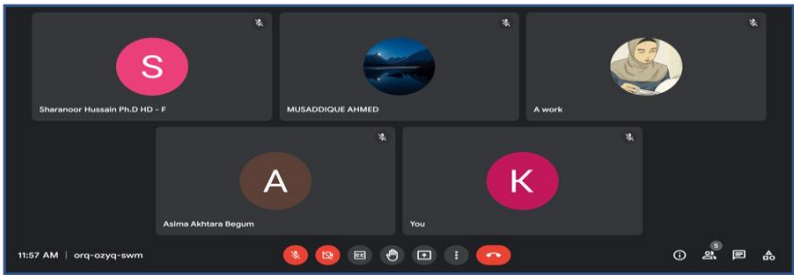


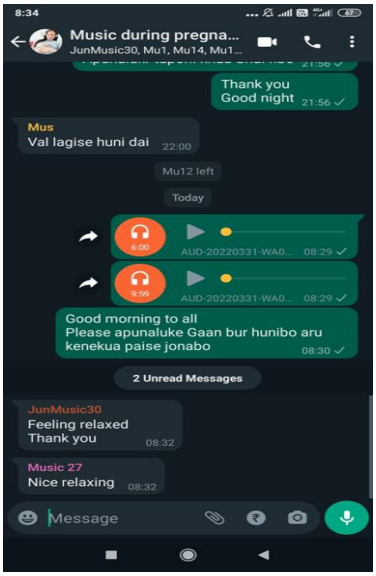
Plate - 2

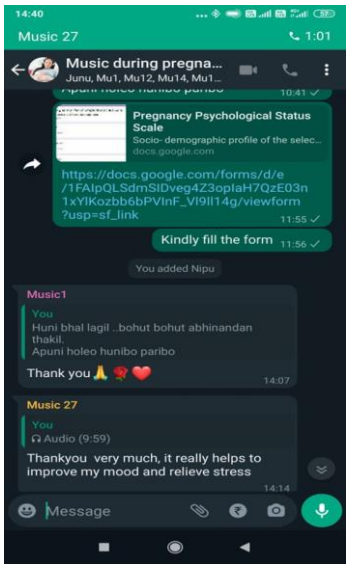
Glimpse of Music and Meditation intervention programme











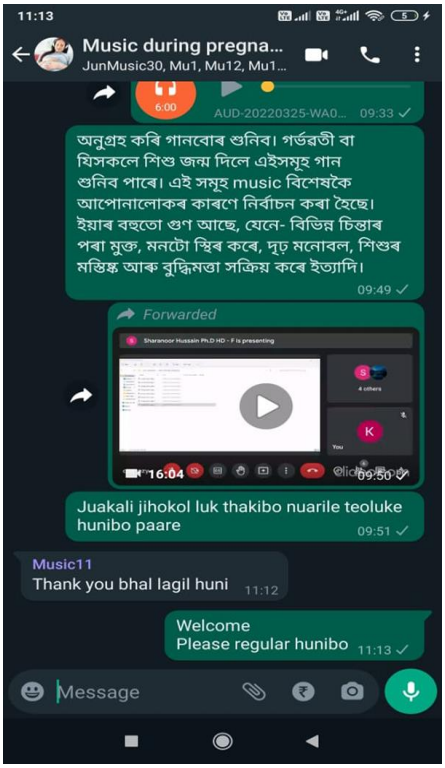


Plate – 2 (contd…)




Meditation Intervention




Table 8. Meditation intervention weekly plan/sessions

Week/sessions	Sunday	Monday (10-15 mins)	Tuesday (10-15min)	Wednesday (15-20 min)	Thursday (15-20min)	Friday (20-30 min)	Saturday (20-30min)
1	Breathing Exercise (Focusing on breath)						
2	Relaxation techniques (3 things you are grateful for)						
3	Breathing exercise (Focusing on breath)						
4	Relaxation techniques (3 good things happened today)						
5	Deep belly breathing + loving- kindness meditation (Think about your unborn child)						
6	Dirgha & Shitali Pranayama						
7	Relaxation techniques & Deep belly breathing						
8	Bhamari & OM Kar Pranayama (Focusing on breath)						
9	Pranayama (Dirgha, Shitali, Bhamari, Om Kar)						
10	Loving-kindness meditation (Think of someone (or baby) you love)						
11	Visualize meditation (Visualize a place you love)						
12	Relaxation+ Pranayama						
13	Pranayama+Loving-kindness meditation						
14	Visualize Meditation + Pranayama Visualize a picture of a god/goddess, an unborn child, peaceful places, etc.						
March month	**Follow-ups of meditation techniques** **Contact through home visits & phone calls randomly**						
Feedback:							

Implementation

Meditation intervention was undertaken offline for specific reasons, such as the steps are easy to monitor and follow, and the voice can make it relaxing and suitable for beginners. It was carried out once a week (on Sundays) until the eighth month of pregnancy. There were 14 sessions, with a minimum participation of 12. The respondents were advised to perform the exercises during the sessions and practice at home six days a week. Initially, respondents were instructed to practice for 30-45 minutes before progressively increasing the timing to their comfort level. A sign-off form was provided to the pregnant women to keep records of their daily therapy sessions.

Weekly progress assessments were conducted through feedback, one-on-one sessions, and interactive activities to improve engagement and participation during regular sessions. The researcher has a meditation diploma, making it easy to execute the program.

3.4.e) PHASE V

(i) STATISTICAL ANALYSIS

The statistical analysis done in following ways.

Descriptive Statistics

- Percentage and mean calculation for socio-demographic variables
- Mean value for a psychological score for the overall population
- Mean value for a psychological score between pre, mid and post intervention in experimental group and control group for both music and meditation intervention groups.

Inferential Statistics

- Analysis of variance (ANOVA) and independent sample t-test were applied to see the psychological status of pregnant women based on the demographic profile.
- Quantitative differences between pre-test (1^{st} trimester), mid (2^{nd} trimester), and post-test (3^{rd} trimester) were assessed using repeated measures analysis of variance F-test.
- Comparison of psychological status between music and meditation groups was assessed through paired t-test.
- Statistical analysis was carried out using the Statistical Packages for Social Sciences (SPSS version IBM 21).

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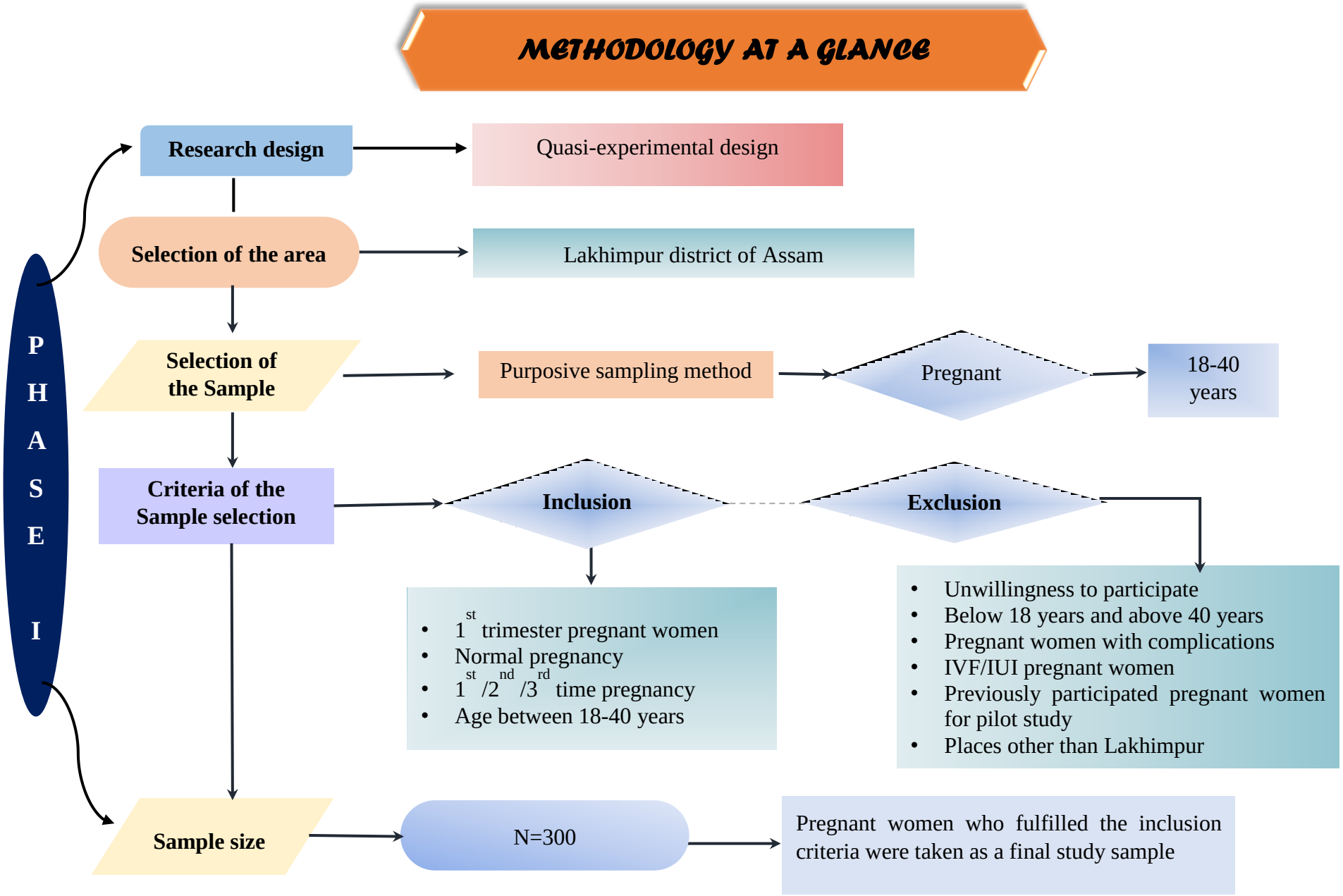
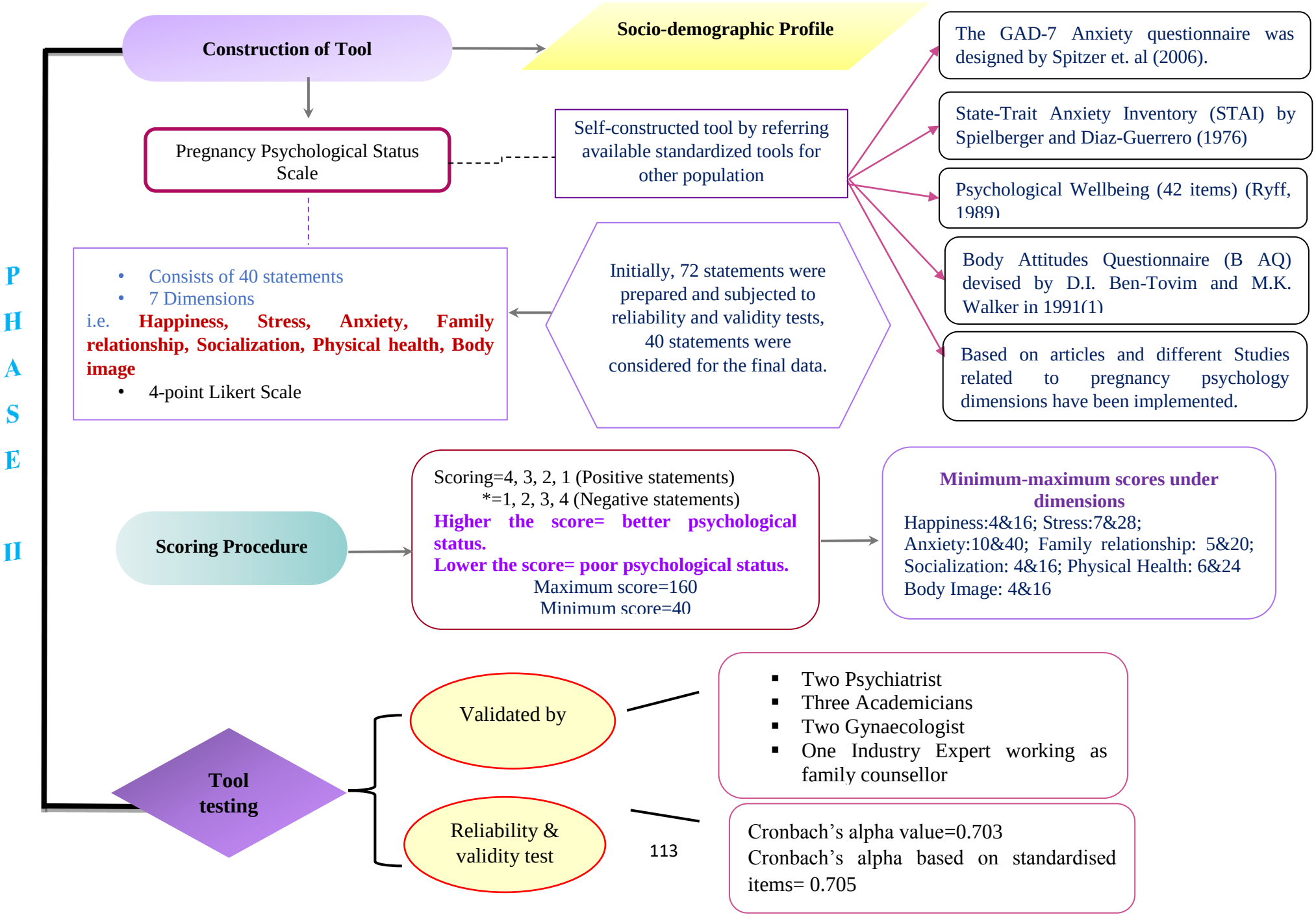
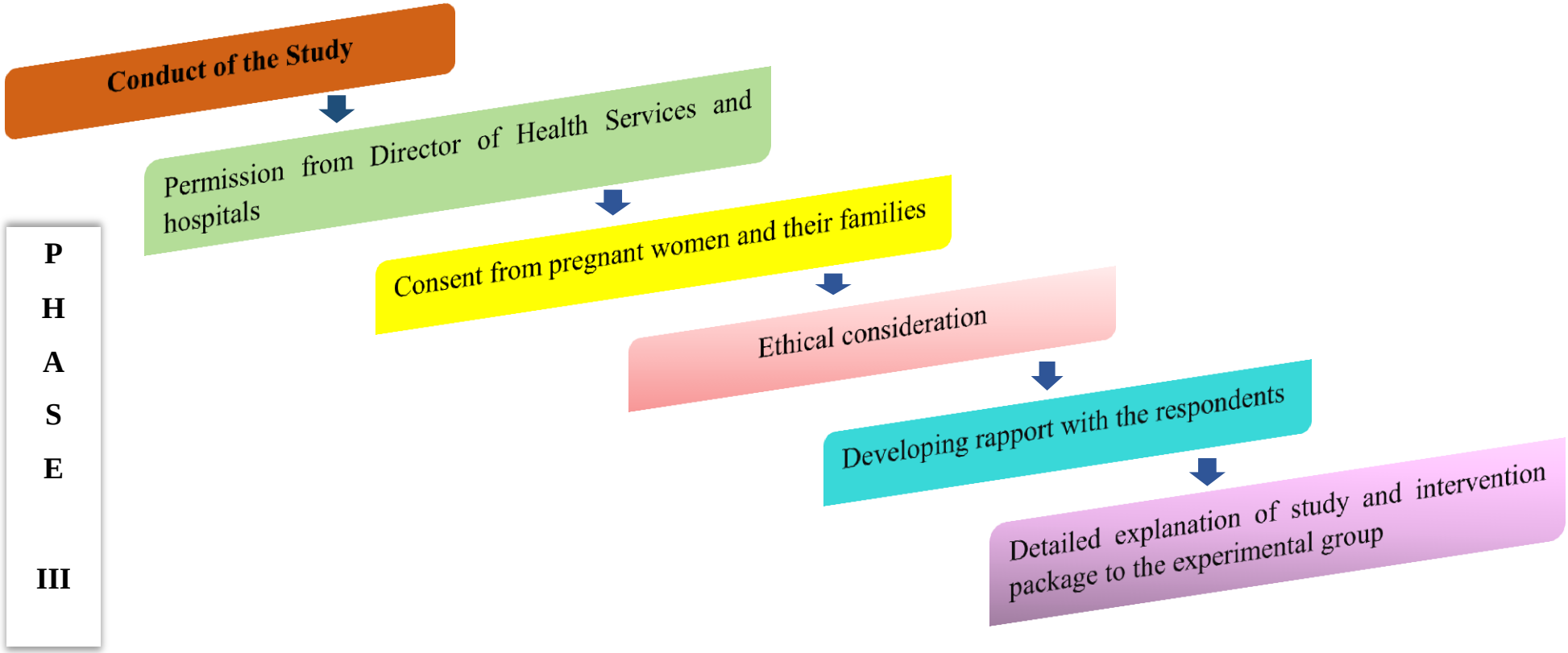
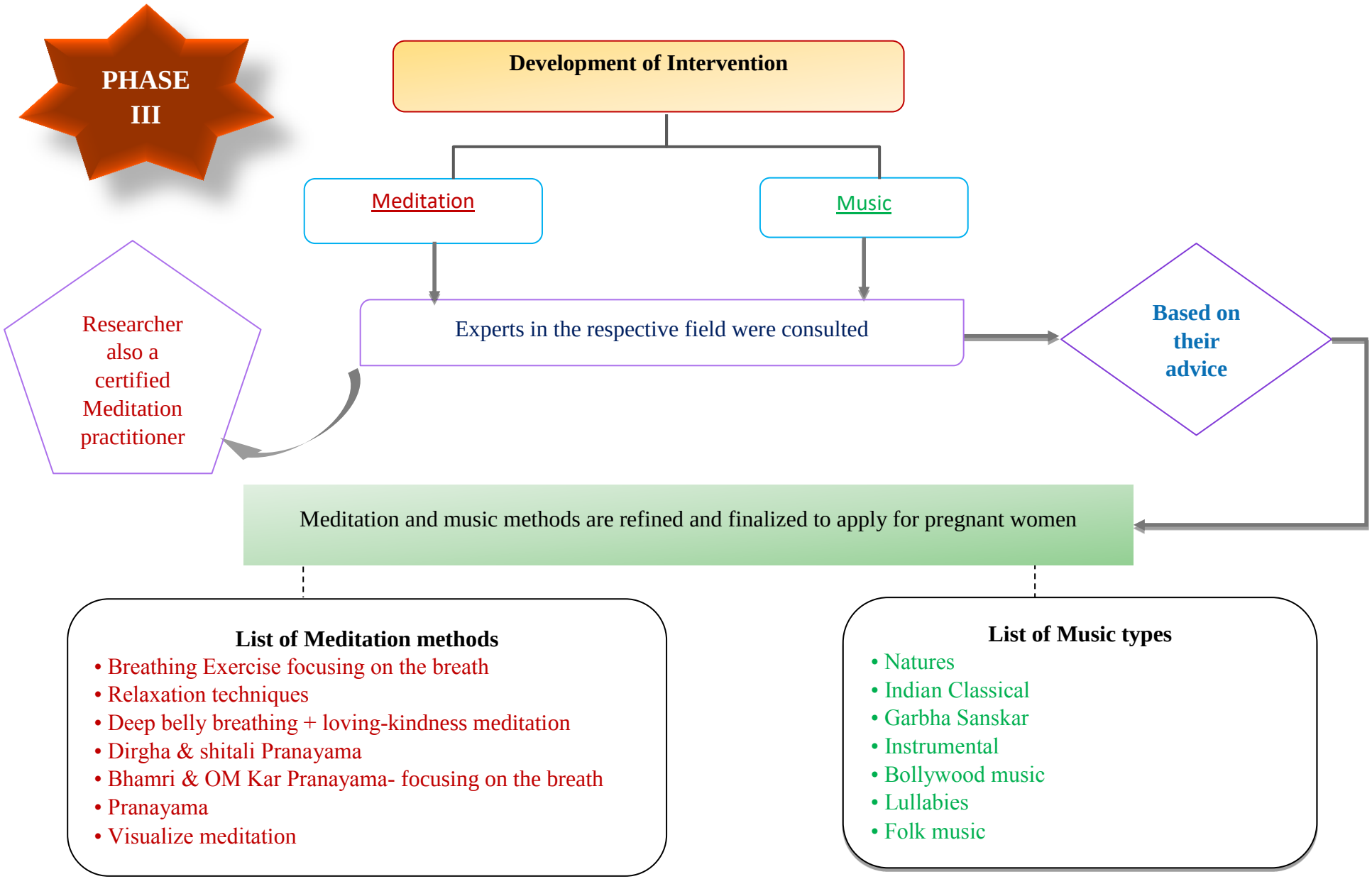
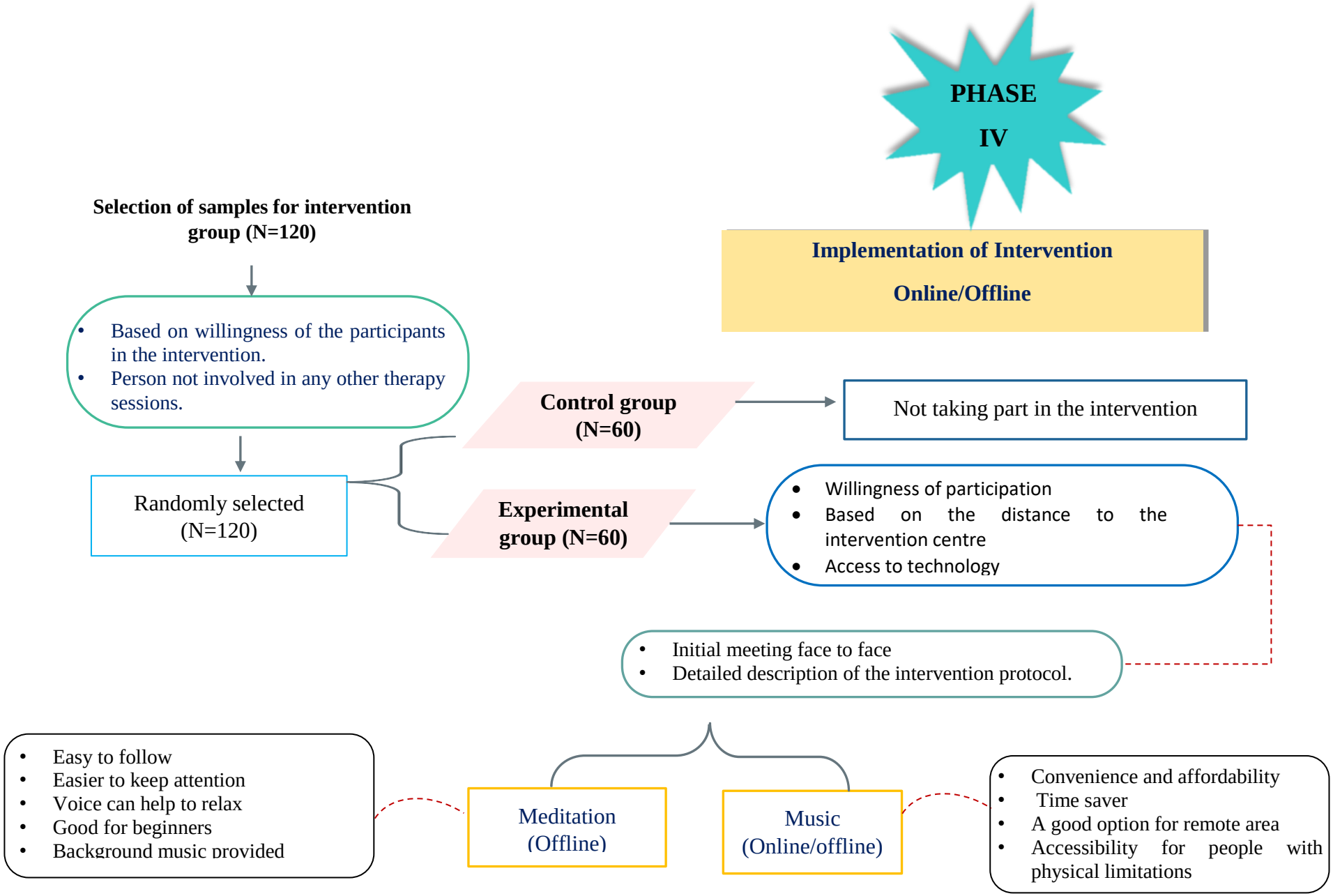
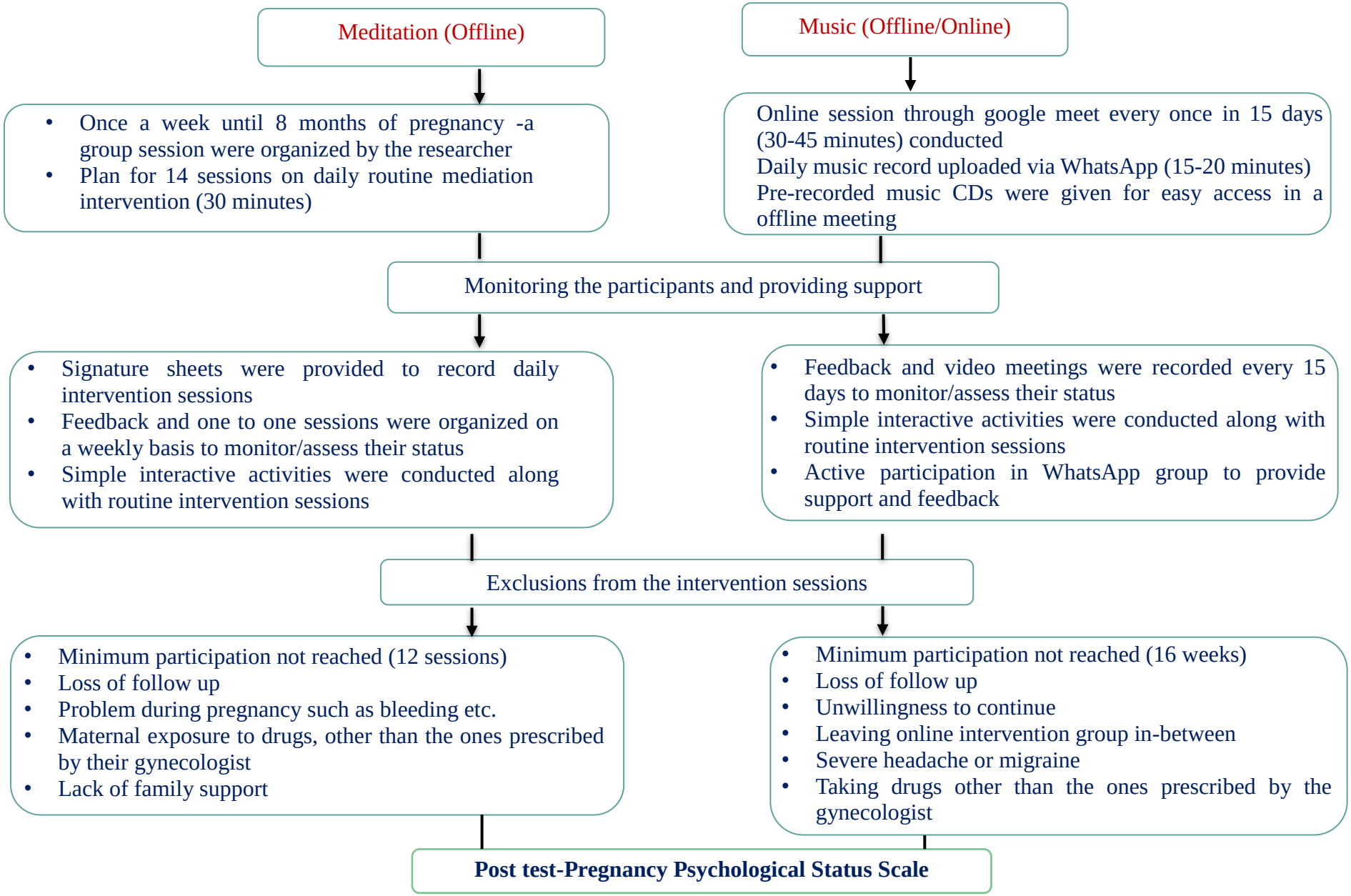

METHODOLOGY AT A GLANCE
PHASE I
Research design
Quasi-experimental design
Selection of the area
Lakhimpur district of Assam
Selection of the Sample
Purposive sampling method
Pregnant
18-40 years
Criteria of the Sample selection
Inclusion
Exclusion
1st trimester pregnant women
Normal pregnancy
1st /2nd /3rd time pregnancy
Age between 18-40 years
Unwillingness to participate
Below 18 years and above 40 years
Pregnant women with complications
IVF/IUI pregnant women
Previously participated pregnant women for pilot study
Places other than Lakhimpur
Sample size
N=300
Pregnant women who fulfilled the inclusion criteria were taken as a final study sample

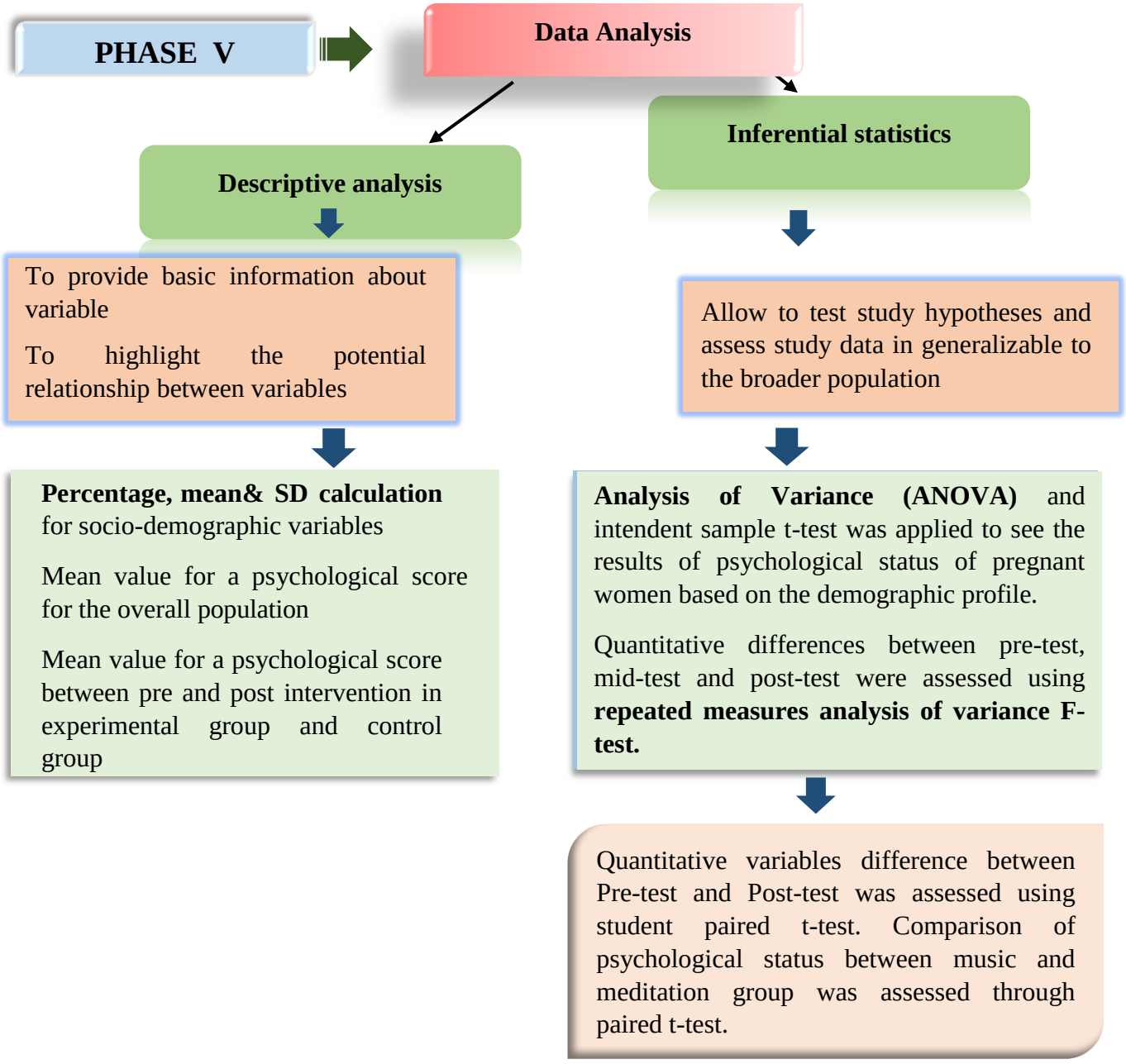

PHASE II
Construction of Tool
Socio-demographic Profile
Pregnancy Psychological Status Scale
Self-constructed tool by referring available standardized tools for other population
The GAD-7 Anxiety questionnaire was designed by Spitzer et. al (2006).
State-Trait Anxiety Inventory (STAI) by Spielberger and Diaz-Guerrero (1976)
Psychological Wellbeing (42 items) (Ryff, 1989)
Body Attitudes Questionnaire (B AQ) devised by D.I. Ben-Tovim and M.K. Walker in 1991(1)
Based on articles and different Studies related to pregnancy psychology dimensions have been implemented.
Initially, 72 statements were prepared and subjected to reliability and validity tests, 40 statements were considered for the final data.
Consists of 40 statements
7 Dimensions
i.e. Happiness, Stress, Anxiety, Family relationship, Socialization, Physical health, Body image
4-point Likert Scale
Scoring Procedure
Scoring=4, 3, 2, 1 (Positive statements)
*=1, 2, 3, 4 (Negative statements)
Higher the score= better psychological status.
Lower the score= poor psychological status.
Maximum score=160
Minimum score=40
Minimum-maximum scores under dimensions
Happiness:4&16; Stress:7&28;
Anxiety:10&40; Family relationship: 5&20;
Socialization: 4&16; Physical Health: 6&24
Body Image: 4&16
Tool testing
Validated by
Two Psychiatrist
Three Academicians
Two Gynaecologist
One Industry Expert working as family counsellor
Reliability & validity test
Cronbach's alpha value=0.703
Cronbach's alpha based on standardised items= 0.705


Conduct of the Study
Permission from Director of Health Services and hospitals
Consent from pregnant women and their families
Ethical consideration
Developing rapport with the respondents
Detailed explanation of study and intervention package to the experimental group
PHASE III


PHASE III
Development of Intervention
Meditation
Music
Researcher also a certified Meditation practitioner
Experts in the respective field were consulted
Based on their advice
Meditation and music methods are refined and finalized to apply for pregnant women
List of Meditation methods
• Breathing Exercise focusing on the breath
• Relaxation techniques
• Deep belly breathing + loving-kindness meditation
• Dirgha & shitali Pranayama
• Bhamri & OM Kar Pranayama- focusing on the breath
• Pranayama
• Visualize meditation
List of Music types
• Natures
• Indian Classical
• Garbha Sanskar
• Instrumental
• Bollywood music
• Lullabies
• Folk music


PHASE IV
Implementation of Intervention
Online/Offline
Selection of samples for intervention group (N=120)
Based on willingness of the participants in the intervention.
Person not involved in any other therapy sessions.
Randomly selected (N=120)
Control group (N=60)
Not taking part in the intervention
Experimental group (N=60)
Willingness of participation
Based on the distance to the intervention centre
Access to technology
Initial meeting face to face
Detailed description of the intervention protocol.
Meditation (Offline)
Music (Online/offline)
Easy to follow
Easier to keep attention
Voice can help to relax
Good for beginners
Background music provided
Convenience and affordability
Time saver
A good option for remote area
Accessibility for people with physical limitations


Meditation (Offline)
Music (Offline/Online)
Once a week until 8 months of pregnancy -a group session were organized by the researcher
Plan for 14 sessions on daily routine mediation intervention (30 minutes)
Online session through google meet every once in 15 days (30-45 minutes) conducted
Daily music record uploaded via WhatsApp (15-20 minutes)
Pre-recorded music CDs were given for easy access in a offline meeting
Monitoring the participants and providing support
Signature sheets were provided to record daily intervention sessions
Feedback and one to one sessions were organized on a weekly basis to monitor/assess their status
Simple interactive activities were conducted along with routine intervention sessions
Feedback and video meetings were recorded every 15 days to monitor/assess their status
Simple interactive activities were conducted along with routine intervention sessions
Active participation in WhatsApp group to provide support and feedback
Exclusions from the intervention sessions
Minimum participation not reached (12 sessions)
Loss of follow up
Problem during pregnancy such as bleeding etc.
Maternal exposure to drugs, other than the ones prescribed by their gynecologist
Lack of family support
Minimum participation not reached (16 weeks)
Loss of follow up
Unwillingness to continue
Leaving online intervention group in-between
Severe headache or migraine
Taking drugs other than the ones prescribed by the gynecologist
Post test-Pregnancy Psychological Status Scale


PHASE V
Data Analysis
Descriptive analysis
Inferential statistics
To provide basic information about variable
To highlight the potential relationship between variables
Allow to test study hypotheses and assess study data in generalizable to the broader population
Percentage, mean& SD calculation for socio-demographic variables
Mean value for a psychological score for the overall population
Mean value for a psychological score between pre and post intervention in experimental group and control group
Analysis of Variance (ANOVA) and intendent sample t-test was applied to see the results of psychological status of pregnant women based on the demographic profile.
Quantitative differences between pre-test, mid-test and post-test were assessed using repeated measures analysis of variance F-test.
Quantitative variables difference between Pre-test and Post-test was assessed using student paired t-test. Comparison of psychological status between music and meditation group was assessed through paired t-test.