CHAPTER- III
MATERIALS AND METHODS

The present study was conducted in two rural municipalities of the Nuwakot, a mountainous district in Nepal over a period of fourteen months (from December 2021 to January 2023). The study was completed in two phases using mix method research approach.

- Phase I involved the development of a comprehensive nursing interventions (CNIs) based on FGD and

- Phase II involved experimentation of the comprehensive nursing interventions (CNIs) among senior citizens.

3.1   Phase I: Development of the Comprehensive Nursing Interventions (CNIs)

CNIs is multicomponent nursing care using holistic approach, focusing on psychology, minimizing physical discomforts and suffering, and promoting satisfaction of life through various interactions and activities. The interventions comprise both physical and mental activities and health education in a structured way. It includes individual and group activities and interactions. The selected activities are simple and comfortable, suitable for senior citizens.

3.1.1   Research Approach: This study adopted qualitative approach in phase I study.

3.1.2   Research Design: Exploratory design for phase I was adopted in this study.

3.1.3   Research Setting: Machhapuchhre Rural Municipality ward number two of Kaski district in Nepal.

3.1.4 **Population and Sample:** The accessible population for this study comprised all senior citizens aged 60 to 75 years residing in their homes in ward number two of Machhapuchhre Rural Municipality. Total number of eight senior citizens were the sample size of the study i.e. FGD, based on the principle of saturation.

3.1.5 **Sampling Technique:** Purposive sampling technique was used in this phase of the study. The participants were selected by home visiting.

3.1.6 **Data Collection Method and Tool:** Focused Group Discussion was used as a method of data collection using FGD guideline. Prior to commencing the FGD, the guideline for FGD was co-developed after a careful literature review with multidisciplinary team of subject experts and two lay persons (Annexure V).

The issues to be explored in the FGD as mentioned in the guideline were as follows:

a. Problems that interfere well-being and QOL of the senior citizens.

b. Influencing component of well-being and quality of life.

c. Feelings towards their older age, changing appearance and abilities.

d. Ways of managing elderly problems.

e. Expectation from care giver and Government health institute.

f. Utilization of Governmental health services.

g. Scope of health promotion activities and role of community nurse for well-being and QOL.

3.1.7 **Data Collection Procedure:**

- The FGD was conducted in U shape sitting arrangement in courtyard of one of the participant's home in that community. No other people interfered the

discussion because no other people were allowed to hear the discussion so that privacy could be maintained during the FGD. Their preferred language was Nepalese for the discussion.

- After taking written consent and introduction of group members, recorder and moderator; the researcher as a moderator introduced about phase I study and selection of this group for the FGD. Then warm up activity was done and explained the ground rules for the discussion so that all the participants participate actively and express their views without hesitation. The discussion was continuous for 80-90 minutes focusing on different issues of senior citizens as per the guideline.

- All the responses and verbal reactions of the participants were recorded after their verbal permission.

- Finally, the moderator summarized the discussion and reminded them for any overlooked issue/area. In this way, the FGD completed when the theme related consensus was achieved. The consensus had been achieved from a single FGD. So, no further FGD was added.

3.1.8 Data Analysis Method: Various themes and sub-themes were developed by analyzing the content of the focused group discussion manually.

3.1.9 Description of the Development of Comprehensive Nursing Interventions

Based on the purpose of this development phase of the study, the CNI was developed by the investigator after thorough literature review and FGD. Focused Group Discussion (FGD) is a technique of collecting data by group interview

with a selected group of people having common characteristics or experiences with a facilitation of a moderator. All the responses and reactions of the participants are recorded and analyzed. The incorporation of the FGD as a qualitative technique is imperative in studying the well-being and quality of life of older people. The evolving nature of this population and their experiences necessitate the inclusion of FGD to truly capture their valuable insights. Various studies have also used FGD to explore elderly problems, quality of life and to develop intervention.[105, 106]

A demonstration and practice session of diaphragmatic breathing was also received from an expert; Dr. Kusum Kathleen Mckeehan, advisor in college of nursing in the university. Then CNIs was developed based on literature review and FGD, so as to experiment in the second phase of the study.

Twelve sessions of the CNIs was designed for six weeks, provided twice week continuously. The duration of each session was 90 minutes. The CNIs included various activities such as silence, sharing, exercises, game, Nepalese music through flute and health education relation to welfare and QOL. The activities were same for each session but the interaction or sharing and health education were on different topics in the different sessions (Detailed description of the CNIs and Lesson plan Annexure IX and X).

Outline of the Comprehensive Nursing Interventions:

- Maintaining a short silence. Keeping quiet in comfortable sitting position in silent environment for two minutes for better awareness on self, environment and CNI program.

- Therapeutic interaction/ventilation on different topics such as their experience

and perception of elderly, daily activities and exercise habits, food intake and fasting habit, sleeping habits and problems, health problems including management, safety needs and measures, high risk behavior, social participation, periodic medical check-up, knowledge on facilities for older people, participation in spiritual activities and psychological issues including loneliness.

- Selected glands and joints exercise due to the age related difficulty of senior citizens. Such as forehead and sinus massage, eye exercise, neck exercise, rotation with hands and shoulders, dancing knees, ankle and feet exercise.

- Diaphragmatic breathing exercise.

- Listening flute music of Nepali songs which they used to hear during their younger age. With the help of flute musician and record studio, the researcher developed flute music of eight Nepali songs in a recording studio which was used in the music intervention through speaker and pen-drive. Those Nepali songs were: Asare Mahinama, Resham Firiri, Kali Pari, Hariyo Danda Mathi, Kanchhi He Kanchhi, Kusume Rumal, Sayathari Baja, and Sanghuri Barima.

- Soft ball playing in group as recreational activity. Senior citizen in the group who fail to catch the ball is out from the game. When a person is out of game, they laugh, so provides recreation.

- Health education on health promotion such as promotion of nutrition, sleep hygiene, compliance of treatment and regular follow-up, adopting safety measures, minimizing high risk behavior, increasing social participation, importance of periodic medical check-up, facilities for older people by both Governmental and non-governmental organizations, promoting spiritual well-being and managing psychological issues.

- Formation of senior citizens club from the participants. After explaining the purpose and benefits of senior citizens club, the formation of club was done with executive body and then informed to local authority of the Government.
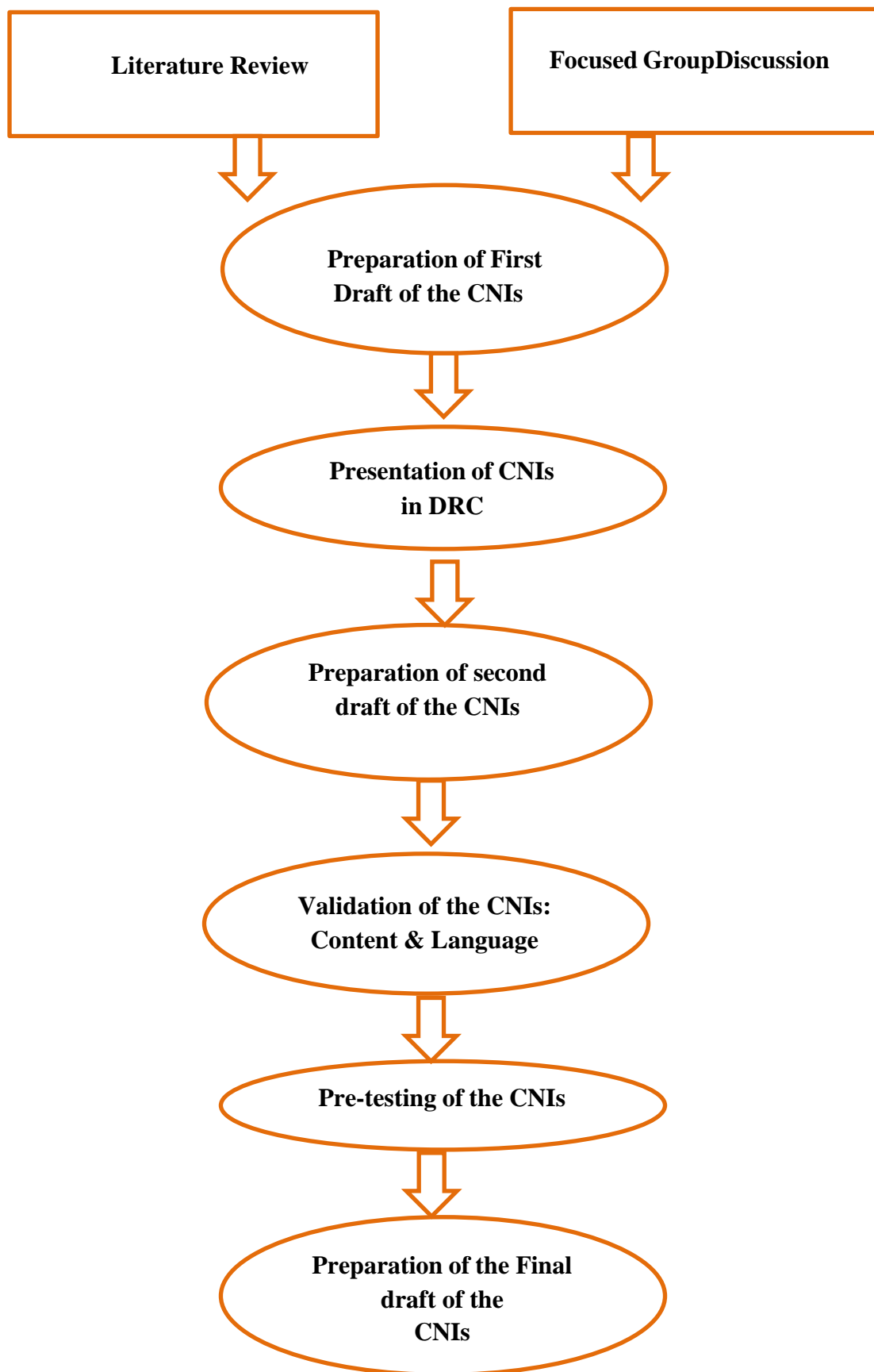
```
┌─────────────────────┐          ┌─────────────────────┐
│  Literature Review  │          │ Focused GroupDiscussion │
└─────────────────────┘          └─────────────────────┘
            │                                │
            ▼                                ▼
            ╭──────────────────────────────╮
           (    Preparation of First         )
           (    Draft of the CNIs            )
            ╰──────────────────────────────╯
                         │
                         ▼
            ╭──────────────────────────────╮
           (    Presentation of CNIs         )
           (    in DRC                       )
            ╰──────────────────────────────╯
                         │
                         ▼
            ╭──────────────────────────────╮
           (    Preparation of second        )
           (    draft of the CNIs            )
            ╰──────────────────────────────╯
                         │
                         ▼
            ╭──────────────────────────────╮
           (    Validation of the CNIs:      )
           (    Content & Language           )
            ╰──────────────────────────────╯
                         │
                         ▼
            ╭──────────────────────────────╮
           (    Pre-testing of the CNIs      )
            ╰──────────────────────────────╯
                         │
                         ▼
            ╭──────────────────────────────╮
           (    Preparation of the Final     )
           (    draft of the                 )
           (    CNIs                         )
            ╰──────────────────────────────╯
```

Figure 2: Process of development of comprehensive nursing interventions (CNIs)

3.1.10 Validation of the CNIs

Content Validity: The validation process of the comprehensive nursing interventions (CNIs) involved the input of ten experts from various fields (public health, psychiatry, health research, psychiatric nursing, medical-surgical nursing, maternal health nursing and community health nursing) (Annexure VI). Their expertise and perspectives were sought to ensure the thoroughness and credibility of the CNIs.

All the valuable feedback provided by the experts was carefully considered and incorporated into the development of the CNIs. The aim was to address any gaps or concerns identified during the validation process, thereby enhancing the overall quality and effectiveness of the interventions.

It is noteworthy that cent percent agreement was achieved among the experts regarding the final version of the CNIs. This consensus underscores the meticulousness and comprehensiveness with which the interventions were designed, instilling confidence in their possibility to positively influence the well-being and QOL of aged people.

Language Validity: The validity of the English and Nepali language in the CNIs was obtained from the experts in both languages (Annexure VII).

Following the successful development and validation of the comprehensive nursing interventions, the study progressed to the next phase. In phase II, the focus shifted towards examining the effectiveness of these interventions on the well-being and quality of life of senior citizens.

3.2 Phase II: Experimentation of Comprehensive Nursing Interventions

3.2.1   Research Approach: Quantitative research approach was adopted in phase II study as per the main primary objective of the research, for identifying effectiveness of the comprehensive nursing interventions on well-being and quality of life of senior citizens.

3.2.2   Research Design: To experiment the effect of the interventions on well-being and quality of life among senior citizens, quasi-experimental research design with follow up was adopted for phase II study by developing interventional and control group in two separate rural villages so as to prevent contamination.

Table 1: Design of the phase II research study

Study Group	Pre-Intervention Assessment	Interventions	Post-Intervention Assessment		
	Baseline		After 1 month	After 3 months	After 6 months
Experimental (Kakani)	O_1	X (6 weeks)	O_2	O_3	O_4
Control (Tadi)	O_1	–	O_2	–	–

Where,

O_1:   First observation before intervention

X: Comprehensive nursing interventions (CNIs). Total 12 sessions, 80-90 minutes/session, twice a week for six weeks.

O_2:   Second observation after 1 month of intervention

O_3: Third observation after 3 months of intervention

O_4: Fourth observation after six months of intervention

3.2.3 Research Variables

In the present study, the different research variables were as follows:

Independent Variable: Comprehensive nursing interventions (CNIs). The CNIs is a structured program with a combination of various activities, exercises, interaction, music and health education related to well-being and QOL of the senior citizens, designed to provide 90 minute session for six weeks in a group.

Dependent Variables: The well-being and quality of life of senior citizens were dependent variables which might be attributed by an independent variable.

Associated Variables: Socio-demographic variables, clinical and behavior related variable were associated variables in this study. Those are the pre-existing attributes which also might effect on the dependent variables.

3.2.4 Research Setting

Present study was performed in two randomly selected villages of two rural municipalities of Nuwakot district in Bagmati province of Nepal. Nuwakot is a mountainous district. Kakani rural municipality ward number two and Tadi rural municipality ward number three were actual research setting. The rural municipality was established in 2017 in Nepal as a replacement of Village Development Committee (VDC). There are 10 rural municipalities in Nuwakot district. It is governed by rural council. The rural municipalityis further divided into wards.

According to National Population and Housing Census 2021, the population of Nuwakot district is 2, 63,391 with 51.0% female. The total population of Tadi rural municipality is 15,933 with literacy rate of 60.9%. The ward number three has 3,393 population. The population of senior citizens (60-74 years) comprises 10.3%

of the total population. Similarly, the total population of Kakani rural municipality is 24,504 with literacy rate of 69.3%. Ward number two has 4,649 population with 8.03% of senior citizens aged 60-74 years.[6]
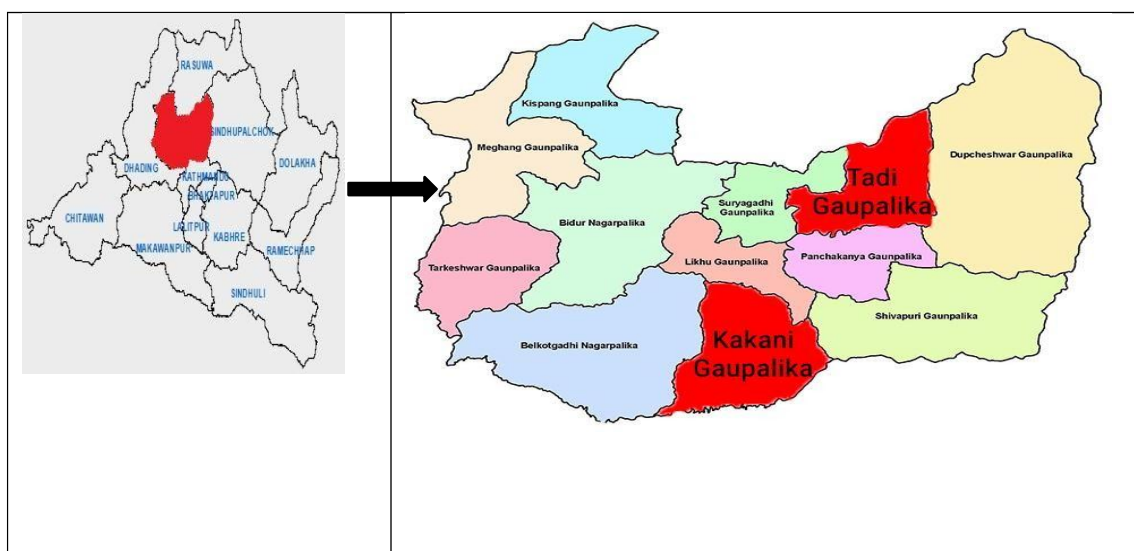

Figure 3: Map of study area showing rural municipalities of Nuwakot district in Bagmati province of Nepal

3.2.5   Population

Target Population: The Senior citizens aged 60 to 75 years living in rural communities.

Accessible Population: All the senior citizens aged 60 years to 75 years who are living in their home from the selected villages in those rural municipalities (Kakani and Tadi) of Nuwakot district were accessible population in this study.

3.2.6   Sample and Sampling Technique

Sample: The sample of this study was senior citizens living in their home in ward number two in Kakani and ward number three in Tadi rural municipalities.

Sample Size

The sample size in this study was 120, equal number of 60 in interventional and 60 in the control group from two randomly selected villages of Nuwakot district. This sample size was calculated based on previous research studies (Park SY et al. in 2015) considering the outcome of QOL using 'WHOQOL-BREF'. The effect size was estimated based on mean and SD of that study. [107]So it requires 47 samples in each group, 94 in total. The loss of sample was assumed up to 20% because the study was planned study in rural community, the sample size was finalized to 60 in each group.

Sample Size Calculation

The sample size was calculated by using the formula:-

$$n = \frac{(\sigma_1{}^2 + \sigma_2{}^2 /k)\ (Z_{1-\alpha/2} + Z_{1-\beta})^2}{2}$$

Where,

δ^2 : $(M_2 - M_1)$ = Absolute difference between two means

$\sigma_1\ \sigma_2$: Variance of mean of group one and group two

n : Sample size of group one

α : Probability of type I error = 0.05   β: Probability of type II error

Z : Critical z value for a given α or β

K= 1, ratio of group 1 to group 2

So, n_1= 47 (rounded off to 50)

Assuming percentage of sample lost in follow up to 20%, a minimum of 60 sample required in a group.

Therefore, 60 senior citizens were required in each group. And the final sample size was 120, sixty in each group.

Sampling Technique:

Multistage cluster random sampling technique was utilized to take the sample. Nepal has seven Provinces; Bagmati Province was choosen from a lottery method. Bagwati province has thirteen disctricts of which Nuwakot district was selected by lottery method. There are ten rural municipalities in this district. Again two rural municipalities of the district was selected i.e. Kakani and Tadi rural municipalities under the guidance of research expert then two wards of those municipalities were selected by lottery method and then selection of sample was done till completion of assigned number (Figure 4). The village or ward numbers of the rural municipalities were allocated randomly for the interventional and control group.
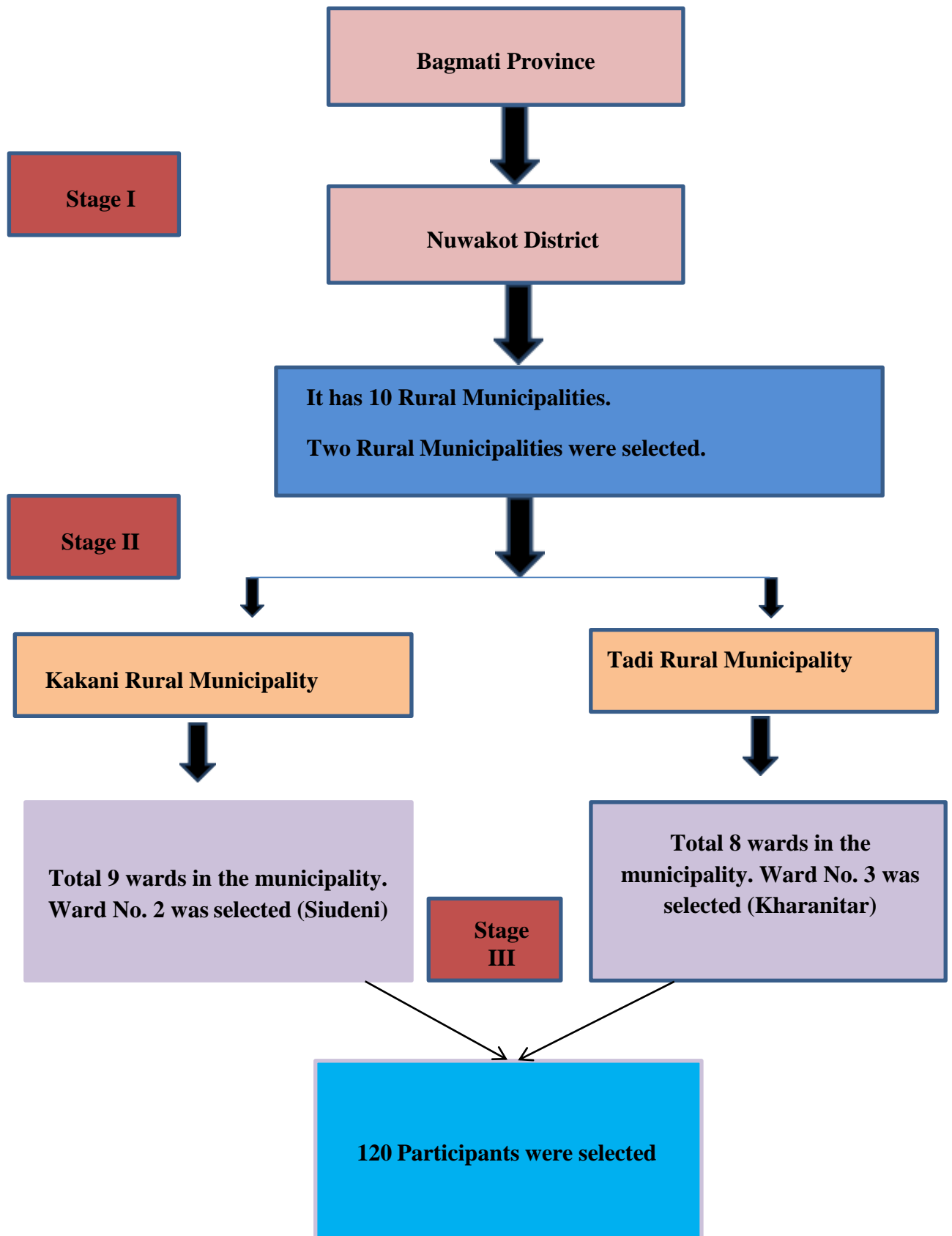
Figure 4: Flow chart representing the multi-stage cluster random sampling of thestudy

Sampling Criteria:

Based on the inclusion and exclusion criteria, the sample was selected in this study.

Inclusion Criteria:

1. The senior citizens aged 60 to 75 years, irrespective of their gender.

2. The senior citizens who could talk and listen.

3. The senior citizens who were living in their home setting.

4. The senior citizens living in that community for at least six months.

5. The senior citizens who agreed to participate in the study.

Exclusion Criteria:

1. The senior citizens who had just returned from hospital after discharge in that week.

2. The senior citizens who were in end stage of life due to disease condition.

3. The senior citizens who were presently living in a geriatric centre or any rehabilitation centre of the community.

3.2.7   Description of the Tools

In this study, both standardized tool and researcher's developed tools were used to meet the objectives of the study. There were four sections of the tool in total which are as follows:

- Section I: Socio-demographic characteristics

- Section II: Clinical proforma

- Section III: Elderly well-being tool

- Section IV: WHOQOL-BREF

Section I: consisted the questions related to socio-demographic factors like age, gender, caste/ethnicity, religion, education, family type, current living status, marital status, employment status, management of expense including facilities of water supply and transportation.

Section II: In the clinical proforma, the questions consisted of current health problems and treatment, anthropometric measurement and BP, and health related bahaviours such as fasting habit, regular physical exercise, regular health check-up and screening, self-medication, leisure time activities including food, sleep, defecation and substance taking habit.

Section III: consisted of elderly well-being tool which measures older peoples' functional ability in physical, psychological, social and spiritual domain. The physical well-being domain of the tool uses three possible responses where 1 represents lowest score and 3 represents the highest score. The remaining three domains are; psychological, social and spiritual well-being measured in a sixpoint Likert scale. So, it uses six possible responses where 1 (strongly disagree) represent lowest score and 6 (strongly agree) represent highest score. There are 21 items for physical, 23 items for psychological and 15 items for both social and spiritual well-being domain. So, higher the total scores, the better the well-being status. There are both positively and negatively worded items in the psychological, social and spiritual domains of the scale. All the negatively worded items are scored reversely like strongly agree (1) and strongly disagree (6).[108] The median value (50%) has been taken for labelling the well-being as poor and good. Poor well-being refers to total scores less than 50% and good well-being refers to more than and equal to 50%. The Nepalese version of well-being scale was used for this study.

65

Section IV: WHOQOL-BREF is a subjective assessment scale of perceived quality of life. It is an abbreviated scale of World Health Organization Quality of Life, a short version of the WHOQOL-100. It is a self-reported instrument having 26 items in a five point Likert scale. The responses ranging from 1 (very dissatisfied/very poor) to 5 (very satisfied/very good). Out of the 26 items in the scale, an initial two items are stand-alone which measure perception of QOL and health satisfaction in overall.

Other twenty-four items comprise four domains of QOL; 'physical, psychological, social relationship and environmental'. There are seven items in physical domain, six items in psychological, three items in social relationship and eight items in environmental domain of QOL. Both positive and negative statements are present in the scale. The negative statements are scored reversely.

At first, the scores are measured on a scale of 4 to 20 and then transformed to a scale of 0 to 100 to make it compatible with WHOQOL-100. The domain wise analysis is done including overall QOL. Higher the score, better the quality of life. WHOQOL-BREF is a standard tool having adequate psychometric properties with good validity and reliability (WHOQOL Group, 1998). It has been already used to assess QOL among senior people in Nepal with good reliability (α 0.93).[109, 110]The internal consistency of WHOQOL-BREF in the present study was found high, Cronbach's alpha coefficient ranging from 0.63 to 0.90 as per domains. In aggregate, the median value (50%) has been taken for labelling the QOL as poor and good. Poor QOL refers to total scores less than 50% and good QOL refers to more than and equal to 50%. The Nepalese version of WHOQOL-BREF was used for the study by obtaining written permission.

3.2.8 Validity of the Tools

Self-developed elderly well-being tool and a standardized tool of WHOQOL- BREF were applied in this study.

Content Validity: All the self-developed tools like structured socio-demographic questionnaire, clinical proforma, and elderly well-being tool together with the comprehensive nursing interventions were validated by ten experts from various related subjects (public health, psychiatry, health research, psychiatric nursing, medical-surgical nursing, maternal health nursing and community health nursing) (Annexure VI). All the feedback was incorporated in the tools and CNIs. Then cent percent agreement was maintained.

Language Validity: The validity of the English and Nepali language in the tools and comprehensive nursing interventions was obtained from the expert in both language (Annexure VII).

3.2.9 Reliability of the Tools

The reliability of the research tools was examined prior to research proceeding. The reliability of the elderly well-being tool and WHOQOL-BREF was analyzed through test-re-test method by Karl Pearson's correlation coefficient. Cronbach alpha coefficient showed its' internal consistency by considering an alpha value >0.07 as acceptable. And the stability was evaluated from the test re-test score using the same scale.

Table 2: Reliability of research tools by test re-test method

Domain Wise Reliability of Well-Being Tool	Cronbach'sAlpha
Physical well-being	0.9957
Psychological well-being	0.9788
Social well-being	0.9100
Spiritual well-being	0.8876
Domain Wise Reliability of Quality of Life (WHOQOL-BREF)	
Physical	0.9006
Psychological	0.7668
Social Relationship	0.6364
Environmental	0.7860

All the domains of both tools were found to be reliable to assess the well-being and quality of life of the senior citizens.[108]

3.2.10 Ethical Permission

1. First of all, an ethical clearance was obtained from the Ethics Committee of Swami Rama Himalayan University, Jolly Grant, Dehradun on 21st September 2019 (SRHU/HIMS/F-1/2019/91).

2. To conduct the research in Nepal, again ethical permission was obtained from Ethical review board of Nepal Health Research Council, Kathmandu, Nepal on 27th January 2020 (Ref. No. 1705).

3. Permission letters were received from the office of two rural municipalities to conduct a study (Ref No. 746/2020 and 461/2020).

4. The written informed consent was taken from the senior people prior to the study. An assurance of their voluntariness for the study was maintained. Their verbal consent was also obtained for taking phograph of the sessions.

5. Privacy was maintained during the interview and confidentiality was assured.

3.2.11 Pilot Study

Pilot study was conducted among approximately ten percent of the study sample as a feasibility study. It was done among 11 senior citizens residing in similar rural municipality i.e. ward number 9 (Mangaltar) of Roshi rural municipality in Kavrepalanchok district to determine initial feasibility, reliability of the tool and to generate effect size estimation of the comprehensive nursing interventions. It was started on 5th September 2021 and completed on 27th October 2021.

The setting of the pilot study was selected randomly by multi-stage cluster random sampling. The investigator at first obtained a verbal permission from the office of ward number 9, Roshi rural municipality then visited the community and home with the help of female member of the ward office. The written consent was obtained from the senior citizens and recruited for the study. Data collection was done by interview and examination like measurement as most of the senior citizens were illiterate which took approximately 45 minutes. The privacy was maintained during interview and assured for the confidentiality of their information.

After pre-interventional data collection, the comprehensive nursing interventions was provided in a group in that community for six weeks. Then post-interventional data collection was done by home visit using the same tools which were being used during pre-testing. All the assessment and interventions were carried out exactly as planned for the main study.

In conclusion, this pilot study found to be feasible in terms of setting, timing, availability of senior citizens and their co-operation for completing the study. The CNIs was found effective significantly in improving well-being and QOL of the

senior people. Simple modification in the sequence of lesson plan of CNIs was done as a feedback of the study such as breathing exercise put first then joints and glands exercise.

3.2.12 Data Collection Procedure

The data collection of this study was done only after getting the permission ethically from the university, NHRC and administratively from the local governing body i.e. Municipalities office of Kakani and Tadi. The villages were selected by multi stage cluster sampling then visited those villages and locate the houses taking support of female community health volunteer (FCHV).

The researcher interacted with the key persons of those communities like health volunteer, political leader, teacher and social worker at first then introduced herself and research objective and activities. Then only the researcher visited the house and identified the senior citizens as per the inclusion criteria. Further, gave introduction of self and stated objectives and activities of the research study with the senior citizens. The rapport was build up first, informed written consent was obtained and explained about assurance of privacy and confidentiality of the participants. The first house having senior citizen was randomly selected then consequitively till desired number based on the proximity focusing for intervention sessions as the houses in the rural mountaneous villages were scattered. Usually only one senior citizen was selected from a household but in some houses, both were selected based on their keen interest for participation, after thorough explanation of the research methodology i.e. repeated observation of the participants.

All the necessary examination or assessment were done and all the interviews were completed by the investigator herself in senior's home by maintaining privacy and confidentiality in the absence of their family after giving the rationale for maintaining privacy. The standard and validated tools in Nepalese language were used for the data collection.

In the second phase of the study, the data collection was done from 120 participants from two villages. Interview techniques and clinical measurement like blood pressure, height and weight, were done for data collection as they were not able to read. Those who could read and write, also requested and entertained the interview.

The data collection was started in December 2021 and ended in January 2023 taking time of approximately 14 months for four assessment including both pre and post intervention data. The baseline data collection was done from 120 participants of the study.

Following the baseline assessment, a validated comprehensive nursing interventions (CNIs) was provided only to an interventional group in ward number two (Siudeni) of Kakani rural municipality for six weeks. Regular reminding was done for continuous participation in the CNIs. The senior citizens participated actively both in individual and group activities designed for the CNIs. A record sheet was distributed to the senior citizens of the interventional group and instructed to mark tick on that sheet by the help of family member after performing activities and exercises at home. At the end of the CNIs, the researcher provided a booklet on comprehensive nursing interventions for well-being and quality of life as a re-inforcement for continuing learned activities.

After one month of intervention, a first post-test was performed in both interventional and the control group. The researcher also visited the senior citizens' home in an interventional group with the aim of reminding them about continuation of the learned activities and exercises. During this home visits, participants also demonstrated the activities and exercises as well as solve their queries while the researcher supervised and corrected in needful condition. After the post-test, the CNIs and the booklet were also provided to the senior citizens of control group for ethical implication.

The follow up of the interventional group was done after 3 and 6 months of the CNIs for strengthening the effectiveness of comprehensive nursing interventions.

Researcher's Journey

Conducting a community intervention study in remote rural areas among senior citizens proved to be a challenging but rewarding journey for the researcher. From traveling in unfamiliar areas to facing health difficulties due to allergies, the researcher's determination remained strong.

The pilot study, marked by resilience in overcoming health barriers, led to a six-week stay in the communities. The daily routine of sampling, data collection and extensive nursing intervention became intense, but the community's appreciation reduced the stress. Despite suffering from fever and sore throat during the intervention, the researcher's commitment was sustained by the support of the community.

The impact of the study was evident as participants recognized the importance of the intervention, leading to the establishment of a senior citizens' club. This brief journey highlights the perseverance required for successful community research, emphasizing the vital role of a dedicated and adaptable researcher.

3.2.13 Data Analysis and Interpretation

The data analysis and interpretation were done as per the stated objectives of the study. Both qualitative and quantitative analyses of data were done. The thematic analysis was performed by transcribing audio-record of the focused group discussion. The themes and sub-themes were developed to explore experiences of the senior citizens related to well- being and QOL.

The collected data from the second phase of the study was checked for its completeness and accuracy. Then the data were coded, organized and entered then analyzed on IBM SPSS version 20.0. The descriptive statistics was applied and the analysis was presented in frequency, percentage, mean, median and standard deviation (SD).

A test of normality of the data was done using one sample Kolmogoro Smirnov test which showed the distribution of the data non-normally. Therefore, the non-parametric tests were applied for the analysis. In the inferential statistics, Wilcoxon signed rank test, Mann Whitney U test and Friedman test were applied for testing significance on well- being and quality of life. The Spearman rank correlation cofficient test was applied to measure the relationship between well-being and QOL. And the association between variables was found out by Chi-square and Fisher's exact tests.

3.3 Intervention

In order to identify the effect of intervention on well-being and quality of life of senior citizens, comprehensive nursing interventions was provided to an interventional group in their locality. The CNIs was provided in a group for six

weeks. There were total twelve sessions, provided twice a week as per scheduled on mutual understanding. The CNIs included activities, interactions, exercises, game, music and health education on health and problems. As a multicomponent program, it included all the domains of health and well-being of the senior citizens. Each session of the intervention was designed for 90 minutes with 10 minutes break. The intervention was provided in Nepali language based on validated lesson plan and contents.

Summary: This chapter clearly specified the research approach and design as per the phase of study including variables, setting, samples and sampling technique, inclusion and exclusion criteria of the sample, description of measuring tools and its' validity and reliability, pilot study, intervention and data collection and analysis.

```
┌─────────────────────────────────────────────┐
│  Obtained ethical permission from SRHU, NHRC & rural │
│               municipalities                   │
└─────────────────────────────────────────────┘
                     │
                     ▼
┌─────────────────────────────────────────────┐
│   Enrolled respondents who met inclusioncriteria │
└─────────────────────────────────────────────┘
                     │
                     ▼
┌─────────────────────────────────────────────┐
│   Data collection by interview & measurement   │
│                                               │
│  using Elderly well-being scale & WHOQOL as    │
│                 pre-testing                    │
└─────────────────────────────────────────────┘
                     │
                     ▼
┌─────────────────────────────────────────────┐
│   Provided CNIs for interventional group (Village A) │
└─────────────────────────────────────────────┘
                     │
                     ▼
┌─────────────────────────────────────────────┐   ┌──────────────┐
│  Data collection of both groups using thesame │   │ 7 respondents │
│              tools as post-test                │   │     lost      │
└─────────────────────────────────────────────┘   └──────────────┘
                     │
                     ▼
┌─────────────────────────────────────────────┐   ┌──────────────┐
│   Follow up data collection of the interventional │ │ 9 respondents │
│       group after 3 & 6 months of CNIs         │   │     lost      │
└─────────────────────────────────────────────┘   └──────────────┘
                     │
                     ▼
┌─────────────────────────────────────────────┐
│        Analysis & interpretation of data       │
└─────────────────────────────────────────────┘
                     │
                     ▼
┌─────────────────────────────────────────────┐
│        Dissemination of the findings           │
└─────────────────────────────────────────────┘
```

Figure 5: Flow chart representing data collection procedure

```
┌─────────────────────────────────────┐          ┌─────────────────────┐
│ Development of Comprehensive Nursing │          │   Phase 1 Study     │
│ Intervention by FGD & Selection of   │          │                     │
│ Area                                 │          └─────────────────────┘
└─────────────────────────────────────┘
                  ⇩
┌─────────────────────────────────────┐
│  Nuwakot District of Bagmati Province│          ┌─────────────────────┐
└─────────────────────────────────────┘          │   Lottery Method    │
                  ⇩                               └─────────────────────┘
┌─────────────────────────────────────┐
│ Kakani and Tadi Rural Municipalities │
│ of Nuwakot District                  │          ┌─────────────────────┐
└─────────────────────────────────────┘          │  Randomly Selected  │
                  ⇩                               └─────────────────────┘
┌─────────────────────────────────────┐
│ Siudeni of Kakani and Kharanitar of  │
│ Tadi                                 │
└─────────────────────────────────────┘
                  ⇩
┌─────────────────────────────────────┐          ┌─────────────────────┐
│ Home Visit for Identifying Senoir    │          │   Phase 1I Study    │
│ Citizens as per Inclusion Criteria   │          └─────────────────────┘
└─────────────────────────────────────┘
                  ⇩
┌─────────────────────────────────────┐
│  Allocation of Village into 2 group  │
│             randomly                 │
└─────────────────────────────────────┘
```

Village A (Siudeni) Interventional Group — Village B (Kharanitar) Control Group

Baseline Assessment — Baseline Assessment

Intervention (CNIs) for 6 weeks — No Intervention

Reassessment after one Month — Reassessment after one Month

Reassessment after 3 & 6 Months (Follow-up) — No Follow-up
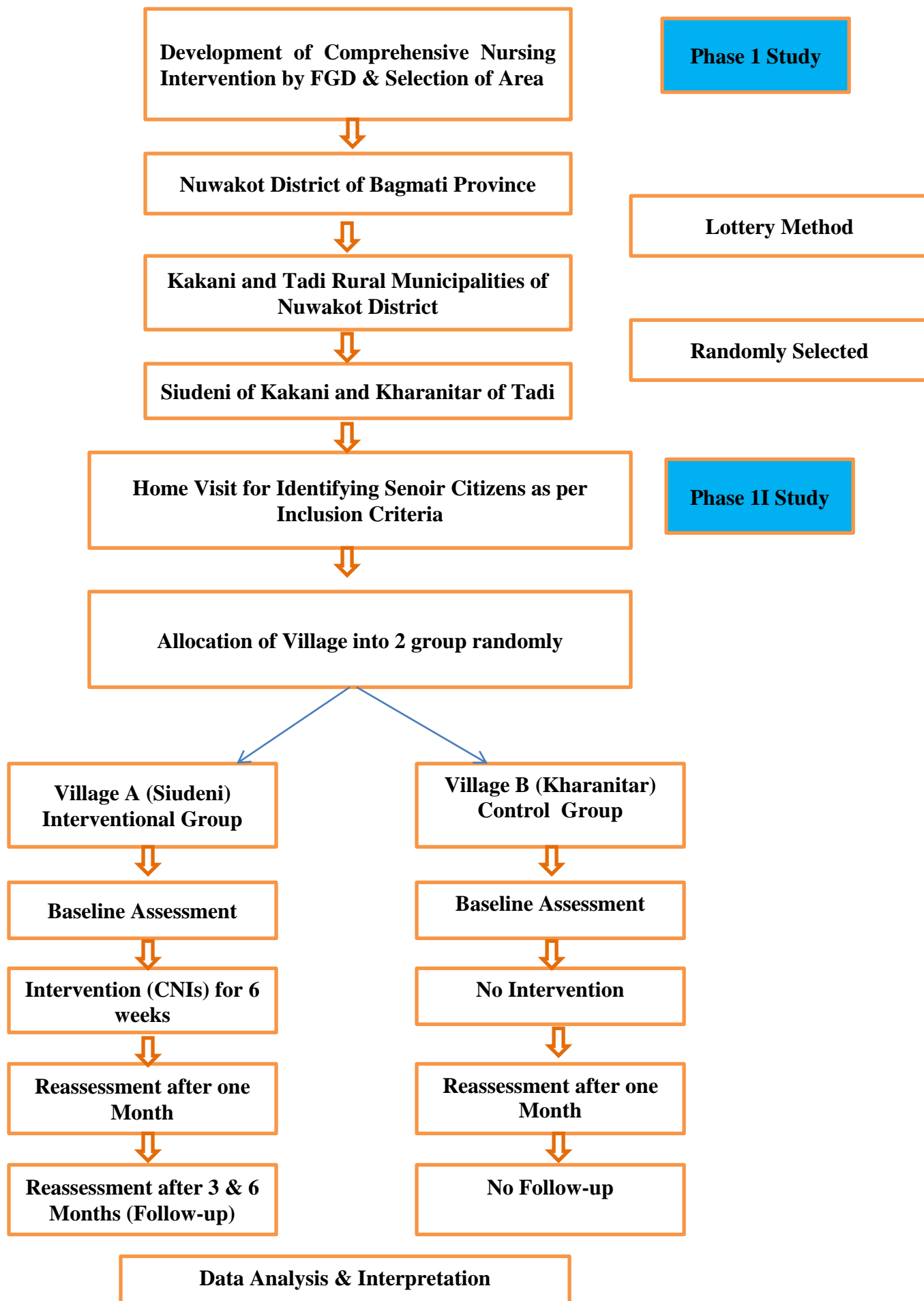
Data Analysis & Interpretation

Figure 6: Schematic diagram of research methodology