“If you can’t fly, then run,
If you can’t run, then walk,
If you can’t walk, then crawl,
But whatever you do,
You have to keep moving forward”.

~ Martin Luther King Jr.
3.1.1 RESEARCH APPROACH

In view of the nature of the problem selected for the present study “a nurse educator study on self-esteem, study habits, adjustment, and academic achievement among nursing students” and for the objectives to be accomplished a Quantitative Research Approach was considered appropriate for the present study because it is designed to obtain information about the attributes, and interrelations between attributes within a population.

3.1.2 RESEARCH DESIGN

A research design for the present study was selected using descriptive survey correlation design which belongs to non-experimental research design to explore and describe relationship among the self-esteem, study habits, adjustment, and academic achievement of the nursing students.
3.2. Variables under study

3.2.1. Dependent variable [D.V.]

- Performance on test on self-esteem, study habits, adjustment & academic achievement

3.2.2. Co-variables [C.V.]

There were 41 socio demographic characteristic features studied under four profiles; personal profile (1-7), family profile (8-19), academic profile (20-30) and social life profile together (31-41).

3.3. Setting of the study

Selection of setting to conduct a study is based on the nature of the research question and the type of information needed to address. The present study was

Figure 3: Flow diagram showing the schematic progress.
conducted in Karnataka state which consisted total of 296 Colleges of nursing and 615 Schools of nursing. Out of 30 districts in Karnataka, the Bangalore district alone had total 175 nursing colleges and 276 nursing schools. Due to the presents of majority of nursing institutes as well as the researcher was residing in; the Bangalore district was selected conveniently to carry out the study. Therefore, the setting of the present study was class rooms of the selected nursing institutes, recognised by the Indian Nursing Council, Karnataka state Nursing Council affiliated to the Rajive Gandhi University of Health sciences (in case of B.Sc nursing programme) and recognised nursing schools under Karnataka state Diploma in Nursing Examination Board (in case of GNM nursing programme), Bangaluru Karnataka state.

3.3. Population of the study

Population for a research study comprises the entire aggregate of elements in which the researcher is interested and to which the result of the study can be applied. The population of the study consisted of all nursing students studying in II year B.Sc and G.N.M course in all nursing institutes, from four zones of Bengaluru district.

3.4. Sample

Sample is a subset of population selected to participate in a research study. Sample of the study comprised of second year B.Sc. and second year G.N.M nursing students from nursing institutes at Bengaluru district those who fulfilled the inclusion criteria.
3.4.1 Criteria for selection of sample

Inclusion Criteria:

- Second year B.Sc. and G.N.M nursing students
  - Enrolled in those schools and colleges and recognized by the State Nursing Council and Indian Nursing Council.
- Students who were in the age group of 18 to 21 years.

Exclusion Criteria:

- Second year B.Sc. and G.N.M Nursing students, having physical disabilities
- having minor / major illness at the time of data collection

3.5. Sample size:

Calculated sample size was N=461. After attrition of 21 subjects the final sample size was N=440.

The sample size for the study was calculated based on the formula; n = 4pq/L^2. Here ‘n’ is the required sample size, ‘p’ is the approximate prevalence rate of the problem for which the survey is being conducted, ‘q’ = (1 - p), and ‘L’ (5xp/100) is the permissible error at the estimate of prevalence. The prevalence of second year nursing students in Bengaluru district alone was obtained from Rajiv Gandhi University of health sciences and from Karnataka nursing board there were 6724 B.Sc. nursing and 7188 G.N.M nursing students respectively. In total 13912 nursing students were available at that period of time. Around, 50% of population was present only in Bangaluru district in comparing with total Karnataka population of nursing students were 27226 (11226-B.Sc. Nursing and 16000- G.N.M). The sample was calculated based on the formula p = 50%; q = (1-50) = 49; L2 = 4.5x50/100 =
2.25\times 2.25=5. Therefore, \( n = 4 \times 50 \times 49/5 = 1568/4 = 490 \). To derive this sample size the formula applied was \( k = N/n \) to find \( n^{th} \) number to do systematic random sampling from the actually available sample number. Hence, \( k = 922/490 = 2 \). The sample frame was prepared and every 2, 4, 6... were selected as study subjects, thus 461 become a final sample size of this study.

### 3.4.2 Sampling technique:

Multi-Stage stratified random sampling method was chosen for the present study. The usual procedure for selecting sample from a general population through stage by stage from each stratum randomly is called multistage stratified random sampling.

In first stage, Bangalore was divided into zonal wise as North, East, West and South, as first strata. Using fishbowl method ‘North zone’ was selected. In second stage, the total number of nursing institutions in the north zone was calculated. The Government of Karnataka has divided the North Bangaluru district into 10 clusters for the convenience of administration namely Banaswadi, HBR Layout, Hebbal, Hennur, Jakkur, Jalahalli East, Jallahalli West, Peenya Industrial area, Sanjeeveni Nagar and Yeshwantpur. The number of Nursing Institutions in the north Bangaluru was 54, selected from the official website of Indian Nursing Council and The Karnataka Nursing Council recognized Colleges list. From this, institutions conducting both GNM and B.Sc. nursing programs and institutions conducting any one programme were divided as second strata, and selected the institutions conducting both program using fishbowl method. There were total 12 institutions offering both programmes. In third stage, these institutions were divided under co-education and uni-education as third strata and lots were put in the fishbowl, ‘co-education’ was selected. Among the 12 institutions only 10 were giving co-
education. All the nursing students in those 10 institutions who met the sampling criteria were totally 922. As explained in the sample size calculation (s.no 3.4.2), using Tippet random number table 461 subjects were selected. All 461 students were invited to participate in the study. However, 05 students did not accept the invitation, and 03 students were absent due to leave. While coding the data, it was found that 13 students did not complete the questionnaire. Hence, 21 students were not included in the study. Thus only 440 subjects responded all the items of the data collection tool and their data were taken for analysis.

3.5. Ethical consideration

Before conducting the study ethical clearance has been obtained from the university ethical committee (the ethical clearance certificate has been enclosed in Annexure-). At each institutional level the written permission was obtained to select study subjects. During the data collection, the procedure was explained to the subjects and told that information will be kept confidential and informed written consent was obtained from the subjects. Subjects were given freedom to withdraw from the study at any stage. Tool was given to each subject to give ‘self-report’ by providing calm and quite environment in spacious hall arrangement for each institution.

3.7. Selection and Development of Instrument

Research tool is the instrument used to collect the data. The investigator made an extensive search of literature to find out different tools used for data collection in similar studies. In order to select and develop the apt tools; the following activities were carried out.

- Literature review (through internet, journals, books and magazines)
- Consultation and discussion with nursing experts.
Personal experience (personal observations of students, attending the meeting of students participating in parents-teachers meeting and analyzing monthly academic report about students and discussion with colleagues).

The following tools were used to collect the necessary data for the study. They were self-administered tools consisted socio-demographic characteristics data sheet prepared by the investigator, three standardized inventories and first year academic achievement score of the nursing students. It is considered to be the most appropriate instrument to elicit responses from literate subjects.

- Socio demographic data sheet
- Self esteem inventory for adolescent (S. Karunanidhi, 1996)
- Study habits scale (B.V. Patel, 1983)
- Adjustment scale (Singh and Shah, 1993)
- Academic Achievement (1-year marks percentage and class awarded by the respective examination board).

**Socio-Demographic Data Sheet.**

There were totally 41 questions placed under four parts: The first part explored the Personal profile of the students on age, gender, birth order in the family, domicile etc. contained 06 questions. The second part explored the Family profile on type of family, size of family, mothers’ age, fathers’ age etc. contained 18 questions. The third part explored the Academic profile on attendance, modified activities to improve studies, residing place during their study period, 1st year marks and percentage, self-assessment of academic performance and their future plan, contained 06 questions.
The fourth part explored the social life profile and elicited information of the students on participation in social get together, interaction with classmates’ etc, contained 11 questions. The final version of the socio demographic data sheet is placed in Annexure- VI.

SELF-ESTEEM INVENTORY FOR ADOLESCENT (S.KARUNANIDHI, 1996)

Self-esteem Inventory for Adolescent developed by S. Karunanidhi in 1996 is a multi-dimensional self-esteem questionnaire consisted of 83 items in the form of statements. Each statement has four alternative responses such as; (A) Always, (B) Most of the time, (C) Sometimes and (D) Never. The inventory measures six dimensions of self-esteem: (i) Competency (16 items), (ii) Global self-esteem (16 items), (iii) Moral and self-control (13 items), (iv) Social-esteem (12 items), (v) Family (11 items), (vi) Body and physical appearance (9 items) (vii) Lie scale (06 items). Totally there were 83 items and 53 items were positively worded and 30 were negatively worded.

i. Competency scale (16 items): (1,8*,15,22,29*,36,43,49,55,61,66*,71,75,78,80 and 82). Maximum possible score 64.

ii. Global self-esteem scale (16):
(2,16*,23*,30,37,44*,50,56,62,67*,72,76*,79*,81* and 83).
Maximum possible score: 64.


iv. Social esteem scale (12): (4, 11, 18*, 25, 32*39*46.52*, 58, 64*,69* and 74).
Maximum possible score: 48.
   Maximum possible score: 44.


(If the individual obtained maximum score of 24 in Lie scale, it is considered as invalid for analysis. The subjects’ responses were omitted).

Content Validity of the tool

Content validity of the tool was established after consulting national and international experts in nursing, public health, and education. The suggestions given by the experts were incorporated in discussion with guide and co-guide.

Pre-testing of the tool

Pre-testing of the tool was done on a sample of subjects who were similar in characteristics to those of the subjects under study, to check the clarity of the items, their feasibility and practicability.

Reliability of the tool

Reliability of the tool was established by conducting the pilot study. Reliability of this tool was established by using Guttman Split-Half Coefficient, \( r = 0.854 \).

Scoring pattern:

Positive items were scored as 'Always' (4), 'Most of the time' (3), ‘sometimes’ (2), 'Never'(1).

Negative items were scored as ‘Always’ (1), ‘Most of the time’ (2), ‘Sometimes’ (3), ‘Never’ (4).

*Asterisk indicates negative items need reverse scoring procedure.
Score interpretation: High scores in each dimension indicate the high level of self-esteem.

Score range:

- High self-esteem score ranges from 209-332
- Low self-esteem score ranges from 83-208

STUDY HABITS INVENTORY FOR ADOLESCENTS (B.V.PATEL, 1983).

Study Habits Inventory was developed by B.V. Patel (1983). The inventory consists of 45 items in which 34 items were positive and 11 were negative. These items were grouped under 7 subscales.

They are:

1. Home Environment and planning (7) items from item number one to seven (1-7)
2. Reading and Note taking (5) items the item numbers such as; 8, 13, 14, 15, 16.
3. Planning of subjects has (4) items 17, 18, 21 and 29.
4. Habits of concentration has (5) items. 22, 23, 24, 25 and 32.
5. Preparation for exam has (8) items 12, 19, 26, 27, 28, 30 and 31.
6. General habits and attitude have (10) items 9, 10, 11, 33, 34, 35, 36, 37, 38 and 39.
7. School or College environment has got (6) items 40, 41, 42, 43, 44 and 45.

The Positive items are:

1, 2, 3, 4, 5, 6, 9, 10, 11, 12, 13, 14, 16, 17, 18, 19, 20, 23, 27, 28, 29, 30, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44.

The Negative items are:

7, 8, 15, 21, 22, 24, 25, 26, 31, 32, 35.
Scoring is done in a two (2) point responses. They are ‘YES’ or ‘NO’

<table>
<thead>
<tr>
<th>Responses</th>
<th>Positive item</th>
<th>Negative item</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>2 marks</td>
<td>1 mark</td>
</tr>
<tr>
<td>No</td>
<td>1 mark</td>
<td>2 marks</td>
</tr>
</tbody>
</table>

Figure 4: Scoring responses of study habits inventory for adolescents (B.V.Patel 1983).

Reliability: The reliability co-efficient was found to be \( r = 0.9104 \).

Interpretation: High score indicates good study habits among the students.

Scoring Range:

- Good Study Habits score from 68-90.
- Poor Study Habits score from 45-67.

ADJUSTMENT INVENTORY FOR ADOLESCENTS (Singh and Shah(1993)).

The Adjustment Inventory was originally developed by Singh and Singh in 1980 and it was modified by Singh and Shah in 1993, it consists of totally 60 items on three dimensions namely Emotional, Social and Educational. Each dimension has 20 items.

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emotional dimension</td>
<td>1,4,7,10,13,16,19,22,25,28,31,34,37,40,43,46,49,52,55,58</td>
</tr>
<tr>
<td>Social dimension</td>
<td>2,5,8,11,14,17,20,23,26,29,32,35,38,41,44,47,50,53,56,59</td>
</tr>
<tr>
<td>Educational dimensions</td>
<td>3,6,9,12,15,18,21,24,27,30,33,36,39,42,45,48,51,54,57,60</td>
</tr>
</tbody>
</table>

Each item has 2 alternatives ‘Yes’ or ‘No’ written to its right side. A student has to read each item and decide whether he/she will answer ‘Yes’ or ‘No’ to it. If the answer is YES he/she has to give a cross mark in the YES box when the answer is ‘No’ he/she has to give cross in the ‘NO’ box.
Reliability and validity: The co-efficient of reliability of the Adjustment Inventory determined by the Authors were + 0.95 (Split of half method) and + 0.93 (test retest method) respectively. Validity co-efficient as determined for each item by Bi-serial Correlation Method. The inventory was also validated by correlating inventory scores with the ratings of the Hostel superintendents in the five point scale and ‘r’ obtained was + 0.51.

Scoring: The Inventory can be manually scored ‘Zero (0) to a response which indicates Adjustment and score of one (1) is awarded to a response which indicates lack of adjustment.

Norms: Adjustment scores could be categorized as those who score

For male students:
- 5 and below  = Excellent.
- 6 to 12    = Good,
- 13 to 21   = Average,
- 22 to 30   = Unsatisfactory,
- 31 and above = Very Unsatisfactory.

For female students:
- 5 and below  = Excellent
- 6 to 14     = Good
- 15 to 22    = Average
- 23 to 31    = Unsatisfactory
- 32 and above = very unsatisfactory.

Interpretation: Higher the score poorer will be the adjustment.
ACADEMIC ACHIEVEMENT

To determine the academic achievement of the study subjects, their I-year B.Sc. nursing exam and General Nursing exam marks percentage were received from their marks records and the level of achievement was identified as follows,

<table>
<thead>
<tr>
<th>Sl.no</th>
<th>Level of achievement</th>
<th>Score Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Distinction</td>
<td>75% and above</td>
</tr>
<tr>
<td>2</td>
<td>First Class</td>
<td>65% - 74%</td>
</tr>
<tr>
<td>3</td>
<td>Second Class</td>
<td>55% - 64%</td>
</tr>
<tr>
<td>4</td>
<td>Third Class</td>
<td>40% - 54%</td>
</tr>
<tr>
<td>5</td>
<td>Pass Class</td>
<td>Eligible (failed in less than 3 subjects)</td>
</tr>
</tbody>
</table>

Figure 5: Score range for level of academic achievement

3.8 Pilot Study

The pilot study was conducted on 329 (1% of population that is 27226 rounded to 30000; including attritions) subjects from 4 Colleges of Nursing and 6 school of nursing institutions. Feasibility of tool administration and method of data collection were assessed. It was found that students took nearly about 1hr and 20mins to complete 4 tools exclusive of 10 minutes for seating arrangements, introduction, and taking consent and 10 minutes tea break after completion of two tools. Pilot study helped the investigator to bring out modifications in the tools, time gap allotment, and simplification of data collection procedure for the main study.

Pilot study findings revealed that the majority of the subjects 262(79.6%) had low self-esteem and 67(20.4%) subjects had high self-esteem. Considering the study habits, majority of the subjects 209 (63.5%) had good study habits, whereas 120(36.5%) subjects had poor study habits. With regard to Adjustment majority of
the subjects 195 (59.3%) had good adjustment, 118 (35.9%) had unsatisfactory adjustment and there were no study participants with very unsatisfactory and poor adjustment. With regard to academic achievement in first year majority of the subjects 188 (57.1%) had secured average, whereas 113 (34.3%) had secured below average score.

3.9 Data collection procedure

Data were collected through self-report method. In this process first, permission was obtained from the institutional authorities especially from principals, before the actual data collection procedure. Data collection schedule was made according to the institutional convenience date, time and the venue without affecting their daily timetable of class hours. Although required sample size was 461, to begin with, data were collected from 453 nursing students from the selected nursing institutes (05 did not accept the invitation, and 03 students were absent due to leave). They were given a self-introduction and the written consent was taken for the voluntary participation in the study. The subjects were assured of confidentiality of information. The investigator selected a lecture hall where she can meet and administer the research tools to the subjects personally. Data were collected using socio demographic data sheet, Self-Esteem Inventory, Study Habits Inventory, Adjustment Inventory and Academic Achievement. On an average 90 minutes to 120 minutes were required for the study subjects to fill up all the tools. While coding the data, it was found that 13 subjects failed to fill all the items in the tool and were dropped out. Hence the total subjects became 440. Data were collected from the period of March 2011 to July 2011.
<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Name of the Institute</th>
<th>Date</th>
<th>Total Strength</th>
<th>Subjects Selected</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>East West CON and SON</td>
<td>01.03.11</td>
<td>111</td>
<td>55</td>
</tr>
<tr>
<td>2.</td>
<td>Sri Shanthini CON and SON</td>
<td>25.03.11</td>
<td>72</td>
<td>36</td>
</tr>
<tr>
<td>4.</td>
<td>Sri Laxmi CON and SON</td>
<td>21.05.11</td>
<td>73</td>
<td>36</td>
</tr>
<tr>
<td>5.</td>
<td>Survodaya CON and SON</td>
<td>23.05.11</td>
<td>124</td>
<td>62</td>
</tr>
<tr>
<td>6.</td>
<td>M.S. Ramaiah CON and SON</td>
<td>30.05.11</td>
<td>113</td>
<td>56</td>
</tr>
<tr>
<td>7.</td>
<td>Acharya CON and SON</td>
<td>15.06.11</td>
<td>68</td>
<td>34</td>
</tr>
<tr>
<td>8.</td>
<td>Padmasri CON and SON</td>
<td>29.06.11</td>
<td>115</td>
<td>57</td>
</tr>
<tr>
<td>9.</td>
<td>Oxford CON and SON</td>
<td>30.06.11</td>
<td>102</td>
<td>52</td>
</tr>
<tr>
<td>10.</td>
<td>Malligai CON and SON</td>
<td>17.07.11</td>
<td>82</td>
<td>42</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>922</strong></td>
<td><strong>461</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Figure 6: Data Collection Schedule**
Figure 7: Flow chart showing the procedure of data collection

- **Population**
  - Second year GNM and BSc.N students studying in 54 nursing institutions in North Bengaluru (2980)

- **Target Population**
  - Second year GNM and BSc.N students studying in 10 nursing institutions in North Bengaluru (922)

- **Sample**
  - Randomly selected Second year GNM and BSc.N students from 10 nursing institutions in North Bengaluru (440)

- **Tool**
  - (Self-report method)
    - Questionnaire on socio-demographic characteristics (SDCs) & Self-Esteem Inventory for Adolescent (S. Karunanidhi, 1996), Study Habits Inventory for Adolescents (B. V. Patel, 1983), Adjustment Inventory for Adolescents (Singh and Shah, 1993)

- **Test**
  - 1 hour and 30 minutes to 2 hours taken to collect data
  - On SDCs, self-esteem, study habits, adjustment and academic achievement on different days in 10 clusters as per scheduled dates

- **Statistical Analysis**
- **Hypothesis testing**
- **Interpretation and Conclusion**
### 3.10. Plan for Data Analysis

Both descriptive and inferential statistics were planned to analyses the data. The details were as follows,

<table>
<thead>
<tr>
<th>Methods</th>
<th>Types of statistics</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Descriptive</td>
<td>Frequency, percentage, Mean, Standard Deviation, Median.</td>
<td>To describe the characteristics of the study participants.</td>
</tr>
<tr>
<td>Inferential</td>
<td>Paired ‘t’ test</td>
<td>To compare data between groups</td>
</tr>
<tr>
<td>statistics</td>
<td>Karl Pearson’s Correlation Co-efficient.</td>
<td>To study the relationship between the study variables.</td>
</tr>
<tr>
<td></td>
<td>Multiple Regression</td>
<td>To predict the influence of study habits, adjustment and academic achievement on self-esteem.</td>
</tr>
<tr>
<td></td>
<td>Odds Ratio</td>
<td>To measure the association of self-esteem in odds outcome of study habits, adjustment and academic achievement.</td>
</tr>
<tr>
<td></td>
<td>Chi Square test</td>
<td>To find a difference between observed and calculated Frequencies of study variables and selected socio-demographic characteristics.</td>
</tr>
<tr>
<td></td>
<td>ANOVA Analysis</td>
<td>To find a difference between observed and calculated mean values of study variables and selected socio-demographic characteristics.</td>
</tr>
<tr>
<td></td>
<td>Post-Hoc Test</td>
<td>To compare multiple inter variable of Socio-Demographic Characteristics’ sub-group</td>
</tr>
</tbody>
</table>