The main thrust of the present research is to assess the Reproductive Health Status of Adolescent Girls (12 – 17 yrs) and to examine their Knowledge on Reproductive Health and Family Welfare Services.

Assessment of Health Status of selected sample was related to Common Health Problems (CHP), Chronic Health Problems (ChHP), Reproductive Health Problems (RHP) and Knowledge of subjects on Reproductive Health (KRH) and Family Welfare Services (KFWS) are explored. Adolescent Girls (AG) experience various Health problems due to socio economic environmental conditions and ignorance rendering them highly vulnerable to health risks such as general and reproductive morbidities. If these are not detected and treated early they lead to various risk situations affecting their vulnerable health. As they become mothers in 5–10 years these morbidities are likely to affect the wellbeing of the future generations. General health and Reproductive health are inter dependable. Hence, in the present study the following health issues of adolescent girls were examined.

1. Common Health Problems (CHP)
2. Chronic Health Problems (ChHP)
3. Reproductive Health Problems (RPH)
4. Knowledge on Reproductive Health (KRH)
5. Knowledge on Family Welfare Services (KFWS)

In addition to above the role of Demographic variables such as Locality, Age of subject, Residence, Religion and Caste, Ordinal Position, Type of Family, Number of Children in the family, Education and Occupation of Parents etc were studied.

This chapter on Methodology is cumulated under Nine subheadings namely

3.1 Objectives
3.2 Null Hypothesis
3.3 Study Area
3.4 Selection of Sample
3.5 Research Tools
3.6 Pre test
3.7 Data Collection
3.8 Statistical analysis
3.9 Difficulties faced

3.1 Overall Objective

To assess the Reproductive Health Status (RHS) of Adolescent Girls (12-17 yrs) in Chittoor district of Andhra Pradesh and to examine their Knowledge on Reproductive Health (KRH) and Family Welfare Services. (KFWS)

3.1.1 Specific Objectives

1. To explore the Common Health Problems (CHP), Chronic Health Problems (ChHP) and Reproductive Health Problems (RHP) among Rural and Urban Adolescent Girls of 12-17 years residing in Hostels and their Homes.
2. To assess the Knowledge of selected Adolescent Girls (AG) on Reproductive Health (RH) and Family Welfare Services. (FWS)
3. To examine significant difference between selected Rural and Urban Adolescent Girls of different age groups residing in Hostels and their Homes with reference to different Health Problems and Knowledge on Reproductive Health Issues and Family Welfare Services.
4. To explore the impact of demographic variables on Health Problems and Knowledge on Reproductive Health Issues and Family Welfare Services among selected Adolescent Girls.
5. To study the association between Health Problems and Knowledge on Reproductive Health Issues and Family Welfare Services of selected Adolescent Girls.

3.2 Null Hypothesis

1. Rural and Urban Adolescent Girls of 12-17 years residing in Hostels and their Homes do not suffer from any Health Problems such as Common Health Problems (CHP), Chronic Health Problems (ChHP) and Reproductive Health Problems (RHP).
2. Adolescent Girls have poor Knowledge on Reproductive Health (KRPH) and Family Welfare Services (KFWS).
3. There is no significant difference between Rural and Urban Adolescent Girls of different age groups residing in Hostels and their Homes with reference to Health Problems and their Knowledge on Reproductive Health Issues and Family Welfare Services.
4. Demographic variables have no impact on Health Problems and Knowledge on Reproductive Health Issues and Family Welfare Services of Adolescent Girls.

5. There is no association between Health Problems and Knowledge on Reproductive Health Issues and Family Welfare Services of selected Adolescent Girls.

3.3 Study Area

The present study was carried out in rural and urban areas of Chittoor district in Andhra Pradesh. Under rural area Five Mandals were selected. They are Pitchatur, Chandragiri, Santhipuram, Kalikiri and Mulakala Cheruvu. Similarly under urban area Five Mandals were selected i.e. Puttur, Sri Kalahasti, Madanapalli, Tirupathi and Palamaner.

3.4 Selection of Sample

The study adopted a three stage stratified random sampling method for selecting the subjects for the present study. In the first stage Ten Mandals consisting of Five rural and Five urban Mandals were selected randomly from Chittoor District of Andhra Pradesh.

In the second stage one High School and One Junior College were selected randomly from each of the 10 Mandals (5 Rural and 5 Urban). Therefore, 10 High Schools (5 Rural High Schools and 5 Urban High Schools) and 10 Junior Colleges (5 Rural Junior Colleges and 5 Urban Junior Colleges) were selected from 10 Mandals. Chittoor District has 66 Mandals out of which 10 Mandals consisting of 5 from Rural and 5 from Urban were randomly selected.

Finally, in the third stage from each Mandal 100 subjects consisting of 50 Adolescent Girls of 12-14 yrs and 50 Adolescent Girls of 15-17 yrs were randomly selected from each High School and each Junior College respectively (50 + 50 = 100). Thus from 10 High Schools and 10 Junior Colleges selected from 10 Mandals 1000 Adolescent girls in the age group of12-14 yrs (N=500) and 15-17 yrs (N=500) were randomly selected for the final study. Adolescent Girls of 12-14 yrs were studying in 7th, 8th, 9th standard and Adolescent Girls of 15-17 years were studying in 10th standard, Junior Intermediate and Senior Intermediate courses. Hence the final sample consisted of 500 Adolescent Girls (12-14 yrs) from rural area and 500 Adolescent Girls (15-17 yrs) from urban area.
Table 1 Distribution of Final Sample (N=1000)

<table>
<thead>
<tr>
<th>Age (yrs)</th>
<th>Area</th>
<th>Rural N</th>
<th>Urban N</th>
<th>Total N</th>
</tr>
</thead>
<tbody>
<tr>
<td>12-14</td>
<td></td>
<td>250</td>
<td>250</td>
<td>500</td>
</tr>
<tr>
<td>15-17</td>
<td></td>
<td>250</td>
<td>250</td>
<td>500</td>
</tr>
</tbody>
</table>

3. 5 Research Tools

The following schedules were developed and administered in order to collect required information from the selected Adolescent Girls in Chittoor District (N = 1000).

3.5.1 Interview Schedule on Reproductive Health of Adolescent Girls (ISRHAG)

3.5.2 Socio Economic Status Rating Scale (SESRS - Revised)

In addition, Observation Method (OBSM) and Informal talk were used to collect further details. Description of each of the above Two Research Tools is given below.

3.5.1 Interview Schedule on Reproductive Health of Adolescent Girls (ISRHAG)

The above Interview Schedule was developed by the Investigator with the assistance of subject experts such as Gynaecologists, Medical officers, Educationists, Administrators etc. Parents and Adolescent Girls were also included.

Interview Schedule on Reproductive Health of Adolescent Girls (ISRHAG) was constructed by the investigator to identify different types of health problems experienced by adolescent girls in rural and urban areas. Focus was also on their knowledge on Reproductive Health issues and Family Welfare Services. The construction of Interview Schedule on Reproductive Health of Adolescent Girls (ISRHAG) was developed at several steps.

1. Collecting different types of health problems.
2. Collecting knowledge in reproductive health issues and family welfare services.
3. Dimensionalizing the health problems and knowledge in reproductive health issues.

4. Expert opinion.

While preparing the Interview schedule discussions with experts, parents and adolescent girls were carried out on health problems. Scrutiny of related studies, inventories developed by the researchers and the Investigator’s professional experience were considered. For the purpose of obtaining information concerning Reproductive Health issues the parents having school/college going children were interviewed. The experts such as Physicians, Gynaecologists and educationalists were also consulted. Adolescent girls from rural and urban schools and colleges were interviewed informally on these issues.

Group discussions in small groups were arranged with adolescent girls and parents separately. The discussions were centered around various health issues and their knowledge on Reproductive health and Family welfare services. The Investigator also held personal interviews with adolescent girls to acquire more information about their personal and deep seated Reproductive health problems which are likely to be inhibited during group discussion.

Further, from the research studies several factors related to Reproductive health issues of adolescent Girls were analysed and relevant items concerning to the present study were selected. This helped to develop a list of Common, Chronic and Reproductive health problems and to assess their knowledge on various Reproductive health issues, Family welfare services.

The information collected through various sources was anlaysed and about 50 items concerning reproductive issues were pooled by the Investigator. Care was taken to make each items simple and direct. Repetitions of terms, ambiguous words and irrelevant items were eliminated. This procedure of scrutiny and evaluation finally reduced the total number of items to 34. The 34 items related to Reproductive health issues were classified into four dimensions such as General health status of the subjects, Reproductive health status of the subjects, Knowledge on Reproductive health and Knowledge on Family welfare services. This list of 34 items was given to adolescent girls, parents, educationists, physicians and gynaecologists for expert opinion. Some of the items were checked and certain terminologies were changed.
The final form of Interview Schedule on Reproductive Health of Adolescent Girls (ISRHAG) consisted of 10 questions under General information and 34 items were arranged in four dimensions.

Test – retested reliability is quite satisfactory ranging between 0.84 – 0.94 for the complete test and 0.80 – 0.87 for the separate forms. The validity of 0.77 was established using the method of nominated groups.

ISRHAG consisted of five domains which are described below.

I. General Information of Adolescent Girls (GIAG)
II. General Health Status of the Subjects [Common Health Problems (CHP) and Chronic Health Problems (ChHP)]
III. Reproductive Health Problems (RHP) of Adolescent Girls
IV. Knowledge on Reproductive Health (KRH)
V. Knowledge on Family Welfare Services (KFWS)

Description of each domain is given below.

The First domain is General Information of Adolescent Girls (GIAG). It consisted questions on personal information and family particulars of the Adolescent Girls such as Name and Address, Age, Area of living, Residence, Type of Family, Education, Occupation and Income of members of family etc.

The Second domain is focused on Common Health Problems (CHP) experienced by Adolescent Girls like Fever, Cough and Cold, Oral Health Problems, Diarrhoea etc. Chronic Health Problems (ChHP) such as Typhoid, Tumours, Tuberculosis, and Diabetes Mellitus etc. was also emphasised in the Second domain.

In order to collect information on Reproductive Health Problems (RHP) of selected Adolescent Girls appropriate questions related to Gynaecological Morbidities, Pre Menstrual symptoms etc were included in the Third domain.

The Fourth domain represented Knowledge of Adolescent Girls on Reproductive Health. Questions on Menarche, Menstrual cycle, Pregnancy, Special Diet etc are found in this domain.

Finally in the Fifth domain i.e. Knowledge of Adolescent Girls on Family Welfare Services (FWS) consisted of questions related to various Contraceptives
which are used temporarily or permanently and methods of family planning appropriate for men and women.

The test – retest reliability is quite satisfactory running between 0.84 and 0.94 for the complete test and 0.80 and 0.97 for the separate forms. The validity of 0.77 is established using the method of nominated groups.

Therefore Interview Schedule on Reproductive Health Problems of Adolescent Girls (ISRHAG) consisted of 44 questions which are simple to understand and easy to answer. The format of ISRHAG along with Scoring key is found in Annexure–1.

**3.5.2 Socio Economic Status Rating Scale (SESRS – Revised 2006)**

Narayana Rao’s Socio Economic Status Rating Scale is used to assess Socio Economic Status of the Adolescent Girls. It is found appropriate for the subjects belonging to different categories.

According to this scale, Socio Economic Status of a subject is calculated on the basis of Educational level, Occupational status, Income per month, Religion, Community and Locality. General Information about the subjects included Locality (Rural/ Urban), Age, Education, Residence (Hostel/ Home), Religion and Caste, Ordinal Position, Types of Family, Number of Family members, Number of Children in the family, Level of Income per month etc. The format of Socio Economic Status Rating Scale (SESRS) along with Scoring key is given in Annexure–2.

**3.6 Pre Test**

Before proceeding for the final study, pre testing is to be done in order to check whether the tools selected for the study were easy to understand and respond. Pre testing provides an opportunity to review and improve the procedure of recording the responses. It helps to decide appropriate statistical analysis.

Pre test was conducted on a sample of Fifty Adolescent Girls consisting of Twenty five from Rural area and Twenty five from Urban area (25 + 25 = 50).

The selected Research tools i.e. Interview Schedule on Reproductive Health of Adolescent Girls (ISRHAG) and Narayana Rao’s Socio Economic Status Rating Scale (SESRS) were administered to the subjects individually to find out whether any modifications were needed. There was no time limit imposed on them. The response sheets were carefully verified for the presence of incomplete answers. Subjects were
requested to tick the correct answer and respond to all the Objective type questions. Corresponding Scoring keys were used to obtain scores on Health Problems and Knowledge of Reproductive Health and Family Welfare Services and Socio Economic Status. Pre testing helped in collecting required information. Hence no changes were needed to be made in the tools.

3.7 Data Collection

The Investigator met the administrators of the selected Schools and Colleges and explained the purpose of the study and obtained permission to conduct the research. Interested Adolescent Girls who have attained their menarche were selected. These selected girls were gathered in a class room and were explained about the purpose of the study. Adolescent Girls were asked to submit health problems experienced by them in the past three months. They were assured that confidentiality would be maintained with the data collected. Thus each of the Adolescent Girls was administered with the selected research tools individually. It took about 45-50 minutes to collect required information from each subject. Thus data was collected from all the subjects i.e 1000 Adolescent Girls hailing from rural and urban areas. List of the Institutions selected for the study is found in Annexure -3.

3.8 Statistical Analysis

The collected data was pooled and tabulated. Percentages, Means and Standard Deviations were calculated. Relevant Statistical applications such as t-test, F-test, ANOVA and Co-efficient of Correlation were carried out. Significant difference among subjects in different Age groups, Locality and Residence with reference to their Health Status, Knowledge of Reproductive Health and Family Welfare Services etc was assessed. Similarly correlation between Study Variables and effect of Demographic Variables on Study Variables was examined. The results thus obtained are discussed in detail in the next chapter i.e. Results and Discussion.

3.9 Difficulties faced

- Collection of data was time consuming. It took around 45 – 50 minutes to gather required information from each Adolescent Girl.
- The members interviewed were Adolescent Girls and many of them had never taken part in any sort of interview or talked about Reproductive Health issues.
Explaining to them the purpose of the research and rephrasing the language of scientific terms used in the questions at certain points was a challenge to the Investigator.

- Some of the Adolescent Girls from rural area were reluctant to talk about Reproductive Health issues especially about Menstruation, Health Problems, Contraceptives etc. In such cases the Investigator had to replace the subjects in order to collect accurate and adequate information.

3.10 Limitations of the study
- The study is limited to adolescent girls of 12-17 yrs age group only.
- Only the participants who had attained menarche were included for the study.
- Adolescent girls who were not attending schools and colleges were not selected for the present study.

3.11 Suggestions for further study
- A comparative study on similar topic can be conducted between Adolescent girls and boys.
- An indepth study can be carried out by organizing systematic clinical test in assessing the Reproductive health status of Adolescent Girls.
- Impact of Interventional program on Reproductive Health of Adolescent Girls can be taken up.

3.12 Operational Definitions in Methodology Chapter

1. Amenorrhea - Absence of menstrual flow.
2. Anaemia - Decreased red blood cell count.
3. Appendicitis - Inflammation of the vermiform appendix
4. Burning micturation - Burning sensation during urination
5. Chronic Health Problem - Illness persists for a longer period.
6. Common Health Problem - Illness that occur frequently and relieves within a short period.
7. Conceiving - To become pregnant.
8. Convulsion - Involuntary contractions of the voluntary muscles.
9. Day scholar - Adolescent Girls who attend the schools/colleges from Home and living with their family members.
10. Dysmenorrhoea - Painful menstruation.
11. Early Adolescent Girls - Adolescent girls age between 12-14 years.
<table>
<thead>
<tr>
<th></th>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>Endometrium</td>
<td>Inner wall of the uterus.</td>
</tr>
<tr>
<td>13</td>
<td>Fibroid</td>
<td>Benign tumor of the uterus.</td>
</tr>
<tr>
<td>14</td>
<td>Genital Wart</td>
<td>A small, hard growth on the skin caused by a virus.</td>
</tr>
<tr>
<td>15</td>
<td>Gonorrhea</td>
<td>It is one of the sexually transmitted disease caused by bacteria.</td>
</tr>
<tr>
<td>16</td>
<td>Herpes</td>
<td>Any inflammatory skin disease marked by the formation of small vesicles in clusters.</td>
</tr>
<tr>
<td>17</td>
<td>Home</td>
<td>Adolescent Girls living with their family members in their houses.</td>
</tr>
<tr>
<td>18</td>
<td>Hostel</td>
<td>An Institution providing Residential facilities on payment or free of cost.</td>
</tr>
<tr>
<td>19</td>
<td>Hosteller</td>
<td>A person who resides at Hostel.</td>
</tr>
<tr>
<td>20</td>
<td>Infertility</td>
<td>Absence of ability to produce children.</td>
</tr>
<tr>
<td>21</td>
<td>Late Adolescent Girls</td>
<td>Adolescent Girls age between 15-17 years.</td>
</tr>
<tr>
<td>22</td>
<td>Menarche</td>
<td>The first menstrual period in a life.</td>
</tr>
<tr>
<td>23</td>
<td>Menstruation</td>
<td>The physiological process of preparation of endometrium for implantation and shedding of the same when implantation does not occur.</td>
</tr>
<tr>
<td>24</td>
<td>Menorrhagia</td>
<td>Excessive bleeding during regular menstruation.</td>
</tr>
<tr>
<td>25</td>
<td>Menometrorrhagia</td>
<td>Excessive bleeding at the usual time of menstruation and at other irregular intervals.</td>
</tr>
<tr>
<td>26</td>
<td>Metrorrhagia</td>
<td>Bleeding from uterus between regular menstrual periods.</td>
</tr>
<tr>
<td>27</td>
<td>Oligo menorrhea</td>
<td>Significantly diminished menstrual of low.</td>
</tr>
<tr>
<td>28</td>
<td>Ovulation</td>
<td>The process whereby the Graafian follicle ruptures and the ovum is liberated.</td>
</tr>
<tr>
<td>29</td>
<td>Piles</td>
<td>Dilated portions of veins in the anal cannel.</td>
</tr>
<tr>
<td>30</td>
<td>Poly menorrhea</td>
<td>Frequent menstruation occurring at intervals of less than 3 weeks.</td>
</tr>
<tr>
<td>31</td>
<td>Polycystic ovaries</td>
<td>Enlarged ovaries with multiple peripheral cystic follicles.</td>
</tr>
<tr>
<td>32</td>
<td>Pre menstrual syndrome</td>
<td>Premenstrual symptoms that occur before menstrual flow.</td>
</tr>
<tr>
<td>33</td>
<td>Pruritis</td>
<td>Itching. It is one of the most common symptoms of patients with dermatologic disorders.</td>
</tr>
<tr>
<td>34</td>
<td>Reproductive Health Problems</td>
<td>Disorders related to Reproductive tract.</td>
</tr>
<tr>
<td>35</td>
<td>Rural Adolescent Girls</td>
<td>Adolescent girls residing in villages and attending the schools and colleges at villages only.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>36.</td>
<td>Syphilis</td>
<td>A serious sexually transmitted disease spread by bacteria.</td>
</tr>
<tr>
<td>37.</td>
<td>Tumors</td>
<td>New growth of tissues in which cell multiplication is uncontrolled and progressive.</td>
</tr>
<tr>
<td>39.</td>
<td>Vaginitis</td>
<td>Inflammation of the vagina.</td>
</tr>
<tr>
<td>40.</td>
<td>Vaginal acne</td>
<td>Eruption of skin over the vaginal area.</td>
</tr>
<tr>
<td>41.</td>
<td>Vulvitis</td>
<td>Inflammation of the vulva.</td>
</tr>
</tbody>
</table>
Fig 1 Study Design

TOOLS

IRSHAG
 SESRS

Pre – Test
50 Adolescent Girls
(25 Rural + 25 Urban)

Final Study
1000 Adolescent Girls
500 Rural
[250 (12 – 14 Yrs) + 250 (15–17 Yrs)]
+ 500 Urban
[250 (12 – 14 Yrs) + 250 (15–17 Yrs)]

Percentages
Mean
Standard
Deviation
\( t \) – test
ANOVA
Chi – Square
Corr. Coefficient

CHP
ChHP
RHP
KRH
KFWS

Note: ISRHAG - Interview Schedule on Reproductive Health of Adolescent Girls
SESRS - Socio Economic Status Rating Scale
CHP - Common Health Problems
ChHP - Chronic Health Problems
RHP - Reproductive Health Problems
KRH - Knowledge on Reproductive Health
KFWS - Knowledge on Family Welfare Services
Picture 1  Interaction with Rural and Urban Adolescent Girls
Picture 2  Administration of Interview Schedule on Reproductive Health
Picture 3  Assessment of Height and Weight of Adolescent Girls
Picture 4  Investigator with Adolescent girls