EFFECTIVENESS OF ADOLESCENT FAMILY LIFE EDUCATION (AFLE) PROGRAM ON ADOLESCENT GIRLS' KNOWLEDGE, ATTITUDE AND PRACTICE IN A RURAL COMMUNITY OF VELLORE DISTRICT, TAMIL NADU, SOUTH INDIA

THESIS

Submitted to The Tamil Nadu Dr. M.G.R. Medical University
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By

VATHSALA SADAN, R.N., R.M., M.Sc (N).,

Professor, College of Nursing
Christian Medical College
Vellore

Under the supervision of

DR. PUNITHA VIJAYA EZHILARASU, M.Sc (N)., Ph.D.
Professor and Head of Department of Nursing Education and Research and Surgical Nursing Department,
College of Nursing, Christian Medical College, Vellore.

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Certificate

This is to certify that the work embodied in the thesis entitled "**EFFECTIVENESS OF ADOLESCENT FAMILY LIFE EDUCATION (AFLE) PROGRAM ON ADOLESCENT GIRLS' KNOWLEDGE, ATTITUDE AND PRACTICE IN A RURAL COMMUNITY OF VELLORE DISTRICT, TAMIL NADU, SOUTH INDIA"** submitted by **Mrs. VATHSALA SADAN** for the award of the Degree of Doctor of Philosophy in Nursing is a bonafide record of research done by her during the period of study under my supervision and guidance that it has not formed the basis for the award of any Degree, Diploma, Associateship, Fellowship or other similar title. This work has been carried out in the Community Health Nursing Department, College of Nursing, Christian Medical College, Vellore.

Dr. Punitha Vijaya Ezhilarasu, M.Sc (N)., Ph.D.

Guide and Supervisor

Professor and Head of Department of Nursing Education and

Research and Surgical Nursing Department,

College of Nursing,

Christian Medical College,

Vellore – 632 004

Place : Vellore

Date :

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Dr. Kuryan George, M.D., M.Sc (Med. Informatics)

Co-Guide

Professor in Community Medicine,

Department of Community Medicine,

Christian Medical College,

Vellore – 632 004

Place : Vellore

Date :

DECLARATION

I hereby declare that this thesis entitled "**EFFECTIVENESS OF ADOLESCENT FAMILY LIFE EDUCATION (AFLE) PROGRAM ON ADOLESCENT GIRLS' KNOWLEDGE, ATTITUDE AND PRACTICE IN A RURAL COMMUNITY OF VELLORE DISTRICT, TAMIL NADU, SOUTH INDIA"** is a original research work by me and it was not used previously partly or fully for the award of any Degree / Diploma / Associateship / Fellowship or any other similar title.

Place : Vellore

Date : **VATHSALA SADAN**

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INTRODUCTION

1.1. BACKGROUND OF THE STUDY

Adolescence is often described as a phase of life that begins in biology and ends in society. The word adolescence is derived from a Latin verb “adolescere” which means to grow into maturity. It also means “to emerge”. Adolescence is a formative and the most fascinating period of human life that marks the transition from childhood to adulthood and during this period, new adjustments in life situations will have to be made. Stanley Hall (1904) had characterized adolescence as a period of “storm and stress”. Adolescence is also described as a period of sexual development (Barber, 2004).

World Health Organization (WHO) defines adolescence as the period of life between 10-19 years, youth as between 15-24 years and young people as those between 10-24 years. Though the age group is defined as 10-19 years, it is recommended by WHO that the adolescent programs be targeted to the age group of 13-19 years (WHO, 2004). One out of every five people in the world is an adolescent. Of the estimated 1.2 billion adolescents in the world today, 85% live in developing countries, nearly half live in Asia and nearly one in four – 282 million live in South Asia. Bangladesh and Pakistan have the greatest proportion of adolescents while India has the greatest absolute number (United Nations, 2001).

India is a home for more than one billion people, of which one fifth are adolescents in the age group of 10-19 years of age. It is estimated that there are

around 190 million adolescents (10-19 years) in India. Further, it is expected that this age group will continue to grow, reaching over 214 million by 2020. However growth for this age group will peak at 223 million in 2015 and will then slow down (Registrar General and Census Commissioner, 2001). At present, there are 207 million adolescents in the age group of 10-19 years in India (Chopra, 2007).

Adolescence is a period of sexual maturity that transforms a child into a biologically mature adult, capable of sexual reproduction. It starts with a period of very rapid physical growth, accompanied by the gradual development of reproductive organs, secondary sexual characteristics and menarche in girls. The rapid growth of the entire body, enlargement and maturation of pelvic organs are not complete and still continues in adolescent girls. In other words, an adolescent girl is still a child, and is not yet prepared for pregnancy and motherhood. This is a period during which the adolescent is in the second genital stage of psychosexual development. An adolescent is in the stage of identity versus confusion before entering into the stage of intimacy versus isolation as stated in Erikson's life cycle. Personality development too continues and is almost completed by 16 years of age (Whaley and Wong, 1998).

The health and wellbeing of adolescents is closely related to their physical, psychological and social development. Good health during the adolescent period enables them to enjoy, at the same time provides the foundation for their adult life. They very soon bear the future generation. They are also the breeding grounds for new ideas, talents, energy, languages, and values. The new ideas that adolescents acquire from school and other strong social forces may have significant impact on the society too. In many ways, a nation's fate lies on the

strength and aspirations of its youth. One of the most important commitments a country can make for future economic, social and political progress and stability is to address the health and developmental needs of adolescents. Research from the World Bank also shows that investments in adolescent health and development translate into significant long term benefits for entire societies as reported by UNICEF (2004).

Adolescents are generally thought to be healthy and death seems so far removed or almost unthinkable. Yet, many adolescents die prematurely. Every year an estimated 1.7 million young men and women between the ages of 10-19 lose their lives globally – mostly through accidents, suicide, violence, pregnancy related complications and other illnesses that are either preventable or treatable (WHO, 2004). Therefore adolescents should be considered as a distinct group with special needs. Healthy growth of adolescents is of great concern today. It has become an increasingly important focus for governments, foundations, and behavioural researchers. Health promoting attitudes and practices during adolescence have a great influence on the health of the adolescents.

Habits formed and choices made during adolescent period have long lasting implications for individuals and public health, which will determine the health of this generation as adults, as well as, the health and future of the nations. Adolescents may not have established their sexual habits and if safer behaviours can become their norm, then there is an opportunity to limit the health risks. They are put at risk by sexual and reproductive health hazards, which are increasing in many countries in the world. Young persons are becoming sexually active at earlier ages than ever before. Attitude towards sex among adolescents

in India is conservative. Responsible sexual behaviour in the opinion of adolescents is to stay away from opposite sex. But, the rise of tele-communication, decline in communication among family members, early onset of menarche and exposure to mass media are contributing to an increase in unprotected sexual relations before marriage.

The Chennai study by Sathiyanathan (2007) among school students reported that 13% of male and 10% of female school going adolescents clearly approved premarital sex. A Delhi study by Mehra and Agarwal (2004) found that 15% of male and 6% of female adolescents reported premarital sexual activity. Trikha (2001) reported that despite the general censure of premarital sex, 14-16% of adolescent boys and 1-10% of adolescent girls engage in premarital sexual activity in Haryana. The author also stated that premarital sexual relations tend to occur among Indian adolescents secretly, without full information and without protection. Abraham and Kumar (1999) also found that 26% of boys and 3% of girls in selected colleges of Mumbai city were involved in premarital sexual activity. This early sexual activity is not often accompanied by appropriate knowledge which has been reported by many studies (WHO, 2003).

India has been traditionally a male dominated society. There is a strong son preference in most parts of India and girls tend to be discriminated by their families. It is not enough therefore to highlight adolescents in general, and a larger focus on the adolescent girls is needed. Gender discrimination starts with female feticide. Sex pre selection is popular in many States in India, like Maharastra, Rajasthan, Punjab, Haryana and Tamilnadu. There is an unfavourable sex ratio of 927 females to 1000 males in the country. As reported

by the Registrar General and Census Commissioner (2001), the child mortality rate is also considerably higher for girls (37 deaths per 1000) than boys (25 deaths per 1000) and the adolescent girls continue to be a vulnerable group, particularly in developing countries, where they are traditionally married at an early age. Then they become mothers soon, still unarmed with knowledge about reproductive needs and rights.

Adolescent girls are generally expected to enjoy good health, but this does not seem true in the rural areas of a developing country where poverty, malnutrition and repeated infections exist. Studies have shown poor general health of rural adolescent girls. Having survived with various hazards of infancy and childhood, these girls continue to suffer from the after effects of poor nutrition and adverse socioeconomic conditions (Joseph, Bhattacharji, Joseph & Rao, 1997). A good number of adolescent girls are deprived of nutrition, access to health care, and opportunities for education and employment. They suffer mostly from anemia and malnutrition. In many parts of India, adolescent girl's food intake is more likely to be inadequate in all nutrients and it results in morbidity and mortality. According to WHO (2003), as high as 42% and 55% of adolescent girls are found to be anemic in Nepal and India respectively. Observations from India indicate that the growth stunting among adolescent females (45%) is greater than adolescent males (20%).

Majority of the adolescent girls in rural areas of India are taken out of schools when they attain menarche. This is evident in the study by Kurz and Johnson-Welch (1994). The author reported that in rural areas, 32.7% of female adolescents aged 15-17 attended the school compared to 60.5% of female

adolescents in urban areas. Therefore the adolescent girls grow into adulthood without being able to experience the important period of adolescence. The non-school going adolescent girls in rural areas seemed to be reserved and inhibited about voicing their opinions. The predominant feelings of rural adolescent girls are fear and apprehension, fear of society, fear of parents and family members since they have lot of restrictions especially in relation to their behaviours.

The adolescent girls' lives are busy with overwhelming responsibilities of earning income through casual agricultural labour. They work in the homes, look after siblings and assist their mothers in the fields. Their social life is very much restricted and there are limited opportunities for going out and getting an exposure to the outside world. They are very sensitive but non-vocal about son - daughter discrimination. Adolescent girls in rural areas live under severe restrictions of cash even for small necessities as well as luxuries. They have no privacy at home and are hesitant to ask questions and share their problems especially with parents. They feel free with their friends who are also in a similar stage. Their ways of coping with stress and conflicts are also subdued since expression of emotions by girls are not encouraged in our country.

Presumably, urban girls have better education and this leads to delayed marriages because a girl generally does not marry while she is studying. Better education leads to paid employment in formal sector by increasing opportunities in the service sector that provides clear alternative to the early marriage. On the other hand, rural girls have lesser opportunities for higher education which lead to dropping out from schools. They have no other alternatives, and so enter into

early marriage and exposed to a greater risk of reproductive morbidity and mortality. Many rural adolescent girls marry before the completion of their overall growth leading to many reproductive health problems in their future lives. Early onset of sexual activity results in early marriage, which pressurizes the adolescent girls in rural areas to prove their fertility immediately after marriage. Therefore for a large number of girls, adolescence can be best defined as the period, which starts with premature end of education and ends with the premature start of pregnancy and child bearing or even death. For many girls, it can also be a stressful period.

A large proportion of adolescent girls suffer from various gynaecological problems particularly menstrual irregularities. As many as 40-45% of adolescent girls report menstrual problems in India. They are mainly due to psychological stress and emotional changes because of lack of appropriate information as reported by International Institute of Population Sciences (IIPS, 2000). Although most of their symptoms are normal among adolescents, these need to be mentioned particularly in the Indian context because most of the girls are not aware of this natural phenomenon. Reproductive tract infections are of special importance for sexually active adolescent girls. This is because their symptoms are less obvious, they don't share their problems with caregivers, and so the treatment is more likely to be delayed. AIDS and other Sexually Transmitted Infections (STIs) are a growing problem today among adolescents but, many do not understand about these diseases and their prevention. Undoubtedly, hazardous child labour in India largely resulted in physical and sexual abuse of adolescent girls that has been linked to the current and future risks for STIs and AIDS (Heise, 1994).

Social and economic changes like urbanization and industrialization have eliminated many of the traditional restraints on early sexual activity outside marriage and have exposed many adolescent girls to the risks of unwanted pregnancy and abortion. This in turn increases the risks to their reproductive health and well being. Data compiled by Alan Guttmacher Institute (1998) revealed that between 33% and 66% of births among teenagers are unplanned in many countries in the world. The phenomenon of unwed mothers is quite common in Europe, Africa and America, and is also now reported in India which may cause maternal mortality as well as morbidity.

Many adolescents who experience an unplanned pregnancy resort to abortion. A high number of abortions occur in countries with very restrictive abortion laws like India and USA. Abortions among adolescent girls in India are estimated to be upto 4.4 million per year, most of which are unsafe, performed illegally and under hazardous circumstances by unskilled practitioners. And also, there is hardly any official data or authentic research based information regarding incidence of abortions among unmarried adolescents in India (Trikha, 2001). Statistics reveal that abortions among unmarried adolescents in the Government Hospital, Chennai in the year 2004 was 165 and it was 599 in a private hospital. Among them, 22.1% were in the age group of 13-15 years, 21.8% were aged 16-17 years and 55.2% were between 18 and 19 years. It was surprising to note that majority of the abortion seekers among unmarried adolescents (62.6%) were from rural areas (Gowri, 2006).

In India, the family system in olden days was the joint family system where the parents, in laws and children were living together in the same house

especially in the rural areas. The change in the family system from joint family to nuclear family had led to absence of elders in the family especially, the grand mothers who usually taught the adolescent girls about family life and had a control over the behaviour of adolescent girls. At the same time, traditional and conservative societies are still more common in the rural areas of Tamilnadu where sex is still considered as taboo and sexual matters are not discussed freely in the family.

As adolescents mature and become sexually active, more young people face serious health risks due to inadequate factual information or too little information about their sexual responsibility. Most adolescents tend to be extremely unaware of their own bodies, their health, physical wellbeing and sexuality. Kamble (2001) reported that half of the adolescent girls aged 12-15 years residing in rural areas do not know about menstruation until its onset. The great majority of adolescents are poorly informed about sexuality and reproduction. Parents believe that withholding information about sexuality and reproduction from young people will dissuade them from becoming sexually active. As a result, they get information about sexuality from their friends, whose views are often inaccurate, based on rumors as well as from the sensationalized mass media messages. This results in lot of anxieties and confusions among adolescents.

In the midst of the above situations, the emergence of AIDS has focused everybody's attention towards the role of family life education. The growing incidence of sexual relationship among adolescents and increasing number of premarital pregnancies coupled with the gradual erosion of the institutions of

marriage and family have impelled educational and health care planners to start the process of imparting education about family life. Adolescent Family Life Education (AFLE) is a process that informs, motivates and helps people develop healthy sexual practices and lifestyles. Researchers have found that good quality family life education can delay sexual activity among adolescents and protect them from Sexually Transmitted Infections (STIs) including AIDS. It can also clarify their values, avoid risk behaviours and improve negotiation skills (Barnett, 2007). But in India, school systems are ambivalent about imparting sex education. Even though in some schools in Andhra Pradesh and Karnataka, where sexual and reproductive health education exists in the curriculum, teachers are too often embarrassed and uncomfortable to effectively teach on family life education. In Tamilnadu, family life education is not included in the school curriculum.

Health promotion in adolescents is “the process of enabling adolescents to increase control over and to improve health”. It includes family life education, environmental modifications and lifestyle/behavioural changes (Butler, 2001). The young people of today are the greatest investment in the future. Therefore, health promotion and disease prevention should be the major focus of adolescent health efforts. The life style patterns adopted during adolescence often continue thereby influencing long term prospects for good health and in reducing the risk of chronic diseases.

A study done by Ackard and Neumark-sztainer (2001) in Minnesota, USA on Health care information sources for adolescents reported that parents and the health care providers were the key sources of health related information.

Although adolescents may be embarrassed having discussions with the health care providers initially, adolescents do believe that these topics should be addressed by the health care providers. It also concludes the importance of health care providers to initiate and facilitate discussions on these topics. As a key health care provider in the community, the nurse can facilitate health promoting behaviours among adolescents (Synder, 1989). As community health nurses, the care and nurturing we offer to the adolescent is just as important as what we offer to children and the elderly. Nurses being the key members in the public health team, they play an important role in helping adolescents to cope with their sexual development and risk behaviour. Community health nurses are in a unique position to promote the adolescent health in relation to family life through purposeful interventions. They should understand the situation of adolescent girls and respond effectively to their sexual and reproductive health needs. It is the responsibility of the community health nurses to create a positive attitude among adolescent girls about family life which will enable them to make informed choices in their life.

Health promotion in adolescents represents, “a mediating strategy between the adolescents and their environments, synthesizing personal choices and social responsibility in health” as stated by WHO (Butler, 2001). AFLE can be the mediating strategy in the promotion of sexual health and prevention of risk behaviours. Adolescents are receptive to new ideas. They are keen to make the most of their growing capacity for making decisions. Their curiosity and interest are a tremendous opening to foster personal responsibility to health. Therefore, a comprehensive study is needed to find out the existing knowledge of adolescent girls, the prevalent practices and their attitude about reproductive health. A

research mechanism is also needed for tracking the changes in knowledge, attitude and practice as a result of family life education program and is urgently required in terms of its specificity, social relevance and impact.

1.2. SIGNIFICANCE AND NEED FOR THE STUDY

Adolescence is the second decade of life, marking the transition from childhood to adulthood during which, the adolescents experience maximum amount of physical, psychological and behavioural changes following puberty. Adolescence offers unique opportunities for investment in health and well- being. First of all, good mental health and physical health enable young people to make the most of these precious years, which provide the foundation for adult life. Secondly, the behaviours adopted by the adolescents influence the health of their adulthood and the risk of chronic diseases. Finally, while the death rate among young people is low, most of these deaths are preventable.

The Planning commission of India estimates that adolescents aged 10-19 years comprise 23% of the Indian population. According to the Census India (2001), there are 120 million adolescent girls in the age group of 10 -19 years in Tamilnadu, of which 33,90,844 live in rural areas. There are 2,16, 539 adolescent girls who live in the rural areas of Vellore District (Registrar General and Census Commissioner, 2001). Such large group represents major human resource that can and must contribute to the overall development of the country. Addressing the needs of adolescents will definitely contribute not only to social and economic development of the country but also to the social harmony, health status, population stabilization and improved quality of life for all Indians.

The blossoming of adolescence in each generation is as fascinating a sight as an unfolding of spring each year predictable and repetitive. Yet, for millions of young people worldwide, adolescence is one of the most dangerous cross roads. Although most adolescents have preoccupation with their bodies, they are not always engaged with activities that will protect and develop them. Adolescents are often exposed to peer pressure, the effects of which may impact negatively on their behaviour and health. They are hormonally fully charged and adolescent sexuality can have enormous effects on their future physical, psychosocial, moral and sexual development. Before they reach adulthood, their relative powerlessness and emerging sexuality leave them vulnerable to exploitation and at risk for many forms of discrimination, violence and ill health.

Adolescents are at a crucial phase because of many facts. Studies suggest that the adolescents have limited knowledge about sexual and reproductive health and know little about the natural process of puberty, sexual health, pregnancy and Sexually Transmitted Infections (STIs). Mukerjee et al. (2001) conducted a survey on knowledge of reproductive health issues among school going teenagers of rural Bengal. This survey revealed that though the teenagers had a satisfactory knowledge about legal age at marriage, they lacked information about the various issues of reproductive health. This study reflected on the real picture about the ignorance of reproductive health issues among school going teenagers especially the female teens who are the future mothers of the society. Much of their knowledge remains superficial and ridden with myths, misconceptions and beliefs, based on inaccurate or incomplete information. According to Jejeebhoy (2000), lack of knowledge about reproductive health, the

emerging threat of unsafe abortions, Sexually Transmitted Infections including HIV/AIDS may have grave consequences on the country.

Yet, in India, as in many parts of the world, talking about sexuality is not welcomed and is shrouded in secrecy. Unfortunately, in spite of the occurrence of Sexually Transmitted Infections (STIs) including HIV/AIDS, unwanted pregnancies, unsafe abortions and countless unhealthy practices, there is still a large unmet demand for adequate reproductive and sexual health information, culminating in various risky practices. Though it is the largest unmet need for adolescents after their academic and career concern today, adolescent sexuality is denied, reproductive health is ignored and queries go unanswered (Family Planning Association of India (FPAI), 2004). Adolescent Family Life Education (AFLE) is one of the strategies for promotion of reproductive health. Adolescents are curious about their reproductive biology and hence they would be more receptive to the family life education. It is an ideal time to provide family life education before responsibilities begin.

“Basic information on reproductive health is important for youth just as basic information about other types of health issues is important, says Dr. Cynthia Waszak, a Family Health International researcher who is an expert in adolescent health. Family life education programs may be the only place where young people can learn accurate information about reproductive health. Family life education programs may offer the only setting in which young people can practice the skills necessary to maintain good reproductive health” (Barnett, 2007).

The importance of adolescent family life education has been recognized at the global level by the 2001 UN General Assembly Special Session. It was decided to ensure that by 2010 at least, 95% of young men and women have access to the information, education including youth specific education on family life to reduce their vulnerability to sexual health problems (WHO, 2004). The school health program implemented by the Government of India, since 1960's seems to be the only existing outreach education program for adolescents. In spite of these efforts, the school health services provided are inadequate because of administrative, managerial and logistic problems. India, the youngest nation in the world did not have a specific policy for protection of the sexual and reproductive health of unmarried adolescent girls. Realizing this need, the National Health Policy (2002) has defined adolescents as an underserved vulnerable group that needs to be addressed especially by the provision of reproductive health information and services. The Government of India in its Reproductive Child Health Program – Phase II insists on the importance of reproductive health of adolescents (Nair, 2002).

An extensive education related to reproductive health issues should be considered as a preventive measure. Keller (1995) described a good family life education as "a program that includes the right to regulate one's own fertility with full knowledge of reproductive biology, menstruation, conception, contraceptive choices, the ability to control sexuality and freedom from infections / sexual diseases". Handa (1995) stated that proper dissemination of information on sexual matters is essential to help adolescents to develop a correct and healthy attitude towards sex and to enter into adult life with a wholesome attitude towards reproductive health. The author also recommends that AFLE to be undertaken in

different settings especially in rural areas and that experimental studies to be undertaken to validate and standardize AFLE program. Nurses have an important role in ensuring that the adolescents learn the correct information related to the consequences of unhealthy behaviours and life styles. Nurses also should encourage the parents to be role models and they need to reinforce good health practices in adolescents.

It is evident that, the education on reproductive health is important to develop mature and healthy sexual attitudes and sexual responsibility among adolescents to prevent behaviors that place them at risks of adolescent pregnancy, Sexually Transmitted Infections and AIDS. Literature review reveals that only limited number of studies are available on adolescent reproductive health in South India especially in Tamilnadu. Most of the studies are done in cities and towns focusing on the married adolescents. The sexual health needs of unmarried adolescent girls are not addressed much. The available studies too do not provide sufficient information, since they are done on a small sample and many are unpublished reports. Therefore there is a limitation in generalizing the study findings.

The sexual and reproductive health problems among unmarried adolescent girls are increasing day by day. Early marriages, premarital sexual activity, unmarried adolescent pregnancy, unsafe abortions, menstrual problems and reproductive tract infections are the common problems found among adolescent girls. The adolescent girls are unaware of the dangers of these problems and they do not have adequate knowledge about the sexual and reproductive health. Adolescent Family Life Education (AFLE) Program is

therefore essential to bring about reduction in age at marriage, teenage pregnancy, maternal mortality and morbidity, delay in first intercourse, protect sexually active adolescents from unwanted pregnancy/abortion by use of contraceptives and protect them from Sexually Transmitted Infections (STIs) including HIV/AIDS. As a key person in providing the family health services in the community, nurses need to assess the current knowledge, attitude and practice of adolescent girls about family life and understand the impact of AFLE program on adolescent reproductive health. The study findings would be instrumental in formulating strategies for adolescent health services in the community at large using AFLE as one of the inbuilt program.

1.3. STATEMENT OF THE PROBLEM

Literature review reveals that adolescent girls tend to be poorly informed about their own bodies and matters related to sexuality and health. The information they have is often incomplete and confused. The vulnerability to various risks/health problems and the gender inequalities limit the abilities of adolescent girls to contribute effectively to the society's social and economic growth and development, especially in developing countries. Limited access to family life education and attitudes that prohibit discussion of sexual health exacerbate their ignorance. Further they lack appropriate family life skills that are needed in future to promote the health of mothers and children. As gate keepers, nurses should play a central role in enabling adolescents to protect their health and promote healthy behaviours.

In the CONCH program area, it was observed that unmarried adolescent girls became pregnant and resorted abortions indicating their involvement in

premarital sexual activity. Problems related to menstruation and reproductive tract infections were seen in large numbers. Media reports too highlight the increase in sex crimes, sexual abuse and exploitation of young girls in the Vellore District. The investigator through her community health field experience in the CONCH program area as well as in the areas around Vellore Town, felt that the sexual and reproductive health needs of adolescents especially the rural girls are not addressed adequately.

Considering the above, an experimental study was undertaken to assess the effectiveness of Adolescent Family Life Education (AFLE) program on adolescent girls' knowledge, attitude and practice about family life in a rural community of Vellore District, Tamil Nadu, South India

1.4. OBJECTIVES OF THE STUDY

The objectives of this study were to:

1. Develop an instrument to assess the knowledge, attitude and practice of adolescent girls about family life.
2. Assess the knowledge, attitude and practice of adolescent girls about family life before AFLE (Pretest) both in the control and experimental groups.
3. Assess the knowledge, attitude and practice of adolescent girls about family life after AFLE (Posttest) both in the control and experimental groups.
4. Determine the effectiveness of Adolescent Family Life Education (AFLE) program on the knowledge, attitude and practice of adolescent girls.

5. Determine the relationship between knowledge, attitude and practice of adolescent girls about family life before and after AFLE (Pretest and Posttest).
6. Determine the association between knowledge, attitude and practice of adolescent girls about family life before AFLE (Pretest) and selected socio-demographic and personal characteristics of adolescent girls (age, religion, education, occupation, type of family, family income, attainment of menarche, age at menarche, information received about menarche and sexuality, sharing information about sexuality and presence of menstrual problems) and selected socio demographic characteristics (education and occupation) of their parents.

1.5. OPERATIONAL DEFINITIONS

Effectiveness in this study refers to the significant increase in the level of knowledge, attitude and practice of adolescent girls of experimental group who had participated in the AFLE program, compared to the girls in the control group who did not participate in the AFLE program, as measured by the instrument prepared by the investigator on knowledge, attitude and practice about family life.

Adolescent Family Life Education (AFLE) addresses the biological, socio-cultural, psychological and moral dimensions of sexuality from the cognitive, affective and psychomotor domains including skills to communicate and make responsible decisions (WHO, 2004).

AFLE in this study refers to a planned structured teaching program on selected aspects of family life which includes

- Human reproductive system including puberty
- Menstruation and menstrual hygiene

- Responsible sexual behaviour
- Pregnancy / Conception
- Contraceptives
- Sexually Transmitted Infections including HIV / AIDS

Adolescent girls in this study refer to unmarried girls in the age group of 13-19 years.

Knowledge is the information and understanding that is gained through education or experience. In this study, it refers to the awareness of adolescent girls about selected aspects of family life which is given as verbal responses as measured by Part II of the AFLE Instrument prepared by the investigator.

Attitude is the way that we think and feel. In this study, it refers to the expressed beliefs and feelings of adolescent girls, towards family life as measured by Part IV of the AFLE Instrument prepared by the investigator.

Practice is the way of doing something which is the usual or expected way. In this study, it refers to the behaviour of the adolescent girls, related to menstrual hygiene as measured by Part III of the AFLE Instrument prepared by the investigator.

Rural community refers to the 21 villages served by the College of Nursing Community Health Nursing Department (CONCH), Christian Medical College, Vellore.

Socio-demographic characteristics of adolescent girls include age, religion, education, occupation, family income and type of family.

Personal characteristics of adolescent girls include attainment of menarche, age at menarche, information received about menarche and sexuality, source of

information, sharing information about sexuality and presence of menstrual problems.

Socio-demographic characteristics of the parents of adolescent girls in this study include the educational and occupational status of the mothers and fathers of adolescent girls.

1.6. RESEARCH HYPOTHESES

H1. There is a significant increase in the level of knowledge, attitude and practice about family life among the adolescent girls who participate in the AFLE program, compared to those who do not participate in it.

H2. There is a significant relationship between knowledge, attitude and practice of adolescent girls about family life

H3. There is a significant association between knowledge, attitude and practice of adolescent girls and selected socio-demographic and personal characteristics of adolescent girls (age, religion, education, occupation, type of family, family income, attainment of menarche, age at menarche, information received about menarche and sexuality, sharing information about sexuality, presence of menstrual problems and selected socio-demographic characteristics of their parents (education and occupation).

1.7. ASSUMPTIONS

1. There is a dismal lack of information about sexuality among rural adolescent girls.
2. In Indian culture, young people receive knowledge about family life within marriage alone.

3. Information, Education and Communication (IEC) activities promote health, prevent diseases and enhance early health seeking behaviours.
4. Knowledge and attitude of people have a strong influence on the adoption of healthy behaviour.
5. Parents lack knowledge and are embarrassed to talk about family life, and the adolescent girls are not provided with adequate information about family life.

1.8. LIMITATIONS OF THE STUDY

1. Selected aspects of family life education only were included in the AFLE.
2. While assessing the practice of adolescent girls, only menstrual hygienic practices were assessed through self reporting.
3. Self reporting has its own limitations due to its element of subjectivity.
4. The personal nature of the questions may make the adolescents reluctant to answer truthfully
5. It is very difficult to isolate the effect of AFLE from those of other sources of information, such as mass media, parents, teachers, peers etc.

1.9. PROJECTED OUTCOME

The study helped to find a reliable, suitable and culture specific instrument to assess the knowledge, attitude and practice of adolescents about family life in the South Indian context. The study also enabled to evaluate the impact of adolescent family life education program on rural adolescent girls. Knowledge about the adolescent behaviour can help nurses understand, interpret, and promote healthy behaviours among adolescents. Good quality AFLE program can help delay first intercourse, and protect from Sexual Transmitted Infections,

including HIV/AIDS. Adolescents who participate in AFLE program before becoming sexually active are more likely to delay initiation of sexual activity and learn about responsible and safe sexual behaviors. The long term effectiveness of this study would help in the improvement of the adolescent's quality of life in terms of marriage at an ideal age, safe and responsible sexual behaviors, reduction in teenage pregnancy, unwanted pregnancy/unsafe abortions, reduction in maternal morbidity and mortality freedom from fear of conception, myths related to family life and freedom from STIs/including HIV/AIDS.

The study findings would provide a framework necessary for culturally specific design of effective health promotion and intervention programs. It would also assist the nurses to prepare themselves to give effective family life education based on the social and cultural background of people. The community health nurses would benefit from the current findings while including adolescent health services in providing family health services in the community and use the AFLE program - teaching module. It would provide guidelines to prepare a specialized training on Adolescent Health Nursing for nurses. The study is hoped to provide an empirical basis to plan an ongoing Information Education and Communication (IEC) activities for school going and non school going adolescent girls in the area of family life as well as to establish strategies and principles that can support programs for improving adolescent health. The study findings would provide a basis for the modification of community health program models and approaches. They would also lead to modifications in the interventions, developing future modules for parents, teachers and communities in order to create a more supportive environment for adolescent girls in the promotion of sexual and reproductive health.

CHAPTER 2

REVIEW OF LITERATURE

Review of literature is a key step in the research process. It refers to an extensive and systematic examination of publications relevant to the research problem. The review of literature relevant to the study is presented in this chapter as two sections.

2.1. Related literature

2.2. Conceptual framework

2.1. RELATED LITERATURE

Related literature to the present study has been presented under the following subheadings:

2.1.1. Adolescent health

2.1.2. Adolescent reproductive health

2.1.3. Studies related to adolescent reproductive health

2.1.4. Adolescent Family Life Education (AFLE)

2.1.5. Studies related to Adolescent Family Life Education and its effects

2.1.1. ADOLESCENT HEALTH

Adolescence is a time of considerable changes virtually in all aspects of functioning leading to changes in physical structure, physiological and endocrine changes, changes in the pattern of thinking, attitude, relationships and moral standards. It is a period of change and growth in the body system including attainment of puberty. Puberty is a period that is characterized by the beginning of the functioning of sexual organs and signifies the physiological changes in the body to reach sexual maturity. The onset of puberty leads to an increase in the growth spurt. During the pubertal growth spurt, four important physical changes

take place which transforms the child's body into an adult. According to Nair (2002), the first change is in the size of body in terms of height and weight. Secondly, there is a change in the body proportion. Thirdly, the development of primary sexual characteristics. In girls, the marker event is the beginning of menstruation and in boys, genital growth and the first ejaculation. The fourth physical change is the development of secondary sexual characteristics. Breast development, appearance of pubic and axillary hair and widening of hip occurs in girls. In boys, voice deepens, shoulder widens and growth of pubic and axillary hair occurs. It is also important to realize that the onset of puberty varies from boys to girls. In girls, the average age is around 12-13 years but may range from 10-16 years.

Today's world offers adolescents both remarkable opportunities as well as risks to their health. Because of their shear number, they constitute 23% of population in India as reported by Roy et al. (2000). In the present situation in the country, the adolescents are able to attend schools and benefit from technological progress comparing to earlier years. At the same time, millions of adolescents face problems related to poverty, inadequate education and work opportunities, exploitation and gender discrimination. Rapid urbanization, telecommunication, travel and migration also bring both new possibilities as well as new health risks to adolescents. These conditions may directly affect their health and undermine the traditional social support that help adolescents to prepare for adulthood. Moreover, society's expectations of behaviours, roles, access to resources and prospects for development vary between adolescent boys and girls (Chopra, 2007).

Health related perspectives focus upon the absence of mortality and morbidity, and the development of healthy lifestyles and avoiding risk behaviours. There are four dimensions of adolescent health. The first dimension is to master the developmental tasks which include achieving independence, adjusting to sexual maturation, establishing cooperative relationships, and achieving a core set of basic beliefs and values. Coping and well being is the second dimension of adolescent health which deals with the onset of puberty, new cognitive abilities and change of social environment involving the school and the employment transitions.

Absence of physical and mental illness is the third dimension of adolescent health. The common physical problems are related to nutrition and menstruation. The common mental disorders found among adolescents are anxiety, depression, conduct disorders and suicides. Suicide attempts appear to be on the increase among adolescents and many are the victims of violence, including sexual abuse. The fourth dimension is healthy behaviour and the related issues are nutrition and healthy weights, physical activity, healthy sexuality, road safety, suicide and mental health (Raphael, 1996). Henceforth, the health problems of adolescents can be categorized into sexual and reproductive health problems, nutritional problems, mental health problems, substance abuse, accidental and intentional violence (Mehra & Agarwal, 2004).

Determinants of adolescent health

According to Mehra and Agarwal (2004), the determinants of adolescent health are classified into nutritional determinants, biological determinants and social determinants. The nutritional determinants include anemia and chronic

energy deficiency. An adolescent girl requires increased nutritional requirements during adolescent growth spurt. Anemia is significantly associated with a compromised pubertal growth spurt and cognitive development among girls aged 10-19 years (Dayal, Motihar, Kananii & Mishra, 2003). The authors have also stated that prevailing malnutrition, anemia, growth stunting and lack of immunization among adolescents have adverse impact on Maternal Mortality Rate (MMR), Infant Mortality Rate (IMR), morbidity rates and have high intergenerational effects. The National Family Health Survey-2 (NFHS-2) found that 56% of adolescent girls in the age group of 15-19 are anemic in India. Young adolescents have low Body Mass Index (BMI) since the BMI increases markedly during adolescence as pubertal changes occur. A low BMI is an indicator of chronic energy deficiency and is particularly important during reproductive years (Singh & Mishra, 2001).

The biological determinants of adolescent health include the physical maturity and physiological changes in the body. The development of the pelvic birth canal is slower than that of the early teenage spurt of long bones. The birth canal does not reach its mature size until several years after growth in height has ceased by the age of 18 years. Menarche is a hallmark of change occurring in a young female adolescent's body. This crucial event affects a girl's perception of her physiological, psychological and social development (Herman-Glidden et al.,1997). The pubertal changes that take place in girls make them more vulnerable to health problems. As many as 40-45% of adolescent girls report menstrual problems in India (IIPS, 2000).

Many of the factors that underlie unhealthy development in adolescents are from the social environment. The social determinants of adolescent health include early marriage, early child bearing, educational status of adolescent girls, poverty, unemployment and the gender inequity. The social environment must foster personal development and encourage adolescents to adopt healthy behaviours. Mehra and Agarwal (2004) reported that in adulthood, 70% of mortality is linked to habits picked up during adolescence like risk taking behaviour, substance abuse, eating habits and conflict resolution. Family relationship affects the transmission of appropriate health messages to adolescents leading to adoption of risk behaviours.

2.1.2. ADOLESCENT REPRODUCTIVE HEALTH (FAMILY LIFE)

Sexual development is a normal part of adolescence. Fortunately, most adolescents go through these changes without significant problems. Nonetheless, all adolescents need support and care during this transition to adulthood, and some need special help. The lives of millions of adolescents worldwide are at risk because they do not have the information, skills, health services and support they need to go through sexual development during adolescence as reported by Raphael (1996).

Sexuality is an integral part of human life. It carries the awesome potential to create a new life. It can foster intimacy and bonding as well as shared pleasure in the relationships. It fulfills a number of personal and social needs, and we value the sexual part of our being pleasures and benefits it affords. Yet, when exercised irresponsibly, it can also have negative aspects on reproductive health. Reproductive health is bound to both physical and mental health. The U.S.

Department of Health and Human Services (2001) stated that reproductive health is not only limited to absence of diseases, it also includes the ability to understand and weigh the risks, responsibilities, outcomes, impact of sexual actions and to adopt healthy behaviours and life styles.

Adolescent reproductive health refers to the physical and emotional well being of adolescents. As a group, however adolescents have sexual and reproductive health needs that differ from those of adults in important ways and which remain poorly understood or underserved in much of the world (WHO, UNFPA & UNICEF, 1997). The main issues in adolescent reproductive health are puberty, adolescent pregnancy, unwanted pregnancy, unsafe abortion, Sexually Transmitted Infections including HIV/AIDS and sexual violence or coercion as reported by Brown, Jejeebhoy, Shah and Yount (2001).

Menstruation is the process of shedding the cyclic building of uterine tissue, blood vessel and the unfertilized ovum when a pregnancy has not occurred. Though menstruation is a normal physiological process, taboos, myths and misconceptions associated with menstruation have restricted the adolescent's social life and affect their reproductive health in many ways. During the early years of menstruation, a number of adolescent girls experience disturbing symptoms in relation to their menstrual periods. Rani and Jayasree, (2006) have reported that the more common symptoms during menstruation are headache, backache, cramps and severe abdominal pain. Menstrual hygiene plays an important role in preventing the Reproductive Tract Infections (RTIs) among adolescent girls thereby protects their reproductive health.

In most countries of the South Asian region, nearly 60% of all girls are married by the age of 18 years, with one-fourth girls marrying by the age of 15 years (National Demographic Health Surveys, 1996-2001). Indian culture promotes universal marriage and the national average age at marriage for women in India is 16.4 years according to International Institute of Population Sciences (IIPS) (2000). Because of early marriage, the period of exposure to sexual activities also becomes longer as the average age at menarche continues to decline. In developing countries like India, especially in rural areas, consequence of early marriage is closely associated with early initiation of sexual activity. Marriages often take place even before the girls have attained puberty since they hope that the early marriage will benefit them both financially and socially. In India, every third adolescent girl in the age group of 15-19 years is married. Around 57% of girls in India are married before the age of 18 years. Every second married adolescent girl has given birth to a child. One fourth of the young girls in the age group of 20-24 years were married before the age of 15 and one tenth were married even before they were 13. About more than 15% of the girls in the State of Rajasthan are married even before they are 10 year old (NFHS- 2).

Table 1

Marital Status of Adolescent girls in Tamilnadu

Age (in years)	Unmarried	Married
Urban		
6-12	100.0	-
13-14	99.3	0.7
15-19	80.5	19.5
Rural		
6-12	99.5	0.5
13-14	99.2	0.8
15-19	72.1	27.9

Source : Family Welfare Department, Tamilnadu, 2001

The above table shows that in rural areas, 27.2% of adolescent girls in the age group of 15-19 are married in spite of the Indian Child Marriage Restraint Act (1978) which inhibits marriages of girls until the age of 18. The use of law as means of regulating early marriage is not sufficient. There is a need to provide the adolescents with education and economic activities to delay marriage.

Early marriages usually have adverse effects on the health and development of adolescent girls, since a young girl has little ability to negotiate sexual activity. The maternal mortality in the age group of 15-19 is one of the highest in India. Apart from increasing risk of deaths, there are increased risks of premature labour, and complications during delivery, resulting in low birth weight babies and a higher chance that the new born will not survive. The health problems linked to early marriages not only affect the pregnant mother and the fetus but also continue after birth. A larger proportion of children (over 3,00,000) born to adolescent mothers (15-19 years) die in infancy, and further found, that their survival beyond infancy have a greater likelihood of being low birth weight than others (UNICEF,2001). Another severe consequence of early marriage is that the mental health of young girls is seriously affected leading to depression.

Adolescent pregnancy

The issue of adolescent pregnancy is increasingly being perceived as a critical challenge facing modern society. A major concern about adolescent pregnancy is its impact on the overall health and well being of the mother and child. Adolescent girls face considerable health risks during pregnancy and child birth accounting for 15% of the global burden of disease for maternal conditions and 13% of all maternal deaths. Pregnancy related deaths are the leading cause

of mortality for 15-19 year old girls (married and unmarried) worldwide. Among those giving birth, (14 million in the age group of 15-19) maternal mortality is twice as high as for women in their twenties. The risk of death during the first year of life is 1-5 times higher for infants born to mothers under 20 years of age than those born to mothers aged 20-29 years (WHO, 2003).

In India, more than 20% of the over 15,00,000 thousand married girls under the age of 15 years have become mothers. This means that close to 3,00,000 girls under the age of 15 are not only married but also have already borne children at least once. In the 15-19 years age bracket, there are 1,77,000 thousand married girls with 4 children, over 6,00,000 thousand 15-19 year olds with two children and more than 1,34,000 thousand with three children each (MAMTA, 2006).

IIPS (2000) found that in India, 10% of all adolescent pregnancies end in miscarriages or stillbirths compared to 7% among older women. According to National Family Health Survey - 2, unplanned pregnancies are common in adolescents. Pregnancy in an unmarried girl is taken as a sign of improper behaviour. Many of the pregnancies among adolescents end in abortions. Therefore, unmarried adolescents constitute a significantly large proportion of abortion seekers. A large number of adolescent abortion seekers suffer due to complications like haemorrhage, septicemia, cervical and vaginal lacerations, pelvic abscess and secondary sterility. In most Asian countries, abortion is still illegal though the laws are relaxed. Adolescents are more likely than older women to have illegal abortions. A noteworthy proportion of maternal mortality is due to unsafe abortions. The unmarried adolescents delay seeking abortion,

resort less skilled care providers, delay in seeking care for complications and therefore aggravating morbidity and mortality (Roy et al., 2000).

About 19 million of the 45-46 million abortions done worldwide each year are unsafe, around 40% of those 19 million unsafe abortions occur in young people in the age of 15-24 years. Induced abortions are yet another important reason for poor adolescent reproductive health. It is also reported that 80% of adolescent girls seeking abortion did not know that sexual intercourse could lead to pregnancy and STIs. And 90% did not know about contraception (Chhbra, 1997).

Adolescent reproductive health risks/STIs

The age of experimentation, adventure and exploration puts the adolescents into the risk of ailments such as Sexually Transmitted Infections (STIs) including HIV/AIDS. The consequence of unprotected sexual intercourse apart from unplanned pregnancy is the risk of acquiring an STI. In India, STIs rank third among the major communicable diseases. STIs often go undetected or untreated among adolescent girls who are embarrassed or stigmatized by the presence of an STI and are reluctant to seek help. Yet, STI agents such as Chlamydia and Human papilloma virus can have direct cervical cancer. STIs also facilitate HIV. As many as 25% of patients attending Government STD clinics in India are younger than 18 years as reported by Ramasubban (2000).

About half of the new HIV infections now affect 15-24 years old, representing more than 6,000 new infections per day in this age group. It is estimated that 50% of all new HIV infections in the world are among young people and that 30% of the 40 million people living with HIV / AIDS are in the

15-24 years age group (WHO, 2004). In India, it has been observed that an increasing number of youth are being infected with AIDS. Among them, 35% of cases of AIDS reported are below 25 years of age and 50% of new infections are in the age group of 15-24 years. The size of youth population and their lack of knowledge about HIV/AIDS is an important issue in reducing HIV infections. It has been observed that only 20% of youth know two preventive measures of HIV infection and 63% have not heard about AIDS as reported by Sanjana (2006).

2.1.3. STUDIES RELATED TO ADOLESCENT REPRODUCTIVE HEALTH (FAMILY LIFE)

The adolescent reproductive health problems are signified by various studies. Quantitative studies which were done in different countries as well as in India are available in the literature to address the issues related to the knowledge, attitude and practice of adolescent girls about family life.

Knowledge about family life

Molina, Araa, Ibazeta and Longos (2007) assessed the knowledge of secondary school students about reproduction, sexuality and its relationship with initiation of sexual activity in Chile. It was reported by the authors that 45.9% of the private school students and 27.9% of public school students felt that the information that they received about sexuality from the school was inadequate and the knowledge of these students about human reproduction and sexuality was inadequate. The study also revealed that the adolescents who had a highest overall level of knowledge on human reproduction and sexuality had lower levels of sexual activity. Similar findings were reported in another study undertaken in Chile by Millan, Valenzuela and Vargas (1995) among 948 public school students

of Santiago's poorer communities. This study concluded that 67% did not know the fertile and infertile times of a girl's menstrual cycle and lack of information was the main reason for the low use of contraceptives.

A study was done by Buga, Amoka and Ncayiyana (2006) among 1025 female adolescents from 21 secondary schools in South Africa. The knowledge about reproduction was found to be low, with only 19% of them able to identify the fertile phase of the menstrual cycle. The study also reported that the adolescent girls had poor knowledge about reproductive biology and contraception. Similar findings were reported by few other African studies too. Irinoye, Ogungbemi and Ojo (2003) examined the knowledge of 200 school going adolescent girls in Lie-lfe, Nigeria and found that only 5% of respondents could correctly define menstruation. A study (Abioye-Kuteye, 2000) on menstrual knowledge among secondary school girls in Nigeria also reported that 40% of them had inadequate knowledge about menstruation. These study findings are consistent with another study by Liu (1997) who found that 63.8% of adolescent high school girls from Weifang city did not have previous knowledge about puberty.

The knowledge of adolescent girls about menstruation in South East Asian region of the world was also examined by various studies. A study by Tang, Young and Lee (2003) among Chinese adolescent girls on the psychosocial correlates of emotional responses showed that the girls were not prepared adequately for menstruation. Two studies done at Nepal (Sharma., & Gupta, 2003; IIPS, 2000) reported lack of information among adolescent girls regarding pubertal changes, menstruation, menstrual hygiene and pregnancy.

A survey conducted among 7th and 8th grade black US inner city adolescents indicated that these adolescents were aware of the contraceptive methods but did not have the practical information about the method of use and the effectiveness of contraceptive methods. Many students were uninformed about the circumstances under which pregnancy can occur. The study recommended for more systematic research assessing the effectiveness of Family life education in young teens (Herz, Goldberg, & Reis, 2006). A cross sectional study done by Salako, Iyaniwura, Jeminusi and Sofowora (2002) among 1140 school adolescents in Ikenne, Nigeria also revealed poor knowledge on contraception and its uses. Similar to the previous study, this study too highlighted the need for family life education program for these adolescents.

Besides lack of information, misinformation and misunderstanding about conception and contraceptives, STD risks abound among adolescents are major findings of several studies. A study done in Jamaica by Eggleston, Jackson and Rountree (1996) among 500 school going adolescents points out that the adolescents had inadequate information about reproductive health issues. A small percentage of girls (27%) alone knew that it is possible to get pregnant in the first intercourse itself and only 4% of them knew the fertile period of conception.

One another Indian study done in Haryana by Trikha (2001) on abortion scenario of adolescents in the age group of 14-19 years revealed that 90% of adolescent girls undergoing abortions were unmarried and 11% of them were undergoing abortions for the second or third time. 42% sought abortion in the

second trimester of pregnancy. The abortions carried out at unapproved centers by unqualified personnel were 56%.

The source of information about reproductive and sexual health for adolescents was explored in several studies. The study among Lebanese adolescents by El-Kak, Soweid, Taljel, Kanj and Shediac-Rizkallah (2001) reported that friends were cited as the first source of information (60%) about sexual health, media (52%) as the second source of information and parents (32%) as the third source. The majority of the students (91%) supported the sex education program in the school. One another regional study done by Aten, Siegel, and Roghmann (1996) in the United States too showed that the adolescents obtained health related knowledge from the school health nurse (42%), from media (34%), from parents (28%) and from friends (23%). Khanna, Goyal, and Bhawsar (2005) reported that mothers, sisters and friends were found to be the major source of information about menarche and much of this information imparted were in the form of restrictions on the girl's movements and behaviour in the State of Rajasthan in India.

Indian studies also reveal that adolescents have inadequate knowledge regarding reproductive health (family life). Mukerjee et al. (2001) in their study among school going teenagers of rural Bengal reported that though the teenagers had a satisfactory knowledge about legal age at marriage, they had lack of information about various issues of reproductive health. Dalvar (2000) studied the knowledge of adolescent girls on female pubertal changes in Delhi and reported that only 60% of the adolescent girls knew menstruation as a sign of puberty, 40% knew about breast development and only 13% knew that growth of

pubic hair is a sign of puberty. Kumar (2000) conducted a cross sectional study in rural areas of Himachal Pradesh to assess the knowledge of adolescent girls about reproductive health. In this study, 643 unmarried adolescent girls aged 15-19 were interviewed using a semi structured interview guide. The overall knowledge of adolescent girls on reproductive health was found to be very low which was a similar finding in another study done in Haryana among rural adolescent girls (Singh, Devi & Gupta ,1999).

Knowledge regarding menstruation and menstrual hygienic practices was studied by some researchers (Mandal, 1994; George, 2003; Khanna et al., 2005; Kushwaj & Anaj, 2007). The researchers reported that a significantly larger proportion of the girls were not aware of menstruation when they first experienced it and the studies also highlighted the need to educate the adolescent girls about menstruation and menstrual hygiene. A study conducted by Rani and Jayasree (2006) among 400 adolescent girls in Chittoor District of Andhra Pradesh, on menstruation and menstrual hygiene, found that the adolescent girls had poor knowledge about menstruation. A community based cross sectional study done by Prasad et al. (1997) in a rural area of Tamilnadu among 491 married adolescents of 16-22 years indicated that the knowledge on menstruation and menstrual hygiene was found to be poor. However similar study done in Belgaum, Karnataka by Kamble (2001) revealed that 61.66% of girls had an average knowledge regarding menstruation and menstrual hygiene.

Studies on reproductive health problems among adolescent girls are also studied and documented in the literature. A survey done on the reproductive health problems of 352 adolescent girls from rural and tribal areas of

Thiruvanathapuram District of Kerala by Sajitha (2006) revealed that majority of the girls had menstrual problems followed by reproductive tract infections. Most of them were aware of the menstrual irregularities but very few have undergone treatment for menstrual irregularity.

Gupta, Mathur, Singh and Saxena (2004) in their study on reproductive health awareness of 8453 school going unmarried rural adolescents, only 39.5% were aware of AIDS, 18% were aware of STDs and only 19.8% of adolescents were aware of at least one method of contraception. Awareness of reproductive health matters was more among boys compared to girls and more in late teens (15-19) than in early teens (10-14). Among the 10-14 year teens, 40% had very little knowledge about sex organs, 50% were aware of condoms and were confused with the modes of transmission of HIV. The study showed tremendous lacunae in awareness of all aspects of reproductive health matters. It concluded suggesting the need for Information, Education and Communication (IEC) strategies to focus on raising the awareness of adolescents on reproductive health.

Knowledge about AIDS was studied by three researchers (IIPS, 2000; Trikha, 2001; Chatterjee, 2001). These studies reported that almost half of the study subjects had inadequate knowledge about AIDS. Similar findings were noted in other studies too. Abraham (2001) conducted a study on understanding youth sexuality among the college students of Mumbai city. The study found that 26.1% of boys reported sexual intercourse and 3% of girls reported the same. The general level of knowledge regarding the human reproductive system, contraception and STDs was very low. Lal, Vasan, Sarma and Thangappan

(2000) examined the knowledge of adolescent girls of 18-22 years of age in Thiruvananthapuram District, Kerala, India. Of the 461 adolescent girls, 45% said that AIDS is not curable, 34% were aware of the signs and symptoms of STIs and 47% said that AIDS is a sexually transmitted disease. The study identified substantial lacunae in the knowledge of adolescent girls about AIDS and suggested to target the rural adolescent girls in the National AIDS education and in the awareness camps. Studies done in Pondicherry and Tamilnadu (Joseph et al., 1997; Narayanan, Srinivas, Pelto et al., 2001) among adolescent girls found that majority of them had inadequate knowledge about human reproduction, menstruation, contraception and AIDS.

The above studies documented in the literature reveal that the knowledge levels on topics such as reproductive system including puberty, menstruation, contraction and AIDS were low. Adolescents need education and appropriate services related to sexuality.

Attitude towards family life

Frank and Williams (1999) conducted a study on the attitude about menstruation among pre and post menarcheal girls in West Florida. The findings reported that the menstrual attitude differs with ages of girls. The study recommended to provide a comprehensive menstrual education to adolescent girls as they mature. A study by Irinoye et al. (2003) on the attitude of 200 school going adolescent girls towards menstruation in Lie-lfe, Nigeria, revealed that 21.43% of the respondents had potentially health promoting attitude and 35.71% had potentially not health promoting attitude and 42.86% potentially harmless attitude.

El-Kak et al. (2001) had undertaken a study to assess the attitude of Lebanese high school students towards sexual and reproductive health. The findings showed that 91% of students had a positive attitude towards sex education program. A study by Sharma and Gupta (2003) in Nepal revealed that 48%of adolescents commented that sexuality before marriage is not good and 20% of them said that premarital sex can be practiced. The Uganda study too reported that the adolescent girls had a positive attitude towards condoms (Barnett, 2007).

Similar study findings were reported by many Indian studies. The multi-centric study by Gupta et al. (2004) revealed that the attitude of adolescent girls towards marriage at the legal age was favourable. Chatterjee (2001) conducted a study in Calcutta to assess the attitude of senior school students about AIDS and reported that 45.8% of adolescent girls had a positive attitude towards nursing AIDS patients. Seethamma (2004) in Karnataka found that the mean attitude score of adolescent girls about menstrual hygiene was 79%. However, the Kerala study by Lal et al. (2000) showed that the overall attitude of students towards AIDS was unfavourable. This study also identified that the students from urban areas as well as from Christian religion demonstrated more favourable attitude towards AIDS.

Gowri (2006) investigated the attitude of adolescent girls in Chennai towards sex education. It was surprising to note that 41% of them had unfavourable attitude and only 47% of them had favourable attitude towards sex education. While assessing the attitude towards the selected aspects of family life, it was found that 78% of the adolescent girls had a positive attitude towards

contraceptive methods, 51% of the girls said that premarital sexual activity is modern and is accepted and 53% of them said that premarital sexual activity will affect their married life. Thakhor (1998) also found that 97% of school students expressed the need for sex education. All the above findings reported by these studies reveal that the attitude among adolescents is more favourable towards family life.

Practice related to family life

A study done by Buga, et al. (2006) on the behaviours related to sexuality among school girls in Transkei, South Africa revealed that 74.6% of adolescent girls were already sexually active and 18.7% had initiated sex before menarche. Only 23.5% of these teens had ever used contraception. The reasons provided by the inexperienced girls for delaying sexual activity included religious values (25.4%), fear of pregnancy (23.8%), wish to wait for marriage (20.0%), fear of AIDS (15.6%) not emotionally ready (8.6%), and fear of Sexually Transmitted Infections (6.4%).

The Chile study on Santiago's poorer communities found that 57% of boys and 59% of girls said that condoms could be reused. In South America, only 43% of married adolescents aged 15-19 are using contraception comparing to 29% of unmarried sexually active adolescents. In Western Africa, only 5% of married teens use contraception compared to 34% of sexually active unmarried teens as reported by Family Health International (as cited in Barnett, 2007).

In South East Asia, 36% of married youth use contraception compared to 28% of unmarried adolescents (Barnett, 2007). Zulkifli and Low (2000) investigated on sexual practices in Malaysia among 468 unmarried adolescents.

It was shown that the proportion of unmarried adolescents who had sexual intercourse was about 13%. More of boys had the sexual experience (18.8%) than the girls (7.11%) Among those who had sexual experience, 72% did not use contraceptives. Jejeebhoy et al. (1999) studied on sexual and reproductive health of adolescents in rural China and reported that significant proportion of unmarried adolescents experienced unprotected sex, unwanted pregnancy and STDs.

A community based study by Prasad et al. (2005) on RTI prevalence among 451 married women aged 16-22 in rural Tamilnadu, India revealed that 49% of the study subjects suffered from any one of the RTIs. In fact, the authors reported that two third of these young women with symptoms did not seek care, and among those who did, over three in four sought treatment from unqualified sources such as home treatment or unqualified private practitioners.

Menstrual hygienic practices among adolescent girls were studied by several researchers. The Nigerian study done by Irinoye et al. (2003) among 200 school going adolescent girls in Lie-lfe to determine the menstrual hygienic practices revealed that they used sanitary pads, cloth, toilet rolls, cotton wool and tampon to manage menstruation. During menstruation, 39.3% of them were practicing healthy practices, 21.43% as potentially harmful practices and 39.3% uncertain practices. A similar study (Abioye-Kuteyi, 2000) on the menstrual practices of secondary school girls in Nigeria also revealed that 66.3% of the adolescent girls used unsanitary materials as menstrual absorbent and the findings emphasized that there was an acute need for education and psychological preparation of girls on menstruation. Similar finding was also seen in another study by El-Gilany, Badawi and El-Fedawy (2005) in Mansoura, Egypt.

The Indian study done by Khanna et al. (2005) in Rajasthan on menstrual practices revealed that more than three fourth of the adolescent girls used old cloth during menstruation. There was a relationship between the menstrual hygienic practices and the prevalence of reproductive tract infections. A study was conducted by Kamble (2001) to assess the practices related to menstrual hygiene among girls studying in selected high schools in Belgaum city, Karnataka, India. This study found that 87.66% of adolescent girls followed correct practices. Sajitha's study (2006) among 352 adolescent girls from rural and tribal areas of Thiruvanathapuram District of Kerala found that though majority of them were aware of the menstrual irregularities, very few were undergoing treatment for menstrual irregularity.

A study done by Rani and Jayasree (2006) among 400 adolescent girls in Chittoor District of Andhra Pradesh, on menstruation and menstrual hygiene revealed that majority of the adolescent girls had a poor menstrual hygiene index followed by fair level of practice scores. Socio economic and cultural practices showed a direct relationship with menstrual hygienic practices.

James (1997) stated that educationally prepared girls tend to use sanitary napkins, change napkins more frequently and approach the process of menstruation more practically. All the above cited studies reveal that the menstrual hygienic practices among majority of adolescent girls are inadequate or poor.

2.1.4. ADOLESCENT FAMILY LIFE EDUCATION (AFLE)

Education is considered as one of the most potent instruments of peaceful social change and also significant means to develop self actualization and self

realization. Adolescent Family Life Education (AFLE) is one of the educational interventions that are aimed at enabling the existing health system to respond to the emerging needs and requirements of adolescents. AFLE influences the attitude and behaviour of adolescents in relation to sexual and reproductive health. These programs also help adolescents to enhance communication, and negotiation skills, clarify their values and change risk behaviours. Sweden is the only country where sex education is compulsorily provided to the adolescents in the schools since 1956. AFLE was launched in other countries of the world, when comprehensive efforts were initiated to start the population education during early 1970s as a complementary strategy to help nations attain their demographic goals. Since sex related elements have been considered socio-culturally sensitive, it was preferred to name it as Family Life Education. It would be necessary to educate adolescents in sexual development, sexuality, reproduction including conception, contraception and STIs, so that the educational intervention will have an impact on their attitude and behaviour and ultimately will result in health promotion in adolescents (Pandey, 2004).

Definition and objectives of AFLE

Family life education has been conceptualized differently in various context, and hence it has been defined in different ways. The U.S Department of Health and Human Services (2001) defines family life education “as a field of study that examines knowledge, attitude, behaviour and values that promote healthful sexuality with those relationships”. The definition adopted by the International Planned Parenthood Federation (2002) says that “Family Life Education is an educational process designed to assist adolescents in their physical, social, emotional and moral development as they prepare for adulthood,

marriage, parenthood, ageing as well as their social relationships in the socio-cultural context of the family and society". According to yet another definition, family life education has been conceived as "an education for human development , which seeks to ensure that each individual approaching adulthood is equipped with the skills and personal reserves to cope with challenges of everyday life in society, within acceptable societal structures and to adapt to change with experience and equilibrium" (Pandey, 2004). The World Health Organization defines AFLE as "an educational program which addresses the biological, socio-cultural, psychological and moral dimensions of sexuality from the cognitive, affective and psychomotor domains including skills to communicate and make responsible decisions" (WHO, 2004).

Family life education aims at enabling the adolescents to understand the importance of the institution of family, to appreciate physical, physiological, psychological and social changes and developments during the process of growth, conception, and consequences of adolescent pregnancy. It further aims to help adolescents to be aware of the HIV/AIDS pandemic, understand the significance of marriage, develop a positive attitude and achieve responsible parenthood and behaviours towards family life. AFLE seeks both to reduce the risks of potentially negative outcomes from sexual behaviour like unwanted or unplanned pregnancies, Sexually Transmitted Infections including HIV/AIDS and to enhance the quality of relationship. It is also about developing adolescent's ability to make decisions over their entire life time (Pandey, 2004).

Need for AFLE

The need to impart education in this sensitive area is felt primarily because the current generation of adolescents are more than a billion strong, and will be

the largest generation in history to make the transition from children to adults. In India, individuals have been receiving information about these matters directly through different sources available in their respective socio-cultural settings. A number of studies lend support to the fact that adolescents desire and seek authentic knowledge on sexual development which they experience as stated by Pandey (2004). But sex being a taboo, no authentic source has been available to them through which they can get such knowledge. This situation creates anxieties, confusion and generates myths and misconceptions among adolescents about various aspects of their growing up. These myths and misconceptions are carried over to their adulthood, adversely affecting their attitude and behaviour through out their lives.

Studies conducted in different settings have found the growing incidence of premarital sexual relationship among adolescents. It is therefore necessary to equip adolescents well with adequate knowledge about family life so that they manage their sexual development responsibly and develop a healthy attitude towards sex (Nair, 2004). The media reports highlight almost regularly the growing incidence of sex crimes in our society. The particular matter of great concern is the problem of sexual abuse and exploitation of young girls and even minors. These situations demand urgent educational intervention, so that the adolescent girls are made aware of the implications of sexual development and to safe guard themselves against such inhuman incidents. There is a need to reinforce social and cultural values that militate against irresponsible sexual behaviour because of urbanization, migration to slums in the cities and the changing life styles. The AIDS pandemic has added urgency to introduce AFLE. As reported by Pandey (2004), studies have come out with the findings that

adolescents are the greatest victims of HIV infection. Since there is no vaccine or cure available for HIV/AIDS, preventive education is the only means to promote behavioural changes which can prevent HIV infection.

Even when adolescent education is not imparted, children and adolescents are exposed to superficial sex related information, and that too mostly in a crude manner, through other sources like cinema, films, magazines, videos, commercial advertisements and certain sensuous programs telecasted in the television. Even the newspapers are devoting increasing space to sex related stories. Therefore, it is better to impart adolescent Family Life Education, and the adolescents will definitely appreciate such exposures in proper perspective.

When the teachers and the community health nurses are sensitive to the need of adolescents and provide guidance to them to cope with their problems, the relationship has become better and the environment has improved. There has been a significant change in the perception of adult members, particularly parents and teachers, towards the introduction of adolescent family life education. A number of studies conducted in different states have found that parents and teachers overwhelmingly support the introduction of adolescent education. The knowledge gained and skills developed will contribute to the individual's ability to cope both with social change and with relationships in society as a citizen, spouse or parent.

2.1.5. STUDIES RELATED TO ADOLESCENT FAMILY LIFE EDUCATION AND ITS EFFECTS

The most effective family life education programs are those that include more information on reproductive health.For teenagers who are already sexually

active, family life education can encourage correct and consistent use of contraceptives or STD protection. Fears that family life education programs encourage or increase sexual activity appear to be unfounded, research suggests. However evaluations that have been done among adolescents in both developing and developed countries show that formal family life education program increases the knowledge on reproductive health and can improve the use of methods to protect against pregnancy and STIs including HIV/AIDS (Pandey, 2004).

SIECUS (1999) reported that a vast majority of Americans support sexuality education for teenagers, of whom, 93% believed that it should be taught in high schools and 84% believed it should be taught in middle or junior high schools. The teenagers also expressed the need for medically accurate and responsible sex education. Nearly half of the high school students nationwide report that they need basic information on birth control, HIV/AIDS, and other Sexually Transmitted Infections. The adolescents also wanted to have more information on where to get contraception.

The World Health Organization (WHO) recently published a review of 1050 scientific articles on sex education programs. This review revealed that there was no support for the contention that sex education encourages sexual experimentation or increased sexual activity. If any effect is observed, almost without exception, it is in the direction of postponed initiation of sexual intercourse and/or effective use of contraception. It further suggested that failure to provide appropriate and timely information misses the opportunity of reducing the

unwanted outcomes of unmarried pregnancy and transmission of STIs and is therefore in the disservice of the youth (Grunseit & Kippax, 2006).

Knowledge

Banda (2002) conducted a study in Malawi among 300 adolescent girls on the effect of Family Life Education. The results revealed that statistically significant increase in the knowledge about anatomy and physiology of the female reproductive system and menstruation was seen among the girls who attended the family life education. Ancheta, Hynes and Shrier (2005) evaluated the reproductive health education and sexual risk among high risk female adolescents in Boston, USA. This study indicated that the parents discussed about menstruation more frequently than the other topics of family life. The median age of formal instruction was 12 years. 26% of them received their formal family life education just before or after marriage. Ancheta also found that the early reproductive health education was associated with increase in their knowledge level.

Zabin (2006) conducted a study to evaluate the school based approach to teen pregnancy prevention among 1700 adolescents in two of the Baltimore innercity schools in U.S.A. There was a significant increase in the level of knowledge on sexuality and contraception among the students who had attended the sessions on sexuality and contraception than the control group students. Similar study by Eggleston et al. (1997) examined the impact of school based sexuality education program in Jamaica and their study finding also supports the above finding. A quasi – experimental study was done by Herz et al. (2006) to assess the impact of family life education program on the minority elementary

school students in Chile inner city. In comparison to the control group, the program participants displayed improved knowledge about conception, reproductive physiology, birth control methods, and ill effects of adolescent pregnancy.

Yet another quasi-experimental study done among Nigerian and Ghananian unmarried adolescent girls (Brieger, Delano, Lane, Oladepo & Odyediran, 2001) to evaluate an adolescent reproductive health peer education program reported that there were significant differences found overtime and between intervention and control groups concerning reproductive health knowledge and use of contraceptives in the previous 3 months. The outcome of the reproductive health education program provided evidence that the peer education was more effective at improving knowledge among adolescents in school settings. This study also found that friends were the prime source and health care providers as the second source of information about reproductive health.

Fawole, Asuru, Oduntan, and Brieger (1999) evaluated the effectiveness of a school based AIDS education program for secondary school students in the local government area of Ibadan, Nigeria. Evaluation of the intervention was carried out after 6 months. Baseline data showed that there was no significant difference in the knowledge and attitude on HIV/AIDS and their sexual behaviour. End line comparisons however, revealed that the knowledge about HIV transmission and prevention was significantly higher ($p<0.05$) in the intervention group. Furthermore, 92.8% of the intervention group students as compared to only 56.7% of the controls felt AIDS constituted a problem in Nigeria. In

conclusion, the education program was successful in improving the student's knowledge regarding HIV/AIDS. This finding is consistent with the findings of several studies (Kane et al., 1993; Rusakaniko et al., 1997) done in Africa which also showed an increase in the knowledge level of reproductive health, contraception and AIDS.

Donati, Grandolfo, Spineeli and Medda (1996) conducted a study on knowledge and attitude of reproductive health among adolescents of 14-21 years in the secondary schools of Rome. Five sex information programs were conducted. During the pretest, 20-50% of adolescents answered all questions about reproductive physiology and contraception. After the sex education program 70-100% of the adolescents answered the questions related to reproductive physiology and contraception correctly. The fertile period of the menstrual cycle was correctly stated by 48% of adolescents during pretest and 88% during posttest. Further, the authors reported that 87% of them knew that condom provides protection against STDs.

Butts and Hartman (2002) assessed the effectiveness of behavioural intervention to reduce HIV risk in adolescents. The result revealed that there was a significant difference between the pretest and posttest knowledge mean scores. Further, the study also revealed that there is a need for community based program in which teenage participation is vital to have positive reaction of adolescents. Nurses can play a vital role in implementing a comprehensive, theory based program in community settings. Dhital, Badhu, Paudel and Uprety (2001) conducted an experimental study with pretest – posttest control group design to evaluate the effectiveness of a structured teaching program in

improving the knowledge of 200 school going students on reproductive health in four selected schools in Dharan town of Nepal. The mean pretest and posttest score were compared between two groups and the difference was statistically significant ($p<0.001$). The knowledge about reproductive health was better in the experimental group suggesting the use of structured teaching program was effective in improving the knowledge of adolescents on reproductive health. Chen's (1997) study among adolescent girls in China investigated the effectiveness of sex education program. The posttest was conducted after one month. It was found that the mean knowledge score on sexual health increased from 4.86 to 17.20. It was concluded that sex education is essential and effective.

Literature review indicates that most of the Indian studies are done in urban areas and there are only few studies available which are done in rural areas. Awasthi, Pande and Nichter (2004) conducted a study in Lucknow, India on developing an interactive STD prevention program for youth. This community based intervention in STD prevention practices among the participants showed that the knowledge level had increased after the intervention program. Parwej, Kumar, Walia and Agarwal (2005) measured the effectiveness of a reproductive health education package in improving the knowledge of adolescent girls aged 15-19 years in Chandigarh, India. Change in the score in the intervention and control groups was tested by ANOVA taking age and socioeconomic status as covariates. Reproductive knowledge score improved significantly after intervention in conventional education (27.28) and peer education group (20.77) in comparison to the controls (3.64) Posttest scores were not significantly different between the conventional and peer educational groups (40.52 and 43.65 respectively). Though the time taken in delivering the peer education intervention

was almost one third of the time taken to implement conventional education, peer education and conventional education strategies were effective in improving the reproductive health knowledge of adolescent girls. Further, it was found that peer strategy was less time consuming.

Sharma, Mohapatra and Gupta (2002) conducted a study on the Sociological Intervention Package (SIP) for developing awareness on high risk sexual behaviours. The study finding showed that the mean increase in the awareness of unmarried adolescent girls was 17.82%. The study concluded that the intervention package has significantly enhanced the awareness status regarding safe sexual behaviours. Itti (2003) conducted a study to evaluate the effectiveness of a structured teaching program on selected aspects of reproductive health among the rural adolescent girls in Karnataka, India. There was a significant increase in the posttest knowledge score (34.35) on reproductive health compared to the pretest knowledge score (21.81) ($p < 0.0001$). Family Life Education Program for adolescent high school girls in Kerala, India had revealed that there was an increase in the knowledge about adolescent health issues, family planning methods and STIs including AIDS after a gap of six months (Nair, 2004).

Dhanalakshmi's study (2007) in Vellore, Tamilnadu revealed that the adolescents had inadequate knowledge regarding menstruation (83.8%), pregnancy (77.4%) and sexual behaviour (80.6%). The structured teaching program was found to be effective. There was a significant increase in the mean score difference of pretest and posttest knowledge on reproductive health between experimental and control group ($p < 0.001$). Revathy's study (1996)

done in a rural area of Tamilnadu reported that the overall mean knowledge score increased after the structured teaching program on reproductive health from 12.07 to 48.77. There was a highly significant difference found in the mean score difference between experimental and control group ($p<0.001$). This finding is consistent with the study finding of Handa (1995) in which evaluation of the sex education program showed that the knowledge scores in the posttest increased.

Attitude

Herz et al. (2006) conducted a quasi experimental study to assess the impact of family life education program on the minority elementary school students in Chile inner city. In comparison to the control group, the program participants displayed a positive attitude towards family life. A school based sexuality education program was conducted in Jamaica found that the sexuality education had a positive influence on attitude of adolescents towards sexuality and pregnancy (Eggleston et al., 1997).

An evaluation of an adolescent reproductive health peer education program in West Africa was done among Nigerian and Ghananian unmarried adolescent girls between 15 and 19 years by Brieger et al. (2001) reported that the reproductive education program promoted a better attitude towards reproductive health. In Nigeria, another evaluative study was done to assess the effectiveness of a school based AIDS education program for secondary school students by Fawole et al. (1999). It compared the attitude of 233 senior students who received comprehensive health education intervention with 217 controls and the study revealed that the education program was successful in improving the student's attitude towards HIV/AIDS.

An experimental study with pretest – posttest control group design was conducted in Nepal among 200 school going adolescents to evaluate the effectiveness of a structured teaching program by Dhital et al. (2001). The study reported that the posttest scores on the attitude towards reproductive health was better in the experimental group than in the control group ($p<0.001$). The study concluded that the use of structured teaching program was effective in improving the attitude of adolescents towards reproductive health.

A study conducted among Chinese adolescent girls investigated the effectiveness of sex education program. The posttest was conducted after one month. It was found that the mean attitude score on sexual health increased from 31.8 to 42.3 and the sex education program was found to be effective (Chen, 1997). Another Indian study done by Siva and Jayakaran (2000) on alternative approach to adolescent reproductive health education in rural schools of Tamilnadu, showed that 35% of the girls said premarital sex is one of the dangerous behaviour in adolescents and 92.5% of the girls had a favourable attitude towards reproductive health.

Practice

The Malawi study among 300 adolescent girls on the effect of Family Life Education by Banda (2002) revealed a statistically significant difference in the practice related to sanitary towel care after the education program ($p<0.001$). The impact of school based sexuality education program in Jamaica among 945 students aged 11-14 years revealed that the adolescents in the intervention group were more than twice as likely to use contraception (Eggleston et al.,1997). Kirby et al. (1994) identified 33 studies done in North America on school based adolescent sex education and AIDS education programs and measured the

impact of these programs. They found that these programs did delay the initiation of sexual intercourse, reduced the number of sexual partners and increased in the use of condoms and other contraceptives. These effective programs have the potential to reduce exposure to unintended pregnancy and Sexually Transmitted Infections including HIV/AIDS.

The West African study among Nigerian and Ghananian unmarried adolescent girls between 15 and 19 years (Brieger et al. 2001) on implementation and evaluation of an adolescent reproductive health peer education program reported that there were significant differences found overtime and between intervention and control groups concerning use of contraceptives in the previous 3 months. The outcome of the reproductive health education program provided evidence that the peer education was more effective in terms of behaviour change in school settings.

The Nigerian study on effectiveness of a school based AIDS education program for secondary school students done by Fawole et al. (1999) reported that the subjects in the intervention group (233 senior students) received comprehensive health education intervention and there were 217 controls. The study showed a decrease in the number of sexual partners among the intervention group from 1.51 to 1.06 while their condom use was on the increase. Kane (1993) in Banjul, The Gambia, found that the contraceptive use of female adolescents who had attended FLE programs was higher than those who did not attend.

European countries have already demonstrated great success with responsible sexuality education programs. The Netherlands, where sexuality

education begins in preschool and is integrated into all levels boasts the lowest teen birth rate. The Dutch teenage abortion rate is more than three times lower than that of the U.S and its overall AIDS case rate is more than eight times lower. In Germany, where sexuality education is comprehensive and targeted to meet the reading and developmental needs of the students, the teen birth rate is more than four times lower than that of the U.S and its overall AIDS rate is 11.5 times lower. France has a nationally mandated sexuality education program that begins when the students are 13. Their teen birth rate is approximately six times lower than that of U.S, the teen abortion rate more than two times lower and the AIDS rate more than three times lower (Berne & Huberman, 1999; Singh & Darroch, 2000).

Chen (1997) conducted a study among Chinese adolescent girls to assess the effectiveness of sex education program. The posttest was conducted after one month and it revealed that the mean practice score on sexual health increased from 50.8 to 79.0 which indicated that the sex education program was effective.

Conclusion

The literature review has given an overview about the adolescent reproductive health problems as well as about the family life education. Research done in different parts of the world revealed that experimental studies in this area were scarce. Moreover among the Indian studies only few studies are reported from South India regarding the effectiveness of family life education program. There is a felt need for measurement of impact of family life education program using larger sample. Therefore a study in rural setting on a large sample using experimental study design is attempted.

CONCEPTUAL FRAMEWORK

The conceptual frame work of the present study is based on the Health Promotion Model by Pender, Murdaugh, and Parsons (2002). The Health Promotion Model (HPM) was designed to be a complementary counter part to models of health protection and it is based on constructs from Expectancy Value theory including Health Belief model (1975) and Social Cognitive Theory (1997). The Health Promotion Model represents a theoretical perspective that explores the factors and relationships contributing to health promoting behaviour and therefore to the enhancement of health and quality of life. HPM is a guide for exploration of the complex bio-psychosocial processes that motivate individuals to engage in health behaviours directed towards the enhancement of health. Heath promotion is directed at increasing the client's level of well being. The model focuses on three components that enhances or decreases participation in health promoting behaviours. They are the individual characteristics and experiences, activity related affect and the health promoting outcomes. Nursing intervention has an important role in promoting health behaviour by influencing these components and results in improved heath and better quality of life at all stages of development (Pender, Murdaugh & Parsons, 2002). Application of this model in the health promotion of adolescents has been reviewed by Srof and Velsor- Friedrich (2006).

The first component is the individual characteristics and experiences. The individual characteristics and experiences are the innate factors as well as individual experiences that inform future behaviour. The second component of the HPM model is the activity related affect. It refers to the variables affecting the likelihood of initiating the health promoting behaviours. The third component is

the health promoting outcome. It is believed that the individual characteristics, the personal and the socio-demographic factors and the activity related affect are considered to influence the future behaviour of clients leading to positive health promoting outcomes.

In the context of the present study, the individual characteristics and experiences include the socio-demographic and personal characteristics of adolescent girls and their parents. The socio-demographic characteristics of adolescent girls are age, religion, education, occupation, family income and type of family and their personal characteristics are attainment of menarche, age at menarche, information received about menarche, sexuality, source of information about menarche and sexuality and presence of menstrual problems. It also includes the socio demographic characteristics of their parents (education and occupation). The variables affecting the health promoting outcomes are the knowledge, attitude, and practice of adolescent girls about family life.

The individual experiences refer to the current knowledge, attitude and practice of unmarried rural adolescent girls about the following selected aspects of family life

- Human reproductive system including puberty
- Menstruation and menstrual hygiene
- Responsible sexual behaviours
- Pregnancy / Conception
- Contraceptives
- Sexually Transmitted Infections (STIs)
- HIV/ AIDS

The activity related affect in this study refers to the Adolescent Family Life Education (AFLE) program. The AFLE program is an interventional activity related affect which contribute to the changes in the health promoting outcomes (knowledge, attitude and practice). The concept of intervention with Adolescent Family Life Education (AFLE) program that causes the nursing intervention to be formalized and internalized into a commitment to oneself. AFLE directly influences the knowledge thereby the attitude and practice of adolescent girls about family life.

In the present study, it is presented that the adolescent girls in the experimental group, who had participated in the AFLE program will have an improvement in their knowledge, attitude and practice about family life which in turn will lead to health promoting outcome. And, among the girls who did not participate in the AFLE program (control group), there will not be any change in the knowledge, attitude and practice related to family life.

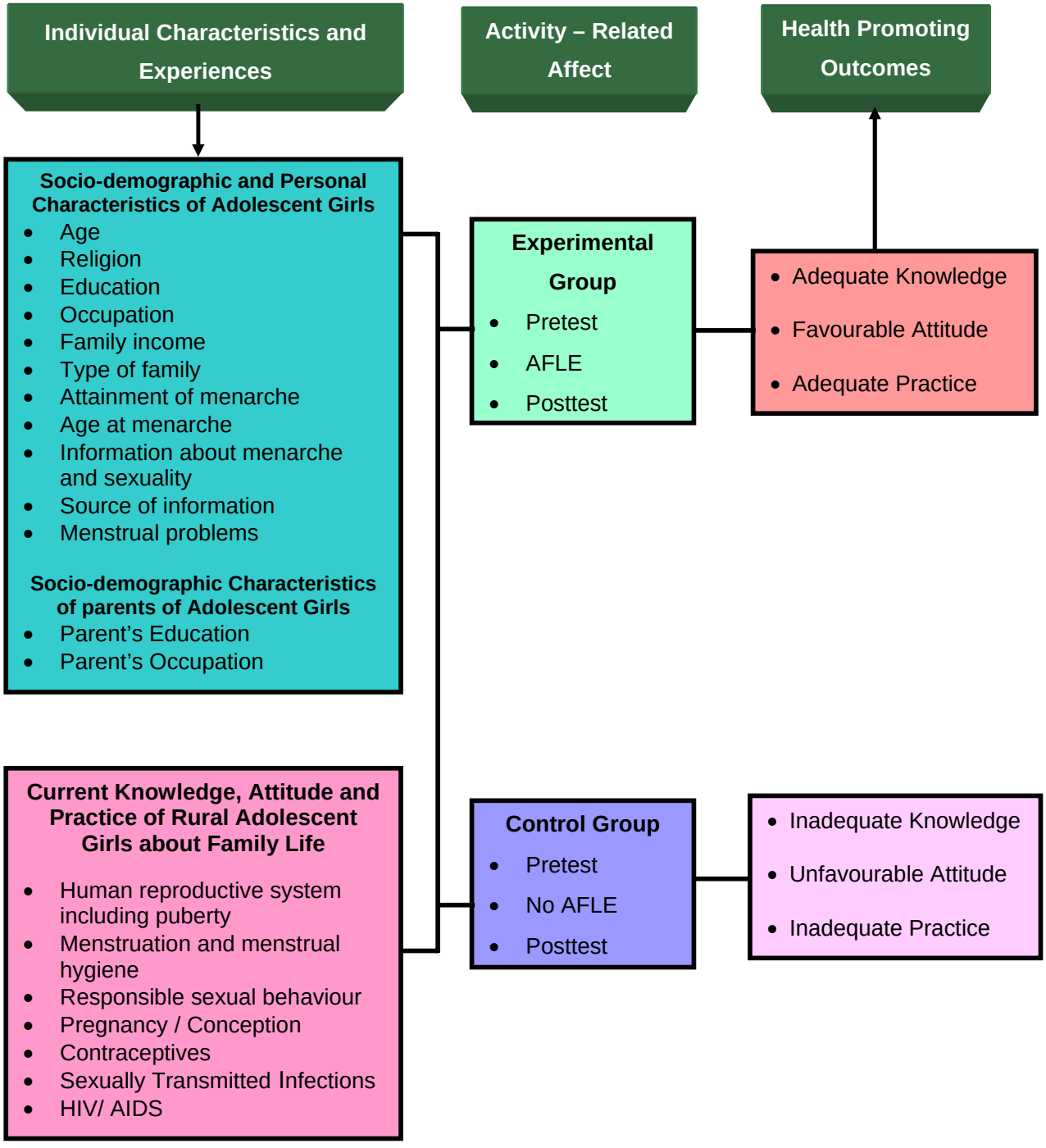

FIGURE 1. CONCEPTUAL FRAMEWORK

Based on Health Promotion Model by Pender, Murdaugh & Parsons (2002)

CHAPTER 3

METHODOLOGY

This study was aimed to assess the effectiveness of Adolescent Family Life Education (AFLE) program on adolescent girls' knowledge, attitude and practice in a rural community. This chapter describes the methodology adopted by the investigator to find the answer for the above mentioned research question.

3.1. RESEARCH DESIGN

An Experimental study with two group pretest-posttest design was selected to determine the effectiveness of Adolescent Family Life Education Program.

The randomized controlled experiment is the most powerful research design available for testing hypotheses of cause – effect relationship between variables and groups. This design was selected for this study since it yields the highest quality evidences regarding the effect of specific nursing interventions. The greatest strength of this design lies in the confidence with which the causal relationships can be inferred because of its special properties which includes manipulation, control and randomization.

In this study, the study subjects were allocated to control and experimental group by randomization. Randomization gave the investigator a greater confidence that the groups are comparable and it also ensured that the investigator had no control over allocation of study subjects to either the control or experimental group. The Adolescent Family life Education (AFLE) Program is an intervention used to manipulate the experimental group study subjects. The effect of AFLE Program (independent variable) on the adolescent girls'

knowledge, attitude and practice related to family life (dependent variables) was measured. In order to eliminate the observer bias, the outcome of the intervention was measured by a trained evaluator.

3.2. SETTING OF THE STUDY

The study was conducted in a rural community of 21 villages served by the College of Nursing Community Health (CONCH) Program area of Christian Medical College, (CMC) Vellore. The map of the CONCH program area and the study villages are shown in Appendix D. The population of Vellore District is 34,77,317, of which 21,69,319 (62.38%) live in rural areas and 13,07,998 (37.62%) live in urban areas. There are 2,16,539 adolescent girls in the age group of 10-19 years who live in rural areas of Vellore District (Registrar General and Census Commissioner, 2001). The CONCH program extends over 7-28kms from C.M.C. Vellore and covers a population of 35,000 belonging to Vellore and Arcot blocks of Vellore District. In the CONCH program area there are 2136 unmarried adolescent girls in the age group of 10-19 years. The main occupation of people is agriculture and majority of the population (96%) are Hindus.

Health care is provided by both Government and private health sectors. CONCH program provides services along with other existing government and private health infrastructure and voluntary organizations. A community health nurse covers a population of 3,000 and functions as an independent nurse practitioner. The types of health services that are provided by them include home visit services, clinic services, health education, special camps, school health program, mother's program, referral services, conducting training programs and research. The community health nurses provide comprehensive family care in terms of preventive, promotive and curative health services.

There are 18 schools in the CONCH program area which includes 8 primary schools, 5 middle schools, 3 high schools and 2 higher secondary schools. The literacy rate according to 2001 census in these villages was 56%. School health programs are conducted once in 15 days and the school children are screened for the health problems once in a year. In all these villages there are libraries which are being maintained by the village Youth (boys). They get daily news papers in the local language (Tamil). These libraries are used only by very few adolescent boys. There are no books or literatures on family life in these libraries.

Most of the houses have television in their houses which is the main recreation for them. All these villages have the village panchayat television which is being used only in the nights. There is a cinema theatre within the CONCH Program area and people also go to Arcot and Vellore for Cinemas (5 Kms away from the area). The local language spoken is Tamil. Some of these villages are situated on the Vellore – Chennai main road and the others are away from the main road and have minimum bus facilities. Two wheelers, bullock carts and auto rickshaws are also used by the people.

3.3. POPULATION

All unmarried adolescent girls in the age group of 13-19 years who are the permanent residents of a rural community in 21 villages served by the CONCH program area of Christian Medical College, Vellore.

3.4. SAMPLE

The sample included were 300 unmarried adolescent girls - 150 in the control and another 150 in the experimental group from 8 selected villages of CONCH program area. During the study period, after the pretest and after

participating in AFLE, one subject in the experimental group got married and moved out of CONCH Program area. Therefore, the experimental group consisted of 149 subjects.

3.5. SAMPLE SIZE

The sample size was determined to have a fairly large group for higher representation, for accurate estimation and for small sampling error. Based on the mean overall score of the pilot study and its standard deviation with a 95% Confidence Interval (CI), the sample size was estimated as 300. The study subjects were assigned by systematic random sampling method after group randomization - 150 in the control group and 150 in the experimental group. This amounts to taking the assessments of 300 subjects during the pretest and again during the posttest after a time interval of 2 months. Since, there were only 149 subjects in the experimental group, the total assessments were 598.

3.6. SAMPLING CRITERIA

Inclusion criteria

Adolescent girls who met the following criteria were included in the study:

- Age group of 13 -19 years.
- Unmarried adolescent girls who had not given birth.
- Permanent residents of CONCH program area.

Exclusion criteria

Adolescent girls who were:

- Not willing/not permitted by parents to participate in the study.
- Mentally retarded or suffering from psychiatric illnesses.

3.7. SAMPLING TECHNIQUE

Of the 21 CONCH villages, one village was used for focus group discussions in order to develop the instrument. Four villages were included in the pilot study. And so, these five villages were excluded from the main study. The investigator enumerated the baseline characteristics of the remaining 16 villages using the authenticated data from the Government sources as well as from the CONCH program. A house to house survey was done to identify all unmarried adolescent girls in the age group of 13-19 years. The villages were matched and made into pairs based on selected characteristics such as geographical location in terms of roadside or interior villages, total population, adolescent population of the villages, educational, recreational, health and communication facilities available within the villages.

From among the 16 villages, 8 villages had all these above mentioned characteristics and they were made into four pairs against the matching characteristics. These pairs were grouped by random blocking and they were allocated randomly as control and experimental group villages by simple random technique (lot method). From the obtained list of unmarried adolescent girls from these 8 villages, the subjects who met the inclusion criteria were identified and listed separately. Therefore, in the control group there were 321 eligible subjects from 4 villages. After getting the consent, 150 subjects were allocated using systematic random sampling method. In the same way in the experimental group, there were 318 eligible subjects, of which 150 of them were included in the study. Every second subject was included in the study. The adolescent girls who did not give consent were excluded from the study. There were 5 adolescent girls who were going to school from the control group village to the experimental group

village and they were also excluded from the study in order to prevent contamination. After the pretest and after going through the AFLE program, one adolescent girl from the experimental group got married and she moved out of the CONCH program area. This subject was not included in the study. And so the number of subjects in the experimental group was 149.

3.8. INSTRUMENT

3.8.1. Development of the instrument

The instrument used to assess the knowledge, attitude and practice of rural adolescent girls about selected aspects of family life was a structured interview guide (Appendix A1 and A2). The instrument was developed by the investigator from the literature review, input from the experts as well as from the data from the six focus group interviews. The focus group interviews were conducted on the selected aspects of family life – Human reproductive system including puberty, menstruation and menstrual hygiene, responsible sexual behaviour, pregnancy, contraceptives, and Sexually Transmitted Infections (STIs) including HIV/AIDS. The interviews were audio recorded and analysed manually. The transcripts were read through several times and coded to identify relevant themes and content to construct the interview guide. The instrument was developed by the investigator following a qualitative content analysis. A panel of ten experts was included for establishing the validity of the instrument. The suggestions from the experts were incorporated and necessary modifications were done in the instrument after the pilot study.

3.8.2. Description of the instrument

The structured interview guide consisted of four parts – Part I, Part II, Part III and Part IV.

Part I consisted of two sections

Section A : Socio-demographic characteristics of adolescent girls and their parents.

Section B : Personal characteristics of the adolescent girls.

The socio-demographic characteristics included the age, religion, educational status, occupational status of the adolescent girls, the monthly family income, the type of family and the educational and occupational status of their parents. The personal characteristics included information related to attainment of menarche, age at menarche, information received about menarche and sexuality, source of information, information related to sharing about sexuality as well as the presence of menstrual problems.

Part II consisted of Items on knowledge about the selected aspects of family life

Items 1-9	:	Human reproductive system including puberty
Items 10-13	:	Menstruation
Items 14-15 & 20	:	Pregnancy/Conception.
Items 16-19	:	Responsible sexual behavior
Items 21-26	:	Contraceptives.
Items 27-29	:	Sexually Transmitted Infections (STIs)
Items 30-35	:	HIV/AIDS

Part III consisted of practice items related to menstrual hygiene

Items 36-46	:	Menstrual hygienic practices

Part IV consisted of ten attitude statements related to selected aspects of family life which were assessed by a five point Likert scale. The Likert scale responses were scaled as: strongly agree, agree, uncertain, disagree and strongly disagree.

3.8.3. Scoring and interpretation

The information related to socio-demographic characteristics of adolescent girls and their parents as well as the personal characteristics of adolescent girls were not scored. The items concerning knowledge and practice related to family life in the AFLE instrument (Part II & Part III) were scored based on the number of correct answers. A score of 1 was given for every right answer and a score of 0 for every wrong answer. Some of the knowledge questions had more than one correct answer. The scores for those questions ranged from 1 to 4.

The resulting scores were interpreted as follows:

The total knowledge score was 65

Score of 49.5-65 (75-100%)	:	Adequate knowledge
Score of 33-49.4 (50-74.9%)	:	Moderately adequate knowledge
Score of 0-32.9 (0-49.9%)	:	Inadequate knowledge

The total practice score was 12

Score of 9-12 (75-100%)	:	Adequate practice
Score of 6-8.9 (50-74.9%)	:	Moderately adequate practice
Score of 0-5.9 (0-49.9%)	:	Inadequate practice

The positive responses in the attitude instrument (Part IV) were scored from 5 to 1 and negative responses were scored in the reverse order. The maximum score was 50.

The final scores were interpreted as follows:

Score of 37.5-50 (75%-100%)	:	Favourable attitude
Score of 25-37.4 (50%-74.9%)	:	Moderately favourable attitude
Score of 0-24.9 (0%-49.9%)	:	Unfavourable attitude

3.8.4. Validity and reliability of the Instrument

The content validity of the instrument was determined by getting the opinion from a panel of ten experts. The Content Validity Index (CVI) was calculated. The CVI for the instrument was 0.89 and the suggestions from the experts were incorporated and necessary modifications were made. The developed instrument was translated from English to Tamil by two different experts. Back translations were done. Discrepancies were identified and the retranslations were done to modify a few statements in the instrument. Validity and the reliability of the translated instrument were checked.

The reliability of the instrument was established by administering the instrument to 60 adolescent girls from both the control and experimental group during the pilot study. The internal consistency between items was computed using Cronbach's alpha as a measure of agreement between items. Analysis revealed an overall score of 0.89 indicating a strong internal consistency. The pretest was done by the investigator and the posttest was done by an evaluator trained by the investigator. The interrater reliability was established and it was found to be 0.93.

3.9. PILOT STUDY

A pilot study was done from April 2006 to August 2006. A house to house survey was done to get the list of unmarried adolescent girls in the age group of 13-19 years. Four of the CONCH villages were selected following the same matching characteristics and were grouped into two villages in each group. Group randomization was done by lot method to allocate as the control and experimental and group villages. 30 girls were selected from the control group villages and another 30 girls from the experimental group villages by systematic

random sampling method following the inclusion and exclusion criteria. The written consent was obtained from the study subjects and from their mothers. The pretest was done using the structured interview guide for control and experimental groups. The AFLE teaching module was administered to the experimental group subjects in two sessions for two hours each. The two sessions were conducted 15 days apart. Two months after the administration of AFLE, the posttest was done on both the control and experimental group subjects by an evaluator trained by the investigator. The evaluator was not informed about the names of control and experimental group villages. The interviews and the administration of AFLE program were done either in the village health centre or in the school considering the privacy and the comfort of the subjects. The study was found to be feasible. Few statements in the attitude scale were reworded.

3.10. DATA COLLECTION

The data collection was done for a period of one year from September 2006 to August 2007.The investigator established rapport with the subjects by making home visits. The purpose of the interview was explained to the subjects and their mothers. Written consent was obtained from the adolescent girls as well as from their mothers. The general timings of data collection were between 9am and 7pm from Mondays to Sundays, any time depending on the availability and the convenience of the study subjects. The subjects were interviewed separately and privately in Tamil either in the village health centre or in the school. Some of the girls wanted to answer themselves in the interview guide while explaining about each question and it lasted for 45 minutes to one hour.

The data were collected in six phases

Phase I: The investigator enumerated the baseline characteristics of CONCH villages from the authenticated Government sources as well as from the CONCH program. A house to house survey was done for period of 4 months to get the list of all unmarried adolescent girls in the age group of 13-19 years by the identified self help group woman or the trained village health worker. Orientation training was given to these women by the investigator regarding the purpose and details of the survey with the survey format. Locked houses were visited again to finalize the list.

Phase II: The study population was divided into two groups consisting of four villages in each group after matching, using selected characteristics like geographical location, total population and adolescent population of the villages, the educational, recreational, communication and heath facilities available. Groups were assigned as control and experimental group by using simple random method (lot method).

Phase III: Home visits were made to establish rapport and the study purpose and the details were explained to the mothers and the adolescent girls. Informed written consent was obtained from the study subjects as well as from their mothers. A separate list was made after considering the inclusion and exclusion criteria. The study subjects in both the groups were allocated using systematic random sampling method.

Phase IV: Pretest was done both in the control and experimental group by the investigator using the structured interview guide in Tamil. The interview took 45

minutes to one hour. It was conducted individually either in the village health center or in the school. Comfort, privacy and confidentiality were considered.

Phase V: INTERVENTION

The intervention used in the present experimental study was the Adolescent Family Life Education (AFLE) Program (Appendix B1 and B2). AFLE was developed by the investigator from the literature review as well as from the input from ten experts. It included the selected aspects of family life such as human reproductive system including puberty, menstruation, menstrual hygiene, responsible sexual behaviour, pregnancy, contraceptives and Sexually Transmitted Infections (STIs) including HIV/AIDS. The developed AFLE program was translated from English to Tamil by two different experts. Back translations were done. Discrepancies were identified and the retranslations were done to modify the AFLE program.

The validity of the AFLE program was established by the opinion of a panel of ten experts and by doing a pilot study. The suggestions from the experts were incorporated and necessary modifications were done after the pilot study. The Content Validity Index (CVI) of the AFLE program was 0.93. The experimental group subjects (150) were divided into 15 smaller groups. Each group consisted of 10 subjects. The adolescent girls were consulted for their convenient time and were informed in advance about the AFLE program.

The AFLE program was conducted in the village centers by the investigator in two sessions. The topics covered in the first session were human reproductive system including puberty, menstruation, menstrual hygiene and responsible sexual behaviour. The second session topics were pregnancy, contraceptives and Sexually Transmitted Infections (STIs) including HIV/AIDS.

The second session was conducted after a gap of 15 days. The planned duration of each session was 2 hours. But, it lasted for 2-3 hours since the subjects had lot of clarifications and the discussions went on for an hour after the session. The teaching methods used were lecture, discussion and demonstration. Appropriate audiovisual aids such as flip chart, posters and models were used as teaching aids. Comfort, privacy and confidentiality were maintained.

Phase VI: Posttest was done by an evaluator trained by the investigator both in the control and experimental group after 2 months to avoid the observer bias. Single blinding was used. The evaluator was not informed about the names of the control and experimental group villages.

3.11. DATA ANALYSIS

The collected data were arranged and analysed using the SPSS (Statistical Packages for Social Sciences) Computer program-11 Version.

- Descriptive statistics such as frequencies, percentages, mean and Standard Deviation were used to describe the socio-demographic and personal characteristics of the study subjects and their parents
- The independent ‘t’ test was used to find the difference in the mean scores between control and experimental group.
- The paired ‘t’ test was used to find the difference in mean scores before and after AFLE both within the control and experimental group.
- Pearson correlation coefficient (r) was used to find the relationship between knowledge, attitude and practice of adolescent girls about family life before (Pretest) and after AFLE (Posttest).

- Chi Square was used to determine the association between knowledge attitude, and practice of adolescent girls and the selected socio-demographic and personal characteristics of adolescent girls (age, religion, education, occupation, type of family, family income, attainment of menarche, age at menarche, information received about menarche and sexuality, sharing information about sexuality and presence of menstrual problems) and the socio-demographic characteristics of their parents (education and occupation).

For the purpose of calculation of Chi square similar socio-cultural and personal characteristics were grouped together.

3.12. ETHICAL CONSIDERATIONS

Subjects who fulfilled the inclusion criteria and their mothers were given an explanation about the study and were asked about their willingness to participate in the study. Signature or thumb impression was obtained in the consent form (Appendix - C1 and C2) from the subjects as well as from their mothers. Verbal permission was obtained from the village leaders of the study area as well as from the Deputy Director of Health Services, Vellore. Permission was obtained from the Head of Community Health Nursing Department and Dean, College of Nursing to conduct the study in the CONCH program area. The study was approved by the Ph.D Advisory committee and the ethical clearance was given by the College of Nursing Research Committee (Appendix-E). Anonymity, and confidentiality of the subjects were maintained .Privacy was provided during data collection as well as during the administration of AFLE. AFLE program was conducted for the control group subjects after the study period was over.

CHAPTER 4
RESULTS

The findings of the study to determine the effectiveness of Adolescent Family Life Education (AFLE) program on adolescent girls' knowledge, attitude and practice in a rural community are presented in this chapter. The data collected from 299 unmarried adolescent girls (150 - control group and 149 - experimental group) were summarized, compared and inferences were drawn based on the objectives and hypotheses.

Descriptive statistics were used to present the socio-demographic and personal characteristics of adolescent girls as well as the socio- demographic characteristics of their parents. Chi-square was used to find the equivalency of characteristics among the subjects between control and experimental groups. Descriptive statistics (frequency and percentages) were used to present the level of knowledge, attitude and practice of adolescent girls about family life during pretest and posttest in both the groups.

The paired 't' test was used to compare the pretest and posttest mean scores on knowledge, attitude and practice of adolescent girls about family life within the control as well as within the experimental group. The student t' test was used to compare the mean score differences in knowledge, attitude and practice of adolescent girls about family life between control and experimental groups. Pearson's correlation coefficient ('r') was used to find the relationship between knowledge, attitude and practice. Chi-square was used to find the association of knowledge, attitude and practice of adolescent girls about family life with their selected socio-demographic and personal characteristics and the socio-

demographic characteristics of their parents. The statistical significance was defined as $p < 0.05$. The results of the study are organized under the following headings:

Organization of the findings:

Section I

Section I presents the characteristics of Adolescent girls and their parents

a) Socio-demographic characteristics of adolescent girls
b) Personal characteristics of adolescent girls
c) Socio-demographic characteristics of the parents of adolescent girls

Section II

This section presents the pretest and posttest knowledge, attitude and practice of adolescent girls about family life in the control and experimental group.

a) Distribution of adolescent girls based on their pretest and posttest knowledge about family life in the control and experimental group
b) Distribution of adolescent girls based on their overall attitude towards family life during pretest and posttest in both the groups.
c) Distribution of adolescent girls based on their pretest and posttest practice related to menstrual hygiene in both the groups.

Section III

This section presents the effectiveness of Adolescent Family Life Education (AFLE) program on knowledge, attitude and practice of adolescent girls about family life.

a) Comparison of pretest posttest mean scores on knowledge, attitude and practice of adolescent girls about family life within the control and experimental groups.
b) Comparison of mean score differences in the pretest and posttest on knowledge, attitude and practice of adolescent girls about family life between control and experimental groups.

Section IV

This section deals with the relationship between knowledge, attitude and practice of adolescent girls about family life in both the groups.

a) Correlation between knowledge, attitude and practice of adolescent girls about family life during pretest in both the groups.
b) Correlation between knowledge, attitude and practice of adolescent girls about family life during posttest in both the groups.

Section V

This section presents the association between knowledge, attitude and practice about family life during pretest and selected socio-demographic and personal characteristics of adolescent girls as well as the socio-demographic characteristics of their parents in both the groups.

a) Association between knowledge on family life and selected socio-demographic and personal characteristics of adolescent girls as well as the socio-demographic characteristics of their parents in the control and experimental group.

b) Association between attitude towards family life and selected socio-demographic, and personal characteristics of adolescent girls as well as the selected socio demographic characteristics of their parents in both the groups.

c) Association between practice related to menstrual hygiene and selected socio demographic and personal characteristics of adolescent girls as well as the selected socio demographic characteristics of their parents in both the groups.

SECTION I

Section I presents the socio-demographic and personal characteristics of adolescent girls. It also deals with the selected socio demographic characteristics of their parents. To find the equivalency of socio-demographic and personal characteristics of adolescent girls and their parents between control and experimental groups, Chi-square was used. The data are presented in Tables 2, 3,4 and Figures 2,3,4,5,6, and 7.

Table 2

Distribution of adolescent girls based on their socio demographic characteristics

S. No.	Variables	Control Group (n=150)		Experimental Group (n=149)		χ^2 value	df	'p' value
		No.	%	No	%			
1.	***Age (in years)***							
	13 – 15	107	71.4	105	70.5	0.59	2	0.97
	16 – 17	32	21.3	32	21.5			
	18 -19	11	7.3	12	8.0			
2.	***Educational Status***							
	Illiterate	1	0.7	-	-	1.41	2	0.49
	Upto middle school	10	6.7	14	9.4			
	High school	73	48.6	79	53.0			
	HSC and Above	66	44.0	56	37.6			
3.	***Occupational Status***							
	Working	15	10.0	9	6.1	1.62	2	0.45
	Not working	16	10.7	16	10.7			
	Students	119	79.3	124	83.2			
4.	***Family Income (Monthly)***							
	< Rs. 3000	103	68.7	92	61.7	2.98	2	0.23
	Rs. 3001 – 5000	37	24.6	39	26.2			
	Rs. 5001 – 10,000	9	6.0	14	9.4			
	> Rs. 10,000	1	0.7	4	2.7			
5.	***Type of family***							
	Nuclear family	118	78.7	121	81.2	0.66	1	0.34
	Joint family	29	19.3	22	14.8			
	Extended family	3	2.0	6	4.0			

Table 2 shows that majority of the adolescent girls were in the age group of 13 – 15 years both in the control (71.4%) and experimental group (70.5%). Majority of the adolescent girls were students who had education upto high school both in the control (92.6%) and experimental group (90.6%). Most of them had a monthly family income of less than Rs.3000/- both in the control (68.7%) and experimental group (61.7%). Majority of the adolescent girls live in nuclear families in both the groups (78.7%, 81.2%).

It was observed from table 2 that the socio-demographic characteristics of adolescent girls were similar in both the groups.

Figure 2 reveals that majority of the adolescent girls both in the control (96.7%) and experimental group (93.3%) belonged to Hindu by religion. It is further noted that there were no Muslim adolescent girls in the experimental group. The difference found between control and experimental groups in terms of their religion was statistically significant ($p<0.05$).

Table 3

Distribution of adolescent girls based on their personal characteristics

S. No.	Variables	Control Group (n=150)		Experimental Group (n=149)		χ^2 value	df	'p' value
		No.	%	No	%			
1	***Attainment of menarche***							
	Yes	129	86.0	108	72.5	9.12	1	0.00**
	No	21	14.0	41	27.5			
2.	***Information received about menarche***							
	Yes	33	22.0	58	38.9	10.21	1	0.00**
	No	117	78.0	91	61.1			
2a.	***If yes, source of information about menarche***							
	Family members	23	69.7	22	37.9	14.70	3	0.00**
	Friends	7	21.2	13	22.4			
	Health Personnel	2	6.1	23	39.7			
	Teachers	1	3.0	-	0.0			
3.	***Information received about sexuality***							
	Yes	8	5.3	-	-	8.17	1	0.00*
	No	142	94.7	149	100.0			
4.	***Talk about sexuality with others***							
	Yes	1	0.7	-	-	0.99	1	1.00
	No	149	99.3	149	100.0			

* $p < 0.05$, ** $p < 0.01$

Table 3 shows that majority of the adolescent girls had attained menarche in the control and experimental group (86%, 72.5%) respectively. In the control group, 5.3% of them had received information about sexuality from television and cinema and only one girl had talked about sex with her friend. It was surprising to

note that none of the adolescent girls in the experimental group neither received information about sexuality nor they talked about sexuality with others. Findings reveal that the two groups differed significantly in all personal characteristics except in talking about sexuality with others. This is not so with the socio-demographic characteristics.

Among all the study subjects who had attained menarche (237) majority of them had menstrual problems which is shown in figure 6 and 7.

Figure 3 reveals that majority of the adolescent girls had attained menarche between 10 -13 years in both the groups (58.9%, 50.9%) and the difference between control and experimental groups was found to be statistically significant ($P < 0.05$). The mean age at menarche among the control group girls was 12.67 and among the experimental group girls, it was 12.26.

Figure 4 explains that among all the study subjects (299), only 30.4% of adolescent girls received information about menarche before attaining puberty. Majority of them (69.6%) did not receive any information about menarche before attaining puberty.

From figure 5, it is noted that among all the study subjects (299), highest percentage of them (49.5%) received information about menarche from their family members, and the next highest from the health personnel (27.5%). The least source of information regarding menarche was from school teachers.

From figure 5, it is noted that among all the study subjects (299), highest percentage of them (49.5%) received information about menarche from their family members, and the next highest from the health personnel (27.5%). The least source of information regarding menarche was from school teachers.

Figure 6 depicts that among all the study subjects, relatively a higher proportion of study subjects (81.4%) suffered from various menstrual problems. The type of menstrual problems with which the adolescent girls suffered is shown in the next figure.

Figure 6 depicts that among all the study subjects, relatively a higher proportion of study subjects (81.4%) suffered from various menstrual problems. The type of menstrual problems with which the adolescent girls suffered is shown in the next figure.

Table 4

Socio-demographic characteristics of parents of adolescent girls

S. No.	Variables	Control Group (n=150)		Experimental Group (n=149)		χ^2 value	df	'p' value
		No.	%	No	%			
1.	***Education of mothers***					1.82	2	0.40

	Illiterate	39	26.0	29	19.5			
	Upto middle school	77	51.3	83	55.7			
	High school & above	34	22.7	37	24.8			
2.	***Occupation of mothers***							
	Unskilled workers	39	26.0	50	33.6			
	Semiskilled & skilled workers	11	7.3	4	2.7	4.75	2	0.09
	House wives	100	66.7	95	63.7			
3.	***Education of fathers***							
	Illiterate	21	14.0	17	11.4			
	Upto middle school	55	36.7	57	38.3	0.63	3	0.89
	High school	52	34.7	55	36.9			
	HSC and above	22	14.6	20	13.4			
4.	***Occupation of fathers***							
	Unskilled workers	89	59.3	81	54.4			
	Semiskilled & skilled workers	48	32.0	55	36.9	0.85	2	0.65
	Not working	13	8.7	13	8.7			

Table 4 depicts that majority of the mothers of adolescent girls have studied upto middle school both in the control and experimental groups (51.3%, 55.7%) respectively. Most of their mothers were housewives in the control (66.7%) and experimental group (63.8%). Among the fathers of adolescent girls, least proportion of them were illiterates in the control (14%) and experimental

group (11.4%). Majority of their fathers had high school and above education both in the control (49.3%) and experimental groups (50.3%). Almost a similar proportion of their fathers were working and most of them were involved in unskilled work both in the control (59.3%) and experimental (54.4%) group.

The findings revealed that there was no significant difference found between control and experimental groups which indicated that the parents of adolescent girls in both the groups had similar socio-demographic characteristics.

SECTION II

This section deals with the frequency distribution of adolescent girls based on their knowledge, attitude and practice about family life during pretest and

posttest in the control and experimental group. Frequency distribution was used for analysis and the results are presented in Tables 5 to 11 and Figures 8 to 12.

Table 5

Distribution of adolescent girls based on overall knowledge about family life during pretest and posttest in the Control group

n = 150

S. No.	Level of Knowledge	Pretest		Posttest	
		No.	%	No	%
1.	Moderately adequate	5	3.3	5	3.3
2.	Inadequate	145	96.7	145	96.7
	Total	150	100.0	150	100.0

Table 5 shows that none of the adolescent girls had adequate knowledge about family life and majority of them had inadequate knowledge (96.7%) about family life during pretest and posttest in the control group.

It is seen from Figure 8 that the knowledge of adolescent girls about family life during pretest was found to be inadequate in majority of the adolescent girls (98%) and none of them had adequate knowledge. During posttest 45% of the adolescent girls had adequate knowledge, 54.3% of them had moderately adequate knowledge and only 0.7% had inadequate knowledge about family life.

Table 6

Distribution of adolescent girls based on knowledge about selected aspects of family life during pretest in Control group.

S. No	Aspects of family life	Control Group (n = 150)					
		A		MA		IA	
		No	%	No	%	No	%
1.	Human reproductive system	2	1.3	11	7.3	137	91.4
2.	Menstruation	7	4.7	40	26.7	103	68.6
3.	Sexual behavior	1	0.7	5	3.3	144	96.0
4.	Pregnancy	1	0.7	5	3.3	144	96.0
5.	Contraceptives	-	-	2	1.3	148	98.7

6.	Sexually Transmitted Infections	-	-	1	0.7	149	99.3
7.	HIV/AIDS	7	4.7	18	12.0	125	83.3

A = Adequate
MA = Moderately Adequate
IA = Inadequate

Table 6 indicates that in the control group, majority of the adolescent girls had inadequate knowledge in all aspects of family life during pretest.

Table 7

Distribution of adolescent girls based on knowledge about selected aspects of family life during posttest in Control group.

S. No	Aspects of family life	Control Group (n = 150)					
		A		MA		IA	
		No	%	No	%	No	%
1.	Human reproductive system	3	2.0	16	10.7	131	87.3
2.	Menstruation	9	6.0	72	48.0	69	46.0
3.	Sexual behavior	1	0.7	11	7.3	138	92.0
4.	Pregnancy	2	1.3	7	4.7	141	94.0
5.	Contraceptives	-	-	2	1.3	148	98.7

6.	Sexually Transmitted Infections	-	-	2	1.3	148	98.7
7.	HIV/AIDS	10	6.7	29	19.3	111	74.0

A = Adequate
MA = Moderately Adequate
IA = Inadequate

Table 7 highlights that majority of the adolescent girls in the control group had inadequate knowledge about all aspects of family life in the posttest except in the aspect of menstruation.

Table 8

Distribution of adolescent girls based on knowledge about selected aspects of family life during pretest in Experimental group.

S. No	Aspects of family life	Experimental Group (n = 149)					
		A		MA		IA	
		No	%	No	%	No	%
1.	Human reproductive system	-	-	4	2.7	145	97.3
2.	Menstruation	9	6.0	35	23.5	105	70.5
3.	Sexual behavior	1	0.7	3	2.0	145	97.3
4.	Pregnancy	1	0.7	2	1.3	146	98.0

5.	Contraceptives	-	-	3	2.0	146	98.0
6.	Sexually Transmitted Infections	-	-	4	2.7	145	97.3
7.	HIV/AIDS	5	3.4	11	7.4	133	89.2

A = Adequate
MA = Moderately Adequate
IA = Inadequate

Table 8 depicts that in the experimental group, majority of the adolescent girls had inadequate knowledge about all selected aspects family life during pretest.

Table 9

Distribution of adolescent girls based on knowledge about selected aspects of family life during posttest in Experimental group.

S. No	Aspects of family life	Experimental Group (n = 149)					
		A		MA		IA	
		No	%	No	%	No	%
1.	Human reproductive system	114	76.5	29	19.5	6	4.0
2.	Menstruation	114	76.5	35	23.5	-	-
3.	Sexual behavior	42	28.2	88	59.1	19	12.7

4.	Pregnancy	81	54.4	57	38.2	11	7.4
5.	Contraceptives	99	66.4	45	30.2	5	3.4
6.	Sexually Transmitted Infections	25	16.8	87	58.4	37	24.8
7.	HIV/AIDS	112	75.2	35	23.5	2	1.3

A = Adequate
MA = Moderately Adequate
IA = Inadequate

It is seen from table 9 that in the experimental group, majority of the adolescent girls had adequate knowledge about all aspects of family life except in the aspects of sexual behaviour and Sexually Transmitted Infections during posttest. The knowledge on these two aspects was found to be moderately adequate in majority of the adolescent girls.

Table 10

Distribution of adolescent girls based on attitude towards family life during pretest and posttest in Control group

(n = 150)

S. No.	Attitude	Pretest		Posttest	
		No.	%	No	%
1.	Favourable	23	15.3	18	12.0

2.	Moderately Favourable	124	82.7	130	86.7
3.	Unfavourable	3	2.0	2	1.3
	Total	150	100.0	150	100.0

Table 10 reveals that in the control group, majority of the adolescent girls had moderately favourable attitude towards family life during pretest (82.7%) and posttest (86.5%).

Figure 9 explains that in the experimental group, the attitude towards family life during pretest was moderately favourable in majority of the adolescent girls (89.2%) whereas during posttest, majority of them (68.5%) had favourable attitude and none of them had unfavourable attitude towards family life.

From Figure 10, it is seen that majority of the adolescent girls expressed that AFLE is needed both during pretest and posttest (68%, 80% respectively) in the control group. Both during pretest and posttest, a smaller proportion of the subjects said that the AFLE is not needed (13.3%, 11.3%) respectively.

Figure 12 depicts that among the girls who had attained menarche, in the experimental group only 26.9% of the adolescent girls had adequate practice and majority of them (58.3%) had moderately adequate practice during pretest. The practice of adolescent girls related to menstrual hygiene during posttest was found to be adequate in majority of them (92.8%) and none of them had inadequate practice.

SECTION III

This section presents the comparison of pretest and posttest mean scores on overall knowledge, attitude and practice of adolescent girls about family life within the control group as well as within the experimental group (Tables12, 13, 14 and 15). It also deals with the mean score differences in

knowledge, attitude and practice of adolescent girls during pretest and posttest between control and experimental groups (Tables 16, 17 and Figure 13).

Table 12

Comparison of pretest and posttest mean scores on overall knowledge, attitude and practice about family life in Control group

Variables	Control Group (n = 150)						Paired 't' value	df	p value
	Pretest		Posttest		Mean Diff	SD			
	Mean	SD	Mean	SD					
Knowledge	14.0	8.0	15.8	8.1	1.8	2.0	10.921***	149	0.000
Attitude	33.8	4.0	33.4	3.7	0.4	1.3	3.607***	149	0.000
Practice	5.9	1.8	5.6	1.6	-0.3	1.1	3.236**	128	0.002

** $p < 0.01$, *** $p < 0.001$

It is seen from table 12 that in the control group, there was a highly significant difference ($P < 0.001$) found between the pretest and posttest mean scores on overall knowledge and attitude of adolescent girls about family life. The difference between the pretest and posttest mean scores on practice of adolescent girls about family life was also found to be statistically significant ($p<0.01$).

Table 13

Comparison of pretest and posttest mean scores on overall knowledge, attitude and practice about family life in Experimental group

Variables	Experimental Group (n = 149)						Paired 't' value	df	p value
	Pretest		Posttest		Mean Diff	SD			
	Mean	SD	Mean	SD					
Knowledge	11.4	8.2	49.3	7.2	37.9	8.3	55.865***	148	0.000
Attitude	32.7	4.0	39.5	3.7	6.8	4.6	18.012***	148	0.000
Practice	6.4	1.8	8.5	1.7	2.1	1.9	11.434***	107	0.000

*** $p < 0.001$

Table 13 shows that in the experimental group, there was a highly significant difference found between the pretest and posttest mean scores on overall knowledge, attitude and practice of adolescent girls about family life ($p<0.001$).

Table 14

Comparison of pretest and posttest mean scores on knowledge about selected aspects of family life in Control group

S. NO	Variables	Control Group (n = 150)						Paired 't' Value	df	p value
		Pretest		Posttest		Mean Diff	SD			
		Mean	SD	Mean	SD					
1.	Human reproductive System	3.5	2.1	3.9	2.2	0.4	0.8	6.079***	149	0.000
2.	Menstruation	2.0	1.0	2.4	1.0	0.4	0.7	6.965***	149	0.000
3.	Sexual behavior	2.5	2.4	2.8	2.4	0.3	0.7	6.179***	149	0.000
4.	Pregnancy	0.5	0.6	0.6	0.7	0.1	0.4	1.534	149	0.127
5.	Contraceptives	0.7	1.2	0.8	1.2	0.1	0.42	1.744	149	0.083
6.	Sexually Transmitted Infections	0.7	0.9	0.8	1.0	0.1	0.3	3.415**	149	0.001
7.	HIV/AIDS	4.1	2.7	4.6	2.9	0.5	0.82	6.738***	149	0.000

** $p < 0.01$, *** $p < 0.001$

Table 14 indicates that in the control group, there were significant differences found between the pretest and posttest mean scores of adolescent girls' knowledge about human reproductive system including puberty ($p<0.001$), menstruation($p<0.001$), sexual behaviours ($p<0.001$), Sexually Transmitted Infections ($p<0.01$) and HIV/AIDS ($p<0.001$) except in the aspects of pregnancy and contraceptives.

Table 15

Comparison of pretest and posttest mean scores on knowledge about selected aspects of family life in Experimental group

S. NO	Variables	Experimental Group (n = 149)						Paired 't' value	df	p value
		Pretest		Posttest		Mean Diff	SD			
		Mean	SD	Mean	SD					
1.	Human reproductive system	2.7	1.8	10.5	1.8	7.8	2.4	40.069***	148	0.000
2.	Menstruation	1.7	1.3	3.9	0.7	2.2	1.3	21.429***	148	0.000
3.	Sexual behavior	1.9	2.0	9.1	2.5	7.3	2.5	35.795***	148	0.000
4.	Pregnancy	0.4	0.6	2.5	0.8	2.1	0.9	27.426***	148	0.000
5.	Contraceptives	0.7	1.2	8.0	1.8	7.3	2.0	43.978***	148	0.000
6.	Sexually Transmitted Infections	0.5	1.0	4.3	1.2	3.8	1.2	38.206***	148	0.000
7.	HIV/AIDS	3.4	2.7	10.9	1.8	7.4	2.8	32.387***	148	0.000

*** $p < 0.001$

Table 15 shows that in the experimental group, there were significant differences found between the pretest and posttest mean scores of adolescent girls' knowledge about all selected aspects of family life and the differences were found to be highly significant ($p<0.001$).

Table 16

Comparison of pretest and posttest mean score differences in knowledge, attitude and practice between Control and Experimental groups

Variables	Control Group (n = 150)	Experimental Group (n = 149)	't' Value	df	'p' value
Knowledge					
Mean Difference	1.8	37.9	51.772	297	0.000***
SD	2.0	8.3			
Attitude					
Mean Difference	0.4	6.8	18.308	297	0.000***
SD	1.3	4.6			
Practice					
Mean Difference	-0.3	2.1	11.631	235	0.000***
SD	1.1	1.9			

*** p <0.001

Table 16 depicts that there was a highly significant difference in the mean score differences of pretest and posttest on knowledge, attitude and practice of adolescent girls about family life between control and experimental groups.

From figure 13, it is noted that in the experimental group, the mean score difference on overall knowledge of adolescent girls about family life is much higher (37.93) compared to the control group (1.78). The mean score differences in overall attitude and practice are also more in the experimental group compared to the control group.

Table 17

Comparison of pretest and posttest mean score differences on knowledge about selected aspects of family life between Control and Experimental groups.

S. No.	Aspects of Family Life	Control Group (n = 150)		Experimental Group (n = 149)		't' value	df	'p' value
		Mean Diff	SD	Mean Diff	SD			
1.	Human reproductive System	0.4	0.8	7.8	2.4	36.322	177	0.000***
2.	Menstruation	0.4	0.7	2.2	1.3	15.317	232	0.000***
3.	Sexual behaviour	0.3	0.7	7.3	2.5	32.933	169	0.000***
4.	Pregnancy	0.1	0.4	2.1	0.9	24.846	195	0.000***
5.	Contraceptives	0.1	0.4	7.3	2.0	42.713	160	0.000***
6.	Sexually Transmitted Infections	0.1	0.3	3.8	1.2	35.916	170	0.000***
7.	HIV/AIDS	0.5	0.8	7.4	2.8	29.178	173	0.000***

*** $p < 0.001$

Table 17 shows that the mean score differences on knowledge about all selected aspects of family life between control and experimental groups were found to be highly significant ($p < 0.001$).

SECTION IV

In this section, the findings of the correlation between knowledge, attitude and practice of adolescent girls about family life in both the groups combined (n=299) during pretest and posttest are presented in Tables 18 and 19.

Table 18

Correlation between Pretest knowledge, attitude and practice about family life

n = 299

S. No	Variables	r
1.	Knowledge and attitude	0.348**
2.	Knowledge and practice	0.089
3.	Attitude and practice	-0.123

** $p < 0.01$

Table 18 reveals that there was a positive correlation found between pretest knowledge and attitude of adolescent girls about family life and the correlation was statistically significant at $p < 0.01$.

Table 19

Correlation between Posttest knowledge, attitude and practice of adolescent girls about family life

n = 299

S. No	Variables	r
1.	Knowledge and attitude	0.659**
2.	Knowledge and practice	0.631**
3.	Attitude and practice	0.351**

** $p < 0.01$

Table 19 reveals that there was a positive correlation found between posttest knowledge and attitude, knowledge and practice, attitude and practice and the correlation was found to be highly significant ($p < 0.01$).

SECTION V

This section presents the association between the pretest knowledge, attitude and practice about family life and selected socio-demographic and

personal characteristics of the adolescent girls. The association between knowledge, attitude and practice of adolescent girls about family life and selected socio demographic characteristics of their parents is also presented in this section.

The Chi-square was done to get the findings and the results are presented in Table 20 to 28.

Table 20

Association between knowledge and socio-demographic characteristics of adolescent girls

n = 299

S. No.	Variables	Level of Knowledge				χ^2 value	df	'p' value
		Moderately adequate		Inadequate				
		No.	%	No	%			
1.	***Age (in years)***							
	13 – 15	4	1.9	208	98.1	1.74	1	0.24
	16 – 19	4	4.6	83	95.4			
2.	***Religion***							
	Hindu	8	2.8	276	97.2	0.43	2	1.00
	Others	-	-	15	100.0			
3.	***Education***							
	Upto High school	3	1.7	174	98.3	1.60	1	0.28
	HSC & above	5	4.1	117	95.9			
4.	***Occupation***							
	Working	1	4.2	23	95.8			
	Not working	1	3.1	31	96.9	0.27	2	0.87
	Students	6	2.5	237	97.5			
5.	***Family income***							
	< Rs. 3000	5	2.6	190	97.4			
	Rs. 3001 – 5000	1	1.3	75	98.7	2.69	2	0.26
	> Rs. 5000	2	7.1	26	92.9			
6.	***Type of family***							
	Nuclear	7	2.9	232	97.1	2.93	1	1.00
	Joint and Extended	1	1.7	59	98.3			

Table 20 depicts that there was no association found between the knowledge and selected socio-demographic characteristics of adolescent girls.

Table 21

Association between knowledge and personal characteristics of adolescent girls

n = 299

S. No.	Variables	Level of knowledge				$\chi 2$ value	df	'p' value
		Moderately adequate		Inadequate				
		No.	%	No	%			
1.	***Attainment of menarche***							
	Yes	8	3.4	228	96.6	2.19	1	0.21
	No	-	-	63	100.0			
2.	***Age at menarche (years)#***							
	10 -13	7	5.3	124	94.7	1.33	1	0.30
	14 – 16	2	1.9	104	98.1			
3.	***Information received about menarche***							
	Yes	4	4.4	87	95.6	1.49	1	0.25
	No	4	1.9	204	98.1			
4.	***Information received about sexuality***							
	Yes	-	-	8	100	0.23	1	1.00
	No	8	2.7	283	97.3			
5.	***Talk about sexuality with others***							
	Yes	-	-	1	100.0	0.03	1	1.00
	No	8	2.7	290	97.3			

n =237 (subjects who had attained menarche)

Table 21 shows that there was no association found between knowledge and selected personal characteristics of adolescent girls.

Table 22

Association between knowledge of adolescent girls and socio-demographic characteristics of their parents

n = 299

S. No.	Variables	Level of knowledge				χ^2 value	df	'p' value
		Moderately adequate		Inadequate				
		No.	%	No	%			
1.	***Education of mothers***							
	Upto middle school	8	3.5	220	96.5	2.56	1	0.21
	High school & above	-	-	71	100.0			
2.	***Occupation of mothers***							
	Unskilled	2	2.2	87	97.8	0.09	1	1.000
	Semiskilled & skilled	6	2.9	204	97.1			
3.	***Education of fathers***							
	Upto middle school	5	3.3	145	96.7	0.50	1	0.72
	High school & above	3	2.0	146	98.0			
4.	***Occupation of fathers***							
	Unskilled	3	1.8	167	98.2			
	Semi skilled & skilled	3	2.9	100	97.1	3.08	2	0.22
	Unemployed	2	7.7	24	92.3			

It is noted from table 22 that there was no significant association found between knowledge of adolescent girls and the socio-demographic characteristics of their parents.

Table 23

Association between attitude and socio-demographic characteristics of adolescent girls

n = 299

S. No.	Variables	Level of Attitude				χ^2 value	df	'p' value
		FA & MFA		UFA				
		No	%	No	%			
1.	***Age (in Years)***							
	13-15	208	98.1	4	1.9	1.66	1	0.33
	16-19	87	100.0	-	-			
2.	***Religion***							
	Hindu	281	98.9	3	1.1	3.40	1	0.19
	Others	14	93.3	1	6.7			
3.	***Education***							
	Upto High School	174	98.3	3	1.7	0.42	1	0.65
	HSC & above	121	99.2	1	0.8			
4.	**Occupation**							
	Working	24	100.0	-	-			
	Not Working	31	96.9	1	3.1	1.12	2	0.57
	Student	240	98.8	3	1.2			
5.	**Family income (monthly)**							
	<Rs. 3000	192	98.5	3	1.5			
	Rs. 3001 – 5000	75	98.7	1	1.3	0.44	2	0.80
	> Rs. 5000	28	100.0	-	-			
6.	**Type of family**							
	Nuclear	237	99.2	2	0.8	2.27	1	0.18
	Joint & extended	58	96.7	2	3.3			

FA = Favourable Attitude, MFA = Moderately Favourable Attitude,
UFA = Unfavourable Attitude

From table 23, it is seen that there was no significant association found between attitude and selected socio-demographic characteristics of adolescent girls.

Table 24

Association between attitude of adolescent girls and their personal characteristics

n = 299

S. No.	Variables	Level of Attitude				χ^2 value	df	'p' value
		FA & MFA		UFA				
		No	%	No	%			
1.	***Attainment of menarche***							
	Yes	235	99.6	1	0.4	7.09	1	0.03*
	No	60	95.2	3	4.8			
2.	***Age at menarche (years)#***							
	10 – 13	130	99.2	1	0.8	1.23	1	0.45
	14 -16	105	99.1	1	0.9			
3.	***Information received about menarche***							
	Yes	90	98.9	1	1.1	0.06	1	1.00
	No	205	98.6	3	1.5			
4.	***Information received about sexuality***							
	Yes	8	100.0	-	-	0.11	1	1.00
	No	287	98.6	4	1.3			
5.	***Talk about sexuality with others***							
	Yes	1	100	-	-	0.01	1	1.00
	No	294	98.7	4	1.3			

 # n = 237 (subjects who had attained menarche)

* P < 0.05

FA = Favourable Attitude, MFA = Moderately Favourable Attitude

UFA = Unfavourable Attitude

Table 24 reveals that there was an association found between attitude of adolescent girls and the attainment of menarche which was statistically significant ($p < 0.05$) which indicates that the subjects who had attained menarche had a better attitude towards family life.

Table 25

Association between attitude of adolescent girls and socio-demographic characteristics of their parents

n = 299

S. No.	Variables	Level of Attitude				$\chi 2$ value	df	'p' value
		FA & MFA		UFA				
		No	%	No	%			
1.	***Education of mothers***							
	Upto middle school	224	98.2	4	1.8	1.26	1	0.58
	High school & above	71	100	-	-			
2.	***Occupation of mothers***							
	Unskilled	86	96.6	3	3.4	3.97	1	0.08
	Semiskilled & skilled	209	99.5	1	0.5			
3.	***Education of fathers***							
	Upto middle school	148	98.7	2	1.3	0.00	1	1.00
	High school & above	147	98.7	2	1.3			
4.	**Occupation of fathers**							
	Unskilled	168	98.8	2	1.2			
	Semiskilled & skilled	102	99.0	1	1.0	1.38	2	0.50
	Unemployed	25	96.2	1	3.8			

FA = Favourable Attitude, MFA = Moderately Favourable Attitude

UFA = Unfavourable Attitude

It is found from Table 25 that there was no association found between attitude of adolescent girls about family life and the educational and occupational status of their parents.

Table 26

Association between practice and socio-demographic characteristics of adolescent girls

n = 237

S. No.	Variables	Level of Practice				χ^2 value	df	'p' value
		A & MA		IA				
		No	%	No	%			
1.	***Age (in years)***							
	13 – 15	121	80.1	30	19.9	0.47	1	0.31
	16 – 19	72	83.7	14	16.3			
2.	***Religion***							
	Hindu	184	81.4	42	18.6	0.00	1	1.00
	Others	9	81.8	2	18.2			
3.	***Education***							
	Upto High school	90	75.0	30	25.0	6.66	1	0.01*
	HSC & above	103	88.0	14	12.0			
4.	***Occupation***							
	Working	14	73.7	5	26.3			
	Not working	23	76.7	7	23.3	1.50	2	0.47
	Student	156	83.0	32	17.0			
5.	***Family income (monthly)***							
	< Rs. 3000	117	79.1	31	20.9			
	Rs. 3001 – 5000	54	81.8	12	18.2	3.64	2	0.16
	> Rs. 5000	22	95.7	1	4.3			
6.	***Type of family***							
	Nuclear	157	80.9	37	19.1	0.18	1	0.83
	Joint & extended	36	83.7	7	16.2			

* $p < 0.05$

A = Adequate, MA = Moderately adequate, IA = Inadequate

Table 26 shows that there was a statistically significant association found between the educational status of adolescent girls and their practice related to menstrual hygiene ($p < 0.05$) which indicates that the subjects who had better education had adequate and moderately adequate practice.

Table 27

Association between practice and personal characteristics of adolescent girls

n = 237

S. No.	Variables	Level of Practice				χ^2 value	df	'p' value
		A & MA		IA				
		No	%	No	%			
1.	***Attainment of menarche***							
	Yes	192	81.4	44	18.6	0.23	1	1.00
	No	1	100.0	-	-			
2.	***Age at menarche (years)***							
	10 – 13	99	75.6	32	24.4	5.16	1	0.03*
	14 -16	93	87.7	13	12.3			
3.	***Information received about menarche***							
	Yes	63	81.8	14	18.2	0.01	1	1.00
	No	130	81.3	30	18.7			
4.	***Information received about sexuality***							
	Yes	5	71.4	2	28.6	0.48	1	0.62
	No	188	81.7	42	18.3			
5.	***Talk about sexuality with others***							
	Yes	1	100	-	-	0.23	1	1.00
	No	192	81.4	44	18.6			

* $p < 0.05$

A = Adequate, MA = Moderately adequate, IA = Inadequate

Table 27 shows that there was a statistically significant association found between practice of adolescent girls in relation to the menstrual hygiene and their age at menarche ($p < 0.05$) which indicates that the girls who had attained menarche at a later age had a better practice.

Table 28

Association between practice of adolescent girls and socio-demographic characteristics of their parents

n = 237

S. No.	Variables	Level of Practice				χ^2 value	df	'p' value
		A & MA		IA				
		No	%	No	%			
1.	***Education of mothers***							
	Upto middle school	146	79.3	38	20.7	2.37	1	0.16
	High school & above	47	88.7	6	11.3			
2.	***Occupation of mothers***							
	Unskilled	49	79.0	13	21.0	0.32	1	0.57
	Semiskilled & skilled	144	82.3	31	17.7			
3.	***Education of fathers***							
	Upto middle school	94	79.0	25	21.0	0.94	1	0.40
	High school & above	99	83.9	19	16.1			
4.	**Occupation of fathers**							
	Unskilled	109	81.3	25	18.7			
	Semiskilled & skilled	67	81.7	15	18.3	0.01	2	1.00
	Unemployed	17	81.0	4	19.0			

A = Adequate, MA = Moderately adequate, IA = Inadequate

Table 28 depicts that there was no association found between practice of adolescent girls and selected socio-demographic characteristics of their parents.

CHAPTER 5

DISCUSSION

"The future of India lies in the hands of our youth" is a common statement used by our leaders, politicians, educationalists and administrators. The youth of India are at a critical juncture because the adolescent period places especially, the adolescent girls, at greater risks of sexual health problems like pregnancy,

Sexually Transmitted Infections including HIV/AIDS. In order to protect the adolescent girls from these risks, family life education needs to be given. Therefore an experimental study was undertaken by the investigator to assess the effectiveness of Adolescent Family Life Education program on the knowledge, attitude and practice of adolescent girls in a rural community of Vellore District, Tamilnadu.

Surprisingly there was an overwhelming support and cooperation from the adolescent girls as well as their mothers. Pretest and AFLE were conducted by the investigator and the posttest was conducted by an evaluator trained by the investigator. The data were collected from 299 adolescent girls and a total of 598 pretest and posttest assessments were done. The data were analysed using SPSS Computer program – Version 11. The results of the data are discussed under the following subheadings:

5.1. Instrument development

5.2. Description of characteristics of adolescent girls and their parents

5.3. Effectiveness of Adolescent Family Life Education (AFLE) program on knowledge, attitude and practice of adolescent girls about family life

5.4. Relationship between knowledge, attitude and practice of adolescent girls about family life during pretest and posttest

5.5. Association between knowledge, attitude and practice of adolescent girls about family life during pretest and selected socio - demographic and personal characteristics of adolescent girls as well as the socio - demographic characteristics of their parents.

5.1. Instrument development

The instruments developed for western population are available. In the western culture, sex education is provided to adolescents and the family life education is incorporated into the school curriculum. Sex is being openly discussed and the adolescents are exposed to premarital sexual activity. The unmarried adolescents use contraceptives which are not permitted as per the cultural norms of India. In Indian culture, sex is a taboo and is talked about within marriage alone. There are various instruments available to measure the knowledge, attitude and practice about family life in western countries (Marini, & Jones, 2004; Godin, & Frank, 2004; Chamberldin, Mendrola & Cumming, 2005). These instruments are validated and standardized, but they measure mainly the sexual behaviours and their attitude towards sexuality. They could not be used in the Indian context since the sexual behaviours and the reproductive health problems of Indian adolescents are different.

There are no standardized instruments available in the Indian context. There is no evidence for validated instruments and the available unpublished instruments are also not validated. Handa (1995) recommends that AFLE should be culturally oriented and experimental studies need to be undertaken in different settings especially in rural areas to validate and standadise the AFLE instrument and the AFLE program. India being a country with much of cultural variations, difference is found within the country itself. Westernization has brought in a fear of unhealthy risk behaviours among adolescents. The nature of adolescence and adolescent behaviours vary tremendously by age, sex, class, religion, culture, social traditions, family values and type of community (urban/rural). Hence, a culture specific instrument was developed ensuring higher validity and reliability.

Items relevant to South Indian culture with more of knowledge component which can be applicable for the rural adolescent girls of Tamilnadu were included. The developed instrument with Content Validity Index (CVI) of 0.89, Cronbach's alpha coefficient of 0.89 and interrater reliability of 0.93 was used for data collection.

5.2. Description of characteristics of adolescent girls and their parents

Distribution of adolescent girls based on selected socio-demographic and personal characteristics of adolescent girls as well as selected socio-demographic characteristics of their parents was done in order to assess the equivalency of characteristics of adolescent girls between control and experimental groups. The findings are discussed below :

5.2.1. Socio-demographic characteristics of adolescent girls

On analyzing the socio-demographic characteristics of adolescent girls, it was seen that majority of the adolescent girls were in the age group of 13 -15 years both in the control (71.4 %) and experimental group (70.5%). The proportion is almost similar in both the groups and it also reveals that most of the study subjects were in the middle adolescent age group. The mean age of adolescent girls in both the groups were almost similar (14.94, 14.97). The adolescent girls who belonged to 18 and 19 years were only about 7-8%. On the whole, the number of unmarried adolescent girls in the age group of 18 to 19 years was found to be less in the study population which shows that majority of rural adolescent girls get married by 18 years. This finding of the study is consistent with the Indian scenario. According to IIPS (2000), two thirds of Indian women are married by 18 years. NFHS- 2 data also showed that 57% of girls are married before the age of 18 years in India. The scenario remains the same in

the States of Delhi and Tamilnadu. Sharma's study (2007) in Delhi showed that more than 75% of the study participants got married before attaining the age of 18 years which is illegal. According to Johnsi and Audinarayana (2006), the mean age at marriage of rural girls in Dharmapuri District of Tamilnadu State was 17 years.

Almost a similar proportion of adolescent girls both in the control (96.7%) and experimental (93.3%) group belonged to Hindu religion. It was further observed that there were no Muslim girls among the experimental group study subjects. The distribution of study population relates to the distribution of general population in relation to religion. In Vellore District, 86.76% of the population are Hindus, 10.09% are Muslims and 2.95% are Christians (Registrar General and Census Commissioner, 2001). In the CONCH program area, 96% of the population are Hindus, 2.5% are Christians and 1.5% are Muslims. Therefore the proportion of Hindu versus other religions in both the groups is as similar to the existing proportion in the study area as well as in the District.

Majority of the adolescent girls had education upto high school and above both in the control and experimental group (92.6%, 90.6% respectively). It was surprising to note that in the control group, only one girl was an illiterate and none of the study subjects in the experimental group were illiterates. Further it is also noted that the female literacy rate of Vellore District is 62.79 % (Registrar General and Census Commissioner, 2001). There is a common assumption in the society that rural adolescents are more likely to work and less likely to study. However majority of the adolescent girls in the rural community are educated. The finding related to the educational status of the adolescent girls in the present

study could be the outcome of “Sarva Shiksha Abiyan (Education for all)” scheme introduced by the Government of India in 2001 which has had an impact on the education of rural adolescent girls.

Most of the adolescent girls had a monthly family income of less than Rs. 3000/- both in the control (68.7%) and experimental group (61.7%). This finding shows that relatively a higher proportion of the study subjects fall under Below Poverty Line (BPL) which is similar to the study findings of Itti (2003) who reported that 65.1% of the study subjects belonged to Below Poverty Line. Recent estimates indicate that 48% of rural people and 41% of urban people fall under Below Poverty Line in our country (Sharma et al., 2002). It was observed in the present study that only 10% of adolescent girls in the control group and 6.1% in the experimental group were working and majority of the study subjects were school going adolescent girls.

Most of the adolescent girls in the control and experimental group belonged to nuclear family structure (78.7%, 81.2%) respectively which is consistent with the study findings of Dhanalakshmi (2007), Seethamma (2004) and Itti (2003). This indicates that there is a cultural shift from the joint family system to the nuclear family system in India. The study found that the control and experimental group subjects had a similar socio-demographic characteristics except in their religion and the difference was found to be statistically significant ($p<0.05$). This difference could have occurred because there were no Muslim families in the villages under the experimental group.

5.2.2. Personal characteristics of adolescent girls

Among the study subjects, relatively a higher number of adolescent girls (129) had attained menarche in the control group compared to only 108 in the experimental group during pretest. Attainment of menarche is determined by various biological factors. The mean age at menarche in the control group was 12.67 and in the experimental group it was 12.26. Literature review also reveals that majority of the rural adolescent girls in India attain menarche between 10 -13 years of age which is consistent with the finding of the present study. Similar findings were also reported by Dhanalakshmi (2007), Nair (2004) and Ahmed (2006) in Tamilnadu, Kerala and Karnataka as well as by Sharma and Gupta (2003) in Nepal.

Further, the study reveals that among all the study subjects (299), only 30.4% had received information about menarche before attaining puberty. Many studies have reported similar findings. Nahar et.al. (1999) found that only 34% of adolescent girls in rural Bangladesh knew about menstruation before experiencing it, whereas the others experienced it with trauma. Liu (1997) in Weifang city also reported that 63.8% of adolescent girls did not have any information about puberty before attaining menarche. Even in India, in the State of Rajasthan, a significant number of adolescent girls were not aware of menstruation until they first experienced it, as reported by Khanna et al. (2005). In the State of Madhya Pradesh too similar findings were reported by Kushwah and Anaj (2007). The study subjects who did not get information about menarche said that they had fear and anxiety, when they experienced the first menstruation. They also expressed that they need information about menarche before attaining puberty. The adolescent girls who had information said that they were prepared to go through the experience and did not have much stress. The present study

brings to light the pressing need for information about menarche to adolescent girls before they attain puberty.

We need to accept the fact that the joint family system is disappearing in India which is also shown in the present study. Moreover, the women in rural areas are being empowered through self help groups and they have started going for work. Because of these changes, the mothers, grandmothers and the other elders are busy and are not available at home to provide information about menarche to the adolescent girls. However, among the few girls who had information about menarche, a higher proportion of them received information from family members (49.5%). The family members who were involved in providing information were mothers, grandmothers and sisters. The second prime source of information provider was the health personnel (27.5%). These findings are consistent with the study done by Khanna et al. (1996) in the rural areas of 14 States of India. But, the study done by James (1997) in Punjab does not lend support to the present study in relation to the source of information about menarche. It showed that none of the adolescent girls received any information from heath personnel regarding menstruation whereas in the present study, 27.5% of them received information about menarche from health care providers.

In the control group, only 5.3% of adolescent girls had received some information about sexuality from television and cinema and only one girl had discussed about sex related matters with her friend. It was seen from the present study that none of the adolescent girls in the experimental group received any information about sexuality or had discussed about sexuality. The findings are not supported by many studies done in the western countries as well as in India. A regional study done in USA by Aten et al. (1996) reported that 42% of

adolescents learnt about sex related matters from school education program, 34% from mass media, 28% from parents and 23% from friends. The West African study by Brieger et al. (2001) too reported that friends were the prime source of information about sexuality followed by health care providers and parents.

The Indian studies too report the source of information about human sexuality from different sources. The Delhi study by Handa (1995) reported that 66.33% of adolescent girls received information on human sexuality from their friends, 29.44% from mass media, 3.89% from health personnel and 1.11% from the teachers. Another Indian study done in Bangalore found that 55-70% of adolescent girls had received information about sex related matters from their friends, 30% from movies, 15% from books/magazines and only 10% from parents (Saldana & Saxsena, 2003). The Chennai study among adolescent abortion seekers reported that 61.5% of them came to know about sexuality from television as reported by Gowri (2006).

It is observed that most of the above studies are done in cities and the urban adolescent girls get opportunities to watch sex related movies as well as to read books/magazines, whereas in rural areas, the adolescent girls have lot of restrictions and they do not get opportunities to get to know about sex related matters. In western countries, family life education is offered to adolescents as part of their school curriculum, whereas the present study finding explains that in Indian culture, talking about sex is a taboo especially in rural areas and sex should be discussed within marriage alone. Consequently, the adolescent girls are not given adequate information about sexual health, instead they learn more

about family life from uninformed sources which result in the perpetuation of myths and misconceptions about family life. The study subjects of the present study considered talking about sex before marriage as a sin. This finding emphasizes the need for providing information about family life by health care professionals especially the community health nurses.

While assessing the equivalency of personal characteristics of adolescent girls, significant differences were found between control and experimental group in relation to attainment of menarche ($p<0.01$), age at menarche ($p<0.05$), information received about menarche ($p<0.01$), source of information ($p<0.01$) and information received about sexuality ($p<0.01$). This reveals that personal characteristics are highly individualistic in nature and culture specific which vary significantly from person to person, family to family and population to population.

5.2.3. Socio-demographic characteristics of the parents of adolescent girls

Most of the mothers of adolescent girls had education upto middle school both in the control (51.3%) and experimental group (55.7%) A major proportion of the mothers of adolescent girls were housewives in both the groups (66.7%, 63.8%). A comparison of educational status of the fathers of adolescent girls showed that most of them had education upto high school and above in the control (49.3%) and experimental group (50.3%). Comparison of educational status of fathers and mothers indicates that better education is given to males comparing to females in India which is evidenced from the literacy rate of Vellore District. The literacy rate of males in this District is 81.99% and among the females it is 62.79% (Registrar general and Census Commissioner, 2001). Almost a similar proportion of the fathers in the present study were working as

unskilled workers both in the control (59.3%) and experimental group (54.4%). The socio-demographic data revealed that both in the control and experimental group, the socio-demographic characteristics of the parents of adolescent girls were found to be similar.

In the present study, three hypotheses were formed on the basis of the objectives and were tested. The major results of the study are discussed based on the stated hypotheses.

5.3. Effectiveness of Adolescent Family Life Education (AFLE) program on knowledge, attitude and practice of rural adolescent girls.

A baseline data (pretest) on knowledge, attitude and practice of adolescent girls about family life were collected from both control and experimental group by the investigator. Adolescent Family Life Education (AFLE) was given to the experimental group girls and the control group girls were not given AFLE. After a gap of two months, the knowledge, attitude and practice of adolescent girls about family life were assessed (posttest) by an evaluator. In order to find the effectiveness of the AFLE program, the level of pretest posttest knowledge, attitude and practice about family life and the pretest - posttest mean score differences on knowledge, attitude, and practice of adolescent girls between control and experimental groups were compared.

Hypothesis I

The first research hypothesis stated that there is a significant increase in the level of knowledge, attitude and practice about family life among the adolescent girls who participate in the AFLE program, compared to those who do not participate in it.

5.3.1. Overall knowledge about family life

It was observed that the overall pretest knowledge about family life was inadequate in majority of the adolescent girls in the control (96.7%) and experimental group (98%). Similar findings were reported by various studies done in the western countries which lend support to the findings of the present study (Matasha et al.,1998; Abioye-kuteyi, 2000; El- Kak et al., 2001; Salako et al., 2002; Irinoye et al., 2003; Buga et al., 2006; Heis & Reis, 2006; Barbara, 2006; Molina et al., 2007). But the degree of lacunae in knowledge about family life was not comparable with the finding of the present study since the level of inadequate knowledge among Indian rural girls is quite high compared to the western adolescents. The studies done in South East Asian region also revealed that there was a tremendous lacunae in the awareness about all aspects of family life among adolescents (Wahyuningsih, Atna, Solehudin, & Djoerban, 2000; Tang, 2003; Sharma & Gupta, 2003; Dhital et al., 2005).

Data from Indian studies too indicated that the adolescents in India have inadequate knowledge about family life. Most of these studies are done in North Indian cities and towns. The findings of the present study are consistent with the findings of the studies done in different States of North India (Mandal, 1994; Chhabra, 1997; Singh et al., 1999; Dalwar, 2000; Trikha, 2001; Chatterjee, 2001; Abraham, 2001; Khanna et al., 2005). The South Indian studies also concur with the findings of the present study related to knowledge of adolescent girls about family life (Lal et al., 2000; Narayanan et al., 2001; Kamble, 2001; George, 2003; Sathiyanathan, 2006; Gowri, 2006; Rani & Jayashree, 2006).

The ICMR study (Gupta et al., 2004) done in rural areas of 14 states in India revealed that the knowledge of adolescent girls about reproductive health was very low. The studies done in rural areas of Himachal Pradesh, West Bengal and Kerala also revealed similar findings (Kumar, 2000; Mukerjee, 2001; Sajitha, 2006). Few studies found in the literature which were done in the rural Tamilnadu (Prasad et al., 1996; Joseph et al., 1997; Ramanujam, 2001) also revealed that the rural adolescent girls have very low knowledge about family life.

In the western culture, school curriculum has sexuality education and even in the family sex is being discussed freely by the parents and family members. But, in Indian culture family life education is not provided to adolescent girls and sex is either discussed secretly among their friends or very little information is given to adolescents. This could be the reason for low knowledge of Indian adolescents about family life.

While assessing the level of knowledge, it was found that the overall posttest knowledge among the control group subjects was found to be inadequate in majority of the adolescent girls (96.7%) compared to only 0.7% of them in the experimental group. It indicates that there is a significant increase in the level of overall knowledge about family life among the experimental group subjects who participated in the AFLE program.

The posttest mean score on overall knowledge of adolescent girls about family life in the control group increased from 13.98 to15.76 and the mean score difference in the control group was 1.78. In the experimental group, the posttest mean score on overall knowledge increased from 11.42 to 49.35 and the mean score difference was 37.93. There was a highly significant difference found in the

overall knowledge of adolescent girls about family life between control and experimental group in terms of pretest- posttest mean score difference ($p<0.001$).

In the present study, it was observed that there was a significant increase in the overall knowledge of adolescent girls about family life and the AFLE was found to be effective. Similar findings were reported by various studies done in other countries which lend support to the findings of the present study (Kane et al., 1993; Dhonati et al., 1996; Rusakaniko et al., 1997; Eggleston et al., 1997; Fawole et al., 1999; Banda, 2002; Ancheta et al., 2005). The European studies done in Netherlands, Germany, Denmark and France also support the findings of the present study (Berne & Huberman, 1999; Singh & Darroch, 2000).

Zabin (2006) conducted an experimental study among 1700 school children of Baltimore Innercity which showed significant increase in the level of knowledge about reproductive health after the education program. A quasi experimental study was done by Brieger et al. (2001) among the adolescents of Nigeria and Ghana to evaluate the outcome of reproductive health education program. The posttest after 3 months showed that there was a significant increase in the mean scores between the control and experimental groups and it was statistically significant ($p<0.001$) which indicated that the reproductive health education program was effective.

In Nepal, an experimental study with pretest posttest control group design was conducted among 200 school going adolescents to assess the effectiveness of structured teaching program on reproductive health (Dhital et al., 2005). The authors reported that the mean pretest and posttest knowledge score on reproductive health in the control group was 39.47 and 43.93. In the experimental

group, the mean posttest knowledge score increased to 84.60 from 39.83(pretest) after the teaching program. The difference found in the mean score differences between control and experimental groups was statistically significant ($p<0.001$).

The Chinese study by Chen (1997) among adolescent girls to assess the effectiveness of sex education program too found that the mean knowledge score on sexual health increased from 4.86 to 17.20 and the sex education program was found to be effective. Butts and Hartman (2002) found a significant difference ($p<0.001$) between the pretest and posttest mean scores in the level of knowledge about family life. It was found by Rashid (2000) in rural Bangladesh that there was a highly significant difference in the overall reproductive health knowledge of adolescent girls between control and experimental groups after a structured teaching program on reproductive health and sexuality ($p<0.001$).

Data from Indian studies too are consistent with the findings of the present study (Revathy, 1996; Siva & Jayakaran, 2000; Sharma et al., 2002; Awasthi et al., 2004; Nair, 2004; Dhanalakshmi 2007) An experimental study to assess the effectiveness of a reproductive health education package in improving the knowledge of adolescent girls aged 15-19 years in Chandigarh, India was conducted by Parwej et al. (2005). Reproductive health knowledge improved significantly after intervention in conventional education (27.28), and peer group education (20.77) in comparison to the controls (3.64). Peer education and conventional education strategies were effective in improving the reproductive health knowledge of adolescent girls but peer strategy was less time consuming. Handa's study (1995) in Delhi among high school students also revealed that

there was an increase in the mean knowledge score on human sexuality from between 50.46% and 63.01% to 92.95% and 99.08% in the posttest. For all learning need areas, the mean posttest knowledge scores were found to be significantly higher than the mean pretest knowledge scores ($p<0.01$).

The Karnataka study by Itti (2003) also found that there was a significant increase in the posttest knowledge score (34.35) on reproductive health comparing to the pretest knowledge score (21.81) and the difference was statistically significant ($p<0.001$). Similar findings were reported by Revathy (1997) and Dhanalakshmi (2007). Revathy's study done in a rural area of Tamilnadu revealed that there was an increase in the overall knowledge score after the structured teaching program on reproductive health from 12.07 to 48.77. There was a highly significant difference found in the mean score difference between control and experimental group ($p<0.001$).

5.3.2. Knowledge about selected aspects of family life

In the control group, majority of the adolescent girls had inadequate knowledge about human reproductive system (91.4%), menstruation (68.6%), sexual behaviour (96%), pregnancy (96%), contraceptives (98.7%), Sexually Transmitted Infections (99.3%) and HIV/AIDS (83.3%). Similarly in the experimental group too, majority of the adolescent girls had inadequate knowledge in relation to human reproductive system (97.3%), menstruation (70.5%), sexual behaviour (97.3%), pregnancy (97%), contraceptives (98%), Sexually Transmitted Infections (97.3%) and HIV/AIDS (89.2%). Pretest knowledge about menstruation was found to be better in adolescent girls in both the groups (68.6%, 70.5%). The reason could be that menstruation is a normal

physiological process which occurs every month in the girls which they have to go through, the girls tend to get information from various sources about it.

Knowledge about human reproductive system including puberty

Literature review reveals that the adolescent girls have limited knowledge about their own body and know very little about the natural process of puberty. The present study also showed a similar result both in the control and experimental group (91.4%, 97.3%) respectively during pretest. This finding is similar to that reported in Chile and South Africa by Molina et al. (2007) and Buga et al. (2006). Some of the Indian studies (Abraham, 2001; Narayanan et al., 2001; Sharma, 2007) have also found similar results and are consistent with the findings of the present study.

Body mapping was done to assess the knowledge of adolescent girls about the site of female reproductive system in the body. Only 22% of adolescent girls in the control group and 18% in the experimental group were able to identify the correct site of female reproductive system. A very small proportion of them were able to identify ovaries, fallopian tubes, uterus and cervix both in the control (8%) and experimental group (6%) during pretest. A major proportion of adolescent girls (69.33%) in the control group knew that uterus is the place of baby's growth inside a mother's body but only 49.66% had this knowledge in the experimental group. Similar findings were reported by Narayanan et al. (2001) and the author stated that only one third of the girls identified uterus as organ of reproduction in females. Regarding the formation of baby, 49.33% of adolescent girls in the control group and 41.6% in the experimental group said that the baby is formed by the union of ovum and sperm. Pregnancy as a gift of God was expressed by 34.1% of adolescent girls in the control group and 32.2% in the

experimental group. Ovary as a place of production of ovum was expressed by only a small proportion of adolescent girls both in the control and experimental group (2.67%, 3.36%) respectively.

The physical changes that occur during puberty in girls were known to 36.8% of the adolescent girls in the control group whereas in the experimental group, only 32% of them were aware of these changes. In the control group, 44.6% of the adolescent girls aware of the physical changes that occur in boys during puberty and in the experimental group, it was 41.1%. The studies done in India and other countries do lend support to the findings of the present study. A Nepal study by Hollerbach and Rogers (2000) among 14-19 year adolescents showed that only 50% of them knew about the physical changes that occur during puberty. Liu in Weifang city (1997) also found that 63.8% of the adolescent girls in the age group of 10-18 years did not have previous knowledge about puberty. The Indian studies by Dalwar (2000) and Narayanan et al. (2001) also have reported similar findings. Dalwar reported that only 60% of the adolescent girls knew menstruation as a sign of puberty, 40% knew about breast development and only 13% said that growth of pubic hair as a sign of puberty. Narayanan et al. (2001) also observed that the adolescent girls were more knowledgable about their restrictions, of their movements and behaviour after attaining puberty than about the physiological changes that occurred at the time of puberty.

The school going adolescents expressed that the biology subject is often being taught by male teachers and even if it is taught by a female teacher, the topic of reproductive system is either skipped or not explained properly. Literature

review also supports that in India, the school teachers are not confident to deal with these topics and they rely on the health care providers to impart this knowledge to the students (UNESCO, 2004).

Knowledge about menstruation

Analysis of pretest knowledge of adolescent girls about menstruation showed that majority of them had inadequate knowledge both in the control (68.6%) and experimental group (70.5%). The findings of the present study are supported by many studies reported from overseas and India. Abioye-Kuteyi (2000) reported that the knowledge of secondary school girls about menstruation in Nigeria was inadequate. Similar findings were reported by the Indian studies too (Mandal, 1998; Narayanan et al., 2001; Kushwah and Anaj, 2007). The Punjab study by James (1997) revealed that the adolescent school girls had inadequate knowledge on menstrual hygiene. Girls showed dissatisfaction with regard to information they received about menstrual hygiene and they wanted to have open and frank discussion on this topic. A study done in rural Tamilnadu (Joseph et al., 1997) revealed that the adolescent girls' knowledge about menstruation was extremely low (8.9%). According to the present study, majority of the study subjects (81.4%) reported menstrual problems like dysmenorrhoea (47.7%). This finding is similar to other studies reported by Narayanan et al. (2001) and IIPS (2000).

It was found that in the present study, only 8% of subjects in the control group and 18.12% in the experimental group said that vagina is the passage through which the menstrual blood flow. Majority of them identified urethra as the passage of menstrual blood flow. Similar finding was reported by Narayanan's

study (2001) in which 35.6% of the adolescent girls identified urethra as the path for menstrual blood flow. Though menstruation is a natural phenomenon which occurs in every female's life, the subject of menstruation and puberty is rarely discussed at home as well as in schools in most parts of our country especially in rural areas. All that they know is that they are "unclean" during menstruation. Cultural and religious restrictions do play a role for inadequate knowledge about puberty and menstruation. Therefore adolescent girls learn about menstruation from unauthentic sources.

Knowledge about sexual behaviour

The knowledge about sexual behaviours such as early marriage, premarital sexual activity, adolescent pregnancy and unwanted pregnancy was found to be inadequate both in the control (94%) and experimental (93.3%) group. However, 69.33% of adolescent girls in the control group and 65.7% in the experimental group knew the legal age for marriage. Though the girls knew the legal age to get married, majority of them are married by 18 years. The main reason for early marriage as expressed by the study subjects was their parent's fear that their daughters may become pregnant outside the institution of marriage. In the present scenario, the knowledge that a girl has had premarital sex can ruin the status and reputation of the entire family.

Though the rural girls have the interest to better their education, they do not have the facilities in their villages and they need to go to the nearby towns. The parents are worried about the safety and fear about their daughter's virginity being lost. This leads to an increased female drop out rate in schools. As a result of these fears and traditional family pressure, the rural adolescent girls are forced

to enter into early marriage. During the study period, few of the adolescent girls pleaded to the investigator to talk to their parents to postpone their marriage because they wanted to continue their studies.

The findings also showed that none of the study subjects admitted premarital sexual activity. The girls may not have been frank to admit premarital sexual activity due to the stigma associated with the issue, despite of the assurance of confidentiality. But during the study period, 5 adolescent girls (non-study subjects) were identified as unmarried pregnant adolescents in the study population by the CONCH clinics. Among the five adolescent girls, one girl was found to be school going and the others were school drop outs. All these five girls did not know that sexual intercourse would result in pregnancy. These findings are supported by the study done by Eggleston et al. (1996) in Jamaica who found that only 27% of girls knew that sexual intercourse leads to pregnancy. Similarly an Indian study (Chhabra, 1997) also reported that in India, 80% of adolescent abortion seekers did not know that sexual intercourse could lead to pregnancy.

It was encouraging to note that the study subjects in both control and experimental group expressed that adolescent pregnancy is not safe (65.1%, 60.7%) but they were unaware of the risks/complications of adolescent pregnancy (63.33%, 71.14%). It was also seen that 72.67% of them in the control group and 69.12% in the experimental group did not know about the dangers of premarital sex. These findings explain that the rural adolescent girls lack knowledge about safe sexual behaviours. This is also supported by a recent large scale survey by Nahar et al. (2000) in which it was reported that over half of the unmarried adolescents had not heard about menstrual regulation. The authors

further recommended that the adolescents need to be provided with better information and services to help them understand their sexuality and protect themselves from unwanted pregnancy. For a vast majority of Indian rural adolescent girls, responsible sexual behaviour means to stay away from the opposite sex and not to talk about sex because it is a sin. This indicates that there is a need for health education on these aspects.

Knowledge about pregnancy

While assessing the pretest knowledge of adolescent girls about pregnancy, it was found that majority of them in the control group (96%) as well as in the experimental group (98%) had inadequate knowledge about pregnancy. In the control group, only 1.33% of adolescent girls knew about the fertile period and only 2.01% of them knew about it in the experimental group too. These findings are supported by various studies done in India and other countries .The Jamaica study (2006) by Family Health International (FHI) found that only 4% of adolescent girls knew about the fertile period. A study done in Chile city (1995) among Santiago's adolescents also found that 61% of them did not know the fertile and infertile times of a girl's menstrual cycle.

Further it was seen that a higher proportion of the subjects (48%) in the control group were aware of the signs and symptoms of pregnancy whereas in the experimental group, only 18.86% were aware of it. Majority of the girls expressed that abdomen becoming big is the sign of pregnancy. The least proportion of them in both the groups (7.33%, 14.09%) knew that a girl can become pregnant if she has sexual intercourse only once. The Jamaica study (2001) found that relatively higher proportion of the study subjects (27% of girls,

32% of boys) were aware of the fact that it is possible to become pregnant during the first intercourse. The Lebanese study by El- Kak et al. (2001) among high school students too found that the study subjects felt shy to talk about pregnancy and their knowledge on pregnancy was found to be very much inadequate. Similar results were reported by an Indian study by Thackor and Kumar (1998) in Surat city in which only 21% of adolescent girls knew about how conception takes place. A study done in rural Tamilnadu (Joseph et al., 1997) also found that the adolescent girls' knowledge about pregnancy was found to be very low (10.2%).

Reluctance was found among adolescent girls to talk about sexual intercourse and pregnancy. We find an increase in the sex crimes in our society. Everyday we read in the newspapers about sexual abuse and exploitation of young girls including the female children. Adolescent girls' knowledge about pregnancy was very low and they are reluctant to talk about sex but they need to know about how pregnancy takes place in order to safe guard themselves.

Knowledge about contraceptives

The pretest knowledge of adolescent girls about contraception both in the control (98.7%) and experimental group (98%) was inadequate. It was surprising to note that only 17.33% of study subjects in the control group and 16.11% in the experimental group knew that pregnancy can be prevented by using contraceptives. The above study findings concur with the findings of North Indian studies (Trikha, 2001; Sharma, 2007). The authors have reported that the knowledge of study subjects about contraception was the least. The Chennai studies also found that the knowledge about contraception among unmarried adolescent abortion seekers was found to be very low as reported by

Sathiyanathan (2007) and Gowri (2006). Similar findings were observed from the studies done in two rural Districts of Tamilnadu as reported by Ramanujam (2001) and Joseph et al. (1997).

The awareness about condom use among the adolescent girls was only 4.67% in the control group and 5.37% in the experimental group. Oral pill as contraception was known by only 10.67% in the control group and 14.09% in the experimental group. The awareness about copper 'T' and emergency pills was known the least in both the groups (1.33%, 0.67% and 0.64%, 1.34%). These findings are supported by Gowri's study (2006) done in Chennai. The author stated that only 39.9% knew about condom, 4.7% knew about oral pills, 2.0% knew about Copper 'T' and only one girl (0.3%) knew about safe period. But, a study done in Surat, India revealed that 100% of adolescent girls knew about oral pills and 83.9% knew about IUCDs (Thackor & Kumar,1998) which is contradicting to the findings of the present study. The Indonesian study reported that 30% of adolescents knew about condom use as reported by Wesly (1999). Pachauri and Santhya (2002) too stated that at least one method of contraception is nearly universally known to adolescents in South Asian countries except in Pakisthan. These statements do not support most of the Indian studies including the present study.

According to Indian culture, only married women are exposed to the use of contraceptives. But, studies have shown that the knowledge of married adolescents about contraceptives was also poor. The scenario on the knowledge about contraception in developed countries is entirely different. In most of the developed countries, the adolescents know about contraceptives and the

unmarried adolescents do use the contraceptives. As part of school health education program, they are taught about contraceptives and the contraceptives are available for unmarried adolescents. But, studies have shown that though they are aware of contraceptives, they do lack knowledge about how to use them. A Russian study (1995) among high school students showed that only 25% of girls and 35% of boys knew that condoms should be used just once and 38% of them believed that condoms could be washed and used several times. In South America, Western Africa and South East Asian regions, the sexually active unmarried adolescents do use contraceptives (29%, 34%, 28%) respectively as reported by Population Reference Bureau (1996). The situation in Switzerland and Sweden is different. According to Francoise (2002), in Switzerland, 80% of adolescents who came with abortion requests knew about contraception but did not use any of them.

Knowledge about Sexually Transmitted Infections (STIs)

The assessment of pretest knowledge of adolescent girls about Sexually Transmitted Infections revealed that the adolescent girls had inadequate knowledge about STIs both in the control (99.3%) and experimental group (97.3%). This finding is consistent with the findings of other Indian studies (Ramasubban, 2000; Trikha, 2001) in which, it was found that the number of adolescents attending STI clinics has been increasing and their knowledge about STIs was found to be low. The proportion of adolescent girls who had inadequate knowledge about STIs in the present study was found to be high as compared to the findings reported by Hollerbach and Rogers (2000) in Nepal who stated that 46% of adolescents knew about syphilis and 21% about gonorrhoea.

According to the present study, it was noted that only 32.33% of subjects in the control group and 22.15% in the experimental group knew about what is Sexually Transmitted Infection and a least number of them knew one of the signs and symptoms of STIs in both the groups (11.33%, 10.74%). Similar findings were reported by Hollerbach and Rogers (2000) in Nepal and Madusudanan and Moorthy (2006) in Andrapredesh, India. Another Indian study too stated that only 34% of the adolescent girls knew the signs and symptoms of STIs (Lal et al., 2000). Majority of the adolescent girls in the present study said that STI is a hereditary disease and a few of them said that they are caused by mosquito bites. These findings are consistent with the study findings of Tavossi et al. (2004) and Awasthi et al. (2004). The adolescents reported that transmission of STIs was by mosquito bites as reported by the authors. The present study also found that in the control group only 20.67% of adolescent girls and in the experimental group 16.78% of them knew at least one of the preventive measures of STIs. Similar findings were observed in the study done by Thackor and Kumar (1998) in which 14.3% of the girls responded that condom can prevent acquiring STIs. However, the overall knowledge of adolescent girls on Sexually Transmitted Infections (STIs) was found to be very much inadequate among the study subjects.

Knowledge about HIV/AIDS

The pretest knowledge of adolescent girls about HIV/AIDS was assessed. It was seen that majority of the adolescent girls in both the groups (83.3%, 89.2%) had inadequate knowledge about HIV/AIDS. Similar findings were reported in the U.S, Zimbabwe, Pakisthan and Nepal (Rosenberg, 1994; Ruskaniko et.al., 1997; Mazood, 1998; IIPS, 2000). The authors have found that

the cause for high rate of HIV/AIDS among the teenagers are due to misconceptions and lack of knowledge. The findings of Indian studies too lend support to the findings of the present study as reported by Chatterjee (2001) Trikha (2001) and Madusudanan and Moorthy (2006).

The present study revealed that only 59.33% of the study subjects in the control group and 47.65% in the experimental group knew that AIDS is caused by a virus. Further, it was noted that only 23.33% in the control group and 38.93% in the experimental group did not know even a single mode of HIV transmission. Mosquito bite was stated as the mode of transmission in 11.34% of the subjects in the control group and 14.23% in the experimental group. Such inadequate knowledge (94%) was also found among adolescents of Cameroon as reported by Monebenimp (2007). However, the Indian study done in Kerala, reported that 47% of the adolescent girls knew that AIDS is a sexually transmitted disease.

The present study also revealed that majority of the subjects had inadequate knowledge about prevention of HIV/AIDS in both the groups (61.33%, 65.77%). Vaccine/ immunization as a preventive measure was reported by 31.93% of adolescent girls in the control group and 34.24% of them in the experimental group, whereas in Cameroon, a higher proportion of study subjects were aware that condoms could give protection against AIDS (Monebenimp, 2007). It was surprising to note that in Pakisthan, only 1% of the adolescent girls expressed that AIDS can be prevented as reported by Mazood (1998).In an Indian study, 45% of adolescent girls said that AIDS is not curable as stated by Lal et al. (2000). However in India, in spite of wide propaganda and Information Education and Communication (IEC) activities about AIDS through mass media,

the subjects had inadequate knowledge about AIDS which indicate that the AIDS education has not reached the rural adolescent girls to the desirable extent.

The knowledge of adolescent girls about selected aspects of family life was assessed and the findings reveal that in the control group, the posttest knowledge was inadequate in majority of the adolescent girls in all selected aspects of family life except in the aspect of menstruation in which, majority of them had moderately adequate knowledge. It was further noted that there was an increase in the level of posttest knowledge of adolescent girls in all selected aspects of family life. Majority of them had adequate knowledge about all selected aspects except in the aspects of sexual behaviour and STIs and in these two aspects, majority of them had moderately adequate knowledge (59.1%, 58.4). This could have occurred because sexual behaviour and Sexually Transmitted Infections are sensitive topics. The subjects could have had hesitation in giving their responses verbally. However reinforcement on these topics is also needed.

The findings of the present study shows that in the control group there were significant differences found between the pretest posttest mean score on knowledge about human reproductive system ($p<0.001$), menstruation ($p<0.001$) and Sexually Transmitted Infections ($p<0.01$) and HIV/AIDS ($p<0.001$). But it was found that there were no differences between the pretest and posttest mean scores on knowledge about pregnancy and contraceptives. The probable reason could be that the adolescent girls consider pregnancy and contraceptives as a sensitive topic and it has to be discussed only after marriage. The girls could have also felt that the topics were irrelevant to them since they were unmarried.

In the experimental group, there were highly significant differences found between the pretest and posttest mean scores of adolescent girls on knowledge about all selected aspects family life ($p<0.001$). The significant increase in the knowledge score among the experimental group could be due to the effect of AFLE. There was knowledge increase among the control group subjects as well. This could have occurred because of the influence of the pretest which must have instigated the adolescent girls to get to know more on these aspects from other sources like from family members, friends, media, books and magazine etc.

In the present study, the pretest posttest mean score differences on knowledge of adolescent girls about all selected aspects of family life was found to be highly significant between control and experimental groups ($p<0.001$). These results indicate that the adolescent girls who participated in the AFLE program had an increase in the level of knowledge about all selected aspects of family life compared to those girls in the control group who did not participate in the AFLE program.

Similar findings were reported by Herz et al. (2006) in the US inner city who stated that there was an improvement in the knowledge of adolescents about reproductive physiology, pregnancy and contraception among the experimental group teens after the family life education program. A study in Banjul, The Gambia by Kane et al. (1993) found that the knowledge about contraception was greater for adolescents who had attended family life education programs than for those who did not. The contraceptive use at first intercourse was higher among females who attended AFLE program. Banda's study (2002) in Malawi among 300 adolescent girls proved that the family life education program

was effective. The result revealed a statistically significant difference in relation to the knowledge of menstruation, and human reproductive system. A study by Rusakaniko et al. (1997) on reproductive health knowledge following a family life education program among the adolescents of Zimbabwe revealed that there was an increase in the knowledge level of adolescent girls in all areas of reproductive health, pregnancy risk, STDs, and HIV from 20% to 96%.

The Indian studies too support the findings of the present study on the knowledge of adolescent girls about selected aspects of family life. Awasthi et al. (2004) found in Lucknow that the knowledge level on reproductive health had increased after the intervention. Dhanalakshmi's study (2006) in the State of Tamilnadu also showed an increase in the knowledge score on all aspects of family life among adolescent girls who had the structured teaching program on reproductive health comparing to the adolescent girls in the control group who did not participate in the program.

A study done by George (2003) in Karnataka, on preparing girls for menarche also found that the mean knowledge score on menstrual hygiene in the experimental group increased from 5.5 to 23.84 after a structured teaching program and the difference found was statistically significant ($p<0.001$).

The studies done on AIDS education in different countries also support the findings of the present study. Sharma et al. (2002) evaluated the Sociological Intervention Package (SIP) on AIDS education in Nepal and found that the mean awareness score increased from 36.18 to 53.51. Kirby et al. (1994) analysed the results of 33 studies done in North America on school based AIDS education

program. These programs were also found to be effective and have increased the level of knowledge of adolescent about STIs including AIDS.

Yet another evaluative study by Fawole et al. (1999) to assess the effectiveness of a school based AIDS education program in Ibadan, Nigeria reported that after intervention, the knowledge about HIV transmission and prevention was increased significantly ($p<0.05$) in the intervention group. The study also showed that there was decrease in the number of sexual partners among the intervention group adolescents and their use of condoms increased. The education program was successful in improving the adolescent's sexual practices as well as their knowledge regarding HIV/AIDS.

The family life education program for adolescent high school girls in Kerala, India also showed an increase in the knowledge about adolescent health issues, family planning methods and STIs including HIV/AIDS (Nair, 2004). The literature review and the findings of the present study high lights that the AFLE plays an important role in increasing the overall knowledge as well as the knowledge of adolescent girls about selected aspects of family life.

5.3.3. Attitude towards family life

The assessment of pretest attitude of adolescent girls towards family life shows that majority of the adolescent girls both in the control (82.7%) and experimental group (89.2%) had a moderately favourable attitude towards family life. Literature review reveals that most of the studies have reported positive attitude of adolescent girls towards reproductive health. The study done in Uganda (Agyei, Epema and Lubega, 1992) among adolescents revealed that the adolescents had a positive attitude towards the use of condoms as a measure of

prevention against Sexually Transmitted Infections. But still, there are few studies which report that the adolescents do have negative or neutral attitude towards family life. A study by Ekstrand et al. (2005) on the perceptions of Swedish teenagers related to pregnancy, abortion, sexual behaviour and contraception revealed that the teenagers had a negative attitude towards teen pregnancy, but supportive attitude towards abortion. The reason could be that sex is so causal in Sweden. Further, though Sweden was the first country to impart family life education in the schools, at present there is deterioration of sex education in the schools as reported by Ekstrand et al. (2005). An Indian study by Sharma et al., (2002) too found that more than 60% of adolescents had neutral attitude towards reproductive health, about 26% had favourable attitude and about 14% had unfavourable attitude towards reproductive health.

Gowri's study (2006) in Chennai also found that 51% of adolescent girls said that premarital sexual activity is modern, 62% said it is not allowed by the society, and 53% felt that premarital sexual activity will affect their marriage life. The author also stated that 78% of the girls had a positive attitude towards contraception. Dhanalakshmi's study (2007) in Vellore revealed that though there were 71% of adolescent girls who felt that premarital sex is wrong, 24.3% of them still expressed that talking about sexual behaviour will induce sexual activity and 58% of girls said that sex education should not be given before marriage. Seethamma (2004) in Karnataka too found that 38% of adolescent girls felt that they should be told about menstruation only after attaining menarche, 52% felt that menstruating girls need to be isolated, and 88% expressed that after attaining menarche the girls should not mingle with boys. Chatterjee (2001) in his study among adolescents in Calcutta also found that 48.8% of them had a

positive attitude towards nursing AIDS patients. Similar findings were reported by Lal et al (2000).

The present study showed that 68% of adolescent girls in the control group and 75.7% in the experimental group expressed the need for AFLE classes. It was heartening to know that family life education was a felt need as stated by Thakor and Kumar (1998).The authors have reported that 96.3% of adolescent girls and 97.2% of adolescent boys had a positive attitude towards family life education. The preferred age for AFLE as stated by majority of adolescent girls were 14-17 years (65.4%) and 10-13 years (28.4%). According to a study done by Gowri (2006), 47% of the adolescent girls had a positive attitude towards AFLE classes in the schools, 41% felt that these classes will induce sexual activity, and 61% expressed that AFLE classes may prevent AIDS. Seethamma (2004) in Karnataka also found that 76% of adolescent girls had a positive attitude towards sex education. Literature review reveals that there is a pressing need for family life education classes to the adolescent girls all over the world and it also indicates that the adolescents have a positive attitude towards AFLE classes. It further shows that the adolescents are ready to receive family life education and we as health care providers need to make use of this opportunity since attitude is important to have behavioural changes and to promote healthy lifestyles.

The posttest attitude of adolescent girls about family life was found to be favourable in only 12% of adolescent girls in the control group whereas, majority of the adolescent girls in the experimental group (68.5%) had favourable attitude.

It was noted that the pretest and posttest mean scores on attitude towards family life in the control group were 33.85 and 33.45 and in the experimental group were 32.65 and 39.50 respectively. But the difference was statistically significant ($p<0.001$). The mean score difference in the overall attitude between control and experimental groups was also highly significant ($p < 0.001$). There was a small decrease in the posttest mean attitude score as compared to the pretest mean attitude score in the control group. This could have occurred because of the pretest influence since talking about sexuality in Indian culture is a secret issue. The pretest interview could have led to this small change in the posttest attitude since the control group subjects did not participate in the AFLE program.

An experimental study done by Herz et al. (2006) in the US reported similar findings. The teens had improved attitude towards family life education. Two other studies done (Eggleston et al., 1997; El-Kak et al., 2001) among Lebanese high school students and adolescents in Jamaica revealed that their attitude towards sexuality and reproductive health improved following a sexuality education program.

Similar findings were reported by studies done among adolescents of China, Nigeria and Nepal (Chen, 1997; Briegar et al., 2001; Fawole et al., 1999; Dhital et al., 2005). These studies revealed that the adolescents in the intervention group had a better attitude towards sexuality education compared to the control group and the difference found between the control and the intervention group was highly significant ($p<0.001$).

But, it was striking to note that in India, the studies related to AIDS education have found that the adolescent girls had unfavourable attitude towards

AIDS education as reported by Lal et al (2000) and Butts and Hartman (2002). In the present study, it was observed that the adolescent girls wanted to know more about AIDS and they had a positive attitude towards AIDS which is contradicting to the findings of Butts and Hartman (2002) and Lal et al. (2000). Another study done in a rural area of Tamilnadu too reported that 92.55% of adolescents had a positive attitude towards reproductive health after a structured health education program (Siva & Jayakaran, 2000). It is a well known fact that attitude development is highly personal and it is based on the knowledge acquired and the change is not seen immediately after education

5.3.4. Practice related to menstrual hygiene

It was observed that 86% of the study subjects in the control group had attained menarche, whereas in the experimental group only 72.5% of the study subjects had attained menarche during pretest. The difference found between both the groups was statistically significant ($p<0.01$). While assessing the pretest practice of adolescent girls in relation to menstrual hygiene, it was seen that majority of them had moderately adequate practice both in the control (63.6%) and experimental group (58.3%). The percentage difference between control and experimental groups could be because there was more number of adolescent girls (129) who had attained menarche in the control group comparing to only 108 in the experimental group.

According to Irinoye et al., (2003) during menstruation, only 39.3% of Nigerian adolescent girls had healthy practices, 21.43% had potentially harmful practices and 39.3% uncertain practices which indicate that the Indian adolescent girls had better menstrual hygienic practices. The other South Indian studies also

reported that majority of the Indian adolescent girls had moderately adequate menstrual hygienic practices as reported by Seethamma (2004). In her study, the author found that 69.9% of adolescent girls in the age group of 11-13 and 69.6% in the age group of 14-16 had adequate practice regarding menstrual hygiene. It was also found that the practice related to menstrual hygiene in the urban areas of Karnataka, was better than the rural adolescent girls as reported by Ahmed (2006). The mean score obtained by the urban girls was 12.66 and among the rural girls, it was 9.81. The study also found a relationship between the menstrual hygienic practices and the prevalence of reproductive tract infections.

Further, in the present study it was observed that almost an equal number of the study subjects used sanitary pads in both the groups (37.21%, 37.96%). Old clothes were used to absorb the menstrual blood by 62.79%, 62.04% of adolescent girls both in the control and experimental group respectively. Majority of the adolescent girls who used old clothes, washed them and reused them for more than three cycles both in the control (89.71%) and experimental group (74.63%). Sanitary pads, cloth, toilet rolls, cotton wool and tampon were used to absorb menstrual blood by African adolescent girls as reported by Abioye-Kuteyi (2000) and Irinoye et al. (2003). These studies also found that 66.3% of adolescent girls used unsanitary materials as menstrual absorbents. The Indian studies too report similar findings which are consistent with the findings of the present study (James, 1997; Khanna et al., 2005) in which, the subjects reused the old cloth for many cycles and changed pads only once or twice a day.

In the present study, washing the perineum after passing urine during menstruation was practiced by only 47.29% of the subjects in the control group

and in the experimental group, relatively a higher proportion (63.89%) of them washed their perineum after urination. Soap was used to wash perineum during menstruation by 60.19% of them in the control group and 52.71% in the experimental group. It was alarming to note that one study subject in the control group and two of them in the experimental group used cowdung mixed with water to wash their perineum during menstruation to avoid the smell of blood.

Similar findings were reported by El-Gilany et al. (2005) in Mansoura, Egypt among 14-18 year adolescent girls. This study found poor menstrual hygienic practices such as not changing pads regularly, and not bathing during menstruation. The finding related to bathing during menstruation in Egypt is contradictory to the Indian situation. The present study found that all the rural adolescent girls (100%) take bath daily during menstruation both in the control and experimental group.

According to a study done in Punjab by James (1997), a large number of adolescent girls threw the used pads unhygienically, whereas in the present study, it was seen that 63.57% of adolescent girls in the control group, and 69.44% of them in the experimental group burn the pads/clothes and the others either burry them or dispose them along with garbage in the dustbin.

Though the overall practice score is moderately adequate, some of the menstrual hygienic practices related to change of pads and washing perineum is not satisfactory. The practices related to menstrual hygiene were assessed only by verbal responses and not by observation. The school going study subjects expressed the need for toilet facility with water supply so that they can follow

proper menstrual hygienic practices. They did express that they face lot of inconveniences related to privacy.

The posttest assessment of practice of adolescent girls related to menstrual hygiene indicated that in the control group, only 12.3% of them had adequate practice, and 60% had moderately adequate practice. However in the experimental group, majority of the adolescent girls (92.8%) had adequate practice during posttest. It was also seen from the present study that in the control group, the pretest and posttest mean scores on the overall practice of adolescent girls related family life were 5.88 and 5.57 respectively and in the experimental group, the pretest posttest mean practice scores increased from 6.38 to 8.47. Highly significant difference was found between control and experimental group in terms of pretest posttest mean score differences ($p<0.001$). The significant difference in the control group could have happened because of the influence of pretest which could have made alterations in the behaviour. Further, the control group subjects did not participate in the AFLE program and inadequate knowledge could have also been a cause for the decrease in their practice score.

Similar findings were reported by Chen (1997) who reported that the mean practice score of adolescent girls in China increased from 50.9 to 79.0 after the sex education program. The health education program was successful in improving the menstrual hygienic practices of adolescents. The other studies done on practice about family life in various parts of the world are related to sexual behaviours like premarital sexual activity, number of sexual partners and use of condoms. The change in behaviour does not take place immediately after

the education program. The adoption of new behaviour takes time after getting knowledge and a favourable attitude. This is being supported by various studies done in different parts of the world (Kane et al., 1993; Kirby et al., 1994; Eggleston et al., 1997; Fawole et al., 1999; Brieger et al., 2001).

The above findings explain that the girls who participated in the AFLE program had an increase in the level of knowledge, attitude and practice about family life compared to the girls who did not attend the AFLE program. It indicates that the AFLE program was found to be effective on the knowledge, attitude and practice of rural adolescent girls about family life. Although the mean differences of all three aspects (knowledge, attitude and practice) between control and experimental group are significant, indicating that the Adolescent Family Life Education (AFLE) program was effective, the extent of benefits are not the same in all aspects. The increase in the mean difference is nearly three times higher in the attitude to the practice. The increase in knowledge is nearly 15 times higher compared to practice. Thus the AFLE results are higher in knowledge, lesser in attitude and practice. Usually an increase in knowledge is the base for changes towards favourable attitude which in turn brings in changes in practice leading to safe and healthy practices. When the base is strengthened, the other two will follow automatically, but it will take more time before the effect of AFLE is visible. All the mean differences are very small but still significant differences are found.

The stated hypothesis (H1) is supported in the light of the above findings of the present study. That is, there was a significant increase in the level of knowledge, attitude and practice about family life among the adolescent girls who

participated in the AFLE program and the adolescent girls who did not participate in the AFLE program.

Evaluating the effectiveness or impact of Family Life Education program on knowledge, attitude and practice of adolescent girls has been problematic since the programs vary in content, making comparisons difficult. In addition the personal nature of the questions may have made the adolescents reluctant to answer truthfully, and researchers find it difficult to isolate the effects of Family Life Education Programs from those of other sources of information such as mass media and parents.

5.4. Relationship between knowledge, attitude and practice of adolescent girls about family life during pretest and posttest in both the groups (combined).

Hypothesis 2

The second research hypothesis stated that there is a significant relationship between knowledge, attitude and practice of adolescent girls about family life. The relationship between knowledge, attitude and practice of adolescent girls about family life during pretest and posttest was assessed by Pearson's Correlation Co-efficient (r).

The study found that there was a positive correlation found between the knowledge and attitude ($r=0.348$) and the correlation between knowledge and attitude was found to be statistically significant ($p<0.01$). Further it was noted that, there was no correlation found between the knowledge and practice and between attitude and practice during pretest. It was observed that there was a positive correlation found between knowledge and attitude, knowledge and practice, and

attitude and practice during posttest and the correlation was found to be highly significant ($p<0.01$). Similar finding was reported by James (1997). The author in his study found a relationship between knowledge and menstrual hygienic practices. The adolescent girls who had a better knowledge followed correct menstrual hygienic practices. Molina et al (2007) also found that the adolescents who had highest knowledge on reproductive health had lowest levels of sexual activity.

The study conducted in Uganda revealed that among the adolescents who had good knowledge about condoms, a positive attitude towards condom was found as reported by Agyei et al. (1992). In Philippines, an AIDS education program among 800 adolescents found that there was a positive relationship between the knowledge about AIDS and the practices related to condom use and sexual behaviours (Aplasca et al., 1995). The Chennai study too found that the adolescent girls who had good knowledge about reproductive health had a positive attitude towards sex (Gowri, 2006).

As stated in Hypothesis (H2), it was found in the present study that there is a significant relationship between the knowledge, attitude and practice of adolescent girls about family life and the hypothesis 2 is accepted. Human behaviour is a holistic phenomenon where all three domains are involved. Acquisition of knowledge paves way for changes in an individual's behaviour and attitude. Therefore the impact of knowledge is inferred from the attitude and behaviours.

5.5. Association between knowledge, attitude and practice of adolescent girls about family life and selected socio-demographic and personal

characteristics of adolescent girls as well as the socio-demographic characteristics of their parents.

Hypothesis 3

The third research hypothesis stated that there is a significant association between knowledge, attitude and practice of adolescent girls and selected socio-demographic and personal characteristics of adolescent girls (age, religion, education, occupation, type of family, family income, attainment of menarche, age at menarche, information received about menarche and sexuality, sharing information about sexuality, presence of menstrual problems and selected socio-demographic characteristics of their parents (education and occupation).

The adolescent girls were grouped based on the selected socio-demographic characteristics and assessed for the association between knowledge, attitude and practice and the selected socio-demographic and personal characteristics of adolescent girls using Chi square.

5.5.1. Association between knowledge and selected socio-demographic and personal characteristics of adolescent girls

It was seen from the present study that there was no association found between knowledge and selected socio-demographic characteristics of adolescent girls. Irrespective of their age, religion, educational status, occupation, family income and the type of family, their level of knowledge was inadequate in majority of the adolescent girls during pretest. It indicates that the knowledge level of adolescent girls about family life is independent of the selected socio demographic characteristics of adolescent girls. The finding of the present study is contradicting to the findings by many studies (Trikha, 2001; Itti, 2003;

Dhanalakshmi, 2006). Trikha' study (2001) in Haryana reported that there was a relationship between the educational status of adolescent girls and their knowledge about STDs and AIDS. This finding does not support the finding of the present study in relation to the association between knowledge and the educational status of adolescent girls.

The selected personal characteristics of adolescent girls such as attainment of menarche, age at menarche, information received about menarche and sexuality and sharing about sexuality did not have any effect on the level of knowledge of adolescent girls about family life during pretest. Irrespective of these personal characteristics, the level of knowledge about family life was found to be inadequate.

5.5.2. Association between attitude and selected socio-demographic and personal characteristics of adolescent girls

While assessing the association between the personal characteristics of adolescent girls and their attitude towards family life, a significant relationship was found between attainment of menarche and the attitude of adolescent girls ($p<0.05$) indicating that the girls who had attained menarche had a positive attitude towards family life. Similar findings were reported by Frank and Williams (1999) in West Florida. Further, there was no association found between the attitude of adolescent girls towards family life and the selected socio demographic characteristics of adolescent girls. But, Sharma's study (2007) in Delhi found that there was a significant relationship between attitude and the educational status as well as between attitude and the Socio-Economic –Status (SES) of the family which is contradicting to the finding of the present study. Lal

et al (2000) also reported that there was an association between religion and attitude of adolescents about AIDS.

5.5.3. Association between practice and selected socio-demographic and personal characteristics of adolescent girls

The practice of adolescent girls related to menstrual hygiene was assessed and the relationship between the educational status of adolescent girls and their practice was found to be statistically significant ($p<0.05$) which indicates that the adolescent girls with better education may have better menstrual hygienic practices. This finding is supported by Sharma's study (2007) in which it was reported that there was an association between the practice and educational status of adolescent girls. James (1997) also reported that the girls who had better education showed better menstrual practices. The other socio-demographic characteristics of adolescent girls such as age, occupation, family income and type of family did not have any relationship with the overall practice score of adolescent girls. In relation to the SES, the Sharma's study (2007) and a study by Rani and Jayashree (2006) found an association between the practice and the socioeconomic status which is contradictory to the present study finding. Yet another study by Buga et al. (1996) in South Africa found an association between religion of adolescents and the practice related to sexual activity.

5.5.4. Association between knowledge, attitude and practice of adolescent girls about family life and selected socio-demographic characteristics of their parents

While analyzing the association between knowledge, attitude and practice of adolescent girls and the selected socio-demographic characteristics of their

parents, it was noted that there was no association found between the knowledge of adolescent girls and the educational and occupational status of their parents. Irrespective of the educational and occupational status of the parents of adolescent girls, attitude of adolescent girls towards family life was found to be moderately favourable.

The association between the practice score of adolescent girls and the socio-demographic characteristics of their parents was also assessed and it was found that there was no significant association between the educational and occupational status of their parents and the practice score related to menstrual hygiene during pretest. The educational and occupational status of the parents of adolescent girls did not have any effect on the overall practice score of adolescent girls.

There was no association found between knowledge and the selected socio demographic characteristics, personal characteristics of adolescent girls and the selected socio-demographic characteristics of their parents. But there was an association found between attitude and attainment of menarche ($p<0.05$),practice and education of subjects ($p<0.05$) and their age at menarche ($p<0.05$).

These findings indicate that the subjects who had attained menarche may have a better attitude towards family life and the educational status of the subjects and the age at menarche leads to better menstrual hygienic practices. And so, the Hypothesis 3 is accepted in relation to the attitude and practice.

It was found that there are very limited Indian studies available which were done on large samples. Moreover, the South Indian studies are too limited and most of them are done on very small samples which cannot be generalized. The present research highlights the effectiveness of AFLE program on rural adolescent girls' knowledge, attitude and practice about family life. The AFLE program developed was found to be valid. It also implies that the AFLE programs should be culturally oriented and should be delivered by trained health care providers. These programs should lie as close as to the perceptions and expectations of adolescents. The gained benefits from the health promotion strategy are not only great for the adolescents during their transitional period but also a great resource to the country to achieve the goal "Health for All".

CHAPTER 6

SUMMARY AND RECOMMENDATIONS

6.1 SUMMARY

The study was conducted for a period of one year from September, 2006 to August, 2007 in a rural community adopted by the Christian Medical College, Vellore served by the College of Nursing Community Health Program (CONCH). The aim of the study was to assess the effectiveness of Adolescent Family Life Education (AFLE) program on adolescent girls' knowledge, attitude and practice. Conceptual framework of this study was adopted from Health Promotion Model by Pender, Murgaugh and Parsons (2002).

The first objective of the study was to develop an instrument to assess the knowledge, attitude and practice of rural adolescent girls about selected aspects of family life. The instrument was developed by the investigator from the literature review as well as by conducting six focus group interviews in one of the CONCH

program villages. The developed instrument was translated from English to Tamil and was back translated by two different experts. Content validity of the instrument was determined by getting the opinion from ten experts. The Content Validity Index (CVI) of the instrument was 0.89. The reliability of the translated Tamil version of the instrument was found to be 0.89 which indicated high inter item reliability. The intervention used was the AFLE program which was developed by the investigator. The CVI of the AFLE program was 0.93. The pretest and the AFLE program were conducted by the investigator. In order to avoid the observer bias, the posttest was conducted by an evaluator trained by the investigator. The interrater reliability was found to be 0.93. A pilot study was conducted to assess the feasibility of the study and necessary modifications were made.

Rural unmarried adolescent girls in the age group of 13-19 years were included in this experimental study. The CONCH villages were matched and made into pairs based on specific characteristics such as geographical location in terms of roadside or interior villages, total population, adolescent population of the villages, and educational, recreational, health and communication facilities available within the villages. From among 16 villages, 8 villages had all the above characteristics and they were clubbed into four pairs. The four pairs of villages were then grouped into two, four villages in each group. The two groups of villages were allocated randomly into experimental and control group by lot method.

From this sample frame of control and experimental group subjects, 150 adolescent girls were allocated as study subjects in the control group and another 150 girls in the experimental group using systematic random sampling method.

One girl in the experimental group got married during the study period and she was excluded from the study and so in the experimental group there were only 149 subjects. The pretest was conducted by the investigator to assess the knowledge, attitude and practice of adolescent girls about family life using a structured interview schedule both in the control and experimental group. The Adolescent Family Life education Program (AFLE) was conducted the experimental group subjects by the investigator. After a gap of two months, posttest was done for both control and experimental group by an evaluator trained by the investigator.

The collected data were arranged and analysed using the SPSS-PC Computer program (11 version). Descriptive statistics such as frequencies, percentages, mean and standard deviation were used to describe the demographic, socio-demographic and personal characteristics of the study subjects and their parents. Chi square was used to find the equivalency of characteristics of adolescent girls and their parents in both the groups. The paired 't' test was used to find the difference in mean scores during pretest and posttest within the control and within the experimental group. The independent 't' test was used to find the difference in mean scores during pretest and posttest between control and experimental group. Pearson correlation coefficient (r) was used to find the relationship between knowledge, attitude and practice of adolescent girls about family life. Chi square was used to determine the association between knowledge and attitude, knowledge and practice, attitude and practice and the selected socio-demographic and personal characteristics of adolescent girls as well as the socio-demographic characteristics of their parents.

6.2. SIGNIFICANT FINDINGS OF THE STUDY

6.2.1. Socio-demographic, personal characteristics of adolescent girls and the socio-demographic characteristics of their parents.

- The adolescent girls in both the groups had similar socio-demographic characteristics except in their religion which was found to be statistically significant ($p<0.05$).The socio-demographic characteristics of their parents in both the groups were also found to be similar (table 1, 3 and figure 2).
- Significant differences were found in the personal characteristics of adolescent girls between control and experimental groups in relation to their attainment of menarche ($p<0.01$), age at menarche ($p<0.05$), information received regarding menarche ($p<0.01$), source of information about menarche ($p<0.01$) and information received about sex related matters ($p<0.01$). The mean age at menarche among the study subjects was found to be 12.46 (table 2 and figure 3).
- Among the study subjects (299), majority of them (69.6%) had no information about menarche before attaining puberty (figure 4).

6.2.2. Overall knowledge about family life

- There was a gross inadequacy in the overall pretest and posttest knowledge of adolescent girls about family life in the control group (96.7%) and it was found to be adequate (45%) and moderately adequate(54.3%) in the adolescent girls of experimental group after AFLE (table 5 and figure 8).
- Highly significant differences were found between pretest and posttest mean scores on overall knowledge of adolescent girls about family life both in the control and experimental groups ($p<0.001$) (table 12 and 13).

- Comparison of pretest posttest mean score difference on overall knowledge of adolescent girls about family life between control and experimental groups was found to be highly significant ($p<0.001$) (table 16).

6.2.3. Knowledge about selected aspects of family life

- The knowledge of adolescent girls about all the selected aspects of family life was also found to be inadequate in majority of adolescent girls during pretest and posttest in the control group. In the experimental group, the pretest knowledge about all selected aspects of family life was inadequate whereas the posttest knowledge was found to be adequate in all aspects except in two aspects (sexual behaviour and Sexually Transmitted Infections) (tables 6, 7, 8 and 9).
- Highly significant differences were found between the pretest and posttest mean scores on knowledge about all aspects of family life ($p<0.001$) except in two aspects (pregnancy and contraceptives) in the control group. In the experimental group, highly significant differences were found between the pretest and posttest mean scores on knowledge about all selected aspects of family life $p<0.001$) (tables 14 and 15).
- Highly significant differences were found between the mean scores on knowledge about all selected aspects of family life between control and experimental groups ($p < 0.001$) (table 17).

6.2.4. Attitude towards family life

- The overall pretest and posttest attitude of adolescent girls towards family life was found to be moderately favourable in majority of the adolescent

girls (82.7%, 86.7%) in the control group. In the experimental group, the pretest attitude was moderately favourable in 89.2% of adolescent girls and the posttest attitude was found to be favourable in majority of the adolescent girls (68.5%) (table 10 and figure 9).

- Significant differences were found between pretest and posttest mean scores on overall attitude of adolescent girls towards family life both in the control and experimental group ($p<0.001$) (table 12 and 13).

- Comparison of pretest posttest mean score difference on overall attitude of adolescent girls towards family life between control and experimental groups was found to be highly significant ($p<0.001$) (table 16).

6.2.5. Practice related to menstrual hygiene

- The pretest and posttest practice related to menstrual hygiene was found to be moderately adequate in majority of the adolescent girls (63.6%, 60% respectively) in the control group. Adequate practice was seen in 92.8% of the subjects and none of them had inadequate practice during posttest in the experimental group (table 11 and figure 12).
- Significant differences were found between pretest and posttest mean scores on overall practice of adolescent girls about family life in the control group ($p<0.01$) and in the experimental group ($p<0.001$) (table 12 and 13).
- Comparison of pretest posttest mean score differences on overall practice of adolescent girls about family life between control and experimental groups was found to be highly significant ($p<0.001$) (table 16).

6.2.6. Relationship between knowledge, attitude and practice

- A positive correlation was found between knowledge and attitude of adolescent girls about family life during pretest and it was highly significant ($p<0.01$) (table 18).
- There was a positive correlation found between knowledge and attitude, knowledge and practice, and between attitude and practice of adolescent girls about family life during posttest and the correlation was highly significant ($p<0.01$) (table 19).

6.2.7. Association between knowledge, attitude and practice of adolescent girls about family life during pretest and selected socio-demographic and personal characteristics of adolescent girls as well as the socio-demographic characteristics of their parents

- There was no association found between knowledge and selected socio-demographic, personal characteristics of adolescent girls and the selected socio demographic characteristics of their parents (table 20 - 22).
- There was no association between attitude and selected socio demographic characteristics of adolescent girls and as well as the socio-demographic characteristics of their parents (table 23 and 25).
- There was an association between attitude of adolescent girls and attainment of menarche and it was found to be statistically significant ($p < 0.05$) (table 24).
- There was an association found between practice of adolescent girls and their educational status and it was found to be statistically significant ($p<0.05$) (table 26).

- An association was found between practice of adolescent girls about family life and their age at menarche which was statistically significant ($p<0.05$) (table 27).
- An association was found between practice of adolescent girls in relation to menstrual hygiene and the socio-demographic characteristics of their parents (table 28).

Three hypotheses were formed on the basis of the objectives and were tested. The findings are as follows:

H1. There was a significant increase in the level of knowledge, attitude and practice about family life in the adolescent girls who participated in the AFLE program as compared to the girls who did not participate in the program.

H2. There was a significant relationship between knowledge, attitude and practice of adolescent girls about family life

H3**.** There was a significant association between attitude and practice of adolescent girls and selected socio-demographic and personal characteristics of adolescent girls and the selected socio-demographic characteristics of their parents.

The findings of the present study support all three hypotheses stated and the three hypotheses are accepted.

6.3. Implications of the study

6.3.1. Nursing practice

The present study showed that majority of the rural adolescent girls had inadequate knowledge about human reproductive system including puberty,

menstrual hygiene, sexual behaviour, pregnancy, contraceptives, and Sexually Transmitted Infections (STIs) including HIV / AIDS.

In the context of Indian culture, talking about sexuality is a secret issue within marriage alone. At present in the country, there is a significant change in the perception of adult members of the society, particularly the parents and teachers towards the introduction of family life education. But the parents and teachers feel that their knowledge about family life is inadequate for proper dissemination of information to the adolescents. The findings of the present study supported by various studies done in India reveal that the rural unmarried adolescent girls are not given adequate information about family life by their parents rather indirect warnings are given related to their behaviour such as not to talk to or move with boys after attaining puberty. The school teachers do hesitate to provide family life education since they are not confident to discuss about these topics with the adolescent girls. Studies have reported that the health care providers are the first preferred choice to provide family life education to adolescents. There is a need for concentrated efforts by the Community Health Nurses to increase the adolescent girls' level of knowledge, attitude and practice about family life. The AIDS pandemic too has added urgency to introduce adolescent family life education.

The community health nurses play a vital role as teachers, facilitators, counselors, guides, liason between the community and health care services as well as, as change agents in promoting healthy behaviours among adolescents. The Community Health Nurses should plan and conduct training programs for parents, school teachers and village health workers. They should also take

initiative in preparing the teaching modules with appropriate audiovisual aids for parents, school teachers, village health workers and nursing students. The teaching module on AFLE (Appendix B1 and B2) and the audiovisual aids developed by the investigator can be used in providing the Family Life Education (FLE) for rural adolescent girls. The Community Health Nurses should conduct regular school health programs and women's programs in which the AFLE should be addressed. Adolescent Health Education should be a regular nursing intervention during their visits to the schools and community.

In India, Youth clubs are meant for boys. We need to formulate adolescent girls clubs and should meet them regularly for sexual guidance and counseling. Adolescent girls feel shy and do not prefer to go to any health facility especially when they face problems related to sexual health. However, they feel free to talk to the Community Health Nurses since majority of them are females. The nurses should serve as a link to initiate organize and conduct Adolescent Health Clinics at the village level at periodic intervals. Sexual guidance and counseling should be part of the school health programs and the adolescent health clinics. Adolescent Health Camps can be conducted during the school holidays. Culturally, the rural unmarried adolescents hesitate to discuss about sex related matters and as a result they gather incorrect information.

School health services are an essential component of community health. The community health nurse needs to use alternate approaches to provide Adolescent Family Life Education. Mail boxes can be kept and their queries can be answered during the school health education program. The school teachers can be equipped with adequate knowledge about family life by providing appropriate training to them. There is a need to include adolescent health as part

of teacher training program. There is a dire need to develop training programs for parents of adolescent girls and it can be effective in promoting and reinforcing positive and healthy behaviours among adolescents.

6.3.2. Nursing education

The educational background of the community health nurses should equip them with knowledge necessary to deliver AFLE effectively as health educators. As nurse educators they need to prepare their students for the same. At present the syllabi of nursing courses have a very minimal emphasis on reproductive and sexual health education. Though the revised GNM syllabus has a separate unit on human sexuality, the nurse educators hesitate to teach this unit since they are not confident with the content. The nursing curriculum should include more content on different aspects of human sexuality and sex education. Nursing personnel working in various health care settings should be given in service education to update their knowledge and abilities in identifying the learning needs of adolescents on human sexuality and planning for appropriate health promoting interventions. The nurse educators need to undergo special training to deal with sexuality education. Training modules can be prepared for various categories of nursing personnel working in different health care settings. Nurse educators can serve as resource persons in committees to look into the school curriculum, village health nurses' (MPHWs) curriculum as well as the nursing students' curriculum in order to incorporate and provide adolescent family life education.

6.3.3. Nursing administration

The nurse administrators should take active and a pivotal role in developing teaching modules, cost effective educational materials and polices for

initiation of adolescent health services as well as adolescent guidance and counseling clinics. The nurse administrators also need to be instrumental in starting separate out patient clinic days for adolescents and the nurses need to be given adolescent health care oriented training programs in order to deal the adolescent reproductive health problems effectively. As District health nurses, the community health nurses can be involved in making policies to promote adolescent health in the community. Workshops, Conferences and seminars can be organized for the nurses to promote adolescent reproductive and sexual health. Necessary administrative support can be provided by the nurse administrators to promote adolescent health activities.

6.3.4. Nursing research

More qualitative and quantitative research studies can be undertaken in the area of adolescent health. Research studies can be done among adolescent boys as well as comparisons can be done among rural and urban adolescents. Dissemination of information through AFLE from teachers to students and adolescent girls to their peers can be studied.

6.4. Specific suggestions for further research

1. A similar study can be conducted among urban adolescent girls
2. A similar study can be conducted for comparison between urban and rural adolescent girls
3. A similar study can be done among urban and rural adolescent boys
4. A study can be done to assess the dissemination of AFLE from the school teachers to adolescent girls and from them to their peers.

5. Studies can be done to develop modules on family life education program for various health personnel.
6. A study can be done to find out the attitude of nursing students and community health nurses towards family life education program
7. A qualitative study can be conducted to assess the attitude of parents and teachers towards family life education
8. In depth studies can be done on selected aspects of family life
9. A study can be conducted to compare the effectiveness of AFLE program with alternate teaching methods
10. A study can be conducted to determine the cost effectiveness of AFLE program
11. A longitudinal study can be conducted to assess the impact of AFLE on adolescent girls' knowledge and practice after 6 months, one year, 5 years and 10 years.

6.5. Recommendations

The present study findings revealed that the Adolescent Family Life Education (AFLE) program was effective and there was a significant increase in the knowledge, attitude and practice of rural adolescent girls. The study also emphasized that there is a dire need for AFLE and the adolescent girls had a favourable attitude towards AFLE program. And so, the following strategies are recommended for the community health nurses:

1. Conduct regular school health programs in which the AFLE program can be provided.
2. Form adolescent girls club which is youth friendly and provide AFLE in order to cover the non school going adolescents

3. AFLE should permeate the entire school curriculum
4. Community health nurses should be trained adequately to provide AFLE program
5. AFLE programs should be culturally oriented and should be validated periodically
6. Appropriate teaching modules and audiovisual aids should be developed and used effectively
7. The community health nurse should assist in organizing sexual guidance and counseling for adolescent girls.
8. Adolescent health clinics and health camps need to be conducted periodically.
9. Mail box facilities need to be arranged for adolescents who are not comfortable to talk about sexuality
10. Conduct training programs for school teachers and parents on family life education who in turn can disseminate information about adolescent health to the adolescents.

6.6. Conclusion

The present study had shown that the Adolescent Family Life Education program was effective in terms of increasing the knowledge, attitude and practice of rural adolescent girls about family life and thereby promote the health of adolescent girls. Basic information on family life is important for adolescents. The findings of the study were consistent with the literature and have strong support from studies conducted throughout the world. However South Indian studies were found to be scarce in the literature especially the studies done in rural areas. AFLE may be the only place where adolescents can learn accurate information

about family life and can practice the skills necessary to maintain good sexual and reproductive health with a positive attitude.

Healthy adolescents promote the health of women as they become mothers which in turn lead to a healthy new generation as they reproduce their children. There is a need for community health nurses to take active part in preparing the adolescent girls for family life. If the girls are prepared with adequate knowledge about family life, they will develop a positive attitude to cope with the pubertal changes which in turn helps them develop a healthy attitude towards family life. Thus the adolescents adopt safe and healthy sexual and reproductive practices during adolescence. The community health nurse have a pivotal role and they can make a difference in providing adolescent family life education and can make the adolescent health care services accessible and worthwhile for the adolescent population.

CHAPTER 6

SUMMARY AND RECOMMENDATIONS

6.1 SUMMARY

The study was conducted for a period of one year from September, 2006 to August, 2007 in a rural community adopted by the Christian Medical College, Vellore served by the College of Nursing Community Health Program (CONCH). The aim of the study was to assess the effectiveness of Adolescent Family Life Education (AFLE) program on adolescent girls' knowledge, attitude and practice. Conceptual framework of this study was adopted from Health Promotion Model by Pender, Murgaugh and Parsons (2002).

The first objective of the study was to develop an instrument to assess the knowledge, attitude and practice of rural adolescent girls about selected aspects of family life. The instrument was developed by the investigator from the literature review as well as by conducting six focus group interviews in one of the CONCH program villages. The developed instrument was translated from English to Tamil and was back translated by two different experts. Content validity of the instrument was determined by getting the opinion from ten experts. The Content Validity Index (CVI) of the instrument was 0.89. The reliability of the translated Tamil version of the instrument was found to be 0.89 which indicated high inter item reliability. The intervention used was the AFLE program which was developed by the investigator. The CVI of the AFLE program was 0.93. The pretest and the AFLE program were conducted by the investigator. In order to avoid the observer bias, the posttest was conducted by an evaluator trained by the investigator. The interrater reliability was found to be 0.93. A pilot study was conducted to assess the feasibility of the study and necessary modifications were made.

Rural unmarried adolescent girls in the age group of 13-19 years were included in this experimental study. The CONCH villages were matched and made into pairs based on specific characteristics such as geographical location in terms of roadside or interior villages, total population, adolescent population of the villages, and educational, recreational, health and communication facilities available within the villages. From among 16 villages, 8 villages had all the above characteristics and they were clubbed into four pairs. The four pairs of villages were then grouped into two, four villages in each group. The two groups of

villages were allocated randomly into experimental and control group by lot method.

From this sample frame of control and experimental group subjects, 150 adolescent girls were allocated as study subjects in the control group and another 150 girls in the experimental group using systematic random sampling method. One girl in the experimental group got married during the study period and she was excluded from the study and so in the experimental group there were only 149 subjects. The pretest was conducted by the investigator to assess the knowledge, attitude and practice of adolescent girls about family life using a structured interview schedule both in the control and experimental group. The Adolescent Family Life education Program (AFLE) was conducted the experimental group subjects by the investigator. After a gap of two months, posttest was done for both control and experimental group by an evaluator trained by the investigator.

The collected data were arranged and analysed using the SPSS-PC Computer program (11 version). Descriptive statistics such as frequencies, percentages, mean and standard deviation were used to describe the demographic, socio-demographic and personal characteristics of the study subjects and their parents. Chi square was used to find the equivalency of characteristics of adolescent girls and their parents in both the groups. The paired ‘t’ test was used to find the difference in mean scores during pretest and posttest within the control and within the experimental group. The independent ‘t’ test was used to find the difference in mean scores during pretest and posttest between control and experimental group. Pearson correlation coefficient (r) was

used to find the relationship between knowledge, attitude and practice of adolescent girls about family life. Chi square was used to determine the association between knowledge and attitude, knowledge and practice, attitude and practice and the selected socio-demographic and personal characteristics of adolescent girls as well as the socio-demographic characteristics of their parents.

6.2. SIGNIFICANT FINDINGS OF THE STUDY

6.2.1. Socio-demographic, personal characteristics of adolescent girls and the socio-demographic characteristics of their parents.

- The adolescent girls in both the groups had similar socio-demographic characteristics except in their religion which was found to be statistically significant ($p<0.05$).The socio-demographic characteristics of their parents in both the groups were also found to be similar (table 1, 3 and figure 2).
- Significant differences were found in the personal characteristics of adolescent girls between control and experimental groups in relation to their attainment of menarche ($p<0.01$), age at menarche ($p<0.05$), information received regarding menarche ($p<0.01$), source of information about menarche ($p<0.01$) and information received about sex related matters ($p<0.01$). The mean age at menarche among the study subjects was found to be 12.46 (table 2 and figure 3).
- Among the study subjects (299), majority of them (69.6%) had no information about menarche before attaining puberty (figure 4).

6.2.2. Overall knowledge about family life

- There was a gross inadequacy in the overall pretest and posttest knowledge of adolescent girls about family life in the control group (96.7%)

and it was found to be adequate (45%) and moderately adequate(54.3%) in the adolescent girls of experimental group after AFLE (table 5 and figure 8).

- Highly significant differences were found between pretest and posttest mean scores on overall knowledge of adolescent girls about family life both in the control and experimental groups ($p<0.001$) (table 12 and 13).
- Comparison of pretest posttest mean score difference on overall knowledge of adolescent girls about family life between control and experimental groups was found to be highly significant ($p<0.001$) (table 16).

6.2.3. Knowledge about selected aspects of family life

- The knowledge of adolescent girls about all the selected aspects of family life was also found to be inadequate in majority of adolescent girls during pretest and posttest in the control group. In the experimental group, the pretest knowledge about all selected aspects of family life was inadequate whereas the posttest knowledge was found to be adequate in all aspects except in two aspects (sexual behaviour and Sexually Transmitted Infections) (tables 6, 7, 8 and 9).
- Highly significant differences were found between the pretest and posttest mean scores on knowledge about all aspects of family life ($p<0.001$) except in two aspects (pregnancy and contraceptives) in the control group. In the experimental group, highly significant differences were found between the pretest and posttest mean scores on knowledge about all selected aspects of family life $p<0.001$) (tables 14 and 15).

- Highly significant differences were found between the mean scores on knowledge about all selected aspects of family life between control and experimental groups ($p < 0.001$) (table 17).

6.2.4. Attitude towards family life

- The overall pretest and posttest attitude of adolescent girls towards family life was found to be moderately favourable in majority of the adolescent girls (82.7%, 86.7%) in the control group. In the experimental group, the pretest attitude was moderately favourable in 89.2% of adolescent girls and the posttest attitude was found to be favourable in majority of the adolescent girls (68.5%) (table 10 and figure 9).
- Significant differences were found between pretest and posttest mean scores on overall attitude of adolescent girls towards family life both in the control and experimental group ($p<0.001$) (table 12 and 13).

- Comparison of pretest posttest mean score difference on overall attitude of adolescent girls towards family life between control and experimental groups was found to be highly significant ($p<0.001$) (table 16).

6.2.5. Practice related to menstrual hygiene

- The pretest and posttest practice related to menstrual hygiene was found to be moderately adequate in majority of the adolescent girls (63.6%, 60% respectively) in the control group. Adequate practice was seen in 92.8% of the subjects and none of them had inadequate practice during posttest in the experimental group (table 11 and figure 12).

- Significant differences were found between pretest and posttest mean scores on overall practice of adolescent girls about family life in the control group ($p<0.01$) and in the experimental group ($p<0.001$) (table 12 and 13).
- Comparison of pretest posttest mean score differences on overall practice of adolescent girls about family life between control and experimental groups was found to be highly significant ($p<0.001$) (table 16).

6.2.6. Relationship between knowledge, attitude and practice

- A positive correlation was found between knowledge and attitude of adolescent girls about family life during pretest and it was highly significant ($p<0.01$) (table 18).
- There was a positive correlation found between knowledge and attitude, knowledge and practice, and between attitude and practice of adolescent girls about family life during posttest and the correlation was highly significant ($p<0.01$) (table 19).

6.2.7. Association between knowledge, attitude and practice of adolescent girls about family life during pretest and selected socio-demographic and personal characteristics of adolescent girls as well as the socio-demographic characteristics of their parents

- There was no association found between knowledge and selected socio-demographic, personal characteristics of adolescent girls and the selected socio demographic characteristics of their parents (table 20 - 22).
- There was no association between attitude and selected socio demographic characteristics of adolescent girls and as well as the socio-demographic characteristics of their parents (table 23 and 25).

- There was an association between attitude of adolescent girls and attainment of menarche and it was found to be statistically significant ($p < 0.05$) (table 24).
- There was an association found between practice of adolescent girls and their educational status and it was found to be statistically significant ($p<0.05$) (table 26).
- An association was found between practice of adolescent girls about family life and their age at menarche which was statistically significant ($p<0.05$) (table 27).
- An association was found between practice of adolescent girls in relation to menstrual hygiene and the socio-demographic characteristics of their parents (table 28).

Three hypotheses were formed on the basis of the objectives and were tested. The findings are as follows:

H1. There was a significant increase in the level of knowledge, attitude and practice about family life in the adolescent girls who participated in the AFLE program as compared to the girls who did not participate in the program.

H2. There was a significant relationship between knowledge, attitude and practice of adolescent girls about family life

H3**.** There was a significant association between attitude and practice of adolescent girls and selected socio-demographic and personal characteristics of adolescent girls and the selected socio-demographic characteristics of their parents.

The findings of the present study support all three hypotheses stated and the three hypotheses are accepted.

6.3. Implications of the study

6.3.1. Nursing practice

The present study showed that majority of the rural adolescent girls had inadequate knowledge about human reproductive system including puberty, menstrual hygiene, sexual behaviour, pregnancy, contraceptives, and Sexually Transmitted Infections (STIs) including HIV / AIDS.

In the context of Indian culture, talking about sexuality is a secret issue within marriage alone. At present in the country, there is a significant change in the perception of adult members of the society, particularly the parents and teachers towards the introduction of family life education. But the parents and teachers feel that their knowledge about family life is inadequate for proper dissemination of information to the adolescents. The findings of the present study supported by various studies done in India reveal that the rural unmarried adolescent girls are not given adequate information about family life by their parents rather indirect warnings are given related to their behaviour such as not to talk to or move with boys after attaining puberty. The school teachers do hesitate to provide family life education since they are not confident to discuss about these topics with the adolescent girls. Studies have reported that the health care providers are the first preferred choice to provide family life education to adolescents. There is a need for concentrated efforts by the Community Health Nurses to increase the adolescent girls' level of knowledge, attitude and practice

about family life. The AIDS pandemic too has added urgency to introduce adolescent family life education.

The community health nurses play a vital role as teachers, facilitators, counselors, guides, liason between the community and health care services as well as, as change agents in promoting healthy behaviours among adolescents. The Community Health Nurses should plan and conduct training programs for parents, school teachers and village health workers. They should also take initiative in preparing the teaching modules with appropriate audiovisual aids for parents, school teachers, village health workers and nursing students. The teaching module on AFLE (Appendix B1 and B2) and the audiovisual aids developed by the investigator can be used in providing the Family Life Education (FLE) for rural adolescent girls. The Community Health Nurses should conduct regular school health programs and women's programs in which the AFLE should be addressed. Adolescent Health Education should be a regular nursing intervention during their visits to the schools and community.

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holidays. Culturally, the rural unmarried adolescents hesitate to discuss about sex related matters and as a result they gather incorrect information.

School health services are an essential component of community health. The community health nurse needs to use alternate approaches to provide Adolescent Family Life Education. Mail boxes can be kept and their queries can be answered during the school health education program. The school teachers can be equipped with adequate knowledge about family life by providing appropriate training to them. There is a need to include adolescent health as part of teacher training program. There is a dire need to develop training programs for parents of adolescent girls and it can be effective in promoting and reinforcing positive and healthy behaviours among adolescents.

6.3.2. Nursing education

The educational background of the community health nurses should equip them with knowledge necessary to deliver AFLE effectively as health educators. As nurse educators they need to prepare their students for the same. At present the syllabi of nursing courses have a very minimal emphasis on reproductive and sexual health education. Though the revised GNM syllabus has a separate unit on human sexuality, the nurse educators hesitate to teach this unit since they are not confident with the content. The nursing curriculum should include more content on different aspects of human sexuality and sex education. Nursing personnel working in various health care settings should be given in service education to update their knowledge and abilities in identifying the learning needs of adolescents on human sexuality and planning for appropriate health promoting interventions. The nurse educators need to undergo special training to deal with

sexuality education. Training modules can be prepared for various categories of nursing personnel working in different health care settings. Nurse educators can serve as resource persons in committees to look into the school curriculum, village health nurses' (MPHWs) curriculum as well as the nursing students' curriculum in order to incorporate and provide adolescent family life education.

6.3.3. Nursing administration

The nurse administrators should take active and a pivotal role in developing teaching modules, cost effective educational materials and polices for initiation of adolescent health services as well as adolescent guidance and counseling clinics. The nurse administrators also need to be instrumental in starting separate out patient clinic days for adolescents and the nurses need to be given adolescent health care oriented training programs in order to deal the adolescent reproductive health problems effectively. As District health nurses, the community health nurses can be involved in making policies to promote adolescent health in the community. Workshops, Conferences and seminars can be organized for the nurses to promote adolescent reproductive and sexual health. Necessary administrative support can be provided by the nurse administrators to promote adolescent health activities.

6.3.4. Nursing research

More qualitative and quantitative research studies can be undertaken in the area of adolescent health. Research studies can be done among adolescent boys as well as comparisons can be done among rural and urban adolescents. Dissemination of information through AFLE from teachers to students and adolescent girls to their peers can be studied.

6.4. Specific suggestions for further research

12. A similar study can be conducted among urban adolescent girls
13. A similar study can be conducted for comparison between urban and rural adolescent girls
14. A similar study can be done among urban and rural adolescent boys
15. A study can be done to assess the dissemination of AFLE from the school teachers to adolescent girls and from them to their peers.
16. Studies can be done to develop modules on family life education program for various health personnel.
17. A study can be done to find out the attitude of nursing students and community health nurses towards family life education program
18. A qualitative study can be conducted to assess the attitude of parents and teachers towards family life education
19. In depth studies can be done on selected aspects of family life
20. A study can be conducted to compare the effectiveness of AFLE program with alternate teaching methods
21. A study can be conducted to determine the cost effectiveness of AFLE program
22. A longitudinal study can be conducted to assess the impact of AFLE on adolescent girls' knowledge and practice after 6 months, one year, 5 years and 10 years.

6.5. Recommendations

The present study findings revealed that the Adolescent Family Life Education (AFLE) program was effective and there was a significant increase in

the knowledge, attitude and practice of rural adolescent girls. The study also emphasized that there is a dire need for AFLE and the adolescent girls had a favourable attitude towards AFLE program. And so, the following strategies are recommended for the community health nurses:

11. Conduct regular school health programs in which the AFLE program can be provided.
12. Form adolescent girls club which is youth friendly and provide AFLE in order to cover the non school going adolescents
13. AFLE should permeate the entire school curriculum
14. Community health nurses should be trained adequately to provide AFLE program
15. AFLE programs should be culturally oriented and should be validated periodically
16. Appropriate teaching modules and audiovisual aids should be developed and used effectively
17. The community health nurse should assist in organizing sexual guidance and counseling for adolescent girls.
18. Adolescent health clinics and health camps need to be conducted periodically.
19. Mail box facilities need to be arranged for adolescents who are not comfortable to talk about sexuality
20. Conduct training programs for school teachers and parents on family life education who in turn can disseminate information about adolescent health to the adolescents.

6.6. Conclusion

The present study had shown that the Adolescent Family Life Education program was effective in terms of increasing the knowledge, attitude and practice of rural adolescent girls about family life and thereby promote the health of adolescent girls. Basic information on family life is important for adolescents. The findings of the study were consistent with the literature and have strong support from studies conducted throughout the world. However South Indian studies were found to be scarce in the literature especially the studies done in rural areas. AFLE may be the only place where adolescents can learn accurate information about family life and can practice the skills necessary to maintain good sexual and reproductive health with a positive attitude.

Healthy adolescents promote the health of women as they become mothers which in turn lead to a healthy new generation as they reproduce their children. There is a need for community health nurses to take active part in preparing the adolescent girls for family life. If the girls are prepared with adequate knowledge about family life, they will develop a positive attitude to cope with the pubertal changes which in turn helps them develop a healthy attitude towards family life. Thus the adolescents adopt safe and healthy sexual and reproductive practices during adolescence. The community health nurse have a pivotal role and they can make a difference in providing adolescent family life education and can make the adolescent health care services accessible and worthwhile for the adolescent population.

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IN PREPARATION OF THIS MANUSCRIPT APA STYLE IS BEING USED.