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The Literature pertinent to the study titled “Impact of Reproductive Health Education Programme (RHEP) among adolescent girls – an intervention study” has been reviewed and presented under the following headings:

A. Adolescent sexual and reproductive development
   a. Pubertal changes: physical and psychosocial changes
   b. Menstruation: a natural phenomenon of growing up
   c. Adolescents sexual development

B. Issues pertaining to adolescent sexual and reproductive health
   a. Maladjustment to pubertal changes
   b. Hazardous menstrual practices
   c. Adolescents sexual behaviour and conduct
   d. Early marriage and adolescent pregnancy
   e. Vulnerability towards HIV/AIDS and STIs

C. Current scenario: sexual and reproductive health profile of adolescents

D. Sexual and reproductive health education: an strategy

A. Adolescent sexual and reproductive development

Adolescence is the stage of life during which individuals reach sexual maturity which is a period of transition from puberty to maturity. Adolescents are regarded as a bridge between the children and adults an important group through which every adult must have passed and the children aspiring to reach (Bott et al 2003).

The World Health Organization has defined adolescence as:

- Age group of 10 to 19 years.
- Progression from appearance of secondary sex characteristics (puberty) to sexual and reproductive maturity.
- Development of adult mental processes and adult identity.
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➢ Transition from socio-economic dependence to relative independence (Shirur, 2000).

Adolescence, a period from the onset of puberty or sexual maturity to adulthood during which physical, psychological and social changes occur, the adolescents begin to reach their adult size, their bodies become more sexually defined and reproductive capability is established (Santrock, 2007). Adolescence is also a period of progress towards psycho-social maturation which is characterized by the intellectual, temperamental and emotional changes in their attitudes and behavior (Shirur, 2000). It is pressured to be a psychologically stressful, heightened emotional tension and critical period of life. Emotional and psychological changes in adolescence are characterized by reactions to physical changes which need to be accepted and live up to social expectation and prepare for adult roles (Scaramella and Conger, 2004).

a. Pubertal Changes: physical and psychosocial changes

During adolescence, an individual is going through dramatic changes concerning his or her physiology, which includes growth spurts, reproductive system development which is also known as primary sex characteristics, appearance of secondary sex characteristics, increase in muscle strength and redistribution of body weight (Newman and Newman, 2006). Primary sexual characteristics are those physical features that involve the reproductive organ such as ovaries, uterus and vagina in females, and secondary sexual characteristics are those features visible on the outside of the body that serve as signs of sexual maturity but do not involve the reproductive organs.

In addition, girls experience a spurt in hip width which is linked with an increase in estrogen (Susman and Rogol, 2004). Changes in facial features like the jaw and nose become larger, while the mouth wider and the chin become prominent and also changes take place in muscle and body fat (Sharma, 1999). All adolescents do not begin puberty at the same age. For girls, it may take place anywhere from the age of 8 to 13, Indian girls the growth spurt occurs approximately between 10 and 13 years and girls gain an average of 24cms in height and 21kgs in weight (Sharma, 1999). The rate at which adolescent gain
weight follows approximately the same development timetable as the rate at which they gain height and coincide with the onset of puberty (Susman and Rogol, 2004). Medical science tells us that girls have more fat than boys of a comparable age, therefore on attaining puberty; girls tend to become puffy and rounder in some parts of their bodies, especially the shoulders, upper arms, breasts, thighs and hips. This fresh coating of flesh is the first physical sign that ultimately provides the classic womanly shape to girls (Sindhu, 1999). As physical changes slow down, the awkwardness of puberty and early adolescence generally disappears, this is because older adolescents have had time to gain control of their enlarged bodies. They are also motivated to use their newly acquired strength and this further helps them to overcome any awkwardness that appears later (Hurlock, 2007).

Collectively, physiological changes in adolescence girls includes:-

- Breast development
- Height and weight spurt
- Hips and waist become more defined
- Menstruation and ovulation begins
- Body hair grows in the pubic area, under the arms, and becomes thicker on the arms and legs
- Muscles become stronger
- Fat tissues normally increases
- Vocal cords get thicker and longer
- Sweat and oil gland become more active so acne may develop and body odor changes
- Internal and external reproductive organ enlarge, develop and matures.

The physical changes that herald adolescence are the most visible and striking markers of this stage. However, these physical changes represent just one aspect of the developmental processes that adolescents experience. Their developing brains bring new cognitive skills that enhance their ability to reason and to think abstractly. They develop emotionally, establishing a new sense of who they are and who they want to become. Their social development involves
relating in new ways both to peers and adults and they begin to experiment with new behaviour (Lata and Devi, 2016; Adolescence Education Programme, 2008).

All adolescents by any means go through a period of exaggerated storm and stress, most of them do experience emotional instability from time to time, which is logical consequences of the necessity of making adjustments to new pattern of behaviour and to new social expectations (Hurlock, 2006). Adolescence has long been described as a time of emotional turmoil, in its extreme form, according to Rosenblum and Lewis (2003) this view is too stereotypical because adolescents are not constantly in a stage of “Storm and stress”. None the less early adolescent is a time when emotional highs and lows increase.

Adolescents are noted for their rapid mood swings and general moodiness (Maas, 2002). Adolescent’s emotions often seen exaggerated and their action seem inconsistent. It is normal for young adolescents to swing regularly from being happy to being sad and from feeling smart to feeling dumb. In addition to these changes, when they are stressed about their appearance and position in the household and the community, most young adolescents explore different ways to express their emotions. Some of those emotions include depression, outbursts, irritability, anxiety, confusion and social withdrawal (UNICEF, 2008). The emotional patterns of adolescence similar to those of childhood is anger, fear, jealousy, curiosity, envy, joy, grief and affection, differ in the stimuli that give rise to these emotions and, even more important is the degree of control the individuals exercise over the expression of their emotions. Adolescents express their anger by sulking, refusing to speak or loudly criticizing those who angered them (Santrock, 2008). Researchers have discovered that pubertal change is associated with an increase in negative emotions (Archibald et al., 2003; Williamson and Ryan, 2002).

Rosenbaum and Lewis (2003) believed that emotional fluctuation in early adolescence may be related to the variability of hormones. During this period mood become less extreme as adolescent move into adulthood and this
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decrease in emotional fluctuation is may be due to adaptation to hormone levels over time. Maas (2002) also emphasized that hormones are thought to be partially responsible for these emotional changes, especially among younger adolescent, early in the pubertal process, when the hormonal system is being turned on. In early adolescence, girls tend to react with more depressed moods; the direct link between hormones and moods is relatively weak, stressful changes in adolescent environment may be just as important as biological factors in influencing their moods. But, according to Newman and Newman, (2006) along with the pubertal changes, the brain also continues to develop which account for an increase fluctuation in emotions. Modification of memory and development of association throughout the areas of the brain control emotion of adolescents.

However, most researchers conclude that hormonal influences on emotional fluctuation are small and they usually are associated with other factors, such as stress, eating patterns, sexual activity and social relationships (Susman and Rogol, 2004). For some adolescents, such emotional swings can reflect serious problems. Girls are especially vulnerable to depression in adolescence (Nolen-Hoeksema, 2007). It is important for adults to recognize that moodiness is a normal aspect of early adolescence and most adolescent make it through these moody times to become competent adults.

Adolescence is a time of curiosity and they are full of energy and strength resulting in trying out new experiences, some of which may be risky or even dangerous. Most of the adolescents manage to find their excitement in music, sport, or other activities that involve a lot of energy but little real physical risk. This provides the first setting of self exploration and evaluation. Puberty brings inevitable changes in the thoughts feelings and behaviors of girls, physical changes in the pubertal girl make her eager to know more about herself and her immediate social circle including her family members, friends, visitors and even strangers (Sindhu, 2000). Awareness of the body changes sensitise the adolescents to the gender roles. When adolescents experience dramatic biological changes related to puberty, these biological changes can significantly
affect psychosocial development. An increased awareness of sexuality and a heightened preoccupation with body image are fundamental psychosocial tasks during adolescence.

Adolescents start defining social relationships outside of the family. There is a gradual switch from gang of same sex to mix groups during adolescence, also an intense sexual drive develops and adolescents typically start exploring relationships with the opposite sex. Relationship within the family also change, parent become less important as their life outside the family develops, friendships are part of learning how to get on with other people and gaining a sense of identity that is distinct from that of the family (www.ed.gov.com). There is a felt need to be accepted by the peer group. Acceptance by peers is paramount (getting along and not being viewed as different). Boys and girls look beyond their parents and families and begin to form more intense relationship with their peers. Friendships develop and more intimate relations are established with certain friends with sharing of experiences. This provides the first setting in which young people can practice their social skills with those who are their equals. These behaviors are guided by an intense desire for independence and identity.

Adolescence is the time when people first start in earnest to learn about the world and to find their place in it. Adolescents start developing a sense of identity that is distinct from that of the family as they begin to consider who they are and who they can be. Most adolescents will explore a range of possible identities with different roles. The adolescents tend to develop their own likes and dislikes and articulate them more clearly. This may at times lead to conflict with parents and siblings. The feeling of being important and having responsibilities stem from this autonomy and is essential for later adult roles. Autonomy is necessary achievement if the adolescent is to become self-sufficient in society.

In the process, even though adolescents undergo intense psychological stress and personality change (Gupta, 2003). During puberty adolescents developed a stronger recognition of their own personal identity, including
recognition of a set of personal moral and ethical values, and greater perception of feeling of self-esteem or self-worth, and thus their psychosocial development is best understood.

b. Menstruation: a natural phenomenon of growing up

The first and foremost indicator of reproductive health is onset of menstruation in adolescent girls. Menstruation is the normal, healthy shedding of blood and tissue from the uterus that exits the body through the vagina. Girls begin to menstruate anytime between nine and fourteen years (UNICEF India, 2008).

Girls have thousands of tiny eggs in their ovaries even at the time of birth. Each month, or approximately every 21 - 35 days, on average, one of the eggs leaves an ovary and travels through a fallopian tube. The released of an egg/ovum from ovary is called as ovulation. Normally, the ovaries alternate each month, releasing an egg from the left ovary one month and then releasing an egg from the right ovary the next month. The egg travels in the fallopian tube to the inner covering layer of the uterus which is mostly made of tiny blood vessels and is called the endometrium. The lining gives nourishment in case an egg and sperm meet to form an embryo that begins to grow in the uterus. If the egg is not joined by a sperm, due to the shrinkage and relaxation of the uterus, the blood capillaries in the endometrium wall ruptures, and the egg flows out along with leakage of blood. This whole cycle is called menstruation (UNICEF, 2008; Jennifer, 2008).

Because all girls are different, menstrual periods can vary from girl to girl. One girl might have a 3-days period and another girl might have a 7-days period. Number of days that normally a girl’s period should last is anything from 3 to 7 days. The length of the menstrual cycle varies for each girl. For some, the cycle is as short as 21 (or even fewer) days. For others, it is as long as 35 days or more. While most menstrual cycles are between 28 and 30 days long, periods that come anywhere from 21 to 35 days apart are considered normal in most situations (UNICEF, 2008).
Menstrual Hygiene is an issue that every girl and woman has to deal with once she enters adolescence around the age of 12 and until she reaches the menopause somewhere in her 40’s. Overall, a woman spends approximately 2,100 days menstruating which is equivalent to almost six years of her life. Menstruation is a monthly occurrence that requires access to appropriate materials and facilities, without which, females suffer from poor menstrual hygiene which restricts their movement and self-confidence. Good menstrual hygiene is therefore crucial for the health, education and dignity of girls and women (Jennifer, 2008).

Good hygiene, such as use of sanitary pads and adequate washing of the genital area, is essential during menstruation. Women and girls of reproductive age need access to clean and soft absorbent sanitary products, which in the long run protect their health (Harvey et al., 2002). The vast majority of girls use cloth pads usually torn from old cloths, instead of sanitary towels/napkin. Dasgupta and Sarkar (2008) revealed that majority of the girls preferred cloth pieces rather than sanitary pads as menstrual absorbent. Only 11.25% of girls used sanitary pads during menstruation. Investigators reasoned out that poverty, high cost of sanitary pads and ignorance may be the reasons (Jogdand and Yerpude, 2011; Dasgupta and Sarkar 2008). Few researchers (Singh et al., 2006; Khanna et al., 2005; Drakshayani and Venkata, 1994) found ignorance among girls regarding use of sanitary pads during menstruation. Whereas, Jogdand and Yerpude (2011) reported that 53.7% and 34.63% of girls used sanitary pads and old clothes during menstruation respectively. Girls need to change their sanitary napkins regularly during the period of menstruation especially in the first two to three days. Change of napkins/ pads at an interval of 3–4 hours is considered as a healthy behavior for comfort and to prevent odor, regardless of the extent of staining (UNICEF, 2008). Cotton are preferable than a synthetic one as synthetic doesn’t absorb moisture and making it a breeding ground for bacteria. These cloth pads are washed and used several times. They must be washed thoroughly and hung in a private but sunny place to dry. If pads are used, they should be wrapped in a paper bag and disposed or can be burned.
Adolescents should take bath at least once daily. Some amount of body odor is natural but regular bathing, washing and changing of napkins will ensure that it is not noticeable. They should wash and clean the genital area every time after changing pads and urination to prevent itching and other infections. One needs to use plain water and mild soap to wash and clean to remove bad odor. They should keep the thigh area between the legs dry to avoid development of soreness of chaffing. Regular and routine activities can continue as usual during menstruation.

Irregular periods are common in girls who are just beginning to menstruate. It might take several months/years for a girl’s period to become regular (UNICEF, 2008). The process of menstruation itself is painless. But some girls experience cramps or other symptoms before or at the start of their period. Some girls have cramps during their periods. The most common of the menstrual disorders are premenstrual syndrome, dysmenorrhea and amenorrhea.

Before the onset of the menses, females face many uncomfortable symptoms which last for a short period, stretching from few hours to few days. But some of them can be very intense and can disturb the normal functioning of the person. These symptoms are grouped as premenstrual syndrome. In usual cases, the symptoms come to a halt when the menses begin, but for some they may last even after the menstrual periods are over. Eighty five percent of the females experience some of the symptoms of premenstrual syndrome at one time or the other. Nearly forty percent experience the symptoms so intensely that their daily chores are affected by it and ten per cent are disabled by it. The good thing is that premenstrual syndrome can be prevented by exercising regularly, eating balanced diet and sleeping adequately.

Cramps are actually uterus’ contractions, the uterus contracts, tightening and relaxing so that the menstrual flow empties the uterus. This process for some is painful. Just before and during period, body may tend to retain water. And some girls feel moody or emotional and her body may be puffy or swollen. This added fluid might make feel fat or make breasts feel tender. Actually, it’s
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Normal to gain a couple of pounds during this time of the month and lose them right after period. Consuming less salt before and during period might help because salt increases water retention. Some girls get cramps that are more severe than others. Pain relievers, exercise including yoga, a hot bath, or a heat compress can help this.

Dysmenorrhea is feeling intense menstrual pain and cramps. Depending on the severity, dysmenorrhea is stated as primary dysmenorrhea or secondary dysmenorrhea. Primary dysmenorrhea symptoms are felt from the onset of the menstrual periods and are felt life-long. Because of abnormal uterine contractions due to chemical imbalance, severe menstrual cramping is experienced. Secondary dysmenorrhea starts in the later stages. The causes are different for primary and secondary dysmenorrhea. Secondary dysmenorrhea can be blamed on medical conditions such as endometriosis, uterine fibroids, pelvic inflammatory disease, tumors, infections, and abnormal pregnancy.

Dysmenorrheal symptoms are lower abdomen cramping and pain, lower back pain, nausea, diarrhea, vomiting, fatigue, fainting, weakness and headaches. Females who are overweight, smoke, and have started to menstruate before turning eleven are at a higher risk of developing dysmenorrhea. Females who drink alcohol during menstrual period experience prolonged pain. After studying the health conditions, age, cause of dysmenorrhea, and extent of condition of the individual, corresponding treatment will be recommended. Regular exercise, abdominal massage, hot bath, vitamin supplements, and dietary modifications can help overcome dysmenorrhea.

Amenorrhea is the condition in which the female skips her menses for more than three consecutive menstrual cycles. Amenorrhea is also classified as primary amenorrhea and secondary amenorrhea. Primary amenorrhea develops from the onset of menstrual periods. In this condition, the adolescent might not get periods when she enters puberty. Secondary amenorrhea is a condition where periods become irregular after a period of time and not from the start. There are many causes of amenorrhea such as ovulation abnormality, eating
disorders, birth defects, anatomical abnormalities, malnourishment, anorexia, bulimia, pregnancy, over exercising, thyroid disorder, obesity and other medical conditions. Out of these, ovulation abnormalities are a common cause for absent or irregular periods. It is a must that an adolescent start getting menses at least by the age of sixteen. If not, anatomical abnormality, birth defect and other medical conditions are the cause. Adolescents who participate in sports actively and are athletic have a lower body fat content because of which they have absent menses. Even because of malnourishment, the body is incapable of sustaining pregnancy. So in turn the body itself shuts down the reproductive system and menses. Extra fat cells in the body interfere with ovulation and that is the reason why obese female have irregular menses. Amenorrhea is treated by dietary modifications, ovulation inhibitors and hormone treatment (UNICEF, 2008).

During menstruation, girls suffer from loss of appetite. However, taking no food or less than normal diet weakens the body. It is essential to eat balanced diet with lots of fresh fruits and vegetables and plenty of water during menstruation. It is also necessary to take iron rich food to compensate for the blood loss and prevent anemia. And it is advisable to take citrus fruits or vegetables before taking iron rich food and avoiding caffeine and tannin which decreases iron absorption by the body. Reducing intake of salt and sugar during menstruation helps to reduce bloating and fluid retention. Eating foods that are high in calcium has been shown to help alleviate some of the symptoms associated with PMS (UNICEF, 2000).

c. Adolescents sexual development

According to Feldman a contemporary Psychologist, adolescence is a bridge between the asexual child and the sexual adult. Sexual arousal emerges as a new phenomenon in adolescence, and it is important to view sexuality as a normal aspect of adolescent development (Feldman, 1999). Sexual development is a normal part of adolescence and most adolescents go through these changes without any significant problems (National AIDS Controls Organization, NACO, Government of India, GOI, Ministry of Health and Family Welfare, MOHEW, 2005).
During adolescence, there is increasing desire to interact more with the opposite sex which results attraction to the opposite sex and sexual urges in adolescents. It is a time of sexual exploration and experimentation with sexual fantasies and realities, of incorporating sexuality into one’s identity (Christopher, 2001). Most adolescents have an almost insatiable curiosity about sexuality’s mysteries. They think about whether they are sexually attractive, mechanism of sex, what the future holds for their sexual lives. The majority of adolescents eventually manage to develop a mature sexual identity, but for most there are times of vulnerability and confusion (Santrock, 2008). All adolescents needs support and care during transition to adulthood, and some need special help and the lives of millions of adolescents worldwide are at risk because they do not have the knowledge, skill, health practices and support and the need to go through sexual development during adolescents.

An adolescent’s sexual identity involves sexual orientation, activities, interests, and styles of behavior. Some adolescents have considerable anxiety about sex, whereas others show little anxiety about it. Some adolescents are strongly aroused sexually, and others less so. Some adolescents are active sexually, others are not. Some adolescents are sexually inactive because of a strong religious upbringing; but other adolescents are sexually active though religious. Mastering emerging sexual feelings and forming a sexual identity is multifaceted (Archibald et al., 2003). Adolescents face the challenge of learning to manage sexual feelings such as sexual arousal and attraction, developing new forms of intimacy, and learning to regulate sexual behavior to avoid undesirable consequences. They must synthesize their developing sexual identity with other facets of their identity (Santrock, 2008).

Every society pays some attention to adolescent sexuality. Most adolescents have healthy sexual attitudes and engage only in sexual practices that will not compromise their development (Feldman, 1999). As adolescence is one of the most rapid phases of human development, where an individual transit from being a child into an adult that involve biological, cognitive and socio-emotional changes (Larson et al., 2002). However during adolescence
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biological maturity precedes psychosocial maturity which has implications for reproductive health concern in responses to the exploration and experimentation that takes place during adolescence. The changes in adolescence have health consequences not only in adolescence but also over the life-course and to the next generation.

Over the time and period, developmentalists describe the key task of an adolescent is preparation for adulthood; thus a time to develop knowledge and skills, learn to manage emotions and relationships, and acquire attributes and abilities which is important for enjoying the adolescent years and assuming adult roles. Indeed the future of any society hinge on how effective this preparation is. The unique nature and importance of adolescence mandates explicit and specific attention in health policy and programmes.

Adolescence is a period of formative and dynamic transitions, when young people take on new roles, responsibilities, and identities. It is a period of life full of basic changes and young people attempt to achieve autonomy from their parents/guardians. Adolescence also marks cultural transitions through traditions. At the same time, for many it is the transition to work. During this period, health behaviours that will last long into adulthood can be strongly influenced as during adolescence values are formed and vocational skills are developed. Gender norms, notions about appropriate sexual behaviour, and awareness of such issues are shaped during adolescence. Understanding the reproductive health needs of adolescents, both physical and psychosocial, is crucial since reproductive health is an important component of overall health and well-being.

B. Issues pertaining to adolescent sexual and reproductive health

Adolescence is a critical juncture in the adoption of behaviours relevant to health (Benson et al., 2006; Greening et al., 2005; Philips, 2003). A large number of adolescents in India are out of school, malnourished, get married early, are working in vulnerable situations and are sexually active. They are exposed to tobacco or alcohol abuse. Some of the major problems plaguing our
adolescents are malnutrition, general health problems, menstrual problems, mental health problems, early and unprotected sex, addictive behaviours, accidents and violence, sexual abuse, depression, suicide and eating disorders. Adolescents who have a limited capacity to resist dares often engage in risk taking at urging of their peers, peer pressure can instigate such health, compromising behaviours as cigarette smoking, substance abuse, early sexual activity and violence, because adolescents spend so much time in school, it is not surprising that what goes on can influence their health (Foraker et al., 2005).

For the present study, the issues pertaining to adolescents’ reproductive health will be reviewed under the following sub-themes.

a. Maladjustment to pubertal changes

The early body changes are accompanied by amazement especially if they are very early than rest of the peer group. Few adolescents experience body-cathexis or satisfaction with bodies. However, they do experience more dissatisfaction with some parts of their body than with other parts. This failure to experience body-cathexis is one of the causes of unfavorable self-concept and lack of self-esteem during the adolescent years (Mahoney, 2000). Some of the concerns adolescents have about their body are carry-overs of concerns they experienced during puberty and which in the early years of adolescence are based on conditions that still prevail (Hurlock, 2006).

Social pressures and “society norms” may play a big role in pressuring how adolescent feel about their body image especially during this stage of life. Girls who may develop later may feel “babyish” in comparison to girls of their age who develop earlier, on the other hand girls who develop earlier than others of their age may feel out of place in comparison. Girls are more dissatisfied than boys with their physical appearance and their overall body image. At the same time there may be some degree of associated concern about extent and speed of changes being normal. These concerns may be shared with peers. The peer group may be ill informed and some of the misconceptions and concerns may be aggravated at this stage. Inability to share the concerns regarding the body
changes may sometimes result in a withdrawal from the parents and peers (Newman and Newman, 2006).

Peer influence is a dominant psychosocial issue during adolescence, especially during the early stages. Young adolescents are highly cognizant of their physical appearance and social behaviors, seeking acceptance within a peer group. The desire to conform can influence food intake among adolescence. Dramatic changes in body shape and size can cause a great deal of ambivalence among adolescents, especially among females, leading to the development of poor body image and eating disturbances or disorders (Wong et.al, 2002).

There is also a tendency to idolise certain celebrities as role models for their physical attributes. These are obsession about the body image especially under peer pressure or influence of media. Maladjustment with the body image may lead to low self-esteem, loss of confidence and depression. These are changes in early adolescence but there are no dividing lines and the change from one phase continue into the other and tends to emerge.

Peer pressure at times pushes them to indulge in high risk behaviour. This is not to say that peer influence does not have positive influences like information sharing, confidence building, emotional sharing, and above all identity formation. Peer pressure possesses them to new experience and influences and pressurises them to experiment with new ideas. There could be an associated felt need to prove one’s femininity or masculinity. The adolescent who look different from the rest of the peer group by way of being slow or fast in body changes tends to be single out and made fun of. These boys and girls may go out of the way to prove that they are a part of the group by associating with similar activities as their peers. Most adolescents may realise that these are harmful habits but may not be able to say no when pressurised by the peer group. The myth that they will not get habituated may lead to giving in the first time. Sexual activity is likely to be unsafe and predisposes the adolescents to risk of STIs /RTIs.
Developing all the changes early can take a huge toll on emotional and psychological changes. While for a girl developing early, may lead to dating earlier and experience event that she wouldn’t normally experience for some time. The three influences that show to impact body unhappiness among girls of this age are “Social pressures to be, an internalized thin ideal body type, and higher than average body mass, a mixture of these aspects can lead girls into eating disorders, low self-esteem and ultimately an unhealthy psychological attitude about themselves” (Newman and Newman, 2006).

**b. Hazardous menstrual practices**

The stage of adolescence in girls is a turbulent period, which includes stressful events like menarche, considered as a landmark of female puberty (Bansal and Mehra, 1998). Adolescence is the time when there is sudden transformation in the body and many questions arises in the minds of the adolescents. Firstly they are not able to cope with the changes and secondly the changes bring along problems with them. The most challenging problems are related to menses, in girls. One might expect that menarche will be positively received by young women; however negative responses such as shame, fear, anxiety and depression are more common. The manner in which a girl learns about menstruation and its associated changes may have an impact on her response to the event of menarche (Deo and Ghattargi, 2005).

Although menstruation is a natural process, it is linked with several perceptions and practices, which sometimes result in adverse health outcomes. It is still considered as something unclean or dirty in Indian society (Dasgupta and Sarkar, 2008). This concept is responsible for related taboos. The first menstruation is often horrifying and traumatic to an adolescent girl because it usually occurs without her knowing about it (Gupta and Gupta, 2001).

Menstruation has often been dealt with secrecy in many cultures. Such perceptions coupled with poor and inadequate sanitary facilities have often kept girls from attending schools especially during periods of menstruation. The consequence of this is that many girls grow up with low self-esteem and disempowered from poor educational attainments. There is lack of information
on physiology of menstruation and menstrual management among adolescent girls, a situation made worse by the shyness and embarrassment with which discussions about menstruation is treated. Most of these girls seek information about menstruation from their peers who do not know better. Adolescence being a time of tremendous opportunity, and at the same time also a time of heightened vulnerabilities, it is imperative to empower adolescent girls with adequate information and skills on crucial issues like menstrual hygiene and its management (UNICEF, 2008; Sharma, 2000).

Due to lack of information on this natural phenomenon, many girls get frightened by the menstrual flow and are unable to manage it in a safe manner. In fact, many researchers cautioned that prior awareness regarding menarche and menstruation among girls is generally low in most cultures (Jogdand and Yerpude, 2011; Omidvar and Begum, 2010; Deo and Ghattargi, 2005). Moreover, girls are explained that menstruation is a taboo even within their own families so many girls felt that menstruation is an unclean process so there is need to stay indoors and out of sight. Because of these reasons majority of the girls feel embarrassed and anxious about menstruation (Singh et al., 1999). According to Singh et al., (2006) and Jogdand and Yerpude, (2011) mothers were first source of information regarding menstruation. Khanna et al., (2005) also indicated that mothers, sisters and friends were major sources of information. However, much of this information imparted to young girls is in form of restriction on her movements and behaviours (Khanna et al., 2005). A number of studies (Singh et al, 2006; Gupta and Gupta, 2001; Narayana et al, 2001; and Drakshayani and Venkata, 1994) reported different type of restrictions observed during menstruation. Majority of the girls were not allowed to attend religious occasions and they are usually restricted from doing routine household work and playing (Jogdand and Yerpude, 2011). Due to these compulsory routine practices, the adolescent girls they themselves started to practice different restrictions during menstruation such as not attending any religious occasion, not consuming certain foods, not involving in physical exercises, not performing any household work, and even not attending school and any marriage ceremony during the menstrual period (Dasgupta and Sarkar, 2008).
Menstruation is a periodic event and therefore dealing with it hygienically is essential. Dasgupta and Sarkar (2008) reported that cleanliness of external genitalia was unsatisfactory (frequency of cleaning of external genitalia is 0-1/day) in case of 15% girls. For cleaning purpose, 97.5% girls used both soap and water. In a study conducted in Rajasthan by Khanna et al. (2005), three-fourths of the girls used old cloths and large proportion of them were reusing the same during their subsequent periods and only one-fifth reported using readymade sanitary pads. It was observed that the usual practice was to wash the cloth with soap after use and keep it at some secret place till the next menstrual period. To keep the cloth away from prying eyes, these are sometimes hidden in unhygienic places. A culture of shame and embarrassment forces girls to seek for well hidden places even in their homes to wash and dry the clothes. These places are often damp, dark and unhealthy. The type of absorbent material used is of primary concern since reusable material could be a cause for infection if improperly cleaned and poorly stored (El-Gilany, 2005). Repeated use of unclean napkins or the improperly dried cloth-napkins before its reuse results in harboring of micro-organisms causing vaginal infections (Paul, 2007). Unhygienic management practice is responsible for a significant proportion of illness and infection associated with female reproductive health results in reproductive tract infections and urinary tract infections. Primarily poor personal hygiene and unsafe sanitary conditions result in gynecological problems (Bhatia and Cleland, 1995). Infections due to lack of hygiene during menstruation are often reported (Margaret, 1997; Mehra, 1995). Very often serious infections are left untreated.

Myth, mystery and superstition have long enveloped the facts about menstruation. In India, even mere mention of the topic has been a taboo in the past and even to this date, the cultural and social influences appear to be hurdle for advancement of the knowledge of the subject. The social practices about menstruation make girl child feel subnormal and may hamper her development. Menarche may remain a traumatic event for her unless she is prepared for it. Adolescent girls constitute a vulnerable group, particularly in India where female child is neglected one (Bansal and Mehra, 1998).
c. Adolescents sexual behaviour and conduct

Adolescence is shrouded in myths and misconceptions about sexual health and sexuality. In Indian culture, talking about sex is taboo. Consequently, little information is provided to adolescents about sexual health. Instead, young people learn more about sexual and reproductive health from uninformed sources, which results in the perpetuation of myths and misconceptions about puberty, menstruation, secondary sex characteristics, physiological and body changes, masturbation, night emissions, sexual intercourse, and STIs. Apparently, adolescents both boys and girls have a very little knowledge about reproductive anatomy, physiology, sex and contraception. Girls have almost no information and boys are misinformed (Singh, 2000). The research coordinated by the Washington-based International Center for Research on Women (ICRW) pointed out that the lack of knowledge about sexuality had serious implications in reproductive health because lack of information could result in unintended pregnancies, sexually transmitted diseases including AIDS, etc.

In India, one-half of all young women are thought to be sexually active by the time they are 18, and almost one in five are sexually active by the time they are 15. There are approximately 10 million pregnant adolescents and adolescent mothers throughout India at any given time. A study conducted in 1997 of boys and girls from the selected colleges of Mumbai revealed that a large percentage of boys and girls reported engaging in non-penetrative sexual experiences (e.g., kissing, hugging, touching sexual organs), but only 26 percent of boys and 3 percent of girls reported that they had experienced sexual intercourse (Abraham, 2001). The study also revealed that less than 50 percent of the boys who reported that they had experienced sexual intercourse had used a condom, although all of them said they knew about condoms and their function. Another study on sexual behavior and attitudes among urban college students reported that 28 percent of males and 6 percent of females were sexually active. A study in 2000 in Madras found that 13 percent of male school-going adolescents and 10 percent of female school-going adolescents clearly approved of premarital sex. The study also revealed that 14 percent of the students, both boys and girls, stated that premarital sex is allowable for males only (Sirur, 2000).
Research indicated that attitudes, outlooks, norms and beliefs around sexual behaviour determine the intended sexual behaviour of young people (Greene et al. 1995). In a study 15% (n = 37) of respondents did not believe that girls should remain a virgin until they marry while 9% of girls admitted a sexual experience. However, several studies have indicated that the most common reasons cited for having engaged in unwanted sex were being drunk and pressure from a sexual partner (Smith et al., 2002).

With the advent of globalization and western acculturation, premarital sex is rapidly becoming common among Indian youth. Different research studies on sexual behaviour and condom usage report an array of findings. The median age for sexual intercourse for males as well as females is 18 years, with only 3% of the respondents acknowledging sexual intercourse before the age of 15 years (National AIDS Control Organization, 2006). From the National Family Health Survey-3 reports, 10% of young men and 2% of young women admitted to having had sexual intercourse before age 15 years (National Family Health Survey, 2005-06). Similarly, 11.5% of boys and 1.5% of girls who were secondary school students in Kolkata stated to have had premarital penetrative sexual exposure without using condoms, and also a section of adolescents, though very small in number, also indulged in high-risk sexual behavior (Chakrovarty et al., 2007).

Another study revealed that more than one-third of the adolescents said they touched their body in some sexual manner, and about 20 percent had touched their genitals. The study also revealed that 15 percent of the adolescents had experienced sexual intercourse (Gupta, 1998). Awareness of contraception and infection may be almost universal at a superficial level of indepth awareness of sexual health issues, health promoting action and risky sexual behaviour is limited among young people (Sebastian et al, 2002). Only 35.3% of single girls in urban Maharashtra (India) know that they could get pregnant in their first sexual encounter. A mere 35.1% of unmarried boys consistently used condoms with premarital partners (A Times of India Report, 15 Feb 2008).
In several surveys, 20 - 25% of Indian youth have expressed favourable attitudes towards premarital sex, with the rate being substantially higher among males, urban youth, and the more highly educated (Bhatt and Dhoundiyal, 1996). Out of 966 college students in the metropolitan city of Mumbai, 47% of male students and 13% of females reported ever having had any sexual experience with a member of the opposite sex, while 26% and 3%, respectively admitted to having had intercourse (Abraham and Anil, 1999). The lesser prevalence of premarital sexual activity in females can be attributed to the cultural importance given to virginity and the stigma associated with an out-of-wedlock pregnancy. Moreover, girls are subjected to stricter parental control (Mehra et al., 2002; Ramakrishna et al., 2003, Bhende, 1994). The trend of premarital sexual activity is as high in smaller/lesser developed towns and rural areas as it is in larger urban areas, as observed from the proportion of adolescent girls from Ajmer, a small town in Rajasthan, reporting premarital sex to be as high as 23.3% (Goyal, 2005). According to the Social Welfare Board of India, two out of five sex workers are under the age of 18 years.

In general, young people adopt risky behaviours since they are poorly informed about their physical attributes, sexuality and consequences of unprotected sex. They also lack the skills to negotiate safe sex or say “no” to unwanted sex. Well known factors such as peer pressure, increasing levels of social interaction with the opposite sex, and even household factors like broken homes and poverty, contribute to increased sexual activity and promiscuity (Kirby, 2002; Jessor, 2000; Romer et al., 1994). Early, unprotected sex among young persons can have negative consequences. Pregnancy and sexually transmitted diseases (STDs), including human immunodeficiency virus/acquired immune deficiency syndrome (HIV/AIDS), result in high social, economic, and health costs for affected persons, their children, and society.

Early sexual activity is prevalent in tribal communities as well. To cite an example, the age at marriage is very low among a migrant tribe from Eastern India, where 54% of women have had first intercourse before the age of 15 years, with the mean age being 15.8 years, and 19.5 years for men (Mishra et al., 2008). Pre- and extramarital relations, including multi-partnered
sex is prevalent in this tribal community, and safe sexual practices are not reported, while the risk perception is very low.

Bridging the gap between knowledge and practice (particularly with respect to the use of condoms) has emerged as a major behavior change communication challenge to reducing adolescents' vulnerability to STIs and unwanted pregnancies (Goyal, 2005). The survey showed 8% (n = 20) of students felt that no one (of their age) used condoms if they had sex while 33% (n = 82) considered that a few students used condoms during sex (McManus and Dhar, 2008). Attitudes, norms and motivational factors are crucial elements in the decision making process of adolescents around engaging in risky behaviours (Whitt, 1995). Interestingly, almost one quarter of the adolescent respondents (22%) had agreed that there was nothing wrong with unmarried boys and girls having a sexual relationship if they loved each other. This observation is reflected in the increasing incidence of premarital sex in India (McManus and Dhar, 2008). When asked if students should have access to condoms, surprisingly, 49% of respondents felt that condom should not be available to youth because it encouraged them to have sex. In a similar study conducted in both India and Kenya, there was also a strong resistance towards the availability of condoms in both countries (Boler et al., 2003).

Though contemporary literature reveals that oral contraceptives are safe for adolescents, in India, less than 10% of adolescents use any form of contraceptive (Nair, 2004). Another study reported that 32% of girls thought that girls should not take the contraceptive pill as it should only be taken by married women. Adolescents’ attitude towards contraceptives (including condoms) may be based on cultural and other beliefs that need specific educational efforts to change (McManus and Dhar, 2008).

d. Early marriage and adolescent pregnancy

Although the national policy of the Government of India advocates the minimum legal age at marriage is 18 years for females and 21 years for males (Mukhopadhyay et al., 2010), the age of marriage varies in different parts of India, according to different social customs and ethnic and religious groups.
Early marriage is perpetuated by traditional beliefs regarding preserving a girl's chastity and family needs to reduce expenditure (Atwood and Hussain, 1997). Early marriage and early marital sexual activity present reproductive health risks for young women.

Adolescent pregnancy which is defined as pregnancy occurring during the maternal ages of 13-19 completed years at delivery is a fairly common occurrence in India. In our country, adolescent pregnancies after marriage, in contrast to unwed pregnancies in developed countries, have social approval but have an adverse impact. Pregnancy in adolescence is generally considered to be a very high risk event, because adolescent girls are physically and psychologically immature for reproduction.

Adolescent pregnancy is therefore coming up as one of the most important social and public health concern. The practice of family planning is still very limited in this group. Most adolescent girls in rural areas being illiterate are not aware of family planning methods, and even if they are aware they do not have easy access to family planning services or fail to utilize them due to inhibitions or pressure to attain motherhood to satisfy their mothers-in-law or husbands (Pathak and Ram, 1993). Across countries and cultures, women have been victims to social pressure and are often in a position to neither regulate their pregnancy nor make decisions regarding their reproductive performance. Husbands and mothers-in-law are the primary decision-makers. In many cases, this decision making structure appears to be driven by a woman's lack of economic independence. Even access to the most effective services is highly dependent on the involvement of influential family members (Banerjee, 2004; Rue et al., 2004; Elul et al., 2004). As a result, early pregnancy and its complications continue to remain highly prevalent.

Child marriages are still prevalent today in India the results of which are girls becoming mothers in their teens. Early marriage pushes girls into early childbearing and they do not have children by choice. In addition to that, the recent spate of incidents of rape on minors and the rising levels of promiscuity among adolescence are also a cause of great concern as they lead to
adolescent pregnancies. Puberty is the stage of adolescence when a girl can sexually reproduce, however a young woman can become pregnant even before her first menstrual cycle. This is because of ovulation, the release of an egg from the ovary, may occur before the first period. In the absence of adequate contraception the egg can become fertilized. It is therefore very important for adolescents to have proper knowledge and understanding of their body and its functions before they become sexually active. Responsible sexual behaviour prevents pregnancy.

The ultimate "cause" of adolescent pregnancy is unprotected intercourse. A sexually active adolescent who does not use contraception has a 90% chance of becoming pregnant. Potential behaviour patterns and factors for an adolescent girl becoming pregnant include:

- Early dating behaviour
- Early marriage
- Early sexual involvement
- Declining age at menarche
- Proving fertility
- Lack of information and knowledge
- Wrong information on sexuality
- Living in a community where early child bearing is common
- Exposure to sexual abuse and exploitation
- High-risk behaviour (smoking, alcohol and substance abuse)
- Lack of knowledge on contraception

Changing pattern of today’s growing up adolescents in a culture in which peers, TV and movies, magazines and music transmit subtle and obvious messages that unmarried sexual relationships are common, accepted and even expected.

Adolescent pregnancy, a social problem distributed worldwide, has serious implications on maternal and child health, especially in the context of developing countries. It is shocking that with the adolescent pregnancy on rise, people rarely discuss with their adolescents about its consequences. This is of
serious concern because maternal age plays a significant role in adverse outcome and complications of pregnancy. The health and education of married adolescent girls are the first casualty (Adolescence Education Programme, 2008). Adolescent pregnancies represent a high-risk group in reproductive terms because of the double burden of reproduction and growth. Complications of pregnancy and childbirth are the leading cause of mortality among girls aged 15-19 years in developing countries (Mayor, 2004). There is also an inter-generational impact on the overall socio-economic status of the family.

The pregnant adolescent mother and the child born are likely to suffer health, social, emotional and economic problems. The pregnant adolescents may not be quite fit to bear the burden of pregnancy and labour at a tender age. The obstetric outcome of adolescent pregnancy is influenced by many socio-medical factors. The combination of poor nutrition and early child bearing expose adolescents to serious health-risks during pregnancy and childbirth, including damage to the reproductive tract, pregnancy-related complications, such as anaemia, poor maternal weight gain, pregnancy-induced hypertension, preterm labour, cephalopelvic disproportion, maternal mortality, perinatal and neonatal mortality, and low birth weight (Agarwal and Reddaiah, 2005; WHO, 2003). In a meta-analysis and review of pregnancy complications, it was observed that in the developing countries, adolescent mothers were at increased risk of maternal anemia, pre-term birth and Caesarean delivery (Scholl et al. 1994).

It is also emphasized by Mapanga that the health related disadvantages of adolescents who have become parents heavily outweigh any advantages that there may be. The financial, emotional, and medical needs of the infant may be too difficult for an adolescent mother and/or her extended family to deal with. It is further complicated with society’s attitude towards adolescent unwed mothers. They experience isolation, guilt accompanied by stress and depression, low self esteem resulting in lack of interest in studies, limited job prospects and lack of a support group or few friends to name just a few. Health wise, adolescent mothers have a much higher risk for anaemia, pregnancy-induced hypertension,
lower genital tract infections (which may lead to premature labour and delivery), caesarean section because of pre-maturity, large baby within a small pelvis, foetal distress and sudden infant death syndrome. The major complications in young mothers are thought to be high blood pressure, iron deficiency, anaemia, disproportion and birth of low weight babies (Mapanga, 1997).

Globally researchers have gathered substantial evidence in favor of the fact that pregnancy among adolescents is associated with maternal complications, premature birth, low birth weight, perinatal mortality, increased infant mortality and maltreatment of children (Mapanga, 1997). Similarly, infants born to such adolescent mothers are at higher risk of complications of prematurity (birth prior to 37 weeks of gestation), low birth weight (less than 2500g), high pre-natal, peri-natal, neo-natal and infant mortality rate, poor cognitive development, abnormal baby, birth defects, accidental trauma and poisoning, minor acute infections, lack of immunization or vaccinations, malnutrition and developmental delays, inadequate childcare and breastfeeding are most common and serious infant risks associates with adolescent childbearing.

Collectively, Risks to adolescent mothers are listed below:

- Higher risks of morbidity and mortality which may be due to biological reasons as well as limited access to health services
- Stunted growth and also adolescent girls with body weight less than 38 kgs. and height less than 145 cms. are at high risk
- Intrauterine growth retardation
- The development of pelvis is not yet complete and narrow pelvis may lead to obstructed labour and result in severe damage to reproductive tract
- Preterm labour
- Aggravates pre-existing malnutrition and anaemia
- Bleeding in first trimester occur in almost one-third of adolescent pregnancies
• Likely to develop pregnancy induced hypertension compared to older mothers
• Spontaneous Abortion
• Repeated pregnancies
• Depression and other psychiatric illness
• School dropouts and curtailment of education
• Impaired quality of life and low self esteem.

In case of unmarried adolescent girls, harm to girl and her unborn baby can’t be ruled out. So adolescent pregnancy not only is immoral but dangerous as well, to the adolescent girl and her baby. Adolescent pregnancy affects the education of under fourteen girl and causes a great humiliation in her friend circle. Adolescent pregnancy spoils entire career of such adolescent girls. Parents feel ashamed of their daughter, as her pregnancy makes their negligence public, in the society. Adolescent pregnancy causes psychological and physical trauma to the girl forcing her often to commit suicide especially in the conservative families of developing countries where it is looked upon with hate. Pregnancies occurring outside wedlock have the risk of terminating in unsafe abortions by quacks and often do not reach the tertiary hospital (Mukhopadhyay et al., 2010).

Unmarried adolescent pregnancy is one of the vital issues that must be dealt constructively. There are many reasons behind an adolescent girl getting pregnant such as long dating relationships and even rape. In short, it can be an outcome of voluntary or involuntary relationship. Nowadays, adolescents are of the opinion that pregnancy can be avoided with birth control pills and other such measures. However, refraining from a physical intercourse is the only key to avoid pregnancy. So, it is very important to understand all about such interactions and only enter in them after maturity and marriage. This is because the consequences of such wild relationships are grave, which can even lead to the death of both the adolescent girl and her child.

All teenage pregnancies are the result of sexual activity, whether voluntary or involuntary. No matter what measures are taken for birth control, the
only 100% effective way to prevent pregnancy is abstinence from all sexual activity. Pregnancy at a very young age especially an unwanted one leads to severe emotional and mental trauma for the girl. Hence, the first and foremost lines of defense are programs that are effective in delaying attempts at sexual intercourse. Parents, schools and healthcare professionals can have open, honest, and educational talks with teenagers and preteens. They can also provide advice to teenagers about how to prevent unwanted teenage pregnancies. Since unprotected sex is the main cause of teenage pregnancies, contraceptive counselling is highly important in order to prevent them.

e. Vulnerability towards HIV/AIDS and STIs

Adolescents today face enhanced vulnerability to HIV/AIDS. Young people are at the center of HIV/AIDS epidemic. Half of all the new HIV/AIDS infections are occurring among young people between 15 – 29 years the most sexually active age group.

In India, young people in the age group 15 - 24 years comprise almost 25% of the country’s population; however, they account for 31% of the AIDS burden (NACO; MOHFW, 2007). UNAIDS (2001), estimated that at the end of 2001, approximately 40 million people worldwide were living with HIV/AIDS and one third of those currently living with HIV/AIDS are age groups of 15-24 years. It is alarming that in India rates for new human immunodeficiency virus (HIV) infections every year among young males and females are 0.46% and 0.96% respectively (UNICEF, UNAIDS and WHO, 2002). One youth is reported to be infected with HIV/AIDS almost every 15 seconds (Population Foundation of India, 2003). HIV prevalence in the 15 – 19 year age category is 0.04%, while it is 0.18% in the age group 20 - 24 years (National Family Health Survey, 2005-2006). Even in high-risk groups it is the young who are more prone to infection. According to Sarkar et al. (2006), in West Bengal, HIV prevalence among young (under 20 years) brothel-based commercial sex workers was more than twice as high as among their older counterparts (13% compared with 5.4%).

Various studies report differing findings about the youth’s knowledge with regard to the existence of HIV/AIDS. Behavioural Surveillance Survey (BSS,
Impact of Reproductive Health Education Programme (RHEP) among adolescent girls – an intervention study

Review of Literature

2006), reported that as many as 86% of youth surveyed had heard about either HIV or AIDS, or both. The Behaviour Surveillance Survey included 25 sampling units covering a total of 97,240 respondents, with equal representation given to urban and rural participants (NACO, 2007). However, according to the National Family Health Survey 2005 - 2006 reports, only 36% of male youths and 20% of females had a ‘comprehensive knowledge about HIV/AIDS’, which includes knowledge about condoms as a preventive measure, knowing that an AIDS-afflicted person can still look healthy, and rejecting AIDS-related misconceptions (Nath, 2009). Similarly, approximately half of the adolescent girls (46%) were not sure if a healthy looking HIV infected person could transmit the HIV infection to others (McManus and Dhar, 2008). In a study among school children in the state of Haryana, 57% believed that persons with HIV/AIDS could be detected by their physical appearance (Aggarwal and Kumar, 1996).

While the above-mentioned statistics are derived from nationwide surveys, different studies conducted in different settings report varying results, which could be attributed to the variation in socio-cultural and socio-economic conditions across different states which characterize the nation’s diversity (Nath, 2009). Some studies report an awareness level of more than 90% among college youth (Kumari, 2004; Aggarwal and Kumar, 1996). Other studies report an awareness level of as low as 5% (Mahajan and Sharma, 2005). Also, urban youth are better informed, compared with rural youth (Sodhi and Mehta, 1997; Aggarwal and Kumar, 1996; Lal et al., 1994). Females display lower knowledge levels in comparison to males (NACO, 2007; Pramanik et al., 2006; Lal et al., 2000; Bhende, 1994). Another study reported all the students had heard of HIV/AIDS although only 51.4% were able to write the full form of AIDS and only 19.9% were able to write the full form of HIV (Lal et al., 2008).

Several disease-related misconceptions have been encountered. As an example, a study carried out in 2007 in South Delhi, India to investigate the perception, knowledge and attitude of urban adolescent schoolgirls has reported that 49% felt that condoms should not be available to youth, 41% were confused about whether the contraceptive pill could protect against HIV infection and 32% thought it should only be taken by married women; about 30% of respondents
considered HIV/AIDS could be cured (McManus and Dhar, 2008). Another study revealed many students do not even know that AIDS is incurable (Banerji and Mattle, 2005; Lal et al., 2000; Sodhi and Mehta, 1997; Agrawal, et al., 1999; Aggarwal and Kumar, 1996). Lal et al. (2000) reported that 72% of students were aware about HIV/AIDS as being preventable. HIV can be transmitted from an infected person to someone else where there is an exchange of blood, semen or vaginal secretions, a baby born to an HIV-positive mother has 14 to 2 percent chance of being infected. The main modes of HIV transmissions are unprotected sexual intercourse with an infected partner, injection or transfusion of contaminated blood on blood products, sharing of contaminated and unsterilized injecting equipment can also infect the other, mother to child transmission (during pregnancy, at birth and through breast feeding) occupational infections of health care or laboratory workers from contaminated needles prickling their bodies and come into contact with their blood also can infect them (UNICEF, 2008).

Researchers in different studies observed awareness among boys was found to be significantly more than that among girls regarding communicability, modes of transmission and prevention of HIV/ AIDS (Chakrovarty et al., 2007; Singh et al., 2004 and Gaash et al., 2003). Only 48.2% of the students could name sexual route while 44.4% named sharing of syringes and needles as a mode of transmission followed by only 31.1% and 23.4% cited blood transfusion and mother to baby transmission as routes of transmission, respectively (Lal et al., 2008). Similar findings were observed in a study done amongst 2400 secondary school students from Mumbai, in which only 50% of students knew about the sexual route of transmission. Low levels of knowledge about general aspects and transmission of HIV/AIDS have also been observed amongst secondary school students in Kolkata (Chatterjee et al., 2001). Higher levels of awareness have been observed amongst school children of Haryana (Sodhi and Mehta, 1997).

A number of false notions in relation to modes of transmission have been elicited. These include modes of transmission of the virus, such as drinking water, sharing utensils, using common swimming pools and insect/ mosquito
bites (Meundi et al., 2008; Pramanik et al., 2006; Ganguli et al., 2002; Aggarwal and Kumar, 1996). Another common misconception is that an HIV-positive person cannot have a healthy appearance (Sodhi and Mehta, 1997). In a study published conducted by the ICMR (Indian Council of Medical Research) in higher secondary schools in rural areas of 22 districts and 14 states, only 13% of adolescent knew that multiple sex partners increased the risk of HIV infection (Gupta et al., 2004). Conversely, awareness of the link between high-risk behaviour such as multiple sex partner and HIV were high (77%) among girls (McManus and Dhar, 2008).

At a national level, 83.8% of the youth were aware of condom use for protection against HIV/AIDS (NACO, 2006). An awareness level as low as 11% regarding the preventive action of condoms has been recorded among married female youth in the state of Tamil Nadu (Ramachandran, 2002). Lal et al. (2008) argued that the awareness about the different methods of prevention was rather low. Only 14.9% had knowledge about condoms as a means of protection, where awareness was significantly higher amongst boys (Lal et al., 2008). More alarming is the reported condom usage rate of 7% by sexually active youth in a town in Assam state (Sen, 2007). Most notably, the lack of privacy in stores and the social stigma associated with condom usage comprise the most significant barriers to condom usage (Roth et al., 2001).

Only 28.6% knew about the availability of drugs for HIV/AIDS (Lal et al., 2008). Another similar observation were found amongst a group of secondary school students belonging to Udupi district in Karnataka, in that only 24.3% were aware about the existence of drugs while a slightly higher number of school students (34%) in Mumbai knew about the availability of antiretroviral drugs (Agrawal et al., 1999; Sankaranarayan et al., 1996).

Studies indicate that for Indian youth, the mass media, especially television, constitutes a major source of information about HIV/AIDS (Banerji and Mattle, 2005; Ramachandran, 2004; Roth et al., 2001; Sodhi and Mehta, 1997). Other studies have shown that the majority of youth have received knowledge from their teachers and peers, especially older friends (Banerji and
Mattle, 2005; Mehra et al., 2002; Patil et al., 2002). For those residing in rural areas, textbooks constitute a major source of information (Aggarwal and Kumar, 1996). Whereas, Lal et al. (2008) emphasized that only 9.5% of children had heard about HIV/AIDS through their respective school programmes in their study. As much as 8.6% had obtained information from print media, whereas for 2.3%, friends remained the source of information. This finding suggests that school AIDS education should be strengthened further in schools (Lal et al., 2008).

As a result of the stigma associated with HIV/AIDS, there are unfavourable attitudes towards HIV testing. Only 3% of Indian youth reported to have ever undergone HIV testing (National Family Health Survey, 2005-06). Attitudes of Indian youth towards HIV testing appear to differ from those in other nations. When compared with university students from the USA and South Africa, American students had a significantly more positive attitude towards HIV testing and stronger intentions to go for HIV testing than South African and Indian students. The reason for this could be the importance given to HIV prevention and testing on US university campuses. Only 10% of Indian university students, compared with 25% of American students, claimed to have ever undergone an HIV test (Mehra et al., 2002).

Alarming results, which reflect upon the severely discriminatory attitude of Indian youth, were elicited from a group of students from the state of Jharkhand, where 95.8% said that they would prefer not to have medical treatment in a hospital where HIV/AIDS patients are treated, while 76.4% said that they would like to terminate a friendship with a person found to be HIV positive (Kumari, 2004). Similarly unfavorable attitude towards HIV positive patients was observed among college students in Nashik (Ganguli, et al., 2002). However, another study reported that majority (77.8%) of students had a favorable attitude towards People Living with HIV/AIDS (PLWHA), stating that such patients should be allowed to pursue/continue studies or allowed to work in common work places. About 51.6% of students in the present study felt that PLWHAs must be hospitalized while 33.3% were in favour of home care (Lal et al., 2008). Rural-urban differences also exist (Lal et al., 1994).
According to Mehra et al. (2002), a higher proportion of American and South African students held a positive attitude towards PLWHA compared with Indian students. Among college students in the state of Kerala (in South India), those from urban areas demonstrated a more favourable attitude towards AIDS (Lal et al., 2000). An appreciable change in attitude has been documented in the youth behavioural surveillance study performed in 2006. According to the survey, 67.5% of youth were of the opinion that PLWHA should be allowed to stay in the community/village while 60.5% said that they were willing to share their food with PLHWA (NACO, 2007).

For preventing HIV infections among young people and reducing social vulnerability to the infection it is important to focus on sexual and reproductive health, raising awareness levels about HIV, equipping young people with the skills to resist peer pressure and helping them develop safe and responsible lifestyles. There is a need to incorporate education on HIV/AIDS and sexual health in the school curriculum, for greater outreach in rural areas, delayed marriage and child-bearing and introducing counselling services for youth for both treatment and rehabilitation.

C. Current scenario: Sexual and reproductive health profile of adolescents

Adolescents are a major group in the society and the world at large (Baldo, 1996). Worlds 6.1 billion population in 2000, over one billion (19.1 %) belonged to the age group 10-19. The Asian regions comprise 712 million people in this age group. According to United Nations medium variant projections in the world as a whole the number of persons in the group 10-19 will continue to grow reaching 1,253 million by the year 2025, while in Asia this number will decline to 698 million by the year 2025 (United Nation, 2001). There are an estimated 300 million young people (age 10-24 years) in India today comprising almost one - third (31 %) of the country’s population. Specifically 22 percent of Indians fall into the adolescent age group (aged 10-19). And girls below 19 years of age comprise one – quarter of India’s rapidly growing population (IIPs and ORCMacro, 2000; United Nations, 2001). Again according to UNICEF 2011 report, the world is home to 1.2 billion adolescent
individuals aged 10-19 years where India has the largest population of adolescents in the world being home to 243 million individuals aged 10-19 years. Global net attendance for secondary school is roughly one third lower than for primary school, but more than half (54%) of all adolescents population in India attend the secondary education.

According to WHO since 1994, countries have devised innovative strategies and programmes to advance the sexual and reproductive health agenda. Whereas this has led to real and substantial accomplishments, significant challenges remain. The United Nations Population Fund (UNFPA) led Global Survey report points out that progress has been made in several areas which include: reduction in the rates of new infection for HIV in many countries, an overall 50% reduction in maternal mortality, and increase in the use of modern contraception. Despite these promising advances, significant gaps in ensuring universal access to reproductive health remain. Sexual and reproductive health problems represent one third of the total global burden of disease for women between the ages of 15 and 44 years.

At global, an estimated 16 million births occur to young women aged 15–19 years, representing 11% of all births (National Research Council and Institute of Medicine, 2005). About 12% of adolescent girls in low- and middle-income countries are married by the age of 15 years, and as many as 30% are married by the age of 18 years, enhancing their risk for adverse health consequences of early pregnancy (WHO, 2011). Of the estimated 22 million unsafe abortions that occur every year, 15% occur in young women aged 15–19 years and 26% occur in those aged 20–24 years (Shah and Ahman, 2012). In Africa alone, an estimated 3 million girls are at risk of undergoing female genital mutilation every year (Yoder et al., 2004). Young people aged 15-24 years are at the forefront of the HIV epidemic with 41% of all new HIV infections among adults in 2009 (UNAIDS, 2011). Among females aged 15–19 years, pregnancy-related death is the second leading cause of death after self-harm. Younger mothers are at an increased risk of obstetric fistula, anemia, eclampsia, postpartum hemorrhage, and puerperal endometritis (Michaud and Ambresin, 2014; Haldre et al., 2007). Girls younger than 19 years have a 50%
increased risk of stillbirths and neonatal deaths, as well as an increased risk for preterm birth, low birth weight, and asphyxia (Haldre et al., 2007). In addition to affecting the health of the mother, early marriage and/or childbearing also often prevent girls from attending school and perpetuate the cycle of poverty (Michaud and Ambresin, 2014; UNPF, 2013; UNICEF, 2012). In low and middle-income countries (LMICs), adolescent pregnancy is a severe impediment to development and can lead to a number of challenges including abandonment by their partners, school dropout, and lost productivity, which ultimately limits their future social and economic opportunities leading to intergenerational transmission of poverty (Oringanje et al., 2009; WHO, 2007).

Worldwide, 222 million women are estimated to have an unmet need for modern contraception and the need is greatest where the risks of maternal mortality are highest; in the least developed countries, six out of ten women who do not want to get pregnant, or who want to delay their next pregnancy, are not using any modern method of contraception (Singh and Darroch, 2012). Women with unintended pregnancies that are continued to term are more likely to receive inadequate or delayed prenatal care and to have poorer health outcomes, such as infants with low birth weight, infant mortality, and maternal mortality and morbidity (Dehlendorf et al., 2010). According to 2012 estimates, providing access to contraception to all women in low- and middle-income countries who currently have an unmet need for modern methods of contraception would prevent 54 million unintended pregnancies, 26 million abortions and 7 million miscarriages; this would also prevent 79 000 maternal deaths and 1.1 million infant deaths (Singh and Darroch, 2012).

In 2008, 22 million unsafe abortions were estimated to have occurred, accounting for half of all induced abortions in that year. Approximately 47,000 pregnancy-related deaths (13%) were attributable to complications of unsafe abortion; moreover, a recent study estimates that every year in low- and middle-income countries, 5 million women are admitted to hospital as a result of unsafe abortion. Nearly all unsafe abortions (98%) occur in low- and middle-income countries (WHO, 2008). The rate of induced abortion has declined from 35 per
1000 women aged 15–44 years in 1995 to 26 per 1000 in 2008. Though this trend appears promising, the decrease is largely attributed to the decline in the rate of safe abortion, while the rate of unsafe abortion has remained relatively constant since 2000, at around 14 per 1000 women aged 15–44 years (Sedge et al., 2012). Young women are especially vulnerable where access to effective contraceptive methods is restricted to married women, and where the incidence of non-consensual sexual intercourse is high. For example, in Africa, young women below the age of 25 years account for nearly two thirds of all unsafe abortions (WHO, 2012).

In 2008, globally an estimated 500 million new cases of curable STIs (gonorrhoea, chlamydia, syphilis and trichomoniasis) occurred (WHO, 2012). In addition, 536 million people are estimated to be living with incurable herpes simplex virus type 2 (HSV-2) infection. Approximately 291 million women have an HPV infection at any given point in time, and it is likely that the numbers of HPV-infected men are similar. Further, STIs result in a large global burden of sexual, reproductive, and maternal–child health consequences. For instance, syphilis in pregnancy leads to 305000 fetal and neonatal deaths, and leaves 215000 infants each year at increased risk of dying from prematurity, low birth weight or congenital disease. Human papillomavirus infection causes an estimated 530000 cases of cervical cancer and 275 000 cervical cancer deaths each year (WHO, 2013). Also, STIs such as gonorrhoea and chlamydia are important causes of infertility. In sub-Saharan Africa, untreated genital infection may be the cause of up to 85% of infertility among women seeking infertility care. In addition, gonorrhoea and chlamydia are major causes of pelvic inflammatory disease and adverse pregnancy outcomes (WHO, 2007).

Between 1990 and 2010, maternal mortality worldwide dropped by almost 50% (WHO, UNICEF, UNFPA, and The World Bank, 2012). However, every day, approximately 800 women die from preventable causes related to pregnancy and childbirth; 99% of these deaths occur in low- or middle-income countries. Maternal mortality is higher in women living in rural areas and among poorer communities. Young adolescents face a higher risk of complications and death.
as a result of pregnancy than older women. Skilled care before, during and after childbirth can save the lives of women and newborn babies (WHO, 2014).

One in three women aged 15–49 years are estimated to have experienced physical and/or sexual violence by an intimate partner, or non-partner sexual violence. Thirty per cent of all women aged 15–49 years who have been in a relationship have experienced physical and/or sexual violence by an intimate partner in their lifetime. Twenty-nine per cent of adolescent girls aged 15–19 years who have been in a relationship are estimated to have experienced physical and/or sexual violence by an intimate partner in their lifetime (WHO, 2013). The prevalence of intimate partner violence varies by geographic region, ranging from 24.6% in the World Health Organization (WHO) Western Pacific Region, up to 37.7% in the WHO South-East Asia Region. The prevalence of intimate partner violence among high-income countries is 23.2%.

According to Tiwari 45 per cent of adolescent girls are under nourished, 26 per cent of adolescent girls are married before 15 yrs, 54 per cent girls are married before 18yrs, 10 per cent adolescent girls are sexually active, 59 per cent adolescents know about condoms, 49 per cent adolescents know about contraceptives, 4.5 per cent are having the problem of drug abuse, 50% of all HIV positive new infections are in the age group of 10 – 25 yrs and surprisingly adolescent abortions are 1- 4.4 million per year.

Many adolescents around the world are engaging in sexual relations as sexual development is a normal part of adolescence. Most adolescents go through these changes without significant problems (WHO, UNFPA, 2006). Sexual debut for most young people occur during their teenage years as Sexual experience among young people has been estimated in a number of countries (UNAIDS, 1997). At age 15 years, 53% of young people in Greenland, 38% of young people in Denmark (Werdelin, et al., 1992), and 69% of young people in Sweden (Klanger, et al., 1993) have experienced intercourse. By age 18/19 years, the percentage that are sexually active has been reported as 54.1% in the United States, 31% in the Dominican Republic (Westhoff, et al.,
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1996), 66.5% in New Zealand (Paul et al., 1995), and 51.6% in Australia (Rodden, et al., 1996). Age of debut has been estimated at a median of 17 years in England (Wellings et al., 1995) and a mean of 15.95 years in the United States (Zelnik and Shah, 1983), and 16.8 years in Sweden (Schwartz, 1993). Therefore, the majority of young people have begun to have sexual intercourse before they leave their teens, and at least half by the age of 16. Recently, household survey data indicate that in developing countries (excluding China) around 11 per cent of females and 6 per cent of males aged 15–19 claim to have had sex before the age of 15 (UNICEF, 2011).

While international attention tends to focus on premarital sexual activity among young people, for young women in India, sexual relations occur overwhelmingly within the context of marriage (Pelto et al., 2000). Due to perpetuate traditional encouragement of child marriage and early marriage, Indian adolescents are sexually active at early age despite rising age at marriage and laws prohibiting early marriage. This is especially relevant as 27% of adolescent girls are currently married by 15-19 years in India and 22% of women aged 20-24 years gave birth before 18 years (UNICEF, 2011).

Many of Researches shows that worldwide millions of adolescents are married, and South Asia has one of the highest rates. Nearly one-third of girls (ages 15 to 19) in South Asia are married (Mathur et al. 2003). In India, marriage is early and nearly universal. The median age at marriage among women (ages 20 to 24) is 16.7 years. Almost all young women aged 25 to 29 (95 percent) are married (Indian Institute of Population Sciences and ORC Macro, 2000). The majority of men also marry: 72 percent of men aged 25 to 29 are married. However, men are typically older than women when they marry. In rural India, fully 40 percent of girls aged 15 to 19 are married, compared to 8 percent of boys of the same age with the median age at marriage among women, aged 20 to 24 being 16 years. 2001 census indicates that more than 49 lakh girls under the age of 18 years are married. More than half of women are married before the legal minimum age of 18. Among women in 20-49 age group, the median age at first marriage is 17.2 years. Men in the same age group get married six years
later, at a median age of 23.4 years. Sixteen percent of men in 20-49 age group is married by age 18, 28 percent by age 20, and 58 percent by age 25 (International Institute for Population Sciences, IIPS and Macro International, 2007).

But premarital sex is also increasingly common in many cities in India as majority of young people are sexually experienced by the age of 16-19 years (WHO, UNFPA, 2006). Opportunities for young women men and women to form romantic relations abound. More than one in five young women and men report that they have made or received an offer to become romantically involved with a member of opposite sex. About one in five males and about one in twenty females have engaged in sex before marriage and many more have experienced physical contacts with a romantic partner.

In cases where there is a sexual relationship, it takes place by age 16, especially in case of girls. For some adolescents, such a relationship is a result of force. Median age at first sex was reported to be 18 years in rural and urban areas as well as for male and female respondents. Eight percent of the youth in BSS 2006 (as against seven percent in BSS 2001) reported sex with non-regular partners during preceding 12 months. Among the youth who had sex with a non-regular partner in the last 12 months, 62 percent reported condom usage during last sex with non-regular partner (NACO, MHFW, ICMR and BSS, 2006). Disturbing number of adolescents (although the percentages may be small), largely females (but also males) experienced forced sexual relations or unwanted sexual touch; few share the experience with a parent or other trusted adults for fear of being blamed for the incidence; health outcomes of such an incidence are serious.

There is a significant increase in Adolescent pregnancies and births. Adolescents’ pregnancy is common as 50% of women are married by 18 years and had a child before reaching the age of 20 in India. An estimated 20.2 million pregnancies resulted in about 15 million births in 2000. By 2020, an estimated 23.6 million pregnancies will result in 17.6 million births to Adolescents. In India, adolescent fertility rates are high: roughly 107 births take place per 1,000 girls
aged 15-19 and the fertility of this age group makes up 19 percent of the nation’s total fertility rate. Among married women in their reproductive years (ages 20 to 49), the median age at which they first gave birth is 19.6 years. Nearly half of married women (ages 15 to 19) have had at least one child (International Institute for Population Sciences, IIPS and Macro International, 2007). Closely spaced subsequent pregnancy and birth also occur among married adolescents than adult which is particularly risky and resulting into anaemia – nearly 15 percent of ever-married adolescent are stunted, and about one-fifth have moderate to severe anaemia (Indian Institute of Population Sciences and ORC Macro, 2000).

Anemia is a widely prevalent health problem among adolescent girls. Both the 1992 ICMR study on iron and folic acid supplementation and UNICEF have reported low mean hemoglobin levels and low nutritional intake of proteins, calories, and macro/micronutrients among adolescent girls and pregnant mothers. India has the world’s highest prevalence of iron-deficiency anemia among women, with 60 percent to 70 percent of adolescent girls being anemic. Poor physical growth and stunting are the primary outcomes of poor nutrition. The 1998–99 NFHS-2 reported that the prevalence of anemia was the highest (56 percent) among adolescents aged 15–19 compared with other groups of women of reproductive age. In the state of Gujarat, over 61 percent of adolescent girls were found to be anemic. The serum ferritin levels were less than 20 mcg/l among 58 percent of adolescent girls which indicates a severe depletion of iron. A series of studies during 1992–97 in urban areas in different parts of the country reported that 64 percent of adolescent girls were anemic (Kanani, 1997).

Unplanned pregnancies are also relatively common. Some 15 percent of births to adolescents aged 15 to 19 in India have been reported to be unplanned (Pachauri, and Santhya, 2003). The available evidence suggests that this is because of the fact that contraceptive use is infrequent and irregular. As abortion is such a sensitive topic, levels of induced abortion are difficult to measure directly. However, small studies suggest that a substantial proportion of adolescents, both married and unmarried seek abortion services. It is estimated that between 1 and 10 percent of abortion-seekers in India are adolescents.
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(Ganatra, 2000), though a few facility-based studies report that the proportion of adolescent abortion-seekers is as high as one in three (Chhabra et al., 1988). An analysis of data from NFHS 1998-99 shows a lifetime induced abortion ratio of 1:1 among married adolescents nationally (Pachaury and Santhya, 2002b). Among unmarried abortion-seekers, adolescents constitute a disproportionately large percentage of those who seek abortions. At least one-half of unmarried women seeking abortions are adolescents, many of whom are below 15 years (Jejeebhoy, 2000a). A community-based study in rural Maharashtra reports that young women aged 15-24 constituted over half of married abortion-seekers in the area (Ganatra and Hirve, 2002b). Finding of this study suggest that there are more likely to report post-abortion morbidity.

A national study conducted by Indian Council of Medical Research of 43,550 women reports that maternal mortality among adolescents was 645 per 100,000 live births, compared to 342 per 100,000 births in adult women aged 20-34 years (Krishna, 1995). Moreover, neonatal mortality, a key outcome of unsafe pregnancy conditions, is significantly higher among adolescent mothers (63.1 per 1,000 live births) than among those aged 20-29 (21.2 per 1,000 live births) (IIPS and ORC Macro, 2000).

In another similar study, Banerjee et al., (2009) stressed that early marriage and confinement are contributing factors to high maternal and perinatal mortality and morbidity. In their study it is found that the prevalence of anemia was significantly higher ($P<0.05$) in the women in the teenage group (62.96%) than in the women in the control group (20-24 years) (43.59%). However, severe anemia with a hemoglobin level below 8 gm% was only found in the control group. Preterm delivery occurred significantly more ($P<0.001$) in the study group (51.72%) than in the control group (25.88%). The incidence of low birth weight was significantly higher ($P<0.0001$) among the group of teenagers (65.52%) than among the women in the control group (26.37%). Not a single newborn was above 3 kg in the study group, while none were below 1.5 kg in the control group. The mean birth weight was 2.36 kg in the study group and 2.74 kg in the control group; the difference was strongly significant ($P<0.001$).
Indication for caesarean section in foetal distress and pre-eclampsia was more commonly found among the teenage mothers than among the adult mothers (Mukhopadhyay et al., 2010). Some authors have reported a higher rate of instrumental deliveries in the case of teenage pregnancies (Al-Ramahi and Saleh, 2006; Geist et al., 2006). The possible explanation could be underdevelopment of pelvis in younger mothers and occurrence of cephalopelvic disproportion more frequently in teenage mothers; consequently, the number of instrumental deliveries and caesarean sections were also higher. The teenage mothers had a significantly higher number of preterm deliveries compared to the adult mothers while the reverse was noted in post-term deliveries. Such a high incidence of preterm labour leads to higher risks for neonates (Mukhopadhyay et al., 2010). Some authors from India have reported similar findings (Chen et al., 2007; Verma and Das, 1997; Nayak et al., 1992; Bhaduria et al., 1991 and Bhalerao et al., 1990).

Low birth weight baby has been found to be an important outcome of teenage pregnancy. According to a hospital-based case comparison study, 72.6% of low birth weight babies were born to teenage mothers compared to 59.2% of low birth weight babies in the comparison group, comprising adult mothers aged 20-29 years (Chahande et al., 2002). In another study, the teenage mothers had a higher proportion (27.7%) of preterm deliveries compared to the adult mothers (13.1%). The association between the age at conception and the period of gestation during delivery was significant. Stillbirth rate was significantly higher in teenage deliveries (5.1% vs 0.9% in the comparison group). Deaths of newborns within 48 hours were also higher in the case of the teenage mothers (Mukhopadhyay et al., 2010).

Low birth weight is a key predictor of malnutrition and an important determinant of child mortality (Kushwaha et al., 1993). One of the most detrimental outcomes of low birth weight is growth retardation, and if the newborn happens to be a girl, it perpetuates a vicious cycle of female malnutrition throughout adolescence and adulthood. This process gives rise to a condition of intergenerational transmission of physical (small mothers have small babies), social and economic disadvantages into the next generation (Mehra
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The present study found that the number of low-birthweight babies was more in the case of teenage mothers (38.9%) compared to the adult mothers (30.4%). Babies born to teenage mothers are likely to be premature, and hence, the incidence of low birth weight is higher in them. This observation corroborates the findings of several other authors (Sharma et al., 2008; Chen et al., 2007; Watcharaseranee et al., 2006; Sharma et al., 2001; Gortzak-Uzan et al., 2001). The proportion of stillbirths was also higher (5.1%) among the teenage pregnancies. Of the neonatal complications, neonatal deaths and birth-asphyxia were significantly higher in the teenage-group compared to the adult women possibly due to the more number of premature births (Mukhopadhyay et al., 2010).

The incidents of sexually transmitted infection is also disproportionately high among adolescents, 25% of the patient attending government STI clinics are younger than 18 years old. Government statistics indicate that 40 per cent of all new sexually transmitted infections are among young people in the age group of 15 to 29 years. Overall, five percent of the respondents in BSS 2006 (4% in BSS 2001) reported any STD symptom (self-reported prevalence) in last 12 months. Over one-fifth of the respondents who suffered from STD during last 12 months had not sought any treatment (NACO, MHFW, ICMR, 2008; BSS, 2006).

Globally, India is second only to South Africa in terms of the total number of people living with HIV/ AIDS. The National AIDS Control Organization (NACO) estimated that the number of Indians living with HIV/AIDS by the end of December 2004 was 5.1 million. It has been estimated that over 35% of all reported AIDS cases in the country occur among this age group 15-24 years, indicating that young people constitute a significant percentage of people living with HIV/AIDS. And also almost 38% of all Indians living with HIV currently are women. HIV prevalence rates for young women also exceed those for young men the number of young women living with HIV/AIDS is twice that of young men (NACO, 2005). According to WHO health indicators, HIV prevalence was 0.46% for 15-24 year old females while it was 0.22% for men in the same age group. Young sex workers constitute one of the most vulnerable groups for HIV.
infection and transmission. Of the estimated two million women involved in sex work in India, 25-30% are minors. According to the Social Welfare Board of India, two out of five sex workers are under the age of 18 years. HIV and AIDS pose a great threat to the health and survival of the current generation of adolescents. Girls are at far greater risk of contracting HIV than boys, both as a result of greater physiological susceptibility and because they often lack control over sexual situations and condom use; sexual violence, both inside and outside of marriage, further heightens their risk of infection.

Worldwide most young people have heard about HIV/AIDS, but few know enough to protect them against infection. Since there is reluctance to speak out in public on anything related to sexuality, large numbers of young people do not get sufficient information or training in the skills needed to refuse sex or to negotiate safer sexual practices. 47 percent youth (15-24 years) in BSS 2006 reported consistent condom usage with non-regular sexual partner in last 12 months. Higher proportion of youth in urban (59%) than rural areas (42%) reported use of condom every time with non regular partner. Across urban areas, higher proportion of males (60%) reported consistent condom usage with non-regular partner as compared to females (54%), while in the rural areas the trend was reverse (males 41%, females 48%) (NACO, MHFW, ICMR, 2008; BSS, 2006). Even after a decade, India has 80,000 (62,000 – 100,000) new HIV infections and 62,000 (43,000 – 91,000) AIDS-related deaths. There were 2,100,000 (1,700,000 – 2,600,000) people living with HIV in 2016.

D. Sexual and reproductive health education: an strategy

Adolescent sexual behaviour is influenced by the developing brain, which increases reward seeking (especially in the presence of peers). In addition, impulse control is not mature resulting in a reduced ability to modulate strong emotions and motivations. Young people benefit from support, guidance, caring and monitoring from responsible adults, rather than being left to deal with complex social situations alone or solely with peers (Dahl, 2004 and Weinberger et al., 2005).
Worldwide, a variety of programs have tried to address the sexual and reproductive health needs of adolescents. School-based sexual health interventions is one of the many since the increasing percentage of young people are spending their adolescence at schools. It is widely acknowledged that students in schools and colleges are the most impressionable target for imparting information relating to basic principles of preventive health care (Adolescence Education Programme, 2008). In terms of impact, most interventions led to an improvement in knowledge, attitudes and intentions (Tork and Al Hosis, 2015; Paul-Ebhohimhen et al., 2008). In a school-based intervention in Thailand, secondary students who were exposed to a comprehensive sex education program had greater knowledge than other students, and were more likely to intend to refuse sex and to decrease frequency of sex, but no change was seen in consistent condom use (Thato et al. 2008). In Nigeria, a randomized school-based intervention with nurses led to more favorable attitudes toward HIV prevention measures among students (Akpabio II et al., 2009). A study in the Dominican Republic showed that adolescents who received sex education had higher rates of condom use and more knowledge of HIV than those who did not (Minaya, 2008), while studies in Mexico found that a school-based intervention led to more positive norms related to HIV-preventive behaviors (Givaudan et al., 2008 and Pick et al., 2007).

Prior information about menstruation has been reported to prepare the girl child mentally to accept the change in a constructive way and help her to develop better attitude (Dhingra, 2009; Tiwari, 2006). Hygiene-related practices of women during menstruation are of considerable importance, as it has a health impact in terms of increased vulnerability to reproductive tract infections (RTI). The interplay of socio-economic status, menstrual hygiene practices and RTI are noticeable. Today millions of women are sufferers of RTI and its complications and often the infection is transmitted to the offspring of the pregnant mother. Women having better knowledge regarding menstrual hygiene and safe practices are less vulnerable to RTI and its consequences. Therefore, increased knowledge about menstruation right from childhood may escalate safe practices.
and may help in mitigating the suffering of millions of women (Dasgupta and Sarkar, 2008).

Furthermore, while the parents are perceived to be the logical source of information, they do not discuss sexuality issues with their children because they are embarrassed by the subject as it is taboo in India. As a result, the family is no longer the prime reference group in reproductive health-related decisions, since the adolescents tend to value the opinions of friends more highly.

Especially in a country like India with conservative values and traditions, many parents and policy makers have held strong views that providing information and services of sexuality issues with adolescents will promote promiscuity among unmarried adolescents. However, reviews of sex education programmes in several countries conclude that sex education does not encourage early sexual activity, but can delay first sexual intercourse and lead to more responsive behaviour (UNAIDS, 1997).

NFHS-3 has reported on acceptability of providing information in schools on HIV/AIDS and related family-life topics. Virtually all Indian adults agree that children should be taught moral values in school, and most adults think that children should learn about the changes that occur in their bodies during puberty.

While youth have many questions, they are unlikely to approach their parents for information as young people fear that their parents will become suspicious and mistake their curiosity for sexual experience. Parents themselves are unwilling, uncomfortable or simply not well informed to communicate with their children on these matters. The ‘Youth in India: Situation and Needs study in Maharashtra’ shows that less than 1% of unmarried young men and 5% of unmarried young women reported that one or both parents had ever talked to them about reproduction or how pregnancy happens.

At the same time, about nine in ten unmarried youth – female and male – believe it is important for young people to have sex education. Most believe that this education should be imparted to youth by the time they are 15-17 and about
half of them believe that it should be imparted by teachers or others who are considered to be experts. Of those who received sex education, more than eight in ten reported that it had answered many of their concerns; nine in ten reported that teachers explained the material in ways that the young people could understand. About one quarter of males and two fifths of females reported that they were embarrassed during these sex education sessions.

Findings from several studies show that even where parents and schools do not provide young people information on sexual matters, youth are resourceful and seek to satisfy their curiosity through other channels. Peers are a significant source of information, especially among young men. Unfortunately peers are also likely to be as poorly informed as those who seek information from them, thereby perpetuating the cycle of misinformation. A small group of young males obtain information from pornographic films and many young people through print media and increasingly the internet. These can sometimes be sources of misinformation and titillations (Santhya and Jejeebhoy, 2003).

In a conservative society where sex-related issues constitute a taboo for discussion, young people are hindered from actively seeking counselling regarding sexual health. Social ostracism and disease-associated stigma have created an attitude of negativity and shame in the minds of especially young people. This results in lack of knowledge about self-protection measures, leading to a silent spread of the disease. Despite these worrisome statistics, some Indian states have banned sex education in schools, following protests from legislators that it would have a negative impact on the vulnerable minds of school students. Widespread ignorance about the disease is still prevalent, even among youth belonging to the affluent sections of society. According to an evaluation by Anand et al, (1999), it has been projected that an estimated 2.5 billion HIV-infected people in India would be likely to lead to an annual cost of 20.16 billion rupees (US $ 386 870 407). This emerging pandemic in the young, who comprise the most productive age group, will certainly have an adverse impact on the country’s economy (Nath, 2009).
A comprehensive literature review of sixty-eight reports on the impact of HIV/AIDS and sexual health education on young people’s sexual behaviour was made by UNAIDS and out of 53 studies that evaluated specific interventions, twenty-two reported that HIV and/or sexual health education delayed the onset of sexual activity, reduced the number of sexual partners, or reduced unplanned pregnancies and STD rates, 27 reported no change in patterns of sexual activity (UNAIDS, 1997).

A recent review of 83 evaluations of Sexuality and HIV education programs was undertaken. The review finds that these programmes are more likely to have a positive impact on behaviour than a negative impact. Furthermore, some of these programs had positive impacts for two or three years or more. In general, the patterns of findings for all the studies were similar in both developing and developed countries. They were effective with both low and middle-income youth, in both rural and urban areas, with girls and boys, with different age groups, and in school, clinic, and community settings. Provision of accurate and comprehensive reproductive and sexual health education can contribute to improving the health of young people (Kirby et al., 2005).

School children of today are exposed to the risk of being victims of HIV/AIDS - which was quite unknown to their predecessors a few decades ago. The epidemic of HIV/AIDS is now progressing at a rapid pace among young people. Studies have reported that young people form a significant segment of those attending sexually transmitted infection (STI) clinics and those infected by HIV (Urmil et al. 1999). Programme managers and policy makers have often recommended that schools can act at the center point for disseminating information and education on HIV/AIDS. Hence school education has been described as a ‘social vaccine’, and it can serve as a powerful preventive tool. In India, there is a wide gap between the inputs in the HIV/AIDS curriculum for schools and the actual education that is imparted (Boler and Jellema, 2005). As children are a valuable resource for the future of a country, it is imperative that they be equipped with ample amount of information so as to protect themselves and their counterparts from falling a prey to this still-an-incurable killer disease (Lal et al. 2008).
Many researchers reiterate the need for re-enforcing school AIDS education. Significant changes have been observed between pre-test and post-test knowledge and awareness levels through school HIV/AIDS education programmes in different regions (Harvey et al., 2000; Fawole et al., 1999; Sankaranarayan et al., 1996). While the teacher plays a pivotal role in imparting education, the use of multi-pronged methods such as films, group discussions, dramas, puppet shows and role-plays must be incorporated. There is a strong need that school education must directly address stigmatizing attitudes about HIV/AIDS, gaps in HIV/AIDS knowledge and awareness of HIV-related health resources (Lal et al. 2008).

School education has been described as a ‘social vaccine’, and it can serve as a powerful preventive tool. Initiatives to spread awareness among the youth are being vigorously undertaken by government, private and non-government organisations. In spite of all this, there is still a gap between the amount invested in developing a curriculum and the actual education that is imparted. Until now, most of the HIV/AIDS education has been ‘scientific in nature’, i.e. discussed in the biological context by teachers of science. However, for AIDS education to have a realistic impact, it is important that instruction be imparted in a straightforward, easy to grasp manner, keeping cultural issues in mind (Nath, 2009).

The result of various study indicated that for adolescent students the Internet, media, friends, books and magazines were the main sources of information regarding safe sex and HIV/STIs. Often students were confused or misinformed due to erroneous information received from these sources. Therefore evidence-based sex education must be a major strategy in school-based programs, with user friendly resources readily available to students.

Currently HIV/AIDS education is only taught in science which is an optional subject in India. In the current study more than half of the adolescents (53%, n = 132) had never attended classes about STIs, HIV/AIDS or safe sex. Most of the adolescent (87% n = 215) felt that there should be classes related to HIV/AIDS, other STIs and safe sex in school. This is supported by a study.
conducted by the Kore et al., (2002) where 71% students showed a willingness to attend awareness programs arranged related to HIV/AIDS (Kore et al., 2004).

In order to intensify the focus on STI prevention among young people, in June 2005, the Government of India announced the National Adolescent Education Program (AEP). While the main focus of the program was on HIV/AIDS prevention, it also covered sexual reproductive health issues, gender and life skills (NACO UNGASS, 2005). Regrettably the proposal to incorporate compulsory sex education in the school curricula as part of anti-AIDS course was rejected outright by State Governments of Madhya Pradesh (Gupta, 2007), Maharashtra (International Herald Tribune: Asia-Pacific Paris, 2007) and Gujarat (THE HINDU Bangalore. 2007; Times of India Gandhinagar. 2007) even before implementation of the program. Kerala and Karnataka (THE HINDU Bangalore. 2007), India's progressive states, were also considering sex education bans (International Herald Tribune: Asia-Pacific Paris. 2007).

The opponents of sex education in schools say that the AEP is not culturally sensitive, it has ambiguous material and could encourage students to experiment with sex, defeating the very purpose of the campaign and contributing to the spread of HIV/AIDS. Reacting to the Central Government's circular for immediate implementation of the AEP in all CBSE (Central Board of Secondary Education) and state-syllabus schools, Karnataka Education Minister Basavaraj Horatti said, "In today's world, we need moral education and not sex education". He also claimed that school-going children were too young to contract the disease, therefore sex education would unnecessarily affect their tender minds (THE HINDU Bangalore. 2007). Most Indian states are yet to make a decision about introducing sex education (International Herald Tribune: Asia-Pacific Paris. 2007). If schools do agree to implement the AEP, further training in communication skills for educators/teachers and health personnel will be required. In addition, support of state political leaders and health and education authorities is essential for STI prevention interventions to be effectively executed in Indian schools (Mukherjee, 2007).
Unfortunately, many school students are exposed to sex and pornography through various television channels, cell phones and Internet. Educating adults and children is essential under these non-regulated conditions. According to AIDS activists, sex education helps to make students cautious against the dangers of experimenting with sex at a young age, sensitising them and also warning them about the potential exposure to deadly diseases. Many parents are hesitant to talk about sex with their teenage children at home; even mothers hesitate to talk to daughters about something as simple as menstruation. Moreover, widespread illiteracy underlines the importance of being able to talk about sexuality comfortably in a gathering or congregation. Policymakers also believe that many people will be critical of moves to implement sex education to young people therefore may seek political advantage by promoting traditional values.

McManus and Dhar (2008) accentuate that every year; increasing numbers of young people are infected with HIV and other STIs. Global surveillance and research has identified adolescents (particularly girls) as an emerging high-risk or vulnerable group. Sex education and STI education aimed at adolescents is a crucial weapon in the HIV-prevention armoury and the school is an important means of reaching them. It is important to educate adolescents about safe sex and contraceptives so that they can safeguard themselves from STIs by practicing safe sex or monogamy. They further emphasize despite all opposition there is an immense need for implementation of appropriate gender-based, culturally sensitive sex education curriculum in schools to cope up with the increasing vulnerability of young people, especially girls, towards STIs/HIV in India. Standardized programs across all levels of secondary schools in India will allow young people to make informed choices about protecting themselves from STIs/HIV if or when they decide to become sexually active.