

UNIT 8 SEX EDUCATION

Structure

- 8.0 Introduction
- 8.1 Objectives
- 8.2 Sexual and Reproductive Health: Concept, Rights and Aspects
 - 8.2.1 Concept of Sexual and Reproductive Health
 - 8.2.2 Aspects of Sexual and Reproductive Rights
- 8.3 Reproductive Growth, Health and Hygiene during Adolescence Period: An Overview
 - 8.3.1 Physical and Emotional Changes in Adolescents
 - 8.3.2 Sexual Health and Hygiene
 - 8.3.2.1 Puberty
 - 8.3.2.2 Care to be taken by Parents, Family Physician and Adolescent Individuals
 - 8.3.2.3 Special Personal Care by Women during Menstruation
- 8.4 Human Reproductive Systems and Processes
 - 8.4.1 Male Reproductive System: Organs, Functions and Processes
 - 8.4.2 Female Reproductive System: Organs, Functions and Processes
 - 8.4.2.1 Ovulation and Menstruation
 - 8.4.2.2 Process of Conception: Sex Determination
 - 8.4.2.3 Risks Involved in Pregnancy: Danger of Adolescent Pregnancy
- 8.5 Reproductive Health and Hygiene during Adult and Married Life: Some Important Aspects
 - 8.5.1 Hormones and Fertility
 - 8.5.2 Sperm Production
 - 8.5.3 Menstrual Cycle and Fertility
 - 8.5.3.1 Fertilisation, Pregnancy and Delivery
- 8.6 RTIs, STIs / STDs and AIDS/HIV
 - 8.6.1 Reproductive Tract Infections (RTIs)
 - 8.6.2 Sexually Transmitted Infections/Diseases (STIs/STDs)
 - 8.6.2.1 The STI – HIV Relationship
 - 8.6.3 AIDS / HIV
 - 8.6.3.1 What does HIV do in the human body? Signs and Symptoms of HIV/AIDS
 - 8.6.3.2 Incurability of AIDS
 - 8.6.3.3 Transmission of HIV: Facts and Myths
 - 8.6.3.4 HIV/AIDS and Women
 - 8.6.3.5 Prevention of Spread of HIV/AIDS
 - 8.6.3.6 Ten Key Points on AIDS
- 8.7 Tips for Good Sexual Health
- 8.8 Let Us Sum Up
- 8.9 Answers to 'Check Your Progress' Questions
- 8.10 References

8.0 INTRODUCTION

In Unit-7, we have discussed the process of growing-up with special emphasis on the physical and emotional changes that take place during adolescence period which poses serious challenges to adolescents in maintaining their interpersonal, social and other relationships with others. As they grow into adults – males or females – their physical changes become more visible and clear in them.

Therefore, in Unit-8, we will deal with sex education with special reference to the male and female reproductive systems, their functioning, the process of reproduction, the importance of reproductive health and hygiene in the context of right to reproductive health and how it gets affected with RTIs, STIs/STDs including HIV/AIDS, if proper care is not taken by adults regarding their sexual and reproductive aspects of life.

8.1 OBJECTIVES

After going through this Unit, we expect you to be able to:

- Describe the structure and functioning of male and female reproductive systems;
- Appreciate the significance of reproductive health and hygiene in the life of an individual;
- Explain the process of reproduction and factors affecting it;
- Discuss the causes and consequences of RTIs, STIs/STDs including HIV/AIDS; and
- Analyse the effects of unhealthy sexual practices/relationships on the sexual, reproductive and general health of human beings.

8.2 SEXUAL AND REPRODUCTIVE HEALTH: CONCEPT, RIGHTS AND ASPECTS

We are all aware that the sexual and reproductive health plays an important role in the life of every adult. Sexual and reproductive health is a general state of physical, mental, social and emotional well-being, and not the mere absence of illness, in all aspects related to sexuality and the reproductive system. Sexual and reproductive health is oriented towards developing a positive life and personal relationships and not merely attending to reproductive processes and sexually transmitted diseases.

8.2.1 Concept of Sexual and Reproductive Health

In recent decades, it is understood that the personal and cultural experiences of sexuality are intimately linked to the biological health of the reproductive system; these are two inseparable dimensions of what is experienced as a single phenomenon in human life. Reproductive and sexual health develops interdependently during the life cycle, and affects each person in multiple ways and levels (Bassu, 1997). It means, certain sexual practices and choices can make individuals vulnerable to diseases that cause harm, and even infertility in the reproductive system.

In 1974, a committee of experts from WHO defined sexual health as the integration of physical, emotional and intellectual elements in ways that positively enrich and strengthen personal identity, communication and love. The comprehensive vision expressed here surpasses reproductive and pathological aspects to encompass affection, pleasure and communication which are important in people's lives (Cerruti Basso, 1993) and contribute to improved life and interpersonal relationships (ICPD, 1994; and Alcalá, 1995). Different definitions and interpretations of sexual and reproductive health coexist. Medical scientists tend to express them in biological terms, while some NGOs and international organizations tend to emphasize rights of men and women or the provision of information and services (WHO, 1997).

The International Conference on Population and Development (ICPD) held in Cairo in 1994 established a new vision of reproductive health that explicitly incorporates sexual health. Reproductive health implies that people are able to have a satisfying and safe sex life and that they have the capability to reproduce and the freedom to decide if, when and how often to do so. Implicit in these conditions are the rights of men and women to be informed and to have access to safe, effective, affordable and acceptable methods of family planning of their choice as well as other methods of their choice for regulation of fertility which are not against the law, and the right of access to appropriate health care services that will enable women to go safely through pregnancy and childbirth and provide couples with the best chance of having a healthy infant (ICPD, Programme of Action, Paragraph 7.2, 1994).

With this understanding of sexual and reproductive health, we will now look at sexual and reproductive rights.

8.2.2 Aspects of Sexual and Reproductive Rights

Sexual and reproductive rights are inalienable human rights, inseparable from other basic rights such as the right to food, housing, health, security, education and political participation. Sexual and reproductive rights can be defined in terms of power and resources: the power to make informed decisions over one's own fertility, procreation and child care, gynecological health and sexual activity, as well as the resources to carry out those decisions safely and effectively (Correa and Petchesky, 1994). These rights include but are not limited to the following {**Note:** This list of rights below is compiled from: i) *IPPF's Declaration of Sexual and Reproductive Rights* (1996), ii) Mari Ladi Londoño's book, *Sexual and Reproductive Rights* (1996), and from iii). *Open Forum for Sexual and Reproductive Rights in Chile* (1996)}.

- The exercise of sexual independence as well as the right to enjoy it according to one's own preferences, and the right to legal protection.
- Pleasurable and recreational sexuality, independent of reproduction.
- Adequate information and knowledge about sexuality and reproduction.
- Love, sensuality and eroticism in sexual relations.
- Sexual education that is appropriate, comprehensive, secular, scientific and gender-sensitive.
- Refusal to engage in sexual activity.

- Freedom from fear, shame, guilt and other imposed beliefs that inhibit a person's sexuality and diminish his or her sexual relations.
- Choice of sexual partners, to exercise sexuality without coercion or violence.
- Nutrition necessary for adequate growth and balanced development of one's body and future reproductive potential from childhood.
- Voluntary motherhood, to decide and live motherhood for one's own choice and not by obligation.
- Complete information concerning the benefits, risks and relative effects of all contraceptive methods.
- Free or inexpensive contraceptives with current information, follow-up and responsibility on the part of those who prescribe it.
- Marriage and family or the choice not to have either.
- Parenthood and the right to decide when to have children.
- Good quality services for prenatal care, birth, and postpartum care, guaranteed by appropriate legislation.
- Equal participation by women and men in child care, creatively constructing children's identities beyond traditional gender roles.
- Effective legal protection against sexual violence.
- Adoption and right to comprehensive, accessible treatment for infertility.
- Prevention and treatment of illnesses of the reproductive tract, and the right to make informed decisions about related interventions.

By asserting on these rights, among others, and by following certain practices the individuals will be in a better position to maintain their sexual health and hygiene, which assumes greater relevance since the beginning of reproductive growth till the end of active reproductive and sexual life.

8.3 REPRODUCTIVE GROWTH, HEALTH AND HYGIENE DURING ADOLESCENCE PERIOD: AN OVERVIEW

In Unit-7 on "Adolescence Education" you have already learnt that the reproductive growth starts in adolescence period and the reproductive capacity continues throughout adulthood. In this context, it is relevant for us to have an overview of physical and emotional changes that take place in adolescents.

8.3.1 Physical and Emotional Changes in Adolescents

You are already aware that adolescence is the transitory phase between childhood and adulthood. This is the time when a child changes from a boy to a man and a girl to a woman. Adolescence is from 10-19 years. During adolescence, the girl or boy undergoes various physical, psycho-social, and emotional changes which make her/him feel different from others. These changes usually start between 9 to 12 years and continue until 16 or 19 years, and are due to sudden

change in the hormonal pattern of boys and girls at this stage. However, the most significant change is the maturation of the reproductive organs so that the adolescent girl/boy becomes capable of reproducing sexually. This maturation is called *puberty* (girls usually attain puberty a year or two before boys).

Some of the changes occurring during adolescence are visible while some are invisible happening within. These changes which occur in all girls and boys are quite natural.

Physical Changes in Girls: These include the following.

- Growth spurt occurs
- Underarm hair appears
- Hips widen
- External genitals enlarge
- Uterus and ovaries enlarge
- Skin becomes oily
- Breasts develop
- Long bone growth stops
- Ovulation occurs
- All permanent teeth are in
- Waistline narrows
- Pubic hair appears
- Menstruation begins

Physical Changes in Boys: These are as follows.

- Growth spurt occurs
- All permanent teeth are in
- Larynx (voice box) enlarges, voice deepens
- Shoulders broaden
- Muscles develop
- Penis and testes enlarge
- Ejaculation occurs
- Skin becomes oily
- Underarm and chest hair appears
- Facial hair appears
- Long bone growth stops
- Pubic hair appears
- Sperm production begins

Emotional Changes in both Boys and Girls: These include the following.

- Increased production of hormones prompts sexual thoughts, daydreams and fantasies in most young people.
- There is increased awareness of sexual attraction to the opposite sex.
- Frequent shift of moods.

8.3.2 Sexual Health and Hygiene

Sexual hygiene is part of the daily cleaning “ritual” and is considered to be just as important as overall hygiene. The sex organs are more sensitive than other parts of the body, which is why they should be as clean as possible, if not cleaner. Keeping in view the specific physical aspects of males and females, in addition to this routine cleaning, there is a need for special care to be taken by the parents, family physician and the adolescents themselves.

8.3.2.1 Puberty

Puberty is the time when a girl develops into a woman and a boy develops into a man; they become physically capable of reproducing children. The ovum or female egg begins to be released once a month from either of the ovaries of the adolescent girl and sperms are constantly produced in the testes of the adolescent boy. The adolescent girls or boys are still not adults and hence are not ready to shoulder the responsibilities of parenthood, even if their eggs and sperms are mature and

capable of reproducing sexually. As you are aware, signs of puberty are different in males and females.

- **Semen Production:** There are the two round glands lying in the scrotum hanging behind penis which are called testes. These produce and store sperms from puberty onwards. They also produce the male sex hormone responsible for male characteristics and sexual performance. Two sac-like structures called seminal vesicles lying behind the urinary bladder and a gland located in the male pelvis which surrounds the lower part of the bladder and the upper urethra also secrete a thick milky fluid that forms most part of the semen. In response to thoughts, fantasies, temperature, touch or sexual stimulation, the penis gets filled with blood and becomes hard and erect for sexual intercourse. As a result of such sexual excitement semen is released from the penis — the process which is called *ejaculation*. This may occur at night during dream in adolescents which is commonly called a ‘wet dream’, or due to sexual excitement caused for any reason or during the process of intercourse. We will discuss many other aspects and changes in detail in the male reproductive system under Section 8.4.1.
- **Menstruation:** A major change that occurs in girls during puberty is the start of “menstruation”, bloody discharge from vagina, which happens periodically. This cyclic process is called ‘*periods*’ or ‘*menstrual cycles*’ because they occur every month and mark the onset of sexual maturity in girls. This cycle is repeated every month, if she does not become pregnant. If pregnancy occurs, then the periods stop till the delivery takes place. Menstrual cycles may occur within a range of 24 to 35 days and each menstruation may lasts for about 3 to 7 days. Menstruation begins at puberty and continues until menopause, i.e. stoppage of menstruation, which occurs around age 45 to 50 years; it stops forever because the ovarian function stops at that stage. Any bleeding from vagina, after menopause could be a sign of dangerous disease like cancer or tumor of uterus and should not be ignored. We will discuss, in detail, many other aspects and changes in the female reproductive system under Section 8.4.2.

Adolescent needs to keep in mind these changes occurring in him/her to maintain cleanliness and to take special care of his/her reproductive health from this stage onwards. Here, we touch upon the care to be taken by parents, family physician and individuals themselves.

8.3.2.2 Care to be taken by Parents, Family Physician and Adolescent Individuals

As mentioned elsewhere above, the sex organs are more sensitive than other parts of the body which is why they should be as clean as possible. Hygiene is a cornerstone of modern civilization and daily cleaning “ritual” is considered to be just as important as overall hygiene.

It is important that sexual education be given to boys/girls about to enter college or a business career, for it is at this period of life that their sexual temptations become greatest.

- At the age of ten or twelve, the family physician or parent should give instruction to boys/girls as to the harm which results to them from unnaturally

exciting their sexual nature by handling and stimulating the sexual organs and also warn them against filthy literature and improper companions.

- At the age of puberty the girls/boys should be warned against the moral and physical dangers of sexual intercourse with lewd men/women. The physical dangers refer to the great possibility of infection with common diseases such as syphilis, gonorrhoea, etc., which are acquired by sexual contact with one suffering from these terrible disorders.
- Idleness is also another influential factor in indirectly causing sexual desires; hard physical and mental works are powerful correctives of these passions.
- Alcohol is the most dangerous foe next to bad companions; association with persuasive friends, and weakened by its influence they may forget or ignore the advice and warning they may have received.
- It is also desirable for the parent or the family physician to inform the young man or woman about: a) consequences of having close and frequent personal contact with the opposite sex, and b) sexual and reproductive health in general, and especially if either is about to enter into a marriage engagement. It is only when the sexual functions are properly understood and normally exercised in adult life, as in sexual intercourse, that sexual excitement is not harmful.
- Young women about to marry should receive special instruction from their mothers as to the sexual relations which will exist after marriage. Most girls are allowed to grow up ignorant of such matters and in consequence may become greatly shocked and even disgusted by the sexual relations in marriage fancying that there must be something unnatural and wrong about them because the subject was avoided by those responsible for their welfare.

Therefore, in conclusion, it may be said that parents must take upon themselves the burden of instructing their children in sexual hygiene or request the family physician, who can undertake it with much less mental perturbation and with more intelligence. Otherwise, they subject their offspring to the possibility of incalculable suffering, disease, and even death largely through their own inexcusable neglect.

8.3.2.3 Special Personal Care by Women during Menstruation

Menstruation is a normal physiological process in the life of woman. However, in our society, it is often viewed as something 'dirty'. Vagina is not only the main organ of sexual contact in woman but also the outlet of menstrual flow. Poor hygiene can lead to reproductive tract infections. The blood that comes out during menstruation can become the medium for growth of many germs, if the sanitary napkins are not changed frequently. It is thus very important for women to observe menstrual hygiene. It includes the following.

- Bathe daily during menstruation.
- Use clean napkins and change them frequently.
- Wear clean underwear, change pads or cloth frequently.

- Do not use dirty cloth. Wash menstrual cloth with soap and dry in the sunshine. If cloth is washed without soap and dried in dark damp conditions, bacteria can grow in it and can cause infections.
- If pads or cloth are not available, identify other local alternatives that are clean and replaceable.
- Eat healthy food, get adequate rest, and continue normal activities.
- Some girls are little uncomfortable during their periods. They may experience cramping pains or pains in their lower abdomen or back. There are several things a girl can do if she experiences cramps: take a warm bath; take a walk; rub the abdomen; lie on the back with knees up — move the knees in small circle.
- Exercise speeds up circulation and helps ease tension.
- The body may retain more water at this time. Cutting down on salty food will help to prevent water retention.

Check Your Progress

Notes: a) Space given below the question is for writing your answer.

b) Check your answer with the one given at the end of this unit under “Answers to ‘Check Your Progress’ Questions”.

1) Explain the concept of sexual and reproductive health according to ICPD.

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2) What are sexual and reproductive rights?

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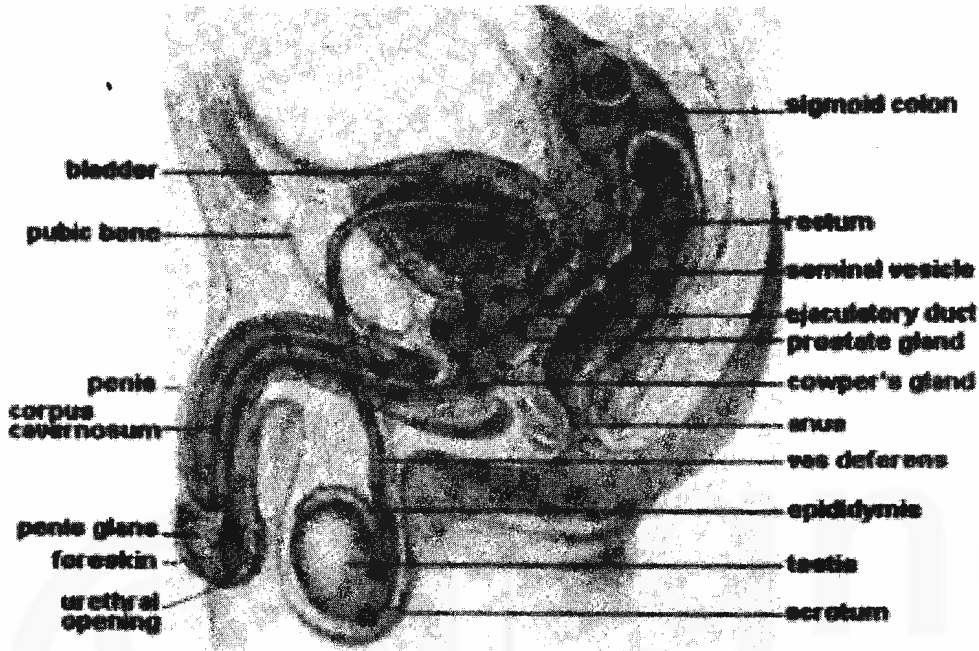
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8.4 HUMAN REPRODUCTIVE SYSTEMS AND PROCESSES

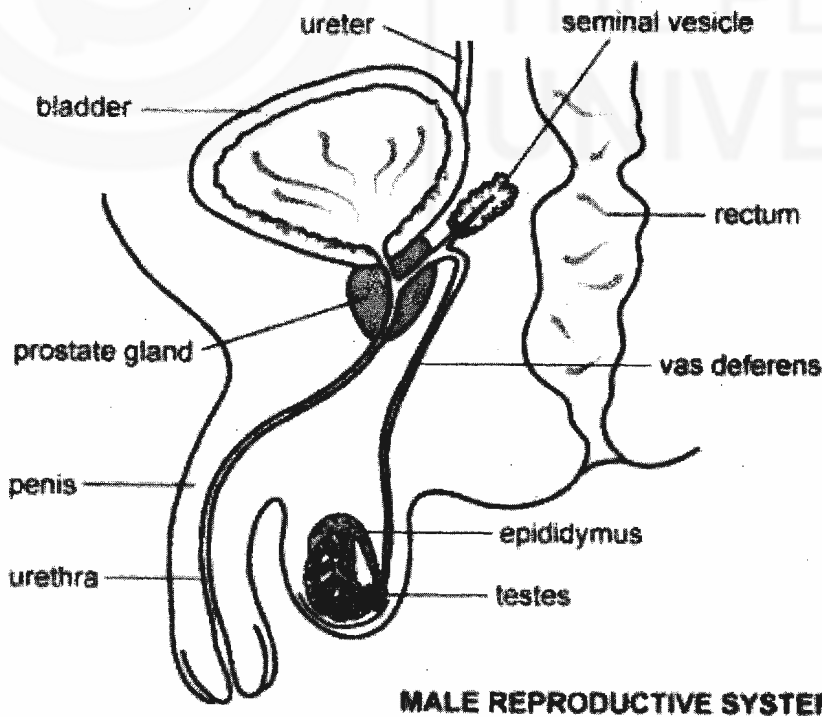
In this section, we will present you an overview of human reproductive systems and process with a view to enable you to understand the aspects of sexual and reproductive life for maintaining your sexual and reproductive health. This would also be helpful to you in having better understanding of how various methods and techniques of family planning will be useful in family welfare based on equity and equality as well as in controlling the population change by regulating the process of human reproduction.

8.4.1 Male Reproductive System: Organs, Functions and Processes

In this sub-section, the focus of our discussion will be on different organs, functions and processes involved in male reproductive system. Given below are the organs involved in the male reproductive system along with a brief note on their functions and processes.



Source: http://en.wikibooks.org/wiki/Human_Physiology/The_female_reproductive_system



MALE REPRODUCTIVE SYSTEM

Source: <http://www.patient.co.uk/diagram/Male-Reproductive-system.htm>

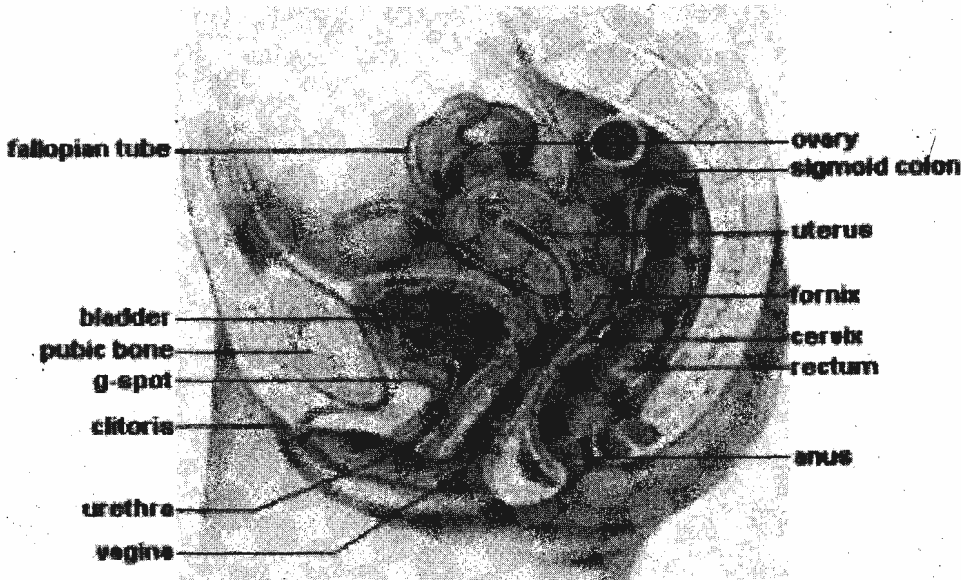
Figure 8.1: Male Reproductive System

- **Penis:** It is the male organ for sexual intercourse. It acts as the means to deposit sperms and semen into the female body through urethra, a thin, long tube passing through penis.
- **Scrotum:** It is the pouch located behind the penis, which contains two testes, provides protection to the testes, and controls temperature necessary for sperm production and survival.
- **Two Testes:** These are the two round glands lying in the scrotum, which produce and store sperms from puberty onwards. They also produce the male sex hormone responsible for male characteristics and sexual performance.
- **Two Vas Deferens:** From each testis, a thin and long tube arises which is called vas deferens. Sperms are carried from each testis to the urethra by vas deferens.
- **Two Seminal Vesicles:** These are two sac-like structures lying behind the urinary bladder which secrete a thick milky fluid that forms part of the semen.
- **Prostrate Gland:** A gland located in the male pelvis which surrounds the lower part of the bladder and the upper urethra. It also secretes a thick milky fluid that forms most part of the semen.
- **Erection of Penis:** In response to thoughts, fantasies, temperature, touch or sexual stimulation the penis gets filled with blood and becomes hard and erect for sexual intercourse.
- **Cowper's Glands:** These are two glands located near the prostrate gland. They produce a small amount of clear, sticky fluid which is released into the urethra prior to ejaculation. This fluid changes the environment of the urethra to enable sperms to remain alive as they pass through it.
- **Ejaculation:** The release of semen from the penis after sexual excitement or during the process of intercourse is called ejaculation. Ejaculation may also occur at night or even day during dream which is commonly called a 'wet dream', or due to sexual excitement caused for any reason.

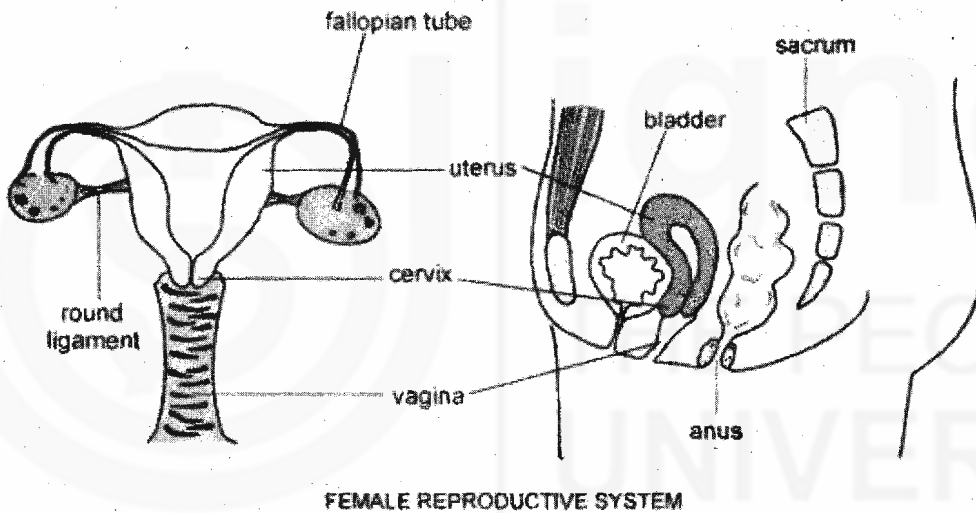
Sperms produced by testes are of *two types*. So, out of millions of sperms produced, half of them are of one type called *sperms carrying X-chromosome*, while the other half are of the other type called *sperms carrying Y-chromosome*. Any type of sperm can fertilize the egg. We will discuss more details about these sperms cells/male gametes in Sub-section 8.4.2.2.

8.4.2 Female Reproductive System: Organs, Functions and Processes

In this sub-section, we will present, in brief, about different organs, functions and processes involved in female reproductive system. The organs of female reproductive system along with their functions are briefly described below.



Source: http://en.wikibooks.org/wiki/Human_Physiology/The_female_reproductive_system



FEMALE REPRODUCTIVE SYSTEM

Source: <http://www.patient.co.uk/diagram/Female-Reproductive-System.htm>

Figure 8.2: Female Reproductive System

External Organs: These include the following.

- **Vaginal opening:** It is located between the urethral opening and the anus. It is usually covered by a thin membrane called hymen. It is the outlet for the menstrual flow and childbirth and also the opening for penetration of penis during intercourse.
- **Hymen:** It is a thin fold of mucous membrane partially covering the opening of the vagina.
- **Labia Majora and Labia Minora:** These are two sets of folds on either side of the vaginal opening which provide protection to the clitoris and the urethral and vaginal openings.
- **Clitoris:** A small round and fleshy structure located above the urethral opening at the point where the labia meet. It is the focal point of sexual stimulation for the female hormones, i.e., estrogen and progesterone which begin maturation and release of eggs from puberty onwards.

Internal Organs: These are as follows.

- **Vagina:** It is the passageway extending from the outside of the body to the uterus. It is also the passageway for the menstrual flow to the outside; a canal or the place where intercourse occurs and also serves as passage through which baby comes out during delivery. It is capable of expanding during intercourse and childbirth. It also lubricates during sexual arousal.
- **Cervix:** It is the narrow lower portion of uterus (with opening into the uterine cavity) that protrudes into the uppermost part of the vagina.
- **Uterus:** It is a pear-shaped muscular organ located in the pelvic region. Beginning at puberty its internal lining sheds periodically (usually monthly) during menstruation. The baby develops within it during pregnancy.
- **Fallopian tubes:** These are two thin tubular structures arising from the upper part of the uterus and having funnel-shaped free ends. Each tube is the passageway for the egg from the respective ovary (left or right) to the uterus, a place where fertilization occurs.
- **Ovaries:** These are two oval-shaped structures located in the female pelvic region. They contain many immature egg cells at birth; produce female hormones i.e. estrogen and progesterone. After puberty maturation of these cells begins and eggs are released.

8.4.2.1 Ovulation and Menstruation

A girl has thousands of egg cells or ova in each of her two ovaries (see the oval shaped structures in Fig.8.3). Each month, one cell ripens into egg and leaves the ovaries. This process is called ovulation. In other words, *ovulation* is the release of a ripe egg from one of the ovaries once in a month. Each egg is of the size of a minute grain of sand. The egg is picked up by the broad end of the Fallopian tube and it starts moving towards the uterus, the “V” shaped area. It is during this time that the egg is fertilized by a sperm. Fertilised egg is called *zygote*.

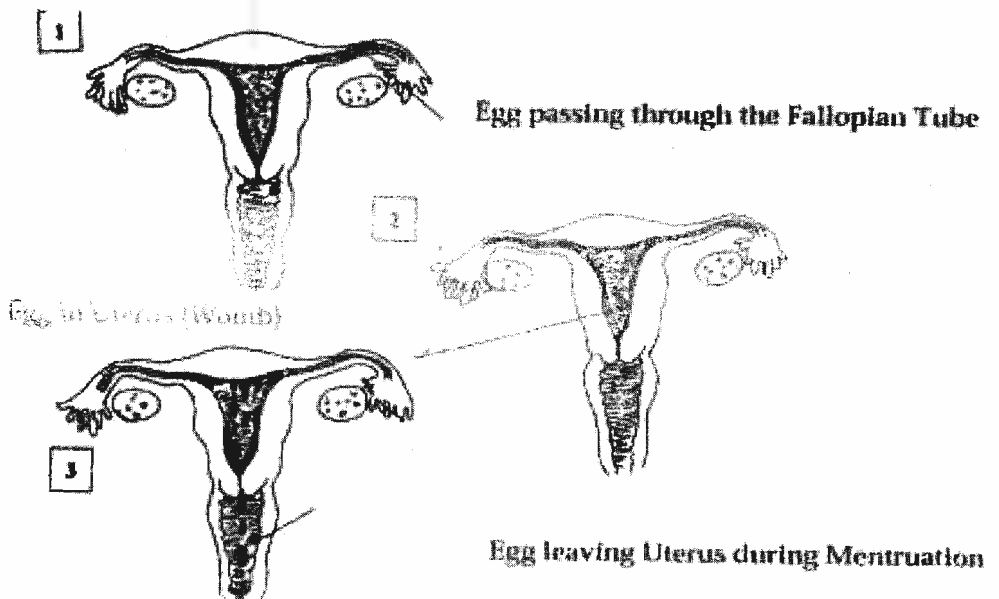


Figure 8.3: Menstruation Cycle

Every month, when one egg ripens in the ovary of the woman the inner lining of the uterine cavity starts becoming thick and spongy (due to increased blood supply) as it prepares to implant the “fertilized egg” i.e. zygote. However, after ovulation, if the egg does not get fertilized, it dies and the uterus also sheds its inner lining, which come out of the woman’s body as broken tissue along with blood through vagina as menstrual flow. Menstruation occurs approximately 14 days after ovulation, if the egg is not fertilized. Menstrual periods may last 2-7 days; the average menstrual period lasts 4-5 days. As mentioned above, if the egg is not fertilized by a sperm, menstruation will occur and egg is released in each such successive cycle. These menstrual cycles continue to occur about every month until a woman goes through ‘menopause’ when the menstruation stops for ever i.e. the rest of her life. This is the end of reproductive stage in a woman, which may happen around age 45-50.

On the other hand, if the egg is fertilised by a sperm there will not be any menstrual flow. A woman is said to have become pregnant or conceived only when the egg is fertilized. Let look at the process of conception below.

Check Your Progress

Notes: a) Space given below the question is for writing your answer.

b) Check your answer with the one given at the end of this unit under “Answers to ‘Check Your Progress’ Questions”.

3) Explain the difference between ovulation and menstruation.

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4) What is the care to be taken by women during menstruation?

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8.4.2.2 Process of Conception: Sex Determination

The process of conception occurs as a result of the following.

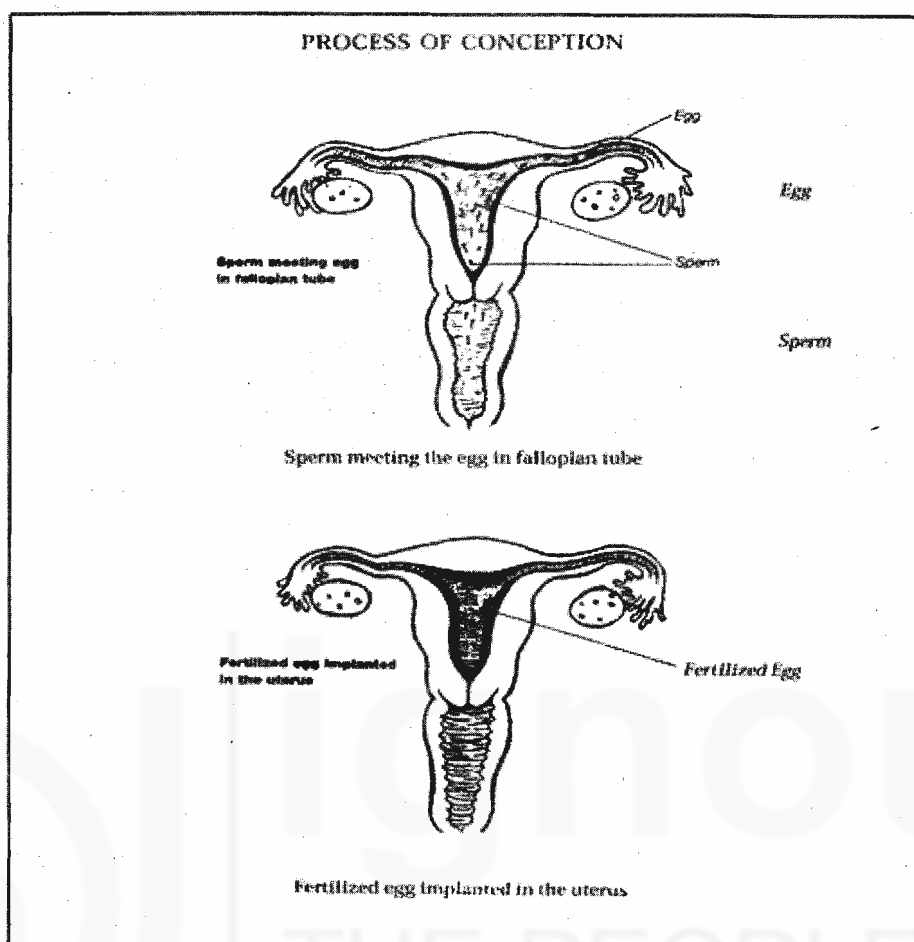


Figure 8.4: Process of Conception

- Sexual intercourse takes place between male and female i.e. insertion of the penis into the vagina. During intercourse, millions of sperms are ejaculated from the penis into the vagina. Here, it is important to note that these sperms are of two types (one type carrying X-chromosome and the other type carrying Y-chromosome), and any type of sperm can fertilize the egg. The ejaculated sperms swim up through the vagina into the uterus and through the fallopian tubes seeking an egg. If a mature egg is present, the sperms of both the types surround the egg and any one and only one sperm will fertilize the egg. Thus, although millions of sperms may be present, only one sperm fertilizes the egg i.e. egg and sperm join together into one called 'zygote'. This is what is called *conception*. Once the zygote is formed, the cycle of menstruation stops till the delivery of the baby. Though it stops during pregnancy, it starts again after the baby is born.
- A woman has the chances of becoming pregnant at every sexual intercourse including the first time. Formation of zygote is technically called 'conception', which is the beginning of pregnancy. The fertilized egg (zygote) moves through the Fallopian Tube in the uterus where it attaches to the thick lining of the uterus (implants itself) and grows into foetus. This lining nourishes and supports the baby until its birth.

- Usually only one egg is released during ovulation either from left or right ovary. Sometimes, two eggs are released at the same time. If this happens and if both the eggs are fertilized, non-identical twins will be born. Or, sometimes, if the single fertilized egg (i.e. zygote) divides into two and each develops into a baby, accordingly the identical twins (either both males or both females) are born.

Sex Determination — Need to avoid any kind of biased treatment towards the sex of the baby: Regarding how the sex of the baby is determined, you need to remember the following so as to avoid any kind of biased treatment towards the sex of the baby.

- In the human reproductive process, two kinds of sex cells, i.e. gametes (sperms and eggs) are involved. The male gamete or sperm, and the female gamete or the egg or ovum meet in the female's reproductive system to form a zygote, which develops into a baby, a new individual. Both the male and female reproductive systems are essential for reproduction.
- Humans, like other organisms, pass on certain characteristics of themselves to the next generation through their genes, the special carriers of human traits. The genes of parents that pass on to their offspring make kids similar to others in their family, but they also make each child unique. These genes come from the father's sperm and the mother's egg, which are produced by the male and female reproductive systems. However, *the gender of the baby is determined by the sex chromosomes of the male.*
- Sex-Chromosomes, X-Y:** The male gametes or sperm cells in humans and other mammals are heterogametic and each gamete (sperm) contains one of the two types of sex-chromosomes – X or Y. Thus, these male gametes are of two distinct types – one type of sperms carrying X chromosome and the other type carrying Y chromosome. The female gamete (egg), however, contains only the X chromosome and, thus, eggs are homogametic. In fact, it is the sperm cell that determines the sex of the baby as follows:
 - If a sperm cell containing an X chromosome fertilizes an egg, the resulting zygote will be XX or female baby;
 - If the sperm cell containing Y chromosome fertilizes the egg, then the resulting zygote will be XY or male baby.

Gender is, thus, determined by the male gametes (the male's sperms) at the stage of conception – dictating whether the baby will be a boy (XY zygote) or a girl (XX zygote).

Box 8.1: Who Determines the Sex of the Baby?

It is the man who is responsible for the sex of the baby and not the woman.

Prior to conception, the unfertilized egg (woman) carries an X chromosome while the sperm (man) can carry either an X or a Y chromosome. The gender of the baby comes down to one simple event:

- *If the sperm carrying an X chromosome fertilizes the egg, a girl is conceived.*
- *If the sperm carrying a Y chromosome fertilizes the egg, a boy is conceived.*
- *It is the man who is responsible for the sex of the baby.*
- *Women are not to be blamed or condemned for giving birth to daughters.*

Then, why to blame the woman for baby's sex?

8.4.2.3 Risks Involved in Pregnancy: Danger of Adolescent Pregnancy

As mentioned above, fertilization takes place when a male gamete or sperm cell meets and merges with the female egg i.e. when zygote is formed. This is called conception by a woman. The fertilized egg moves from the Fallopian tube into the uterus (womb) where it will grow into foetus. Implantation occurs when the fertilized egg lining is not shed throughout pregnancy, so menstruation stops. This fertilized egg (zygote) continues to grow in the uterus for nine months and becomes a baby. It then comes out of the mother's body by the process of childbirth through vagina.

Risks Involved in Adolescent Pregnancy: Following are the risks involved in adolescent pregnancy.

- Once the male and female attain puberty, they become capable of reproducing children, but the reproductive maturity is reached only when adolescents are physically fully developed. Therefore, if pregnancy and motherhood occur before the reproductive maturity is attained, it exposes adolescents to serious health risks and other problems. Early marriage continues to be the norm in several regions of India in spite of laws stipulating legal age of marriage as 18 years for girls and 21 years for boys. The early marriage and the pressures on young married women to prove their fertility result in high rates of adolescent pregnancy and associated problems.
- Whether within or outside marriage, adolescent pregnancy leads to serious health risks and problems such as the following.
 - ✓ Adolescent pregnant mother is more likely to suffer from anemia.
 - ✓ Greater likelihood of prolonged labour multiplies the hazards to the mother and her child.
 - ✓ Pregnancy at an early age can result in severe damage to the reproductive tract.
 - ✓ Adolescents who begin child-bearing in their early reproductive years increase their available period for child-bearing. On an average they can have higher number of births than those who begin child-bearing late.
 - ✓ Adolescent pregnancy increases the risk of maternal and child mortality.
 - ✓ The adolescent mother is not mentally prepared to play the role of a mother.
 - ✓ Adolescent pregnancy severely curtails educational and employment opportunities and is likely to have long-term adverse impact on the quality of life of the family.

Means to reduce the risks: Conscious use of different methods of family planning by couples in their reproductive ages in order to avoid or space pregnancies and achieve the desired family size is termed as *Fertility Regulation* or *Family Planning* or *Fertility Management*. It is a means of enhancing the quality of families, which includes regulating and spacing child-birth, helping sub-fertile couples to beget children and providing counseling for parents and would be parents. It is in other words, a way of promoting the welfare of the family. It ensures that every child is a wanted child and protects the health of the mother, children and the entire family.

The methods used to prevent pregnancy are termed as *Contraceptive Methods*. They include permanent and temporary methods. There are various methods. However, one method which is suitable for one, may not be so for the other. One may choose a method according to one’s needs, wishes, culture or situation. Each method has its own advantages and disadvantages. We will discuss the details of these methods and techniques in Unit-10 “Individual Measures” of Block-3 of MAE-005.

Check Your Progress

Notes: a) Space given below the question is for writing your answer.

b) Check your answer with the one given at the end of this unit under “Answers to ‘Check Your Progress’ Questions”.

5) What is conception? Explain how sex of the baby is determined at the stage of conception itself. Is it wise to blame a women for the sex of the baby?

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8.5 REPRODUCTIVE HEALTH AND HYGIENE DURING ADULT AND MARRIED LIFE: SOME IMPORTANT ASPECTS

Normal functioning of the male and female reproductive systems depends on complex hormonal communication signals between the endocrine system and the sexual organs (ovaries in women and the testes in men). Knowledge of the natural processes involved in the maturation of an egg in the woman and the production of sperm in a man helps to improve the understanding of the causes of (in)fertility and the role current infertility treatment plays in aiding conception (or contraception). Reproduction means procreation, having offspring or babies. Both man and woman are responsible for reproduction and they have specific reproductive organs in their bodies which are functionally influenced by hormones to carry out this important function (reproduction) as follows.

- Man and woman have sexual intercourse.
- Conception may occur and lead to various stages of pregnancy.
- Delivery of a baby.

8.5.1 Hormones and Fertility

Hormones play vital role in growth and development of individuals throughout the life in general, and more so in sexual development and reproductive process. Like most of the body's systems, hormones (hormonal system) direct the intricate processes involved in male and female fertility. There are *three key hormones* responsible for controlling the reproductive systems in both sexes.

The first is *gonadotropin-releasing hormone (GnRH)*, originally called luteinising hormone-releasing hormone (LHRH), secreted by the hypothalamus, (an endocrine gland located in brain). This hormone stimulates the secretion of two gonadotropin hormones — *luteinising hormone (LH)* and *follicle stimulating hormone (FSH)* — from the pituitary gland. These two gonadotropins of pituitary gland are the key driving forces behind the development of sperm in a man and the maturation and release of a fertile egg (ovulation) in a woman.

The body must produce these hormones in the right amounts, in the proper sequence and at precisely the right times for ovulation and sperm production to occur. Imbalances due to insufficient amounts or the wrong timing reduces the chances of conception.

8.5.2 Sperm Production

LH is responsible for the production of the male hormone — *testosterone*, which along with FSH is responsible for stimulating sperm production in the testicles (or testes). The process of producing sperm, i.e. spermatogenesis, is a continuous process which takes about 72 to 74 days for a male 'germ' cell to develop into an active sperm. Several hundred million sperms are produced on a daily basis from a starting point of about eight times as many germ cells. Spermatogenesis is most efficient at a temperature of 34°C, but is vulnerable to a number of factors. A high environmental temperature or a prolonged fever, for example, can be seen to affect the quality of the matured sperm two to three months later. From the millions of sperms available each day, only a small proportion of them have full fertilising potential.

Sperm consist of two main parts: i) the head which has the crucial role of attaching to an egg and penetrating the outer membrane taking with it its genetic information, and ii) the tail, which enables it to 'swim' the length of the female reproductive tract to reach an egg. Problems with any of these components will affect the fertilising power of the sperm.

8.5.3 Menstrual Cycle and Fertility

There are three phases/stages in a woman's 'monthly' cycle or menstrual cycle — *the first*, during which the mucus in the cervix becomes 'sperm-friendly'; *the second*, the lining of the uterus prepares for pregnancy; and *the third*, an egg in one of the ovaries matures within a follicle (fluid-filled sac) before being released to be ready for fertilisation.

- **Stage one:** The first stage of the cycle is called the *follicular phase* and lasts for about two weeks. During this stage, the secretion of *FSH rises*, stimulating the development of an egg-containing follicle and the maturation of the egg within it. The growing follicle secretes increasing amounts of the female hormone, *estrogen*, which triggers changes in endometrium (i.e. the inner

lining) of uterus and cervical mucus. The cervical mucus thins to allow sperm to pass through, and the endometrium thickens making it ideal for the implantation of a fertilised egg.

- **Stage two:** About 32 hours before an egg is ready to be released, the amount of estrogen produced by the follicle peaks, causing the pituitary to secrete a spike of luteinising hormone. This surge in LH production causes *ovulation*, when the matured egg bursts out of the follicle and travels down the fallopian tube.
- **Stage three:** The remains of the follicle become a corpus luteum, which secretes a second female hormone, *progesterone*. This helps maintain the best conditions for pregnancy should the egg be fertilised, and is known as the *luteal phase*. If the egg is not fertilised within about 72 hours the corpus luteum eventually degenerates, and the egg is expelled from the uterus along with its lining as part of menstruation around two weeks later.

8.5.3.1 Fertilisation, Pregnancy and Delivery

Unlike men, women are born with about 400,000 immature eggs already in their ovaries. Each month between puberty and the menopause one egg, usually, fully matures and starts its journey down the fallopian tubes in anticipation of fertilisation.

Humans are, comparatively, one of the least fertile creatures on Earth, with only a 25 percent chance of conception each month. This is due to the relatively short time within each cycle when a woman's egg can be fertilised. The best time for fertilisation and pregnancy is around the middle of the menstrual cycle just before ovulation occurs. This fertile period may range from 10-14 days. Sperm can only live for around 48-72 hours in the female reproductive tract, and the egg needs to be fertilised within 72 hours following ovulation. Under normal circumstances only a few hundred of about 14 million sperm naturally deposited into the vagina during intercourse are able to reach the end of the fallopian tube where the egg can be fertilised.

After one sperm has successfully fertilised an egg, the fused cells become a zygote, cell division begins and an embryo forms. About a week following ovulation, the embryo finds itself in the uterus and implants itself into the endometrium. Successful implantation prevents the corpus luteum and endometrium from breaking down. From here, a third gonadotropin, human chorionic gonadotropin (HCG), produced by the placenta that develops at the point of implantation, plays an important role in maintaining the pregnancy by stimulating the corpus luteum to continue to produce high levels of estrogen and progesterone. The embryo gradually grows into foetus/baby leading to its delivery.

8.6 RTIs, STIs / STDs AND AIDS/HIV

In this section, the focus of our discussion will be on RTIs and STIs/STDs including AIDS/HIV.

8.6.1 Reproductive Tract Infections (RTIs)

Reproductive tract infections are the infections of the ducts, passages, canals or tubes of reproductive organs. There are many types of infections and inflammations of the reproductive tracts exhibiting different symptoms in men

and women. They are caused by different organisms/germs that can enter the reproductive tract. They can also be caused by several organisms, which normally live in the reproductive tract, when these expand in numbers.

The reproductive tract infections occur due to the following:

- Poor general health due to poor diet, lack of sleep, and life stresses which lowers the body's resistance to infection.
- Poor genital hygiene promotes infections e.g. unclean underwear, failure to change or remove pads, wiping from rear to front after passing stools.
- Use of some soaps, perfumes and deodorants which irritate tender skin.
- Some medicines (antibiotics) that kill normal bacteria that protect the vagina's health.
- Sexual intercourse with an infected person.
- Trauma (e.g. from delivery, sexual intercourse or use of chemicals, etc.)
- Unhygienic practices of health-care providers. e.g. unhygienic delivery or abortion practices, insertion of contaminated intra-uterine device (IUD).

RTIs in Women: RTIs are more common in women because of their body structure and functions (like menstruation, pregnancy and childbirth). They are much more vulnerable to entry and growth of disease-causing germs.

- Foul-smelling, unusual vaginal discharge.
- Pain in the pelvic area between the navel and sex organs, i.e., pain in lower abdomen.
- Genital sores or blisters, with or without pain.
- Swollen and painful lymph glands in the groin.
- Pain or bleeding during intercourse.
- Painful or itchy genitals.
- Changes in menstrual bleeding, e.g. very little bleeding or heavy bleeding.
- Delayed or early menstruation.

RTIs in Men: These are generally of the following type or nature.

- Genital rashes and redness
- Discharge from the penis
- Painful urination, difficulty in urinating
- Sores or ulcers on the penis
- Swollen and painful lymph glands in the groin
- Pain during intercourse.

8.6.2 Sexually Transmitted Infections/Diseases (STIs/STDs)

STIs spread if a person has unprotected sexual intercourse with an infected partner. The sexual act can be vaginal, anal or oral. The vagina, penis, rectum and mouth provide the ideal environment from which the STI germs can invade the body.

STIs can be prevented though there is no vaccine or immunity against these diseases. Following are the measures that can help reduce the chance of infection.

- Abstain from having sex (the only guaranteed protection).

- Have one faithful sexual partner.
- Treatment of STIs in both sexual partners.
- Use of condoms.
- Avoid sexual intercourse if any signs of infection are present.
- Do routine genital self-examination to detect signs of infection.

Sexually Transmitted Diseases (STDs): These are very common in people who resort to unhealthy / unprotected sexual intercourse particularly in the circumstances when protection is a must.

There is strong evidence that Sexually Transmitted Diseases (STDs) put a person at a greater risk of getting and transmitting HIV. This may occur because of sores and breaks in the skin or mucous membranes that often occur with STDs. There are various types of sexually transmitted diseases of which AIDS is only one most dangerous disease. Knowledge of other common sexually transmitted diseases discussed below is also important for understanding AIDS.

- **Syphilis:** It is transmitted by a microscopic organism called *Treponema Palletium*. It spreads by skin contact where the skin is broken. The symptoms occur in three stages. *First stage* – reddish ulcers at the site of infections; *Second stage* – rash, enlarged lymph nodes, fever, sore throat; *Third stage* – ulcers, joint pains, loss of sensations, damage to heart, blood vessels, spinal cord and brain. The complications that occur are: i) Damage to heart and major blood vessels resulting in heart failure and death, ii) Brain and spinal cord damage causing paralysis, insanity and death, and iii) Intra-uterine growth retardation, premature birth, still-births and congenital infection of the infant.
- **Genital herpes:** This disease is caused by the *herpes simplex*, a virus, which produces painful genital ulcers that heal spontaneously but recur, the initial outbreak being the longest and most intense. Herpes is most infectious when sores are open, but the disease can also be spread to sexual partners by individuals who are not aware of any symptoms. Although child-birth during an active outbreak of a mother's primary infection is rare, 20-25 per cent of the babies born under these circumstances will be infected at sites such as the eyes, skin, mouth, central nervous system and lungs. The majority of infants with infections extending beyond the skin, eyes and mouth will suffer permanent neurological damage or death.
- **Chancroid:** It is caused by the bacterium *H. Ducreyi*. This disease usually causes a painful ulcer in men, while it may occur without symptoms in women. As with other genital lesions, chancroid increases the risk of HIV transmission.
- **Genital warts:** These warts are small painless growths caused by the *Human Papilloma Virus (HPV)*. The precise prevalence of HPV infections is unknown, because most HPV infections are asymptomatic. These infections are difficult to treat and recurrent infections are common. Several of the over 50 types of HPV are associated with increased risk of cervical cancer.
- **Bacterial Vaginosis (BV):** It is the most common of all vaginal infections. It can occur without symptoms, or be accompanied by excessive vaginal discharge with an unpleasant odor. The organisms causing BV are normally found in low numbers in the vagina. BV results from their rapid multiplication

due to a variety of factors that upset the normal balance of bacteria in the vagina. BV may cause upper tract infections. In pregnant women, this may lead to premature child birth; in non-pregnant women, infertility or tubal pregnancy may result.

- **Candidiasis:** It results from overgrowth of normal vaginal flora. Symptoms include vaginal discharge, burning during urination, bad odor or occasionally lower abdominal pain. It is associated with increased risk of HIV transmission.
- **Trichomoniasis:** It is sometimes referred to as “trich”. It is a common cause of vaginitis. It is asexually transmitted disease, and is caused by the single-celled protozoan parasite *Trichomonas vaginalis* producing mechanical stress on host cells and then ingesting cell-fragments after cell death. Trichomoniasis is primarily an infection of the urino-genital tract; the most common site of infection is the urethra and the vagina in women. Typically, only women experience symptoms associated with *Trichomonas* infection. Symptoms include inflammation of the cervix (cervicitis), urethra (urethritis), and vagina (vaginitis) which produce an itching or burning sensation. Discomfort may increase during intercourse and urination. There may also be a yellow-green, itchy, frothy foul-smelling (“fishy” smell) vaginal discharge. In rare cases, lower abdominal pain can occur. Symptoms usually appear in women within 5 to 28 days of exposure. In many cases, men may hold the parasite for some years without any signs (dormant). Some sexual health specialists have stated that the condition can probably be carried in the vagina for years, despite standard tests being negative. While symptoms are most common in women, some men may temporarily exhibit symptoms such as an irritation inside the penis, mild discharge, or slight burning after urination or ejaculation (<http://en.wikipedia.org/wiki/Trichomoniasis>).
- **Chlamydia:** It is a particularly difficult infection to control for three reasons. *First*, majority of women with Chlamydial cervicitis have no symptoms, so they rarely seek care. *Second*, accurate tests for Chlamydia are technically demanding and expensive. *Finally*, at least a week of therapy is required to eradicate lower tract chlamydial infection, in contrast to the single dose regimens available for many other bacterial STDs. Chlamydia can lead to extremely serious complications and infections in the upper tract frequently causing infertility. During pregnancy, Chlamydia may cause still-birth, premature-birth, and congenital infections such as pneumonia or eye infections. It is also associated with an increased risk of HIV transmission.
- **Gonorrhea:** It is caused by the bacteria *Neisseria Gonorrhoea*. It is the most common preventable cause of Pelvic Inflammatory Disease and tubal infertility worldwide. It spreads easily: a man’s risk of acquiring this disease in a single heterosexual encounter with an infected partner is approximately 20-25 per cent, while a women’s risk is higher because infected secretions from the male are retained in the vagina following intercourse. In women, symptoms of cervical infection include abnormal vaginal discharge, burning during urination; upper tract infection with lower abdominal pain and abnormal menstruation. Blood-borne phase of infection may be manifested by rash and painful joints. Gonorrhea can produce spontaneous abortion, premature births, and potentially blinding eye infections in newborns.

Need for prevention/early treatment of RTIs and STDs: Untreated RTIs and STIs can cause serious complications such as the following.

- Infertility in men and women.
- Eight to ten times increased risk of getting HIV/AIDS, if exposed.
- Increased risk of cervical cancer.
- Risky pregnancy e.g. miscarriage, still-births or infants born with birth-defects, including brain damage.
- During birth, the newborn can get severe eye infection from mother's birth-canal and can become blind.

8.6.2.1 The STI – HIV Relationship

Sexually transmitted infections increase the likelihood of HIV (the virus that causes AIDS) transmission from one sexual partner to another. In turn, the presence of HIV increases vulnerability to STIs and prolongs the duration of infectivity. Prevention and management of STIs, therefore, have become a critical strategy for minimizing the impact of the HIV/AIDS pandemic.

It is now well-established that the presence of other sexually transmitted infections greatly facilitates the transmission and acquisition of HIV between sexual partners. STIs which cause genital ulcers significantly increase the chances of HIV acquisition per sexual act the most. Other RTIs, however, can also increase the risk of HIV transfer between sexual partners, particularly if they result in inflammation in the genital tract. The ways in which HIV transmission and acquisition are facilitated by the presence of infection are summarized below:

Types of RTI	Increased risk of HIV transmission	Way in which HIV transmission is facilitated
Ulcerative STI • Syphilis • Chancroid	3-9 times	Because HIV is transmitted and acquired through direct contact of bodily fluids; the presence of open sores and blisters / ulcers allows for greater such contact and access to the bloodstream for the virus.
Herpes Simplex Virus	2 times	
Inflammation-causing STIs • Gonorrhea • Chlamydia • Trichomoniasis	3-5 times	These infections increase genital shedding of HIV infected cells. In addition, urethral and endocervical infections that cause inflammation allow for more efficient exchange of infectious particles.
Bacterial vaginosis	1.5 – 2 times	

Check Your Progress

Notes: a) Space given below the question is for writing your answer.

b) Check your answer with the one given at the end of this unit under “Answers to ‘Check Your Progress’ Questions”.

6) Explain the difference between RTIs and STIs. What are the symptoms of RTIs / STIs in women and men?

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7) How can a person protect himself/herself against RTIs / STIs?

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8.6.3 AIDS / HIV

AIDS is caused by HIV. Do you know what HIV and AIDS mean? They are the popularly used acronyms which are explained below.

HIV stands for:

- Human (Human beings).
- Immune deficiency (weakness of natural strength of the body to fight with disease).
- Virus (disease causing virus).

AIDS stands for:

- Acquired (not present in body but one gets it from someone).
- Immune (natural strength of body to fight with diseases).
- Deficiency (shortage of immunity).

- Syndrome (a group of diseases or their symptoms and not one disease or its symptoms).

While AIDS is the disease, HIV is the virus that causes AIDS.

8.6.3.1 What does HIV do in the Human Body? Signs and Symptoms of HIV/AIDS

HIV destroys the immune system of the body and the affected person loses resistance or immunity to diseases. The destruction of the immune system by the virus means that infectious organisms can invade the body unchallenged and multiply to cause disease. So far, there is no real cure for this disease.

Signs and Symptoms of HIV/AIDS: People who are affected with HIV show no symptoms of the disease for many years. These people may remain completely healthy and free from symptoms of a disease but they have the virus in their blood and are at the risk of developing AIDS at any time in future. Once a person is infected with HIV, he/she can transmit the virus to other people even though he/she may appear perfectly healthy and may not know that he/she has been infected with HIV. There is no way of knowing whether a person is infected with HIV except by having a blood test.

HIV/AIDS has no symptoms of its own.

- It becomes visible in the form of symptoms of common diseases like diarrhea, fever, oral and genital infections, TB, etc.
- Presence of symptoms of more than one common disease and their persistence for a long period indicates the presence of AIDS.

The length of time taken by the people with HIV to develop AIDS varies widely from person to person.

8.6.3.2 Incurability of AIDS

No Preventive Vaccine or Cure for AIDS: Although there is no preventive vaccine or cure for AIDS, there are various steps the people with HIV can take to safeguard their health. In order to maintain good health and delay the onset of the disease syndrome, it is important for people with HIV to:

- Seek early medical treatment for health problems such as oral infections and pneumonia;
- Eat a varied balanced diet;
- Have regular sleep and rest;
- Relax and enjoy leisure time;
- Take good physical care of the body;
- Practice good hygiene; and
- Maintain morale and a positive self-image.
- Avoid bites by insects, e.g. mosquitoes, bed bugs, etc.

Given below are some important practical steps that the individuals with HIV can take:

- Avoid further HIV infection through unprotected sex;

- Avoid smoking;
- Avoid becoming overtired;
- Reduce stress and worry; and
- Avoid other infections.

8.6.3.3 Transmission of HIV: Facts and Myths

It is essential for you to know the facts about transmission of HIV so that you can dispel all the myths about its transmission.

Facts about how HIV is transmitted: HIV is present in the blood and other body fluids of the infected person. HIV is known to be transmitted into the body of the uninfected person through the following *four main routes*.

- i) Sexual intercourse with an infected person.
- ii) Blood transfusion of HIV-infected blood.
- iii) Use of syringes, needles and other instruments infected with HIV (used by HIV-infected person).
- iv) Infected mother to her unborn child.

How HIV is not transmitted: Note that, one will not get HIV/AIDS through everyday social contact with a person infected with HIV. HIV is not at all transmitted in the following ways.

- Shaking hands.
- Kissing and hugging.
- Sharing cups, plates and other eating utensils.
- Sharing toilet and bathroom facilities.
- Through coughing or sneezing or through the air we breathe.
- Sitting in the same classroom or canteen.
- Sharing work instruments or machinery.
- Swimming together or playing together.
- Donating blood to the Blood Bank (with sterilized needles).

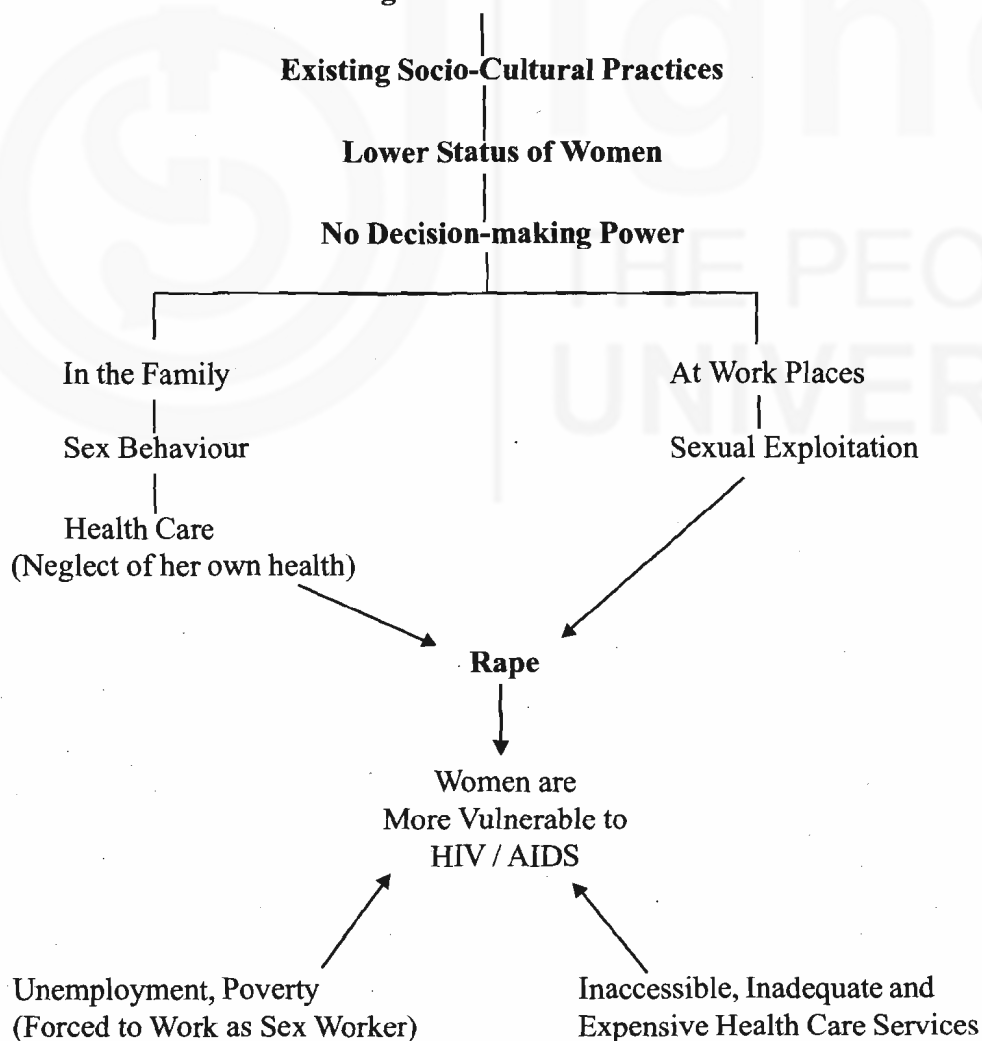
8.6.3.4 HIV/AIDS and Women

Women in the general are often vulnerable to the HIV infections, not so much because of their own sexual behavior but because of their partners.

- Male promiscuity – multiple partners and visits to commercial sex workers – is often the norm. Girls and women in such circumstance generally do not have power to determine whether, when, and with whom they should and should not have sex.
- Women may be subjected to reproductive tract trauma due to sexual violence or male sexual preferences, and they can rarely negotiate safer sex practices, especially condom use.
- Biologically too, women are more vulnerable than men because the transmission of HIV/AIDS and other STDs is more effective from men to women.

- The consequences for women are more serious than for men, and women who have infections often have no symptoms and, therefore, do not seek treatment.
- Women have little, if any, accurate information on the causes, consequences and treatment of RTI/STDs and endogenous infections. The view in many societies is that it is shameful to have a reproductive tract infection and, in many cases, it may even threaten the marriage even if it is the man who is its cause.
- Infected women have little or no access to services because attendance at STD clinics carries a stigma and STD services per se are rare. There is widespread misunderstanding that infections are not “natural” or minor, that STD services carry a stigma, that these services are too complicated and too expensive to treat.
- Women often feel most comfortable with traditional remedies, including some that may introduce or exacerbate infection. When women do seek public or private reproductive health services, they can be at a high risk of infection if procedures are improperly followed. Often, these services are poor in quality because of lack of resources, poor training or lack of supervision.

Factors Increasing the Risk of HIV / AIDS in Women



Source: Women Health and Development Resource Centre, Ahmadabad.

Vicious Circle of Infection — Vulnerability of Women to HIV/AIDS: The relationship between HIV and other STIs extends beyond the increased risk of HIV transmission. An individual with HIV eventually suffers damage to the immune system, making him or her more susceptible to contracting other infections, including RTIs. In an HIV-infected person, RTIs are more difficult to treat and cure. As a result of the presence of other untreated STIs and some endogenous RTIs, an HIV-infected person is more likely to transmit HIV in subsequent unprotected sexual contact.

Women are more vulnerable to HIV/AIDS for the following reasons.

- Rape by or an early marriage with an infected male exposes women to HIV/AIDS at an early age.
- Due to social and sexual subordination, women find it difficult to negotiate and prevent men from practicing unsafe sex at home and at workplace as well.
- Lack of control over sexuality, in addition to the culture-specific submissiveness, increases the chances of HIV infection in women.
- Poverty, unemployment and lack of education might force them to accept sex work, increasing chances of HIV infection through forced unsafe sexual practices.
- Inadequate information, lack of mobility and poor health services increase the chances of HIV infection by manifold.
- Inadequate laws aggravate her HIV status. For example, Rape law and PITA (Prevention of Immoral Traffic Act) are inadequate and more often the violator goes unpunished due to the lapses in the Act.
- Immature cervix in adolescents and less mucus production in the genital tract of post-menopausal women may cause injury during sexual intercourse increasing their susceptibility to HIV infection.
- Female birth passage is not visible to the naked eye, and any lesion that may occur is not easily recognized and treated.
- Since foetus can acquire HIV from the infected mother, infected women often have to deal either with a tremendous sense of guilt and grief about infecting their children or the loss of their child-bearing potential.

8.6.3.5 Prevention of Spread of HIV/AIDS

Use of condoms by men, on which women have little control, is the potential means of preventing spread of AIDS. HIV/AIDS can be prevented from spreading by taking certain precautionary measures such as the following:

- Having one sex partner.
- Using a condom.
- Using sterilized (properly boiled or disposable) needles and syringes for injections, not sharing razors and blades,
- Using only sterilized needles for tattooing and ear-nose piercing.
- Taking only HIV/AIDS-tested blood.

- If either partner (husband or wife) is infected, never have sex without condom.
- Avoid producing a child after getting infected (either partner).
- Avoid breast-feeding, if mother is infected.

i) **Management of STIs as HIV Prevention:** Management of STIs is the effective way of prevention of spread of HIV. To limit the morbidity and mortality associated with both STIs and HIV, prevention of spread of HIV is crucial. Primary strategies for preventing the transmission of STIs are the same as those for HIV/AIDS. However, once contracted, many of the other sexually transmitted infections are curable, whereas HIV is not. As a result, timely and appropriate management of other STIs can help curb the HIV pandemic.

There are *three stages of HIV prevention through STI management*. They apply to both individual behavior and health policy strategy. These are as follows:

	1. Reduce Exposure	2. Reduce Efficiency of Transmission	3. Shorten Duration of Infectivity
Individual Behavior	Restraining from frequent sex <ul style="list-style-type: none"> • Limit number of partners • Remain in a mutually monogamous relationship 	Substitute safer sexual practices for risky sexual behavior <ul style="list-style-type: none"> • Use condoms 	Seek immediate treatment for infectious symptoms <ul style="list-style-type: none"> • Abstain from sex during treatment • Refer partners • Adhere to recommended therapy
Health Policy	Work to limit population prevalence of STIs <ul style="list-style-type: none"> • Target risk groups • Promote awareness of self-protection methods 	Promote safer sex through active, high-quality, gender-sensitive information campaigns <ul style="list-style-type: none"> • Make condoms easily available (e.g. through social marketing) 	Provide accessible STI services (e.g. introduce syndromic management for symptomatic cases) <ul style="list-style-type: none"> • Encourage partner referral and treatment

ii) **When you deal with HIV/AIDS patients:** Perhaps because of the sensitive issue of sex and death are interwoven around AIDS, the negative reaction from the general public to AIDS patients has been unprecedented. Hence, when you deal with HIV/AIDS patients, be sure that HIV is not contagious; it is not transmitted through normal everyday contact. So:

- Do not give the HIV infected the feeling of neglect.
- Do not show any discrimination against them.
- Show sympathy and empathy to them.
- Do not deprive them of their present jobs, education and other facilities.
- Give them due care.
- Do not attach any stigma to them.
- Look upon them as any other normal person.

8.6.3.6 Ten Key Points on AIDS

Given below are Ten Key Points that increase your understanding of AIDS.

- 1) ***AIDS is a major health concern:*** Nationwide, the HIV prevalence rate for the population aged 15-49 is 0.28 percent i.e. 1.7 million HIV positive persons in India in April 2006, the midpoint of the NFHS-3 survey. The HIV prevalence rate is 0.22 percent for women and 0.36 percent for men aged 15-49. The prevalence rates for the six states are: Manipur (1.13 percent), Andhra Pradesh (0.97 percent), Karnataka (0.69 percent), Maharashtra (0.62 percent), Tamil Nadu (0.34 percent), and Uttar Pradesh (0.07 percent). The official estimate of HIV prevalence for India is 2.47 million which has spurred the Government of India to further intensify the efforts to control this pandemic.
- 2) ***AIDS is the end stage of infection with HIV:*** In adults, it takes an average of 10 years to develop aids after acquiring the HIV infection. A person infected with HIV may thus look and feel healthy for many years, but he or she remains a potential source of infection to others. HIV is transmitted through – unprotected sexual intercourse with an infected person / partner, through infected blood or blood products or fluids, and from an infected mother to her baby before, during or shortly after birth (pre-natal transmission).
- 3) ***Sexual transmission of HIV is preventable:*** Sexual transmission of HIV can occur from man to women and from woman to man (heterosexual) and also from man to man (homosexual). The most effective way to prevent transmission of the virus is to abstain from sexual intercourse or the two uninfected partners should be faithful to one another. The risk of spreading HIV through sexual intercourse can be significantly reduced by making proper usage of condoms.
- 4) ***Infection through blood is preventable:*** Blood for transfusion must be tested for HIV infection and discarded if found contaminated with HIV positive. Needles, syringes and other skin-piercing instruments must be properly sterilized or discarded after each use and should never be shared.
- 5) ***HIV is not transmitted by casual social contact:*** HIV virus does not survive easily outside the body. It is not spread by casual contact at work or school, by shaking hands, touching or hugging, it cannot spread through food, water or air, by sharing cups or glasses, by coughing or sneezing, in swimming pools or toilets. This means, there is no danger of its spread through causal social contact.
- 6) ***Isolation of cases is not the answer:*** Discrimination against people with HIV or AIDS, besides being a violation of human rights also endangers public health. First, it gives people outside the stigmatized group a sense of threat of infection and thus the need for more personal precautions. Second, it drives the AIDS problem underground, making all efforts at prevention and care much more difficult.
- 7) ***Information and education are vital:*** Changes in personal behaviour to prevent the spread of HIV are the best form of preventive tools. Information and education to promote public awareness are vital to fight against this deadly scourge. It should be remembered that prevention is the only form of cure for HIV / AIDS.

- 8) ***AIDS remains a global threat:*** AIDS recognizes no boundaries of race, sex, class or age. No one is immune to this deadly disease and no one will remain untouched in the next century or so, as AIDS has reached a pandemic proportion and threatens entire communities and changes the pattern of daily life for everyone.
- 9) ***Sharing the challenge of this global menace:*** AIDS has become an area of global health concern and can be stopped in our country if it is stopped in all countries. Working together – pooling efforts, resources and imagination – gives us the best chance of bringing the pandemic under control.
- 10) ***What can you do to stop this menace?:*** You can contribute to fight against this global threat by making sure that you understand the facts about AIDS and help others also to understand it. World AIDS Day is a special opportunity every year, to focus attention on this urgent problem, a life threatening challenge, that affects us all and join forces to fight against it.

Check Your Progress

Notes: a) Space given below the question is for writing your answer.

b) Check your answer with the one given at the end of this unit under “Answers to ‘Check Your Progress’ Questions”.

- 8) Explain the difference between HIV and AIDS.

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- 9) Explain the signs and symptoms of HIV/AIDS.

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8.7 TIPS FOR GOOD SEXUAL HEALTH

We have discussed in detail the aspects and issues related to reproductive process, RTIs, STIs/STDs and AIDS in the context of sexual and reproductive rights, and sexual health and hygiene. Based on the above, we can now identify the following as important tips for maintaining good sexual health.

- i) **What is sexual health?** Good health is considered to be a state of “complete physical, mental and social well-being and not merely the absence of diseases or infirmity”. Following principles help in determining the sexual health which is intricately linked with overall health of a person:
- “Physical well-being” means good health and hygiene for the genitals and related systems.
 - “Mental well-being” means feeling okay about sexual desires and needs and not guilty or depressed about them.
 - “Social well-being” means not facing social discrimination because of sexual desires and needs, or because of any problem that may result from unsafe sex.

A combination of all these factors makes for a sexually healthy PERSON!

- ii) **What are HIV and AIDS? Are they one and the same?** HIV stands for “Human Immunodeficiency Virus” and AIDS stands for “Acquired Immune Deficiency Syndrome”. In simple terms, HIV is a *virus* that makes the human body’s immune system weak or deficient, while AIDS is an *outcome of HIV infection*. However, being infected with HIV is not the same as having AIDS simultaneously from the moment of infection.

AIDS is actually a ‘late stage’ of HIV infection and comes about only when HIV has made the body’s immunity (defence system) too weak to fight off other infections. It may take several years for AIDS to develop after HIV infection. The healthier the body and better the care taken, the longer it will take for AIDS to develop.

- iii) **What do you understand by AIDS (Acquired Immune Deficiency Syndrome)?** The term “*acquired*” implies that AIDS is not hereditary or present in the body from birth. It comes from an external source through certain behaviours or situations.
- “*Immune Deficiency*” means AIDS is something that makes the body’s immunity deficient.
 - “*Syndrome*” implies that AIDS is a collection of diseases that attack the body when its immunity becomes weak. These diseases are often called opportunistic infections. An AIDS death is actually an outcome of these diseases. But, if treated properly and in time, they need not be fatal; which means that AIDS need not be fatal. Two of the commonest opportunistic infections in India are tuberculosis and diarrhoea.

- iv) **How does a person get infected with HIV?** A person gets infected with HIV if certain body fluids from an infected person’s body enter other person’s body. Body fluids mean blood, seminal fluids (semen) and vaginal fluids, which can host HIV and carry it from one person to another. In almost 80% of cases, HIV is passed on sexually. If one has unprotected penetrative sex – vaginal, anal or oral – with an infected person, body fluids from that person can enter the body. Different sexual acts have different risks. Unprotected vaginal sex and anal sex are considered to be more risky than unprotected oral sex. One can get infected with HIV if he/she receives blood or blood products or certain fluids from an infected person. HIV can enter the body if

syringes or other sharp injecting instruments used by/for an infected person are used for others, because these instruments can lead to exchange of blood from the infected person to the other person. HIV can also be transmitted from an infected mother to her child during pregnancy (through blood across the placenta), during delivery (through vaginal fluids or blood) or during breast-feeding (through milk). HIV has also been detected in other body fluids like saliva, tears and sweat, but the concentration of the virus in these fluids is too little for transmission of the virus to take place. Viral concentration is much higher in blood, vaginal fluids, seminal fluids and breast milk.

v) ***How can you avoid being infected with HIV through sex?*** By having a mutually faithful and monogamous sexual relationship with an uninfected partner, you can avoid possibilities of getting infected with HIV virus. If such a relationship is not possible or preferable, then by practise safer sex with every sexual partner by using condoms or other latex barriers (like dental dams and femmedoms) properly, and every time you do penetrative sexual acts, specifically vaginal sex, anal sex and/or oral sex. Condoms and other latex barriers prevent exchange of infected blood, vaginal fluids and seminal fluids during these sexual acts. A wide range of other sexual acts where chances of exchange of infected blood, vaginal fluids or seminal fluids are minimal, condoms or other latex barriers need not be used.

vi) ***What is proper condom usage?*** Proper condom usage involves the following:

- Checking the expiry date of the condom before use.
- Tearing one end of the condom pack and gently pressing the other end of the pack so that the condom slides out.
- Putting on the condom only when the penis becomes fully erect, and avoiding penetrating the penis into the partner's body before the condom is put on.
- Before putting on the condom make sure that the lubricated side of the condom remains on the outside.
- Pressing the tip of the condom with one hand while unrolling it on to the penis with another to make sure that no air remains trapped inside the condom.
- Unrolling the condom right down to the base of the penis before starting the penetration.
- After ejaculation, holding the condom at the base and gently withdrawing the penis to make sure that the condom does not remain inside the vagina, anus or mouth.
- Taking the condom off carefully and away from the partner's body to avoid spilling the semen outside the condom.
- Tying up the condom with a knot, wrapping it up in a piece of paper and disposing it off into a dustbin.
- Never re-use a condom. A fresh condom should be used for each sexual act.

- Using a water-based lubricant like K Y Jelly or saliva on the condom for extra lubrication during anal sex (to make the penetration easier and smoother).
- vii) **How can HIV be detected?** A person infected with HIV may look and feel healthy for many years, but can still pass on the virus to others. You cannot tell whether a person is infected with HIV just by looking at the person. The only way to find out for sure is through a blood test. If HIV is detected through the test, the result is said to be “HIV positive”. If not, the result is “HIV negative”. There are several types of blood tests, like the following, for HIV, each with its own procedures and costs involved:
- **Enzyme Linked Immuno Sorbent Assay (ELISA) test:** It is the most common and cost-effective test. It detects the presence of anti-bodies to HIV in the body. But, it takes approximately 6-12 weeks from the time of the infection for the anti-bodies to show up in the body. So the ELISA test is effective only if it is conducted after this time period.
 - **Western Blot test:** It is also an antibody-based test. It is more accurate than the ELISA test in detecting HIV, but is much more expensive than the ELISA test. Thus, in India it is often used only to confirm the results of ELISA tests.
 - **Spot test:** It is another most commonly used HIV test in India with a high degree of accuracy. It also tests for antibodies to HIV.
 - **Polymerase Chain Reaction (PCR) test:** It is a direct test that looks for viral particles rather than antibodies to the virus in the blood. This test is capable of detecting HIV in the blood even within a few hours since the time of infection. But, it is an expensive test and is available only in select pathology laboratories.

Attention: No test for HIV should be done without your informed consent. That is, HIV tests should be voluntary and not forced. If you agree to an HIV test, strict confidentiality should be maintained with regard to your identity and the test result. You should receive both pre-test and post-test counselling – the first to help you mentally prepare for the test and its result, and the second to guide you on what to do after the test result is available (irrespective of whether test result is positive or negative).

Remember: An “HIV positive” result need not be the end of the world. There is help at hand to help you deal with the situation. And an “HIV negative” result need not mean you can throw caution to the wind and take risks that could lead to infection in future. It is important to listen to what the counsellor has to tell you to play safe and stay safe!

- viii) **Is there a treatment for HIV or AIDS?** A cure for HIV/AIDS has not yet been discovered and prevention remains a crucial weapon against HIV/AIDS. However, the days when AIDS was considered invariably fatal are on their way out. It is increasingly becoming possible to treat HIV/AIDS. In some cases, HIV-infected individuals, who went on to develop AIDS, when given proper treatment, recovered to the extent that the viral load (amount of HIV) in their body became negligible! This is why AIDS is no longer called the “end stage” of HIV infection. It is now referred to as a “late stage” of HIV

infection. In other words, it is possible to live with HIV/AIDS. Hence, an increasing use of the expression “people living with HIV/AIDS” or PLWHA.

HIV/AIDS treatment has broadly *two components*:

- Treatment for HIV infection through anti-retroviral (ARV) therapy. If started at the right time and taken regularly, ARV therapy can reduce the viral load in the body to negligible levels. However, ARV therapy needs to be life-long. If it is stopped, HIV can regain its strength in the infected person’s body.
- HIV/AIDS treatment should be taken only under the supervision of a certified doctor, after fully knowing potential side effects. The costs involved should also be clearly understood. Efforts are being made to reduce costs of medicines for ARV therapy and opportunistic infections, and associated diagnostics, but these still remain quite high for many people in India. Free or subsidized medicines and diagnostics are currently available only through select government hospitals.

ix) *Is medical treatment for PLWHA enough, or is something more needed?:* What PLWHA need is not just treatment, but also self-care, care from their close ones and larger social support. A combination of care, support and treatment can remarkably improve the quality of life of PLWHA, something they deserve as much as people living/dealing with any other illness!

So what constitutes care, support and treatment for PLWHA? It includes treatment for HIV and being careful about the opportunistic infections associated with AIDS while treating and caring them and their families:

- Provision of emotional, social and economic support – not only to PLWHA but also to their families, particularly children.
- Maintenance of general health and well-being through nutritious food (that is in keeping with the person’s socio-economic background), exercise and rest, and stress reduction and management.
- Prevention of opportunistic infections through general hygiene, safe food and drinking water, and safeguarding against air-borne infections and diseases like malaria.
- Prevention of opportunistic infections is also possible by limiting the chances of HIV re-infection. For this, what is needed are safer sex practices, safer sharing of injecting equipment and safer exchange of blood and blood products.

It is not necessary that care, support and treatment can be provided to PLWHA only in a hospital or hospice. Home-based care is also possible, where PLWHA can learn to take care of themselves in many ways.

x) *What are sexually transmitted infections (STIs)? How can they be prevented?* STIs are infections that are transmitted through sexual contact. Like HIV, many STIs are transmitted through unprotected penetrative sex (vaginal, anal or oral). Therefore, these STIs can also be prevented in the same way as HIV i.e. through mutually faithful and monogamous sexual relationship with an uninfected partner or practising safer sex with each and

every sexual partner. However, what is safer sex with regard to HIV may not prevent STIs. For instance, sexual acts like body rubbing and deep kissing may not be risky in terms of HIV, but can transmit certain STIs. Limiting the number of sexual partners and maintaining overall personal hygiene (including oral hygiene) are some of the ways to reduce possibility of transmission of these STIs.

- xi) *Can STIs be transmitted non-sexually?*** Yes, like HIV, many STIs can also be transmitted non-sexually. STIs like Hepatitis B and C, herpes simplex virus, syphilis, gonorrhoea and many others can be transmitted through sharing of infected injecting instruments and infected blood and blood products. Some of these can also be passed on by an infected pregnant woman to her child during pregnancy or delivery. Safer sharing of injecting instruments and blood or blood products, and early detection and complete treatment of infected pregnant women help in preventing non-sexual transmission of STIs.

STIs like pubic lice can be transmitted through sharing of towels and underwear. Not sharing clothes and maintaining personal hygiene prevents non-sexual transmission. Hepatitis A can be transmitted through contaminated food and water. Maintaining personal and general hygiene, and food and water safety prevents non-sexual transmission of Hepatitis-A.

- xii) *What are the symptoms of STIs?*** Some generic symptoms of common STIs *in men* include:

- Discharge or pus from the penis or anus.
- Sores, blisters, rashes or boils on the penis or testicles.
- Sores, blisters, rashes or boils in or around the anus or mouth.
- Lumps on or near the penis, testicles and anus.
- Swelling on the penis or testicles.
- Pain or burning during urination.
- Itching in and around the genital areas – penis, testicles, thighs and anus.

Some generic symptoms of common STIs *in women* include;

- Pain in the lower abdomen.
- Unusual and foul-smelling discharge from the vagina.
- Lumps on or near the vagina, thighs and anus.
- Pain or burning during penetrative sex (vaginal).
- Itching in and around the genital areas – vagina, thighs and anus.
- Sores, blisters, rashes or boils in or around vagina, anus or mouth.

- xiii) *Is there a link between STIs and HIV?*** The predominant mode of transmission of both HIV and STIs is sexual (in the sense, HIV is also an STI). The presence of certain STIs in a person is often considered as a marker for potential HIV infection as well. Many of the measures for preventing the sexual and non-sexual transmission of HIV and STIs are also the same.

In addition, many STIs cause ulcers, blisters, sores and boils, and most of these are located in / on / around the mouth, penis, vagina and/or anus. During unprotected penetrative sexual acts, HIV transmission can take place more easily through these openings in the skin or mucous membrane present in these organs. Early and complete treatment of STIs is, therefore, desirable not only to reduce or prevent the harmful effects of STIs themselves, but also to prevent HIV infection.

In people already infected with HIV, STIs tend to compromise the immunity further, making it easier for HIV infection to progress in the body.

- xiv) What should you do to treat STIs?** As soon as any *symptoms* that can be associated with STIs appear, or if you suspect that you may have been exposed to an STI, you should *immediately* consult a dermatologist (skin specialist). The doctor may prescribe some tests, which should be carried out at the earliest. It is also important to *complete* the entire course of medicines prescribed by the doctor and keep your follow-up appointments. If you don't complete the treatment, many STIs can recur – more painfully so can cause serious complications!

Remember: The key to dealing with STIs is early detection and complete treatment. It is also important to prevent re-infection with STIs. This will require prevention of both sexual transmission and non-sexual transmission.

- xv) What is male responsibility in the context of sexual health?** Men need to consider the fact that their sexual activities can have a very serious bearing on the health of their sexual partners – male or female. Men who have unprotected penetrative sex (with men or women) outside marriage dangerously increase the risk of their wives and through them their unborn or newborn children getting STIs or HIV infection. In the Indian context, women often have very little say in the matter of safer sex with their male sexual partners, including husbands. Men, often through authority or ignorance, take advantage of women's vulnerability. If men learn to be responsible in their sexual behaviours, they can protect their own lives as well as the lives of their sexual partners and other loved ones.

8.8 LET US SUM UP

We have discussed sex education touching upon the aspects of human reproductive systems, the process of reproduction, RTIs, STIs/STDs and AIDS with emphasis on their causes, methods of transmission and prevention. We have also focused on the sexual health and hygiene, sexual and reproductive rights, and the ways and means of protecting and promoting sexual and reproductive health and hygiene. We hope, your learning from this unit will enable you to contribute effectively to the sexual health and hygiene of the humanity at large.

8.9 ANSWERS TO 'CHECK YOUR PROGRESS' QUESTIONS

- 1) The International Conference on Population and Development (ICPD) held in Cairo in 1994 established proper vision of reproductive health that explicitly incorporates sexual health. Reproductive health implies that people

are able to have a satisfying and safe sex life and that they have the capability to reproduce and the freedom to decide if, when and how often to do so. Implicit in these conditions are the rights of men and women to be informed and to have access to safe, effective, affordable and acceptable methods of family planning of their choice, as well as other methods of their choice for regulation of fertility which are not against the law, and the right of access to appropriate health care services that will enable women to go safely through pregnancy and childbirth and provide couples with the best chance of having a healthy infant.

- 2) Sexual and reproductive rights can be defined in terms of power and resources. The power to make informed decisions over one's own sexual activity, fertility, procreation and child care, gynecological health; and the resources to carry out those decisions safely and effectively (Correa and Petchesky, 1994). These rights include but are not limited to the following:
- The exercise of sexual independence including the right to enjoy it according to one's own preferences, and the right to legal protection.
 - Pleasurable and recreational sexuality, independent of reproduction.
 - Adequate information and knowledge about sexuality and reproduction.
 - Love, sensuality and eroticism in sexual relations.
 - Sexual education that is appropriate, comprehensive, secular, scientific and gender-sensitive.
 - Refusal to engage in sexual activity.
 - Freedom from fear, shame, guilt and other imposed beliefs that inhibit a person's sexuality and diminish his/her sexual relations.
 - Choice of sexual partners to exercise sexuality without coercion or violence.
 - Nutrition necessary for adequate growth and balanced development of one's body and future reproductive potential from childhood.
 - Voluntary motherhood, to decide and live motherhood for one's own choice and not by obligation.
 - Complete information concerning the benefits, risks and relative effects of all contraceptive methods.
 - Free or inexpensive contraceptives with current information, follow-up and responsibility on the part of those who prescribe it.
 - Marriage and family, or the choice not to have either.
 - Parenthood and the right to decide when to have or not to have children.
 - Good quality services for prenatal care, birth and postpartum care, guaranteed by appropriate legislation.
 - Equal participation by women and men in child care, creatively constructing children's identities beyond traditional gender roles.

- Effective legal protection against sexual violence.
- Adoption and right to comprehensive, accessible treatment for infertility.
- Prevention and treatment of illnesses of the reproductive tract, and the right to make informed decisions about related interventions.

- 3) *Ovulation*: A girl has thousands of egg cells or ova in each of her two ovaries. Each month, one cell ripens into egg and leaves the ovaries. This process is called ovulation. In simple terms, *ovulation* is the process of release of a ripe egg from one of the ovaries once in a month. After puberty in a girl, ovulation normally occurs in between 12-16 days after menstruation or any day in the middle period of about 4-5 days between two menstrual cycles.

Menstruation: Every month, when one egg ripens in the ovary of the woman, the inner lining of the uterine cavity starts becoming thick and spongy (due to increased blood supply) as it prepares to implant the “fertilized egg” i.e. zygote. However, after ovulation, if the egg does not get fertilized, it dies and the uterus also sheds its inner lining, which come out of the woman’s body along with blood through vagina as menstrual flow. Menstruation occurs approximately 14-16 days after ovulation, if the egg is not fertilised. In other words, if the egg is fertilised by a sperm there will not be any menstrual flow. A woman is said to have become pregnant or conceived only when the egg is fertilised. Menstrual periods may last 2-7 days; the average menstrual period lasts 4-5 days. As mentioned above, if the egg is not fertilized by a sperm, menstruation will occur and egg is released in each such successive cycle. These menstrual cycles continue to occur about every month until a woman goes through ‘menopause’ when the menstruation stops for ever i.e. in the rest of her life. This is the end of reproductive stage in a woman, which may happen around age 45-50.

- 4) There is need for special personal care by women during menstruation. Though menstruation is a normal physiological process in the life of woman it is often viewed by the society as something ‘dirty’. Vagina is not only the main organ of sexual contact in woman but also the outlet of menstrual flow. Poor hygiene can lead to reproductive tract infections. The blood that comes out during menstruation can become the medium for growth of many germs, if the sanitary napkins are not changed frequently. It is thus very important for women to observe menstrual hygiene. It includes the following.

- Bathe daily during menstruation.
- Use clean napkins, and change them frequently.
- Wear clean underwear, change pads or cloth frequently.
- Do not use dirty cloth. Wash menstrual cloth with soap and dry in the sunshine. If cloth is washed without soap and dried in dark damp conditions, bacteria can grow in it and can cause infections.
- If pads or cloth are not available, identify other local alternatives that are clean and replaceable.
- Eat healthy food, get adequate rest, and continue normal activities.

- If there are cramps during menstruation: take a warm bath; take a walk; rub the abdomen; lie on the back with knees up and move the knees in small circle.
 - Exercise speeds up circulation and helps ease tension.
 - Cutting down on salty food will help to prevent water retention.
- 5) Formation of zygote is technically called '*conception*'. Zygote is formed when a sperm fertilizes the egg. Although millions of sperms may be present, only one sperm fertilizes the egg i.e. egg and sperm join together, fuse into one cell called '*zygote*'. When woman conceives she is said to have become pregnant, which is the beginning of pregnancy. A woman has the chances of becoming pregnant at every sexual intercourse including the first time. Usually only one egg is released during ovulation either from left or right ovary. Sometimes, two eggs are released at the same time. If this happens and, if both the eggs are fertilised, non-identical twins will be born. Or, sometimes, if the single fertilized egg (i.e. zygote) divides into two, each develops into a baby, and accordingly the identical twins (either both males or both females) are born.

Sex Determination: During intercourse, millions of sperms are ejaculated from the penis into the vagina. These sperms are of two types (one type carrying X-chromosome and the other type carrying Y-chromosome). The male gametes or sperm cells in humans are thus heterogametic and each gamete (sperm) contains only one of the two types of sex-chromosomes — X or Y. Thus, these male gametes (sperms) are of two distinct types. The female gamete (i.e. egg), however, contains only the X chromosome and, thus, all eggs are homogametic. It is the sperm cell that actually determines the sex of the baby; it happens as follows: a) If a sperm cell containing an X chromosome fertilizes an egg, the resulting zygote will be XX or female baby; b) If the sperm cell containing Y chromosome fertilizes an egg, then the resulting zygote will be XY or male. Gender is thus determined at the stage of conception, by chromosomal characteristics or combination. Hence, *it is unwise to blame woman for the sex of the baby.*

- 6) *Reproductive tract infections (RTIs)* are the infections of the ducts, passages, canals or tubes of reproductive organs. There are many types of infections and inflammations of the reproductive tracts exhibiting different symptoms in men and women. They are caused by different organisms/germs that can enter the reproductive tract through different means. They can also be caused by several organisms, which normally live in the reproductive tract, when these multiply in numbers.

STIs spread if a person has unprotected sexual intercourse with an infected partner. The sexual act can be vaginal, anal, or oral. The vagina, penis, rectum and mouth provide the ideal environment from which the germs causing STI can invade the body.

Some major RTIs / STIs include the following.

- i) *In women*, the symptoms of RTIs / STIs are as follows.
- Foul-smelling, unusual vaginal discharge.
 - Pain in the pelvic area between the navel and sex organs, i.e., pain in lower abdomen.

- Genital sores or blisters, with or without pain.
- Swollen and painful lymph glands in the groin.
- Pain or bleeding during intercourse.
- Painful or itchy genitals.
- Changes in menstrual bleeding e.g. very little bleeding or heavy bleeding.
- Delayed or early menstruation.

ii) *In men*, the symptoms of these infections are in the following forms.

- Genital rashes and redness.
- Sores or ulcers on the penis.
- Discharge from the penis.
- Swollen and painful lymph glands in the groin.
- Painful urination, difficulty in urinating.
- Pain during intercourse.

7) Since there is no vaccine or immunity against RTIs/STIs, a person can take the following measures that can help reduce the chance of their infection.

- Abstain from having sex (the only guaranteed protection).
- One faithful sexual partner.
- Treatment of STIs in both sexual partners.
- Use of condoms.
- Avoid sexual intercourse if any signs are present.
- Routine genital self-examination to detect signs of infection.

8) **HIV** stands for the following:

- **H**uman (Human beings).
- **I**mmune deficiency (weakness of natural strength of the body to fight with disease).
- **V**irus (disease causing virus).

AIDS stands for the following:

- **A**cquired (not present in body but one gets it from someone).
- **I**mmune (natural strength of body to fight with diseases).
- **D**eficiency (shortage of immunity).
- **S**yndrome (a group of diseases or their symptoms and not one disease or its symptoms).

While AIDS is the disease, HIV is the virus that causes AIDS.

9) HIV destroys the immune system of the body and the affected person loses resistance or immunity to diseases. The destruction of the immune system by the virus means that infectious organisms can invade the body unchallenged and multiply to cause diseases. So far, there is no real cure for this disease.

Signs and Symptoms of HIV/AIDS: People who are affected with HIV show no symptoms of the disease for many years. These people may remain completely healthy and free from symptoms of a disease but they have the virus in their blood and are at the risk of developing AIDS at any time in future. Once a person is infected with HIV, he/she can transmit the virus to other people even through he/she may appear perfectly healthy and may not know that he/she has been infected with HIV. There is no way of knowing whether a person is infected with HIV except by having a blood test.

HIV/AIDS has no symptoms of its own.

- It becomes visible in the form of symptoms of common diseases like diarrhea, fever, oral and genital infections, TB, etc.
- Presence of symptoms of more than one common disease and their persistence for a long period indicates the presence of AIDS.

The length of time taken for people with HIV to develop AIDS varies widely from person to person.

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Suggested Readings

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