A STUDY ON REPRODUCTIVE TRACT INFECTION AND NUTRITIONAL STATUS AMONG THE WOMEN ATTENDING IN OUT PATIENT DEPARTMENT OF DHAKA MEDICAL COLLEGE HOSPITAL

M. PHIL THESIS

INSTITUTE OF NUTRITION AND FOOD SCIENCE
UNIVERSITY OF DHAKA, BANGLADESH
APRIL, 2007

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Certificate

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DECLARATION

This thesis is submitted in partial fulfillment of the requirements for the degree of M.Phil (Nutrition) granted by the University of Dhaka, Bangladesh for the studies carried out in the Institute of Nutrition and Food Science, Dhaka during the session 1998-1999. I declare that, the following thesis is based on work, carried out by me and that no part of it has been presented previously for a higher degree.

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Certified that, this research work entitled`` A study on reproductive tract infection and nutritional status among the women attending in out patient department of Dhaka Medical College Hospital'' Submitted by Dr. Nargis Fatema, Registration no: 172, Registration Session: 1998 – 1999, was examined and accepted by the board of examiners.

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ACKNOWLEDGEMENT

All praises belong to Almighty Allah, the Beneficent, the Merciful. I express my gratitude to my supervisor Dr. Aleya Mowlah, Professor. Institute of Nutrition and Food Science, University of Dhaka, for the guidance and supervision she provided during the whole period of work. Without her continuous interest and enthusiasm it would not have been possible to complete this work successfully.

I am very much grateful to professor, Dr. Golam Mowlah, Ex. Director, Institute of Nutrition and Food Science, University of Dhaka, for his proper guidance supervision and cordial co-operation.

I would like to express my thankfulness to Dr. Badrunessa, resident surgeon, department of gynea and obs Dhaka Medical College & Hospital.

I wish to express my grate fullness to all of my teacher and stuff of Institute of Nutrition and Food Science.

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ABSTRACT

An attempt was made to study the Reproductive Tract Infections among the women attending in gynecology out patient department of Dhaka medical college hospital. The purpose of the study was to find out the prevalence of the disease, and the risk factors which might be associated with reproductive tract infection and morbidity of the women. Nutritional status and hygienic condition during menstruation were also studied. Nutritional status was assessed on the basis of anthropometrics measurement (Ht, Wt& BMI) and biochemical (Hb %) analysis. This study was conducted among 200 women attending in OPD of Dhaka medical college hospital. Data& laboratory findings were done from March, 2005 to September, 2005. Data on reproductive tract infections were collected through clinical diagnoses and from direct face to face interview taken by them.

On the basis of BMI, about half (45.2%) of the study population were under weight. But on the percentage basis prevalence of anemia (Hb<12/dl) was 51.5%.Maximum of the women were house wives (77.50%) with mean age 30.6years(SD± 6years).Among them (28%) were illiterate. Majority of the patient came from large size families 51%, 18% from small size families and 31% from Medium size families.

The proportions of RTI in different age groups vary within the range of 20% to 40.3%.Maximum percentage of RTI prevalence 40.3% was in the active age group i.e. between 30-39years.Among the respondents 56% came from lower class,24.5% from middle class and

19.5% from upper middle classes. The difference is statistically significant. Termination of pregnancy either in the form of MR or abortion shows higher chances of occurrence in RTIs. Proportion of the RTIS was twice among the respondent who had carried out one or more MR than the women who did not carry out any MR. No major difference could be found among the women who had or didn't have any complication in the last pregnancy. The use of contraceptive was found about 77% among the respondents. Highest users were oral pills (30.7%) followed by injections (20.5%) and IUDS (19.2%).The proportion of RTIs was more than thrice (64.7%) in the IUD users than the other modern contraceptives methods. Materials used for menstrual protection were mostly home made pads (93%).Proportion of RTIs were highest (60.4%) among respondents who used dirty cloths or rags to absorb menstrual blood.

A fair number of respondents (13%) gave history of coitus during menstruation. But no significant relationship was found amongst the respondents who engaged or did not engage in coitus during menstruation. Only 14% of women gave the history of abnormality in husband's genitalia, but the proportion of RTI cases was high among the respondents whose husband has/had any kind of genital problem (75%).

High vaginal swab of the respondents were cultured and gram stained. Staphylococcus aureus, Gonococcus, pseudomonas, Treponema pallidum, and Escherichia coli were found to be 57.6%, 21.2%, 3%, 6.1% and 12.1% respectively.

Abbreviation

Ht - Height

Wt - Weight

gm - gram

dl - deciliter

RTI - Reproductive tract infection

IUDS- Intra uterine contraceptive devices.

MR - Menstruation Regulation

PID - Pelvic inflammatory disease

STD- Sexually transmitted diseases

SC_S - Satellite clinics

MSCS- Marie stops clinic society

MWRA-Married woman of reproductive age

CSw_s - Commercial sex workers

HFWC- Health and Family Welfare Centre.

THC- Thana Health Complex

STD - Sexually transmitted Diseases

HIV- Human Immunodeficiency virus

OPD- Out Patient Department

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CHAPTER ONE

INTRODUCTION

INTRODUCTION

1.1 BACK GROUND OF THE STUDY

During the last decade Bangladesh has been a marked improvement in child survival and a significant reduction in infant mortality but achievement in the arena of maternal health has not been significant and pregnancy-related complications and maternal mortality remain unacceptably high. The socio-economic, environmental and cultural factors and the consequent poverty, ignorance, illiteracy and malnutrition are considered to be major contributors to this dismal health status of women. Neglect of women by society and the lack of their access to quality antenatal care, essential obstetric services and lack of referral and transport system during emergencies are not less important factors to cause death around the world of 585,000 women every year pregnancy and child birth related complication and 40% of them alone in SEAR countries. A comprehensive life span approach to reproductive health deals with a number of issues in both men &women; the greatest burden, however, falls on women. Over one-third of all healthy life lost in adult women in the developing world is due to reproductive health problems, as compared to only 12%in men and yet large number of women in SEA Region is ill informed about basic facts related to their reproductive health.

During the past decades the world has witnessed a significant change among population and reproductive health related issues have been discussed and addressed. Initially in the seventies a special program was undertaken by the World Health Organization (WHO) to address the

issues of human reproductive tract infection. Actually the scope of the program was gradually broadened to include sexually transmitted diseases, HIV/AIDS and maternal and child health issue. It was further realized that the reproductive health of present generation has an impact on the next generation and all these are of crucial importance for socio economic development. These realization and discussions reached their pinnacle and achieved their acknowledgement of reproductive health as a concept and discussed in International Conference on Population and Development (September 1994).

The ICPD and the Beijing conference on women in 1998 represent the turning point in global population efforts. Since these meeting members have undertaken steps to replace traditional target oriented family members programs with more broad based reproductive health approaches. These new approaches in turn however require new Management Information System (MIS) to identify problem areas, assess needs for interventions and services, as well as to facilitate evaluation of the impact of various interventions. According to the ICPD program of action document, ``Reproductive Health Care`` is defined as`` the constellation of methods, techniques and services that contribute to reproductive health and well being through preventing and solving reproductive health problems. WHO defines `Reproductive Health' as ``a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity in all matters relating to the reproductive system and its functions and processes. Reproductive health, therefore, implies that people are able to have satisfying and safe sex life and that they have the freedom to decide if, when and how often to do so.

Implicit in this last condition is the right of men and women to be in formed of and to have access to safe, effective, affordable and acceptable methods of family planning as well as other methods of family planning 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."

Interest in human reproduction has broadened from purely demography issue to a wider concern in its connection with overall human well being. One element of reproductive health that directly concerns human well-being is reproductive tract infections RTI. Women and men are vulnerable to a variety of RTIs, but the burden of reproductive health related problems are very unequally divided between the two sexes. Only women face the hazards of pregnancy and child birth, RTI, STIs have more serious sequel in women than in men. Women's status within both her family and community remains tied to her role as a wife and a mother. In such a context the impact of RTIs goes beyond the physical discomfort. In this way, the psycho-social aspects of a woman's life including status, self esteem and empowerment can also are greatly affected by her reproductive health.

The greatest impact of RTIs on women and children. Though males are also affected they tend not to suffer from serious and life threatening consequences. In women between 15 and 49 years of age, the morbidity and mortality due to STIs, excluding HIV, are second only to maternal

causes. In addition to the pain and discomfort associated with acute illness, women often experience long term impairment of their reproductive health. RTI/STIs also increase the likelihood of transmission of HIV from men to women (9 times more) [2]. Majority of curable RTI in women causes sub-clinical or asymptomatic infection. For example Gonorrhea usually causes symptoms in men, allowing them to seek treatment early, whereas women are frequently either asymptomatic or have minor symptoms. Most sexually transmitted infections, such as Gonorrhea, syphilis and Chlamydia sexually transmitted more easily from men to women due to difference in the anatomy of male and female reproductive tract.

The prevalence of RTIs is higher in developing countries than in developed countries. The World Health Organization (WHO) has estimated that over 200 million RTIs occur every year among women in developing countries due to sexually transmitted pathogens. STDs rank among the five diseases for which adults in developing countries seek health care and are nearly as common as malaria. Each year nearly 1.3 million women die of reproductive health problems that are largely preventable. About 5 percent of women around the world are unable to bear children due to some inherited or hormonal disorder, but a much large number are unable to do so because their reproductive tract have been damaged by infection. Among men the annual estimated number of deaths from Syphilis, Chlamydia and gonorrhea is approximately 20,000. Each year 1 out of 20 teenagers contract sexually transmitted diseases, some of which can cause life long disabling such an infertility, or even death.

The magnitudes of the problem of RTIs are a growing public health concern in developing countries, like Bangladesh. In Bangladesh, with a population of 120 million about 44 million are sexually active people in the age group of 15-45 years. This group is the most vulnerable to RTIs because they have higher changes of exposure to risky sexual behaviors. Unfortunately, there are no national data available in the country to determine the magnitude of the incidence and prevalence of RTIs. In Bangladesh, the conservative environment created by the deep rooted religious, cultural and social values act as hindrance for obtaining information about the actual situation of RTIs. However the limited available data confirm the presence of these diseases in this country. Like other develops countries, they cause immeasurable suffering to the people at great expense to themselves and to the government.

Both social and economic conditions for women favor a continued high prevalence of RTIs in Bangladesh. Fairly large percentages of permissiveness and practice of premarital sex were estimated to occur in 50% of all youths having multiple partners including Isosexual/Homo-sexual behavior.[5] Extra-marital sex is common in most societies in Bangladesh and among the specific groups like long distance truck drivers. The number of CSWs in Bangladesh is not known, but it is assumed to be in hundreds of thousands. The floating prostitution is increasing numbers and there are more easily accessible to the young adults.

It is quite clear from the evidence that during this later part of the century the rigid attitude, religious, overt behavioral norms and the over all cultural conservative perspectives, which had some control over the behaviors that influences acquiring and spread of RTIs and rapidly changing, specially with increase in mobility of MWRAs for earning of livelihood [7]. Therefore, Bangladesh has a potentially explosive situation for the spread of RTIs/STDs/HIV surrounded by India and Myanmar, and being with close proximately of Thailand, all of which have experienced high HIV Prevalence. Bangladesh can not isolate itself from what has become a paramedic of frightening proportions.

The burden of RTIs is not shared equally around the world. The developing country, like Bangladesh suffers more from these diseases due to non-availability of inaccessibility to health services, social and cultural prejudices and practices. Moreover there is an under estimate of the extent of RTI/STDs in the general population for several reasons:

- Presence of asymptomatic patients for example :
  - 70% of women and 30% of men infected with Chlamydia are asymptomatic.
  - 80% of women and 10% of men infected with Gonorrhea are asymptomatic.
- Non availability of RTI/STD clinics or services.
- Lack of proper treatment seeking attitude due to myths and taboo associated with such diseases,
- Absence of routine screening for RTI/STDs.

- No reporting for cases of auto-medication and those treated by traditional healers.
- Some governments reluctant to admit high prevalence of STDs in the country

RTIs are also associated with direct costs related to diagnosis, treatment, and prevention as well as indirect costs, such as loss of labour force, infertility, and the morbidity and mortality in men, women and children.

1.2 JUSTIFICATION OF THE STUDY:

The broad-based population pyramid of Bangladesh puts the country in a vulnerable situation in terms of its health care need for women and protection of the adolescents especially female. The problem needs to be tackled in a concerted manner for which both preventive and curative services should be simultaneously provided. An important component of such concerted effort and an inevitable tool for effective planning is country specific need-based research. In most cases, research priorities must address those health problems where there is lack of knowledge about extent of the problem and efficiency of infrastructure for providing the services. There are five reasons to emphasize reproductive tract infection services in Bangladesh today:

(i) To improve the health of women of reproductive age.
(ii) To potentially change the current low continuation rates of family planning methods.
(iii) To overcome low acceptance rates of IUDs
(iv) Low socioeconomic condition.
(v) Malnutrition and anemia.

Through quite different reasons, these are interrelated.

Until recently the researchers, planners and policy implementers have paid little attention to the problems of RTIs in Bangladesh. A recent comprehensive review of the significance and scope of reproductive tract infection focuses on the syndromes of vaginities, cervicitis and pelvic

inflammatory disease (PID) and clearly demonstrates the impact of this infection on women. Prompt recognition and treatment of these often-curable conditions provides a unique opportunity for improving women's reproductive health.

Reproductive health agenda is accepted as an essential step in women's health and empowerment. Bangladesh government is committed and signatory to the overall objectives of 'Health for All' and approved Health and Population sector Strategy (HPSS) with focus on 'Essential Services Package' (ESP) with the priorities in interventions related to maternal and child health and ultimately development comprehensive national reproductive health strategy. It is necessary to introduce reproductive health care based re-program instead of a MCH-FP based program by introducing Information Education Communication (IEC) activities for RTI/STDs which includes basic health education on all modes of infection transmission (sexual and non-sexual) and sensitive counseling for clients with STDs. IEC at a clinic level is essential to determine whether women have RTIs, which they are not discussing. It is not unusual for women to `suffer in silence' either because the RTI is so common they feel it is "normal", or because they are ashamed. In order to help women, service providers have to adopt a proactive approach, as women have limited access to proper health care and they suffer more serious health and such consequences.

Considering the wide spread nature of RTIs and their multi-dimension effect or child survival, safe mother hood, women's status and empowerment as well as the impending threat of an AIDS epidemic,

collecting a range of epidemiological information and prevailing knowledge on RTIs and is thought to be of high priority in Bangladesh.

In order to address this problem it is essential to understand the socio-cultural context and some behavioral aspect of the clients. So, in this study, an attempt is made to determine the disease load among the women with some risk factors responsible to aggravate the condition.

The women attending in the gynae OPD of Dhaka medical college have come from lower, middle, upper middle class family. They are not provided with good modern medical facilities. Given to the issue of reproductive health, especially in the area of RTI/STDs. The limited number of prevalence studies, conducted by Gyne and Obs department of Dhaka medical college hospital, point to an alarmingly high number of women who have confirmed infections, especially pelvic inflammatory diseases (PID) Therefore the study has been designed to find out the proportion of reproductive tract infections of women attending in the Gynecology OPD and to assess socio-demographic relations and some risk factors which may be associated with RTIs. As it is a first study on RTIs among women of Dhaka medical college hospital .So it will be a base-line study on the subject, which will initiate further specific study. Again the study will help to detect the magnitude of the problem and to explore new ideas for the policy maker for improvement of morbidity and mortality due RTIs.

The present study is a partial effort to know about the nutritional profile & prevalence of anemia of the female affected by reproductive tract infection. Pathological vaginal discharge is common Symptom of reproductive tract infections or STD.

Women are the most malnourished group in the developing countries. But still they have to work at house and outside for better living and life style.

1.3 REPRODUCTIVE TRACT INFECTION: A GROUP DISEASE.

REPRODUCTIVE TRACT INFECTIONS (RTIs):

RTIs are a group of diseases which can be defined as the infection of the lower reproductive tract or upper reproductive tract or both which may or may not be sexually transmitted and caused by organisms which may be exogenous or endogenous.

CLASSIFICATION OF RTIs AND STDs

a) According to the source of infection, RTIs can be divided into following major categories:

I) **Sexually Transmitted Diseases (STD)/ infections**: which is transmitted through sexual intercourse, e.g. Chlamydia infection Gonococcal infection, Trichomoniasis, Syphilis, Chancroid, genital herpes and genital warts including AIDS.

ii) Endogenous infection: Infection resulting from an overgrowth of an organism normally present in the female genital tract of healthy women, e.g. bacterial vaginosis and valvo-vaginal candidiasis.

iii) Iatrogenic infection: Infections resulting from unhygienic medical procedures, like unsafe abortion, childbirth under unhygienic conditions and post-operative infections, insertion of intra-uterine devices.

iv) Unhygienic health practices: Infection resulting from unhygienic health practices such as use of unclean menstrual protection, poor sexual hygiene and vaginal douching.

b) **According to the site and etiological agent, the common types of RTIs (in female) can be categorized as follows:**

i) Infection of the lower genital tract.

(1) In vulva: candidacies, syphilitic ulcer, infection of the Bartholin glands etc.

(2) Vagina: Trichomoniasis, Candidiasis, Bacterial vaginosis etc.

(3) Cervix: Gonococcal cervicitics, Chlamydial cervicitis etc.

ii) Infection of the Upper genital tract:

Infections of the upper genital tract are commonly known as 'pelvic inflammatory diseases' (PID). These usually include infection of the uterus, fallopian tubes, ovaries and pelvic peritoneum.

If left untreated infections originating in the lower reproductive tract, may result in ascending infection of the upper tract. The risk of upper tract infection increases dramatically with medical procedures like IUD insertion, menstrual regulation, induced abortion and child birth under unhygienic conditions.

1.4 VARIOUS APPROACHES OF RTIs /STDs DIAGNOSIS:

a. Etiological approach (Based on laboratory testing and finding): In this approach the specific causative agents for the RTI are identified with the help of laboratory tests. (Laboratories play an essential role in epidemiological and microbiological surveys, antimicrobial susceptibility studies and in the validation of treatment and management approaches). It requires skilled manpower and certain sophisticated tools. A large number of patients seek care for RTIs/STDs at the primary heath care level. At this level the required facilities and skills for etiological diagnosis are not available. Tests often require patients to return for the results.

b. Clinical approach (Based on signs and symptoms): In this approach clinical diagnosis of typical and specific RTIs is done by examining a patient using clinical experience to identify symptoms/signs. This requires specialization on the issues. Even the most experienced STDs specialist finds it difficult to diagnose cases with mixed or secondary infections or mal-treated cases with altered presenting symptoms.

c. Syndromic approach (Based on recognizing Syndromes). Syndromes are collections of symptoms and easily recognizable signs. This give the opportunity to treat the patient at the primary level, requires little skill and the provided treatment deals with majority of the organisms responsible for producing each syndrome. It is simple and easy to follow and presents an alternative when laboratory support is not available. Some problems with this approach are the possibilities of over treatment and cannot be used for asymptomatic patients.

PROBABLE CAUSES OF RTIS:

- STD patients are more likely to become infected with HIV when exposed to the virus and are also more likely to transmit HIV when infected with the virus.
- Without treatment 55-58% of women with PID may become infertile.
- PID increases the risk of ectopic pregnancy by 7-10 folds

- 10-30% of untreated men who had Gonorrhea develop epididymitis. And 20-40% of the epididymitis cased become infertile.
- Neonatal conjunctivitis, if untreated, may cause permanent damage of vision in 1-6% of the affected infants.

BENEFITS OF EARLY AND EFFECTIVE DISCHARGE

Some benefits of early effective RTI/STDs care may be described as:

- Prevents development of serious complications such as: PID, infertility, ectopic pregnancy, stillbirth and congenital abnormality, blindness of neonates etc.
- Prevents further spread of STD/RTIs.
- Helps to prevent future transmission HIV infection.

1.5 CONSEQUENCES OF RTIs AND STDs:

a. Public Health Consequences

STD/RTIs due to gonorrhea and chlamydia cause acute infections like urethrities, cervicitis, and salpingitis. These, if not treated thoroughly and on time, result in transcervical ascent of infection and involvement of the upper reproductive tract organs causing PID. PID may lead to an increased risk of subsequent pelvic infection and a higher risk of hysterectomy; life threatening conditions like ectopic pregnancy and chronic sufferings like infertility in women. In any parts of the developing world PID is the most common reason for admission to

gynecological wards. During her lifetime, women may suffer from several attacks of PID, which is quite dangerous as even a single attack of PID can lead to infertility in 11% of women; if left untreated PID may cause infertility in 55 to 85% of women. Risk of ectopic pregnancy is 7-10 time greater in patients with PID.

Pregnant women with gonorrhea, syphilis may have premature rupture of membrane leading to abortion, fetal death, premature birth, etc. Treponema palladium, the causative agent of Syphilis, can cross the placental barrier and infect the fetus. STD may also cause fetal wastage, low birth weight babies, neonatal morbidity and genital neoplasm. 10-30% of men who had gonorrhea develop epididymitis. 20-40% of which become infertile. In developing countries, one out of seven males with gonorrhea has recently been reported to develop urethral stricture, a progressive condition that sooner or later calls for urological correction.

Public health concern over STDs has increased in the last decade due to the arrival of the HIV virus, a new, fatal STDs with epidemiological synergism with other STDs.

b. **Social and Economic Consequences Pathological Vaginal Discharge.**

Pathological discharge has effects that extend far beyond the individual's physical or psychological discomfort. In cultures where childbearing holds is very high value, infertility, as a consequence of Gonococci or Chlamydia infection, is devastating. For many, social stigma and personal

damage due to infertility and pregnancy wastage may lead to divorce and commercial sex. In addition to the impact of infertility, significant conflicts arise between couples and their families. STDs bring psychological and emotional consequences for those involved, including depression and its medical and social effects. The number of incidences of violence and abuse behavior or retribution as a result of discovering the presence of STD in one's partner probably remains beyond documentation.

Economically, the cost of treating women for Syphilis, Chlamydia infection, Gonorrhea may exceed the per capita national health care budgets of many low-income countries. (A World Bank report notes that the sum of the days of productivity lost due to HIV, Syphilis and Chlamydia infection almost equals the number of days lost due to malaria and measles). Therefore making treatment for curable STDs available represents one of the most cost-effective ways to improve health in the world.

1.6 PREVENTION OF RTIs:

RTI have potential to cause serious and permanent complications in persons, who are infected and not treated timely and effectively. All RTI including HIV infections are preventable. Prevention of RTI may be primary or secondary.

PRIMARY PREVENTION:

Primary prevention or prevention of infection in the first place can be achieved through behaviour change communication (BCC)

- Creating health awareness (public education campaigns) by mobilizing all public education channels, so that young people, women and men can have access to all information about sexuality and the causes, dangers, prevention and care of RTIs.
- Delaying the age of sexual debut.
- Encouraging safer sexual behavior like-
  - Sex with mutually faithfully partner
  - Correct and consistent use of condom
  - Non-penetrative sex and abstinence

SECONDARY PREVENTION:

Secondary prevention or prevention of further transmission from an infected person aims to provide accessible, acceptable and effective services for early diagnosis and treatment of RTI/STDs. Secondary prevention of transmission of RTI/STDs may be achieved through:

1.7 PROMOTING STD CARE SEEKING BEHAVIOUR:

- Providing non-stigmatizing and non-discriminatory health management
- Providing quality RTI/STD care through syndromic case management
- Ensuring a continuous supply of highly effective drugs and condom
- Providing skilled health care providers for comprehensive management of RTI/STD with special emphasis on counseling.

CASE FINDINGS:

- Examining women attending clinics for maternal & child health care and family planning even if they are asymptomatic.
- Contact Tracing -Tracing and treating contacts of the persons infected with STDs.
- Education, investigation and treatment of targeted population groups, i.e., those who have placed themselves at risk and in high of infection, behavior e.g. workers, female garment workers maidservant, long distance truck drivers, migrant workers, frequent travelers, female cooker in bachelor mass, female hotel worker youth in and out of school/college, etc
- Since STDs facilitate HIV transmission, therefore, a very important aspect in prevention of HIV transmission is the prevention and rapid and effective treatment of treatable RTI/STDs.

CHAPTER TWO

STUDY PLANNING AND DESIGNING

STUDY PLANNING & DESIGNING

2.1. RESEARCH QUESTIONS:

a. What is the proportion of 'reproductive tract infections' among women attending at gynecology OPD, Dhaka medical college hospital?

b. Are there any relationship between RTIs and socio-demographic characteristics of the respondents?

c. What are the risk behaviors / factors prevalent among reproductive tract infection cases?

d. Nutritional status of women attending at gynaecology OPD, Dhaka medical college hospital.

2.2 OBJECTIVES OF THE STUDY:

GENERAL OBJECTIVES :

1. To study the reproductive tract infection and their socio-demographic characteristics among the women attending in the Gynecology OPD, Dhaka Medical College Hospital.

2. To determine the nutritional status of women attending at gynaecology OPD, Dhaka medical college hospital.

SPECIFIC OBJECTIVES:

The specific objectives of the study were as follows:

a. To find out the reproductive tract infections among women of reproductive age group attending in Gynecology OPD, Dhaka medical college hospital.

b. To find out the selected demographic and socio-economic characteristics of the study women.

c. To identify risk behaviors / factors this may be responsible for acquisition of RTIs.

d. To find out nutritional status.

e. To detect Escherichia coli.

f. To detect Treponema pallidum.

g. To detect Pseudomonas and gonococcus

h. To detect Staphylococcus aureus.

2.3 KEY VARIABLES:

a. Dependent Variable: Reproductive tract infection (RTI).

b. Independent Variable: The independent variables of the study are as follows:

Independent Variables

(I) DEMOGRAPHIC CHARACTERISTICS

1) Age
2) Education
3) Occupation
4) Marital Status
5) Age of marriage
6) Family size
7) Monthly family income

(II) OBSTETRICAL HISTORY

1) Gravida
2) Parity
3) Abortion
4) Menstrual Regulation
5) Complication in last Pregnancy
6) Place of last delivery

(III) MENSTRUAL PROTECTION

1) Materials used during menstruation to absorb blood.
2) Coitus during menstruation

(IV) CONTRACEPTION

1) Method currently using for Family planning.

(V) **CONDITION OF HUSBAND'S GENITALIA**

1) Kinds of problems in genitalia.

2.4. OPERATIONAL DEFINITIONS:

A. REPRODUCTIVE TRACT INFECTION (RTI):

(Vaginal, cervical or pelvic infections diagnosed on the basis of Clinical Approach'. It was done by taking history and examining the patient using clinical experience of a gynecologist to identify symptoms and signs. Investigator himself discussed thoroughly regarding the diagnostic strategy of respondent with all attending gynecologist of the study place before the sample collection. Provisional diagnosis included for RTIs are presence of any or combination of the following conditions, like valvo-vaginitis, whitish-discharge, chronic Cervicitis, PID, genital ulcer, itching etc.

B. RESPONDENT:

Women (married attended in the gynecology OPD of Dhaka medical college hospital, with any gynecological problem and who are within reproductive age (15-49 years) chosen through the sampling procedure for the study. Amenorrhea of >6 week (to exclude pregnancy) and women with a history of taking antibiotic treatment (within 15 days) were excluded from the sample.

C. AGE:

Age of the respondent was recorded according to their statement in nearest full years.

D. MARITAL STATUS:

Currently married: Respondent who at the time of interview was living with their husband.

Not currently married : Respondents who were married but during the time of interview were found to be divorced or separated or widowed were considered under this category.

E. FAMILY SIZE:

Number of persons currently living in the family. Family means husband, wife, dependent children, parents, brothers, sisters and servants residing in the same house and share a common meal.

F. FAMILY INCOME:

Total monthly income of the family in the form of hard cash as reported from any and all sources. Value of material income that has been earned/ used/ consumed has not been considered in calculating the cash income.

G. GRAVIDA[10]

Refers to the state of women to how many times the women has conceived regardless of the period of gestation.

H. PARITY:

Refers to the state of women who has given birth to child at or after the age of viability, i.e. 28 weeks, regardless of whether the infant is alive at birth.

I. ABORTION:

Expulsion or extraction of embryo or foetus before twenty eight weeks of pregnancy or below 500 g. weighing foetus by natural or artificial methods

J. MENSTRUAL REGULATION (MR):

Aspiration of the uterine content to regulate menstruation within 8 weeks of pregnancy, or 28 days from the missed period.

K. SOCIO-ECONOMIC STATUS:

The socio-economic status of an individual or family is measured by socio-economic index. A composite index of socio-economic status of the urban population was developed on the basis of socio-economic characteristics, i.e. education, occupation, income and family size. Other characteristics like modern facilities and environmental sanitation are almost same for all individuals or family provided by the employing authorities.

Variables	Categories with scores					
Education :	Illiterate	0	Up to SSC	1	HSC & Above	2
Occupation :	House Wife	0	H.W. & Handicraft	1	Service	2
Monthly Income (in TK.):	<2000	0	2000-10,000	1	>10,000	2
Family size :	>10	0	5-10	1	<5	2

Aggregate scores for socio-economic status:

Lower : <3;
Middle class : 3-6;
Upper middle Class : >6;

2.5 LIMITATION OF THE STUDY:

The study was conducted simultaneously with other activities of the course, within a short period of time. So some limitations those were encountered while conducting the study and which might affect the validity of the study result were enumerated as follows:

a. The study was limited to only one hospital in a close community which includes the women belonging to different classes of people of Dhaka. So the result may not be representative of whole community of the Bangladesh.

b. A small sample size was taken and purposefully selection of the study place would likely to produce few bias results.

c. Diagnosis of the RTIs from study population was dependent on the 'Clinical Approach'. and selective pathological tests and other modern investigations were carried out for confirmatory diagnosis due to the time and financial constraints. This may hindered to get exact proportion of the cases.

d. Certain information were recorded according to the statement of the respondents e.g. age, monthly income, education, history of previous pregnancy, obstetrical history, state of personal hyiegine etc. As such the validity of the results was dependent on the validity of the statement given by the respondents. Though data were recorded after careful judgment and calculations by the investigator.

CHAPTER THREE

REVIEW OF LITERATURE

3.1 REVIEW OF LITERATURE

The present study is designed to determine the proportion and some socio-demographic relationship of reproductive tract infections (RTI) in a group of women this work include attending an OPD of a big hospital. Studies which related to this reproductive health its impact and priorities for women, situation analysis of disease load of RTI and STD in Bangladesh and Studies on incidence and prevalence of' RTI in urban (clinic based) as well as in rural area of Bangladesh. Until very recently there has been little interest in furthering the knowledge about RTIs. However ICDDRB and other non-government organization like Save the Children, Population Council Bangladesh Women Health Coalition etc in Bangladesh are currently undertaking several studies which will add to the available information. These studies are focused on different aspects of the RTI/STI problems will increase information about prevalence in specific at risk populations (CSWs, men who have Sex with men and drug Users), as well as slum dwellers and urban and rural population who attend clinics. Others are examining tile role of rural practitioners in RTI screening and treatment. Filially, Studies are being conducted oil suitable RTI control programs in the BD context.

Globally it is 'estimated that each year nearly 1.3 million women die of reproductive health problems that are largely preventable. Estimated a annual deaths among women from reproductive tract infections (RTI/STD) and their consequences in 1995 are 87,000 maternal deaths, 70,000 deaths due to unsafe abortion, 280,000 deaths from cervical cancer due to infection with human papilloma virus that also

causes genital warts, 75,000 deaths from Syphilis and complications of Chlamydia and Gonorrhea and an additional 425,000 still births as a result of these diseases [12]. Among men the annual estimated number of deaths from Syphilis, Chlamydia and Gonorrhea is approximately 20,000. Each year 1 out of 20 teenagers contract a sexually transmitted disease, some of which can cause lifelong disabilities, such as infertility, or even death.

Infection rates are highest in Africa, reflecting the population's poor access to health care as well as social and cultural prejudices [13]. Women in Southern Africa have the highest rate of infertility in the world. In Botswana, Lesotho, Namibia and Zimbabwe about one women in five in unable. The last decade has highlighted the importance of infections spread by sexual route. Many developing countries do not have an effective program for control and prevention of STD and HIV infection. The World Health Organization (WHO) estimates show that in 1995, 150 million new cases of STD occurred in South East Asia and 65 million in the Sub-Saharan Africa. That is why WHO has its major focus on STD in the South East Asia and Sub-Saharan Africa. One study estimated that in 1990, the total direct and indirect coasts of pelvic inflammatory disease in the United States were about US $ 3.5 billion.

Infections of the reproductive tract are believed to be a major contributing factor to gynecological morbidity. While they can be caused by harmful obstetric and gynecological practices and poor hygiene during menstruation and childbirth, most reproductive tract infections are sexually transmitted. Many of these infections go undetected and

untreated. Leading to complications, even infertility. For example, according to a 1993 study in a rural area of one state India, 70%of 385 women below 35 years of age from various socioeconomic groups had clinical or laboratory evidence of vaginities, cervicities or pelvic inflammatory diseases, of the women experiencing symptoms of lower reproductive infection, only 52.8% had sought treatment. Another study in 1989 found that, among certain ethnic groups, 92%of 650 women studied had clinically recognized gynecological morbidities.

Various studies done in India and in other developing countries have shown that infections of the lower tract are more common among women of reproductive age. In India the reported prevalence of which discharge was 50 percent. A study done of a small group of women in Haryana state, India found 49 percent of women had discharge with bacterial etiology. The presence of infection was significantly associated with poor personal hygiene, low socio-economic status and husband's occupation. Women married to service holders had the lowest rate of infection and women married to unskilled laborers had a significantly higher rate. Among women with abnormal vaginal discharge who did not the infection with Candida or Trichomonas, Gardnarella vaginitis was found in over 90 percent of cases, whereas in matched controls Gardnerella vaginitis was found in fewer than 10 percent of cases[14]. Recent Studies show that bacterial vaginosis; Which is associated with mild to moderate vaginal discharge with fishy odor, occasional dysparunia and staining of the clothing is often not perceived by women as, a serious problem. It may result in serious consequences. Bacterial vaginosis is associated with preterm baby or low birth weight babies.

Gardnerella vaignalis has been identified from the amniotic fluid and chorioamnion of premature infants.

A population based cross-sectional study of gynecological diseases, done in 1986 in two Indian village's revealed 98 percent prevalence of gynecological diseases. The average number of diseases was 3.6 per women. Infections constituted 50 percent of the total diseases[15].

According to 1991 census, the total population of BD was 111.5 million. Currently married women of reproductive (15-49) age group (CMWRA) constitutes 17.5 percent of the total population and the estimated total number of CMWRA now stands at 22 million and is projected to rise to 31 million in 2005 AD. Nearly 82 percent of them live in rural areas. Age distribution of the CMWRA shows that, half of them (107 millionaire below 30 years of age and one third below 25 years of age. About 47 percent of the women aged 15-19 years are currently married. Nearly 17 percent of the women are in the oldest age group of 40-49 years [16]. Conditions of rapid spread of RTI/STD clearly exist in Bangladesh. There is large migrant population moving within the country, as well as, abroad in search of a means of survival/job. The urban population is growing at the rate of 5% per year-one of the highest urban growth rates in Asia. About 200,000 Bangladeshis go abroad every year for employment. All of the known cases of HIV/AIDS in Bangladesh are from emigrant workers. And the numbers of RTI/STD cases are increasing as evident from OPD attendants in the medical hospitals.

RTIs have long presented a serious threat to the health and well being of women in many less developed countries. Besides the pain and discomfort of acute illness, as a consequence of this infection, women often experience long-term impairment of their reproductive health. Some squeal, such as ectopic pregnancy, cervical cancer represents a significant source of mortality. Others such as infertility and chronic pain have much devastating effect on social and personal quality of life[17]. RTI also causes foetal wastage, low birth weight, and congenital infection. Further more, STD facilitates the transmission of HIV. The risk of HIV transmission increases there in three to ten folds if an individual has an RTI/STD.

Reproductive Tract Infections and STD are among a number of Serious gynecological morbidity affecting women, and potentially the Health of their of spring. This problem in Bangladesh remains minimally Understood. Lack of awareness and cultural taboos increase women's risk of contracting these conditions due to unsafe behavior and then inhibit them from discussing their problems and seeking appropriate treatment. To a large extent lack of attention of RTIs was due to the fact that they are not considered fatal for women. Besides, some of the RTIs are asymptomatic and complaints on these are non-existent [18].

Women who are neither pregnant, nor lactating or using family planning, method do suffer from some general ailments, which may require some medical attention or assurance. A population based rural reproductive health survey in five unions of five Thanas of Khulna and Rangpur districts elucidated the range of physical ailments among women who were not pregnant at the time of interview. Prevalence of ailments

during last two weeks of the date of interview reflects a mean number of 2.5 complaints per women.

However, it is non-understood that RTI are common in almost all of the communities even among asymptomatic population. Lower reproductive tract infection such as chlamydial cervicitis and bacterial vaginosis are thought to be prevalent and is potentials to cause upper RTI which has not been studied. In a maternal morbidity study women were asked about the presence of symptoms of PID during their postpartum period. Over 83 percent respondents did not report any symptoms of PID. Foul discharge, fever and pain were the main PID symptoms reported [19].

Due to faulty study design, difficulties in reporting and specimen collection, and need for elaborate laboratory method, data on the prevalence of RTI in the developing would are often difficult to interpret. A survey of men in Matlab[20], in 1989, examined the magnitude and nature of morbidity due to reproductive tract infections among users of various contraceptive methods and among non-users in a rural community in Bangladesh. Over all, 22 percent of the 2,929 women surveyed reported symptoms of reproductive tract infections. Of the 472 symptomatic women examined, 68 percent had clinical or laboratory evidence of infection. Users of intrauterine devices and tubectomy were each approximately four times as likely to report symptoms and seven times as likely to have examination-confimed infection against non users.

A recent clinic based study[21] done among women of reproductive age group in an urban area to determine RTIs prevalence. The study sample included regular clients of the clinic, newly registered clients but excluded antenatal and lactating women. Mean age of marriage of the respondents was 15.5 years and age at first childbirth was nearly 18. The early age of marriage and childbirth indirectly reflects early initiation of sexual activity. Final diagnosis based on laboratory findings showed an RTI prevalence of 60 percent. Bacterial vaginosis was the most common (44 percent) type of infection. The prevalence of spyhilis along was 0.5 percent, of Gonorrhea nearly 4 percent and a combination of syphilis and Gonorrhea was found in 0.5 percent of cases.

A study of STD in relation to socio-economic status conducted among patients attending skin/VD clinic showed Gonorrhoea, Non-Gonococcal urethritis and herpes genitalis were more prevalent among high income group (>Tk. 10,000/m); Syphilis, Gonorrhea and Chancroid were more prevalent among middle income group (Tk. 3,000 - 10,000/ m); and in low income group (<3,000) Gonorrhea and Chancroid were more common [22].

Save the Children (USA) conducted two studies in a rural area of Bangladesh. One study determined prevalence of RTIs and treatment seeking behavior. In their sample of rural women, they found 56 percent prevalence of RTIs. Twenty four percent of those were STIs. The majority of STIs were Chlamydia infections, while Gonorrhea was diagnosed in one percent of cases. There was no syphilis found. Treatment had been sought by 67 percent of the women infected. A

village health practitioner, a traditional method or Bangla treatment was selected by most women for treatment. Health and Family Welfare Centre (HFWC) or Thana Health Complex (THC) was used by only 11 percent of those who were treated [23].

The second Save the Children (USA) study sought in-depth information about sexual behavior as it relates to RTIs. The respondents had many ideas about RTIs and how these are caused. Common beliefs include unhygienic practices like bathing in dirty water or using dirt clothes as reasons for RTIs. Few mentioned causal relationship between either childbirth practices or menstrual practices (i. e. using unwashed rags for sanitary protection) as potential infection transmitters [18].

These studies, though limited to small populations, are consistent in their findings and lead to a general conclusion that RTIs are a significant health problem for women of reproductive age. They further suggested that if their findings are consistent for the country, 11 million women in Bangladesh could have RTIs.

Men apparently engage in behavior, which puts both their partners and themselves at risk. The thriving commercial sex industry in BD is an indirect indicator of the presence of high-risk behavior. A situation analysis of sexual behavior in Dhaka City revealed a high prevalence of risky practices among various population groups [24].

Premarital and extramarital sex, as well as sex with CSWs (commercial sex workers) is prevalent. Most men who have sex with

CSWs do not use condoms. This implies that men who engage in high-risk sexual practice do not perceive their risk of contracting an STD, or else that risk is not as compelling as temporary pleasure. In 1995, Marie Stops Clinic Society (MSCS) incorporated RTI screening services into their women's clinic. Approximately 44 percent of the women attending the clinic use the RTI services; about one third were diagnosed with an RTI on the basis of syndrome diagnosis. This high prevalence led to a management decision to start service for men. The purpose was to provide services for the male partners of infected women who were clients of MSCS [25].

In the clinic-based RTI study, it was found that 6 percent of clients attending Health and Family Welfare Centers (H & FWCs) and Satellite Clinics (SCs) sought services for RTI symptoms (i.e. white discharge, genital itching/ burning etc). Half of these RTI clients did not know the causes, mode of transmission or means of prevention of RTI and one third of female RTI clients reported that their husband had some kind of genital problem[26]

Several community-based studies have been conducted to find out the prevalence of RTI/STD among men and women of Bangladesh. RTI has been found to range from 21.9% to 32.9% among married women of reproductive age (MWRA). Abnormal vaginal discharges being the most frequently encountered symptom [20, 23, 27]. One study showed that 14.2% of the MWRA suffer from cervicitis and 4.4% from PID. Among MWRAs a strong association was detected between prevalence of RTI/STI with morbidity ($P < 5$), economic condition and occupation of the husbands.

Sex with multiple partners is not uncommon in Bangladesh. A study among slum dwellers of Dhaka found age at first intercourse ranges from 12 to 15 years for both men and women. Incidence of pre and extra marital sex was also reported. It was also seen in one study that massive gap in knowledge regarding sexual and reproductive capacities, disease transmission and safer sex practices exist in the society [28].

Study carried among the attendants of FP Clinic supported by the Pathfinder International [29], Trichomoniasis were diagnosed in 31% of the cases, PID 10.8% and cervicitis 10.2%, same decreasing order of frequencies are also reported. The various clinics of Marie Stopes Clinic Society found the prevalence of RTI/STD to be 23%. A study regarding hygienic practice during menstruation found that the respondents were using dirty rags washed improperly by the polluted surface water and dried by stuffing them in dark corners. These rags get easily infected and transfer the infection to the users.

CHAPTER FOUR

METHODS AND MATERIALS

4.1 PERIOD OF STUDY

The period of the study was for three months from the 1st week of March 2005 to 4th week of September 2005.

4.2 STUDY POPULATIONS AND SAMPLE SELECTION

The study population consisted all entitled married women of reported are group (15-49) years attending in the gynecology out patient department DMC Dhaka, within the study period. Clients those who are entitled to get medical facilities in the gynecology OPD are ordinary and general people. Pregnant women were excluded from the study population, since they reported to the antenatal clinic for antenatal cheek up and advice.

4.3 STUDY IMPIEMENTATION:

The study was conducted on 200 women aged between (15-49) years from all the study population, preliminary selection was done employing a standard selection criteria - checklist (shown in Appendix - A) Attending gynecologists of the OPD were responsible for the diagnosis of RTI s and other disease form the study population. Diagnostic criteria for RTIs were followed the clinical approach which was discussed clearly with the gynecologist by the investigator before initiating the study. The preliminary selection of the clients was motivated to participate into the study and they signed one informed consent formed (shown in the Appendix - B). Two medical assistant (female) were detailed by the authority concern to assist the investigator

during interviewing the respondents; they (Medical Assistants) received a thorough orientation on the different aspect of Selection criteria - Check list and the Data Collection Instrument.

Nutritional status of the patients was collected through anthropometric data. Some investigation like Hb%, Gram staining and TPHA test was done to detect cause as per as possible.

4.4 SAMPLE SIZE AND SAMPLING TECHNIQUE

The study sample included both old and newly registered clients but same respondent was not included in the study in subsequent days of study period. The patients of the day who reported sick to the Gymea out patient department with any gynecological problem were taken as a sample. All clients meeting the selection criteria were informed in details about the purpose study and those who voluntarily consented were finally enrolled in the study.

Thus a total of 248 patients were initially selected as potential respondents out of those 200 were willing to participate in the study.

4.5 DATA COLLECTION INSTRUMENT:

A data collecting questionnaire was developed on the basis of variables identified and the objective of the study after a preliminary observation and literature review by the researcher as a data collection instrument. The instrument was a structured questionnaire, which was made to minimize time and to gather information systematically. It took approximately 20-25 minutes for each form to be administered. The

questionnaire is appended as Appendix 'c'. Before collection of data for the study the data collection instrument was pre-tested within another population in the gynecology OPD with the same socio-demographic character but other than study population. It was for clarity, un-ambiguity and to find out validity of the instrument. Necessary correction and modification were made before finalization of data collection instrument for data collection.

4.6 COLLECTION OF DATA AND SPECIMEN

Data was collected from three causes (i) through the prescription sheets of the patient given by the attending gynecologist and (ii) through the interview of the respondents by the investigator himself. (iii) Through the investigation was done by the patient.

The investigator collected the relevant data through face-to-face interview. There was lot of advantages of face-to-face interview in such type of study. It gave personal contact with an individual difficult questions on private matter can be made understandable to the respondents by pros and cons explanation. Respondents could speak freely and passed their opinion in normal manner. On an average 7/8 respondents were interviewed daily.

As the data collection instrument was a structural one, so the time was less consuming. No leading question was asked. The investigator checked for omission or errors before the end of interviews or leaving the place of study. The day's work was checked again at night. Any error found was corrected before starting of the next days working.

4.7 ANTHROPOMETRIC DATA

4.7.1 BODY WEIGHT

A bathroom balance (HEALTH, JAPAN) was used to record body weight. The balance was standardized before every use. The body weight was recorded to the nearest 0.5 kg bare footed.

4.7.2 HEIGHT

Height of the subject was measured with measuring tape in cm. The tape was fixed on a wall. Then the subject stood in front of the tape bare footed.

4.7.3 BODY MASS INDEX (BMI) (body weight /height^2)

Body mass index of the subjects were calculated from the body weight and height of the subjects using the following formula.

$$\text{Body mass index (BMI)} = \frac{\text{(weight of the subject in kg)}}{\text{(Height of the subject in meter)}^2}$$

4.7.4 BLOOD COLLECTION

Blood samples were obtained between 8 am and 12 noons. Three milliliters of blood were drawn from the subject's using disposable syringe. An aliquot of 0.5ml of the blood was placed in a heparinized tube for the estimation of hemoglobin. Rest of the blood was collected for TPHA (Treponema palladium haemagglutination assay).

4.8 ANALYTICAL METHODS

Hemoglobin level was determined according to the method of Cartwright (1968) using a commercial kit (BoehringerMannheim, Germany).

REAGENTS

(a) Potassium Hexacyanoferrate Solution (Stock)

Potassium Hexacyanoferrate, 0.6mM, dissolved in 3.0mM phosphate buffer, pH 7.2.

(b)Potassium Cyanide Solution (Stock)

Contained 0.76mMof potassium cyanide and0.1g/l detergent.

Working Drab kin's Reagents

Stock potassium hexacyanoferrate, 25.0ml and 25.0ml potassium cyanide solution were diluted to 1000 ml with redistilled water.

Haemoglobin Standard

Commercially prepared haemoglobin standard (boehringer, Germany) with variable amount (5, 10, 15 and 20 gdl) was used.

Procedure.

Working Drab kin's reagent, 5.0ml was taken in a glass test tube and 0.02ml of heparinized blood sample was added .It was then mixed well by vortex mixer and incubated at 20-25 degree centre grade for at least 3min.The absorbance was ready at 546nm against the reagent blank.

4.9 Collection of cervical specimens from female Patients.[30, 31]

A specimen was collected for the isolation of microorganism by culture. A sterile vaginal speculum was used to examine the cervix and collect the specimen.

1. Moistened the speculum with sterile warm water, and inserted it into the vagina.
2. A sterile cotton-wool swab 20-30 mm was passed into the endo-cervical canal and gently rotated the swab against the endocervical wall to obtain a specimen.

4.9.1 Laboratory procedure

(a)Naked eye examination

Cervical specimens examined in proper light to not macroscopic character. Selected proper portion under direct vision for smear preparation and culture.

(b)One smear on one slide was made and stained by Gram's Method. Microscopically examine was done.

Smear preparation

1. At first I used a clean and grease free slide.

2. A thin film was made with a saline suspension of colony from a fluid culture on a slide with a sterilized loop.

3. And dried film in air

4. Fix the film on slide by Bunsen flame heat.

4.9.2 Gram's method of staining

(Jensen's Modification)

1. Primary staining:

   Flooded slide with methyl violet stain and allow acting for 20 seconds.

2. Mordanting:

   Flushed with iodine solution and allow

   Fresh iodine solution to act for 30 seconds

3. Decolouring:

(a) Decolorized with absolute alcohol. (b)Washed quickly in tap water.

4. Counterstaining:

(a) Counterstained with 1:10 carbol fuchsin for 20seconds

(b) Washed in water, dried in air

4.9.3 MICROSCOPIC MORPHOLOGY OF DETECTED MICROORGANISM

NEISSERIA GONORRHOEAE (GONOCOCCUS)

- It was kidney shaped, each having a concave and a convex margin.
- It was arranged in pairs with concave surfaces apposing each others.
- Posse's pili and freshly isolated strains areas was capsulated.
- It was non –flagellated, non-motilc & non-sporing.
- It was gram-negative cocci.

STAPHYLOCOCCUS AUREUS

- It was spherical & rounded in shape, about 1 micron meter in diameter.
- It was generally arranged in grap-like clusters.
- It was non -flagellated, non-motile & non-sporing.
- It was gram positive.

ESCHERICHIA COLI

- It was Gram-negative rods.
- It was non-sporing.
- It was non-motile.

Pseudomonas

- It was Gram-negative rods.
- It was non-sporing & motile rod.
- It was pili extend from the cell surface.

4.9.4 C INOCULATED THE FOLLOWING:

(I) One Macconkey agar plate, one Thayer martin medium, and one Mannitol salt agar plate was incubated for detect specific microorganism.

Preparation of media

Macconkey agar-This medium is best from ready to use dehydrated powder, available from most suppliers of culture media. Contents: Peptone, Lactose, bile salts, sodium chloride, neutral red, agar.

The medium was usually used at a concentration of 5.2g in every 100 ml distilled water.

1. Prepared as instructed by the manufacture. Sterilized by autoclaving at 121°C for 15 minutes.
2. When the medium has cooled to 50-55°c, mix well and dispensed aseptically in sterile Petri dishes. Dated the medium and a batch number was given.
3. Stored the plates at 2-8°C preferably in plastic bags to prevent loss of moisture.

PH of the medium:-pH 7.2-7.6 at room temperature.

Identification of specific organism on MacConkey agar.

- Escherichia coli-Colonies were rose pink which indicates that the organism was lactose fermenter.
- Pseudomonas was produced pale colored colonies on Macconkey agar.

Mannitol salt agar- This medium was best prepared from ready to use dehydrated powder.

Contents: Peptone, Lab-Lemco powder, mannitol, sodium chloride, phenol red, agar.

The medium was usually used at a concentration of 11.1 g in every 100 ml distilled water.

1. The medium was prepared as instructed by manufacture and sterilized by autoclaving at 121°C for 15 minutes.
2. When the medium had cooled to 50-55°C mix well, and dispense it aseptically in sterile Petri dishes. Date and batch number was given.

3. Stored the plates at 2-8°C. Preferably in plastic bags to prevent loss of moisture.

PH of the medium-pH (7.3-7.7) at room temperature.

Identification of specific organism on Mannitol agar-

- Staphylococcus produced catalase.
- Fermented mannitol-producing acid no gas.

Thayer Martin medium (modified)-

This medium consists of a GC agar base (prepared from dehydrated powder), enriched with haemoglobin and Vitox growth factors and made selective for N.gonorrhoeae using an antibiotic supplement (VCNT).

500 ml medium was prepared as bellows

1. 18g GC agar base was taken and. 240ml distilled water added and mixed. Gently the mixture was brought to the boil to dissolve the agar sterilized by autoclaving at 121°C for 15 minutes
2. It was prepared and sterilized the hemoglobin solution.
3. Rehydrated the contents of a vial of Vitox growth was supplement as instructed by the manufacture.
4. Rehydrated the contents of a vial of VCNT antibiotic supplement as instructed by the manufacturer.
5. Aseptically added the Vitox solution to 240 ml of the GC agar base, cooled to 50°C.Aseptically added the VCNT antibiotic supplement.
7. Mixed gently and aseptically poured into sterile Petri dishes. Date and batch number was given.

8. Stored the plates at 2-8°C, sealed in plastic bags to prevent loss of moisture.

Identification of Neisseria Gonorrhoeae (Gonococcus) on Thayer Martin medium (modified)

- Small elevated, convex, glistening mucoid colonies 1-5 mm in diameter was found in modified Thayer-Martin media in 48 hours.

4.9.5 Collection of specimen to detect T. pallidum

To detect motile T. Pallidum spirochetes, a specimen was collected before antibiotic treatment.

1. Wearing protective rubber gloves gently squeezed the lesion (chancre) to obtain serous fluid. A drop collected on a cover glass and inverted it on a microscope slide.
2. The preparation was immediately delivered to the laboratory for examination by dark-field microscopy.

Dark field preparation to detect motile T. palladium

A preparation for the detection of motile treponema was examined as soon as possible after the specimen was collected and before the patient had been treated with antibiotics.

The preparation was examined by dark-field microscopy using the 10x and 40x objectives.

T. pallidum: We found brightly illuminated, thin delicate, tightly wound spirochetes, measuring 6-15 μm long with 8-14 evenly sized coils. They had a bending and slowly rotating motility. Antiserum was given and motility was ceased. The conform diagnoses was done from it.

TPHA Test (Treponenia pallidum haem-agglutination test) this test was done

- The lgM binding capacity of TPHA reagents varies and reactions can be detected around the fourth week but may take longer. Titres tend to be low in primary syphilis (80-320) but rise sharply in the secondary stage although a drop in antibody titer occurs in latent and late syphilis, a positive TPHA test may still be found 20-30 years after treatment. A positive TPHA indicates either present or past infection.
- Sensitized Cells were agglutinated due to presence of antibody.
- And test was positive.

4.10 Data Processing and analysis

With the completion of field part of data collection, the next steps were processing the data in a meaningful way. First, the completed questionnaires were checked for any omission, logical inconsistencies, improbabilities and coding errors. The answers of the respondents were coded in the data collection instrument during face-to-face interviews.

Coding sheets were developed for data coding. All the information collected had been abstracted into a master sheet.

Data were entered into Fox Pro data entry screen directly from coding sheets. After entered data into the computer, consistency checks were carried out for further data cleaning. Errors detected through this process were corrected before the data file was used for analysis. The whole statistical analysis was performed under the ``The Statistical Package SPSS" program.

4.11 Data Interpretation and presentation

The final step included interpretation and presentation of the results. Frequency distributions were used to provide the descriptive data on the proportion and types of RTIs in the study population. Relationship between RTI and some selected socio-demographic and medical/obstetric risk factors and investigations of microorganism were compared.

CHAPTER FIVE

RESULTS AND FINDINGS

RESULTS & FINDINGS

Table-5.1.1

Distribution of hemoglobin concentration of total respondents

n-200

Value	*Number*	*Percentage*
Below Normal<12gm/dl	103	51.5%
Normal value (12-16gm/dl)	97	48.5%
Total	200	100%

Table shows prevalence of Anaemia 51.5%.

Table-5.1.2

MEAN, MEDIAN AND RANGE OF THE ANTHROPOMETRIC INDICES OF THE TOTAL RESP ONDENTS

n-200

Variables n-200	*Mean±SD*	*Median*	*Range*
Body weight(kg)	41.70±5.53	41.05	28.60-56.00
Height(cm)	148.45±5.82	148	129.50-171.50

Table shows anthropometric indices of the total respondents.

Table -5.1.3

Distribution of respondents by age and material status.

n = 200

Characteristics	*Frequency of respondents*	*Percentage*
Age in years		
10- 19	03	1.5
20 – 29	53	26.5
30 – 39	124	62
40 – 49	20	10
Mean age-30.56 years		SD ± 6 years
Marital Status		
Currently Married	194	97
Not currently Married	6	3

Table shows distribution of respondents by age and marital status. Most of the women (88.5%) were within the active reproductive age bracket of 20 to 39 years. Only 11.5% were in the below 20 and above 40 years age groups. The mean ages being were 30.6 years with SD ± 6 years. Out of total respondents only 6 women (3%) were not currently married, being widowed or divorced or separated.

Table -5.1.4

Distribution of respondents by RTI related cases as per clinical Diagnosis

n-66

RTIs	*Frequency of respondents*	*Percentage*
Valvo -vaginities	10	15.2
Whitish discharge	15	22.7
Chronic-cervicties	8	12.1
PID	20	30.3
Genital Ulcer	03	4.5
Dyspareunia	04	6.1
Itching	06	9.1
Total	66	100

Table shows distribution of respondents by RTIs related cases as per clinical diagnosis. PID (Pelvic Inflammatory Diseases) was in the highest proportion i.e. about 31% followed by whitish-discharge (22.7%), valvo-vaginitis (15.2%), chronic cervicitis (12.1%), itching (9.1%) dyspareunia (6.1%) and genital ulcer (4.5%). Here total 66 respondents had been suffering from RTIs.

Table – 5.1.5

Distribution of respondents by types of non-RTI cases as per clinical diagnosis

n=134

Non - RTI Diseases	*Respondents*	*Percentage*
P/V bleeding (DUB)	15	11.2
Missed period	17	12.7
Menstrual abnormality	26	19.4
Backache	16	11.9
Infertility	13	9.7
Mastalgia	4	3.0
UTI	14	10.5
Incomplete abortion	9	6.7
1^0 Uterine prolapse	6	4.5
Fibroid Uterus	5	3.7
Ovarian tumour	4	3.0
Old Complete Perineal tear	2	1.5
Urge Incontinence	1	1.5
Bartholin cyst	2	0.7
Total	134	100

Table shows distribution of respondents by non-RTIs cases as per clinical diagnosis by gynecologists. In order of frequency the non-RTI cases are menstrual abnormalities (dysmenorrhoea, menorrhagia, polymenorrhoea, polymenorrhagia etc.) about 20%, followed by DUB (11.2%), UTI (10.5%), infertility (9.7%) incomplete abortion (6.7%), first degree uterine prolapsed (4.5%), fibroid uterus (3.7%), ovarian tumour (3.0%), mastalgia (3.0%), perineal tear (1.5%), urge incontinence (1.5% and bartholin cyst (0.7%).

Table – 5 .1. 6

Distribution of respondents by duration of marriage.

n-200

Duration of marriage (in year)	*Respondents*	*Percentage*
3 and below	7	3.5
4 – 10	59	29.5
11-20	103	51.5
Above 20	31	15.5
Total	200	100
Average age of marriage 11.9 years		***SD ± 6 years***

Table shows distribution of respondents by age of marriage. Maximum (about 51.5%) respondents were within 11-20 years duration of marriage. Mean age of marriage was about 12 years with SD ±6 years.

Table –5.1.7

Distribution of respondents with RTI and Non-RTI by duration of marriage.

n-200

RTIs	<10 years	>10 years	Total
Yes	20	46	66
	30.3%	34.3%	33%
No	46	88	134
	69.7%	65.7%	67%
Total	66	134	200
	100%	100%	100%

Table has shown no significance difference between <10 years&>10 years duration of marriage in reproductive tract infection.

Table – 5.1.8

Age wise distribution of respondents with RTIs & non RTI.

n-200

RTI	*Age (in years)*			*Total*
	Up to 29	30-39	40 - 49	
Yes	12	50	4	66
	(21.4%)	(40.3%)	(20%)	(33%)
No	44	74	16	134
	(78.6%)	(59.7%)	(80%)	(67%)
Total	56	124	20	200
	(100%)	(100%)	(100%)	(100%)

$X^2 = .589$ df = 2 P = .741

Table shows relationship of RTI cases with different age group. Here proportion of RTI was found to very within 20% to 40.3%. Maximum percentage of RTIs. (40.3%) was in the 30-39 year's age group. The total proportion of RTIs among the all age group was 33%.Other groups are almost same in occurrence of RTI, such as 21.4% in up to 29 years and 20.0% in 40-49 years age group.

Table-5.1.9

Distribution of respondents by education

n-200

Educational level	Number	%
Illiterate	56	28%
(I-V)	70	35%
(VI-Vii)	36	18%
ss	21	10.5%
Above	17	8.5%

hows educational level of respondents. Highest 35% respondents
/) pass, illiterate respondents was 28%.

Table-5.1.10

Distribution of respondents with RTIs and educational status

n = 200

RTIs	*Level of Education*					*Total*
	Illiterate	I-v	VI-VIII	SSC Pass	HSC & Above	
Yes	47	16	1	1	1	66
	(83.9%)	(22.86%)	(2.8%)	(4.8%)	(5.9%)	(33%)
No	9	54	35	20	16	134
	(16.1%)	(77.14%)	(97.2%)	(95.2%)	(94.1%)	(67%)
Total	56	70	36	21	17	200
	(100%)	(100%)	(100%)	(100%)	(100%)	(100%)

$X^2 = 20.75$ df = 4 P = .001

Table shows distribution of respondents with RTIs in relation to different level of education. Proportion of RTI cases among illiterate group was very high (83.9%). The proportion of other groups varies from 4.8% to 22.86% with a gradual-declining trend with increase the level of education.

Table – 5.1.11

Distribution of respondents in relation to RTI and Occupations

n = 200

RTIs	*Occupation*			*Total*
	Housewife	Housewife and Handicrafts	Service Holders	
Yes	51 (32.9%)	2 (10%)	13 (52%)	66 (33%)
No	104 (67.1%)	18 (90%)	12 (48%)	134 (67%)
Total	155 (100%)	20 (100%)	25 (100%)	200 (100%)

$X^2 = 3.050$ df = 2 P < 0.001

Table shows relationship of RTI with occupation of the respondents. Most of the respondents were housewives (77.5%) and rest of the respondents was involved with some other occupation. It is noted from the table that proportion of RTI was maximum (52%) in service holder (All types of work) group, followed by housewife group (32.9%) and housewife and handicrafts group (10%).

Table – 5.1.12

Distribution of respondents in relation to RTI and Socio-economic Status

n = 200

RTIs	*Socio-economic Status*			*Total*
	Lower class	Middle Class	Upper Middle Class	
Yes	54	9	3	66
	(48.2%)	(18.4%)	(7.6%)	(33%)
No	58	40	36	134
	(51.8%)	(81.6%)	(92.4%)	(67%)
Total	112	49	39	200
	(100%)	(100%)	(100 %..)	(100%)

X^2= 1.99 df=2 P<0.001

Table shows distribution of respondents in relation to RTIs and socio-economic status. On the basis of education, occupation, family size and monthly income of a respondent a composite socio-economic indicator was developed to group the respondents into three categories namely lower, middle and upper middle classes. Proportion of RTIs was high in lower class.

Table – 5.1.13

Distribution of respondents by number of parity.

n-200

Number of parity	*Respondents*	*Percentage*
Nil	20	10
1 – 2	89	44.5
3 – 4	70	35
5 – 6	16	8
7 and more	05	2.5
Total	200	100
Mean 2.63		***SD ± 1.45***

Table shows distribution of respondents by number of parity. About 44.5% of the respondents had 1 to 2 numbers of deliveries after 28 weeks of gestation, followed by the number of parity 3 to 4 (35%). Mean number of parity was about 3 with SD ± 1.5.

Table-5.1.14

Distribution of respondents in relation to RTIs and number of parity

RTI	Number Of parity					Total
	Nil	**1-2**	**3-4**	**5-6**	**7 and more**	
Yes	**7**	**20**	**27**	**9**	**3**	**66**
	35%	**22.5%**	**38.6%**	**56.25%**	**60%**	**33%**
No	**13**	**69**	**43**	**7**	**2**	**134**
	65%	**77.5%**	**61.42%**	**43.75%**	**40%**	**67%**
Total	**20**	**89**	**70**	**16**	**5**	**200**
	100%	**100%**	**100%**	**100%**	**100%**	**100%**

Table shows distribution of respondents in relation to RTIs and the number of parity.

Table – 5.1.15

Distribution of respondents by termination of pregnancy in different mode.

n =200

Mode of termination	*Respondents*	*Percentage*
Abortion		
Nil	169	84.5
1 – 2	31	15.5
MR		
Nil	141	70.5
1 – 2	59	29.5

Table shows distribution of respondents by having experience of termination of pregnancy in different modes. About 15.5% of the respondents had the history of abortion and about 29.5% respondents performed MR once or twice to terminate their pregnancies.

Table – 5.1.16

DISTRIBUTION OF RESPONDENTS BY FAMILY SIZE

Family Size	*Number*	*%*
Small	36	18
Up to 5 members		
Medium	62	31
6to7 members		
Large	102	51
8 members and above		

Table shows maximum respondents came from large families about 51%.

Table-5.1.17

Distribution of respondents in relation to RTI and complication During last pregnancy

n = 200

RTIs	*Complication during last Pregnancy*		*Total*
	Nil	Had complication	
Yes	56	10	66
	(32.2%)	(38.5%)	(33%)
No	118	16	134
	(67.8%)	(61.5%)	(67%)
Total	174	26	200
	(100%)	(100%)	(100%)

$X^2 = .161$ df = 1 P = .688

Table shows relationship with RTIs and complications experienced by the respondents in their last pregnancy. No major differences could be found among the women who had or didn't have any complication in the last pregnancy but 38.5%respondents had complication during last pregnancy and also had been suffered from RTI.

Table – 5.1.18

Distribution of respondents in relation to RTI and place of last Delivery

n = 200

RTIs	*Place of last delivery*		*Total*
	Home	Hospital	
Yes	46	20	66
	(35.4%)	(28.6%)	(33%)
No	84	50	134
	(64.6%)	(71.4%)	(67%)
Total	130	70	200
	(100%)	(100%)	(100%)

$X^2 = .309$ df = 1 P = .578

Table shows relationship of RTI s with place of last delivery of the respondents. There was a little but no significance difference in the proportion of RTIs among the Women who delivered at home with the women who delivered at hospital

Table – 5.1.19

Distribution of respondents in relation to RTI and IUD users.

n = 154

RTIs	*Contraceptive users*		*Total*
	IUD	Others Method	
Yes	22	19	41
	64.7%	15.8%	26.6%
No	12	101	113
	35.3%	84.2%	73.4%
Total	34	120	154
	(100%)	(100%)	(10)

$X^2 = 43.4$ df = 1 P<0.0001

Table shows relationship between the RTI related cases with IUD users among the respondents. Proportions of RT Is were highest (64.7%) in the IUD users group of women than other methods of contraception. Among 200 respondents 154(77%) respondents used contraceptive methods and 46 (33%) respondent did not use any contraceptive methods.

Table-5.1.20

Distribution of respondents by contraceptive method used

n-200

Contraception	*Respondents*	*Percentage*
NONE	46	23
Oral Pill	54	30.7
Injection	36	20.5
Condom	10	5.7
IUD	34	19.2
Sterilization	10	5.7
Others	10	5.7
Total	200	100

Table shows distribution of respondents by contraceptive used. Out of 200 respondents 46(23%) did not use any modern methods of contraception. The contraceptive user rate was found about 77% among the respondents (not shown in the table). The highest user was oral pill (30.7%) followed by injections (20.5%), IUD (19.2%), condoms (5.7%) and sterilization (5.7%)

Table – 5.1.21

Distribution of respondents with RTI and use of sanitary materials during menstruation

n = 200

RTIs	*Sanitary Materials Used*				*Total*
	Washed Clean Cloths	Not always washed & reuse	Commercial-pads	Combination	
Yes	5	58	1	2	66
	(6.2%)	(60.4%)	(7.1%)	(20%)	(33%)
No	75	38	13	8	134
	(93.8%)	(39.6%)	(92.9%)	(80%)	(67%)
Total	80	96	14	10	200
	(100%)	(100%)	(100%)	(100%)	(100%)

$X^2 = 13.82$ df = 3 P<.05

Table shows relationship of RTI with use of sanitary materials during menstruation. The highest occurrence of RTI (60.4%) was with the respondents who used dirty and not always washed old cloths and reused. The next frequency of RTIs was with the group who used combination of home made and commercial pads and washed clean home made pads (6.2%) respondents. The minimum frequency was with the group who used. washed clean cloths

Table – 5.1.22

Distribution of respondents with RTI and kinds of problems in Husband's genitalia.

n-200

RTIs	*Genital Problems*		*Total*
	Have / Had	Don't / Don't Have	
Yes	21	45	66
	(75.0%)	(26.2%)	(33%)
No	7	127	134
	(25.0%)	(13.8%)	(67%)
Total	28	172	200
	(100%)	(100%)	(100%)

Table shows relationship between RTIs and kinds of problems in the husband's genitalia of the respondents. Only 14% out of 200 interviewed were given the history of genital problems in their husband's genitalia in the form of blister, itching ulcers and some sort of whitish discharge through urethra. Proportion of RTI cases was very high among the respondents whose husband had or have any kind of genital problems (75%).

Table-5.1.23

Distribution of respondent's relation of RTIs and coitus during menstruation

n-200

RTI	*Coitus during*	*Menstruation*	*Total*
	Had	Did not have coitus	
Yes	10	56	66
	(38.5%)	(32.2)	(33%)
No	16	118	134
	(61.5%)	(67.8)	(67%)
	26	174	200
	(100%)	(100%)	(100%)

Table shows that 26 (13%) respondent had been engaged in coitus during menstruation and among 10 (38.5%) had RTI. It was little higher than the respondents who did not have coitus during menstruation.

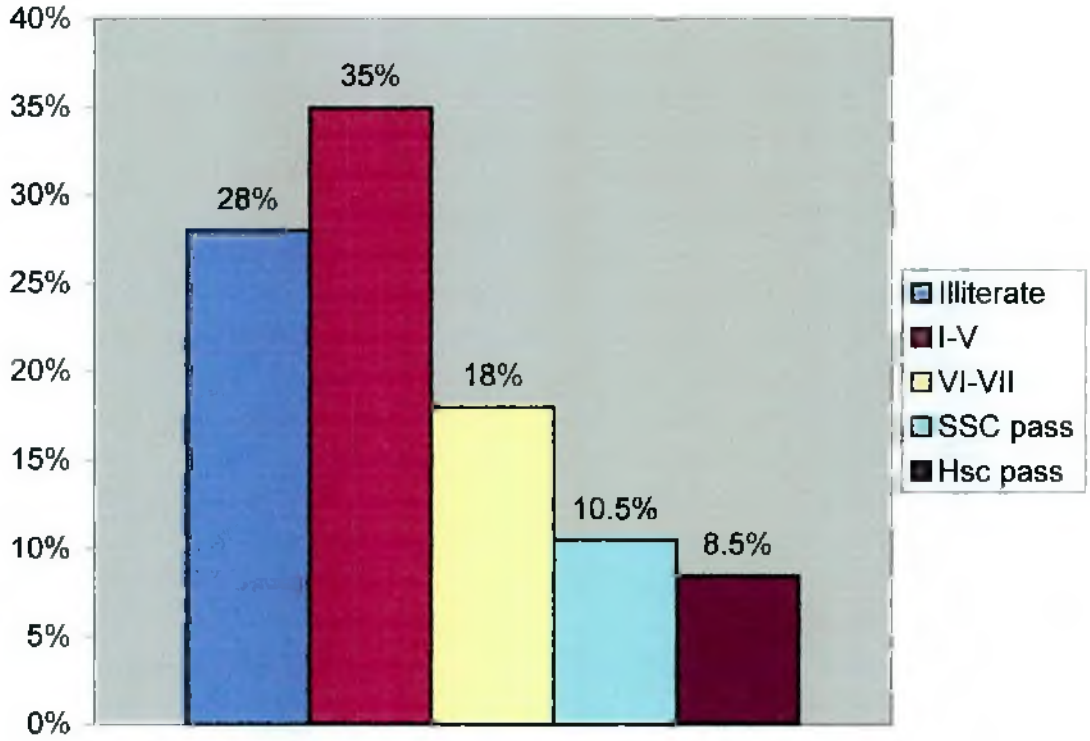
Table-5.1.24

ıle shows the percentage of microorganism which was found in cervical and high vaginal swab.

Name of the organism	Number patient	Percentages
1. *Staphylococcus Aureus*	38	57.6%
2. *Gonococcus*	14	21.2%
3. *Pseudomonas*	2	3%
4. *Treponema pallidum*	4	6.1%
5. *Escherichia coli*	8	12.1%
	66	100%

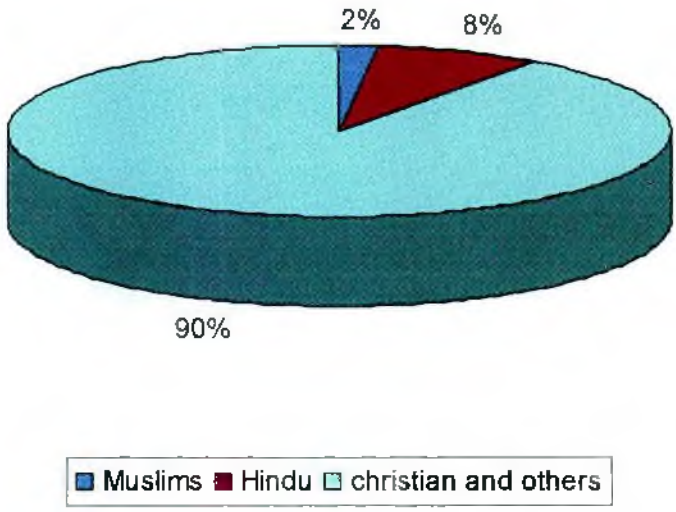
shows highest rate of reproductive tract infection was caused ıphylococcus aureus 57.6%.

Fig 5.2.1: Distribution of respondets by educational level



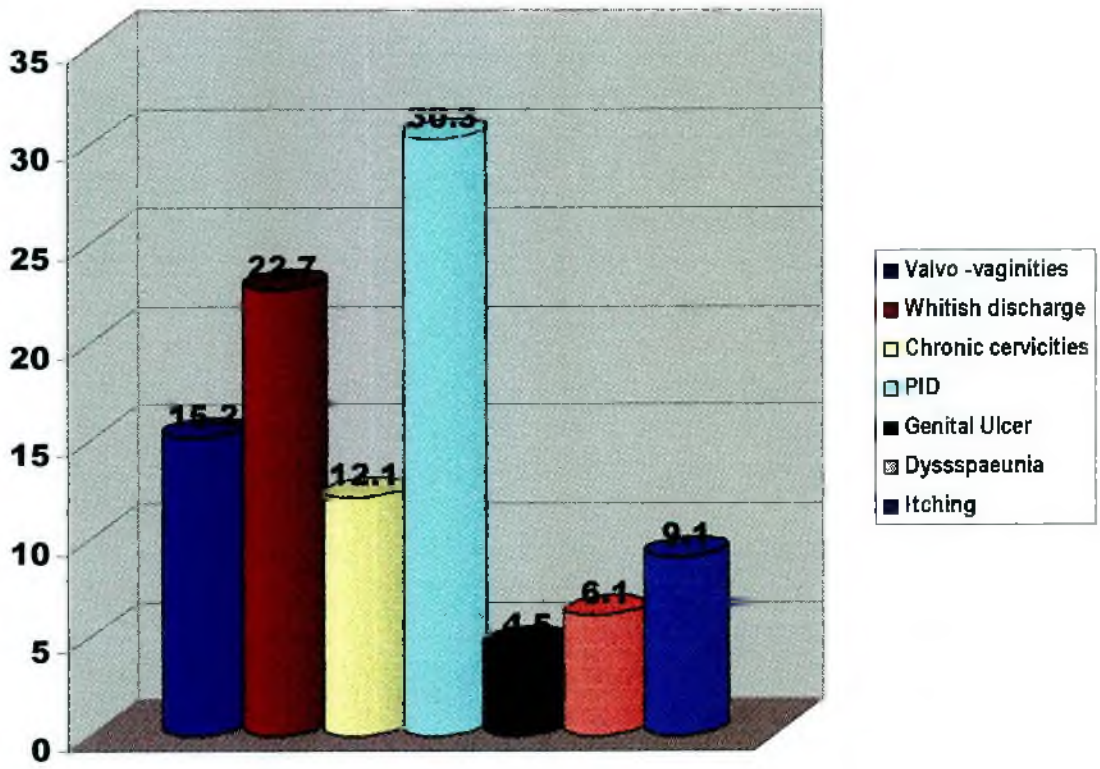
Graph has shown 28%respondents wrer illiterate

Fig 5.2.2- Represented distribution of respondents by religion.



Graph has shown distribution of respondents by religion.

Fig 5.2.3-Distribution of respondents by RTIrelated cases as per clinical diagnosis



Graph represented percentage of respondents by RTI related cases as per clinical diagnosis.

Fig 5.2.4 :-Distribution of respondents by their occupation

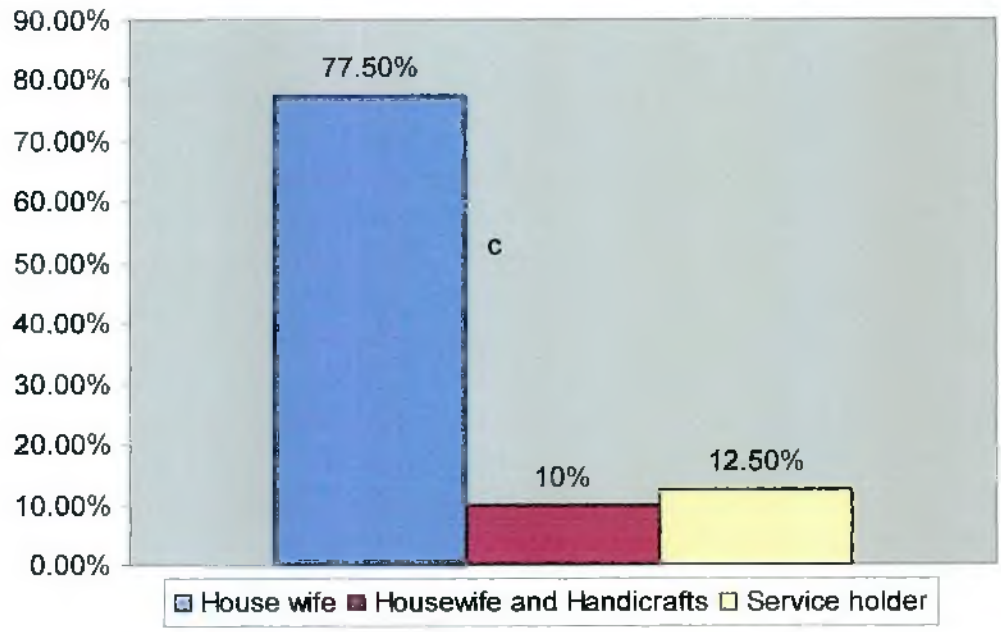


Fig 5.2.4 represented the distribution of respondents by their occupation. Housewife 77.50%, housewife and handricafts10%, service holder (garments worker, home servants etc also included) 12.50%

Fig 5.2.5 :-Distribution of respondents by types of no -RTI cases as per clinical diagnosis in percentage

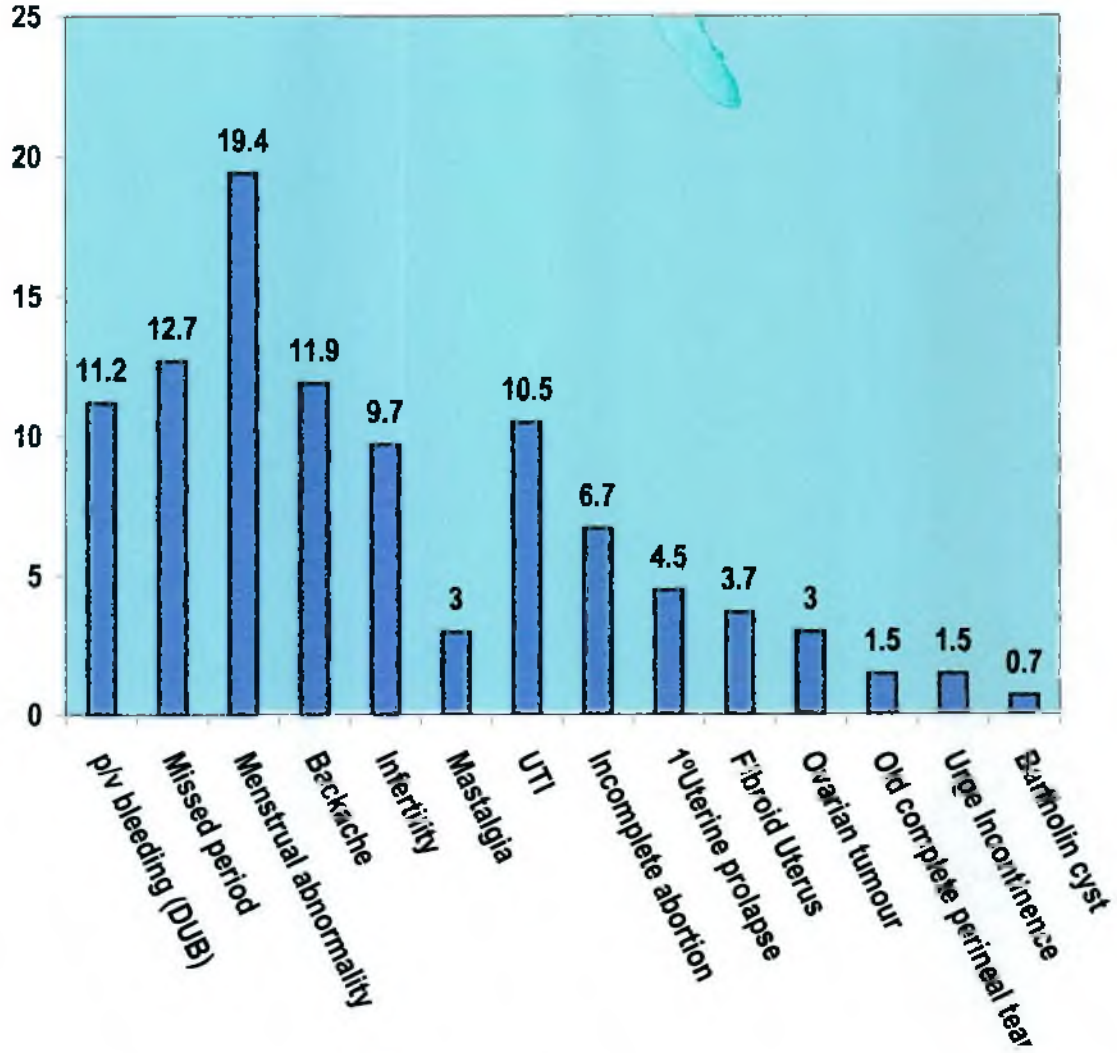
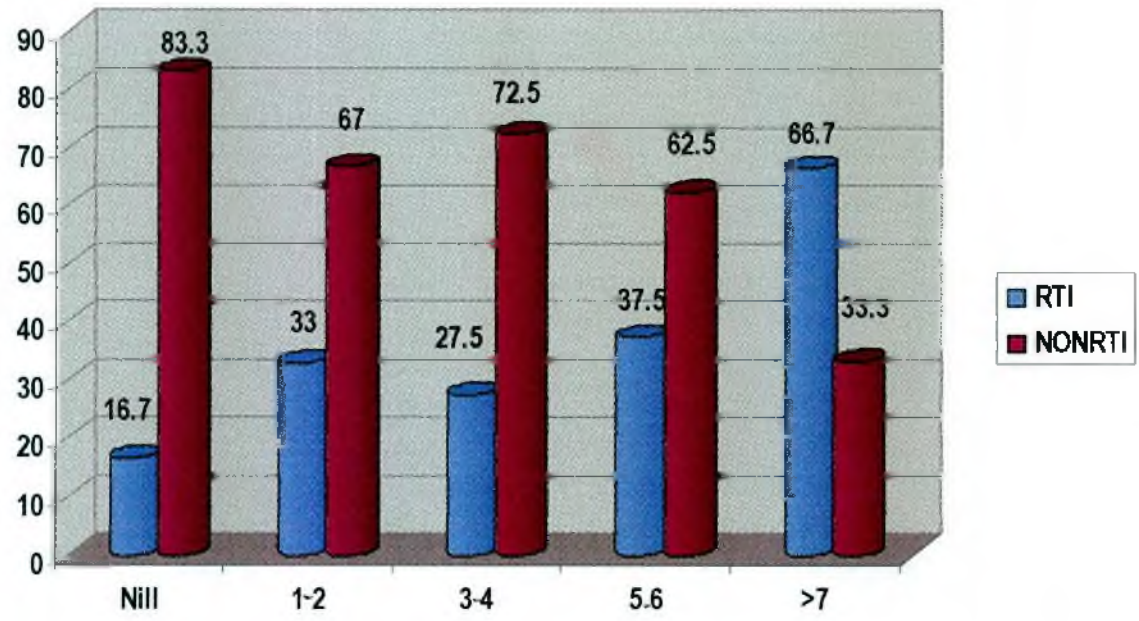
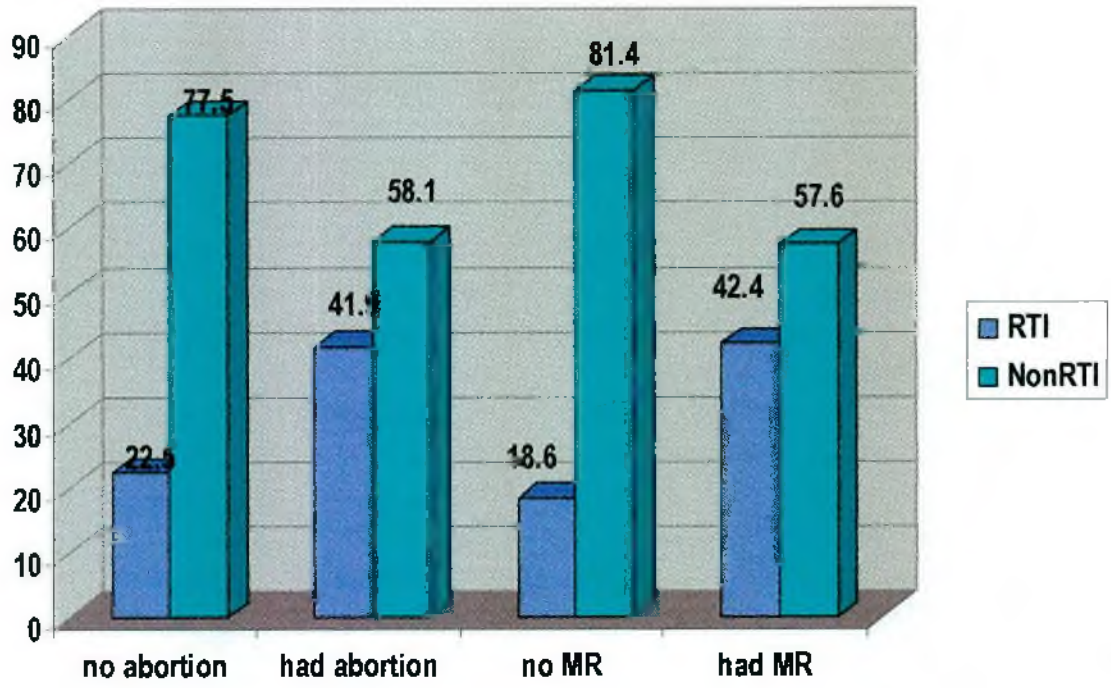


Fig5.2.6:Distribution of respondents in relation to RTIs and number of Gravida



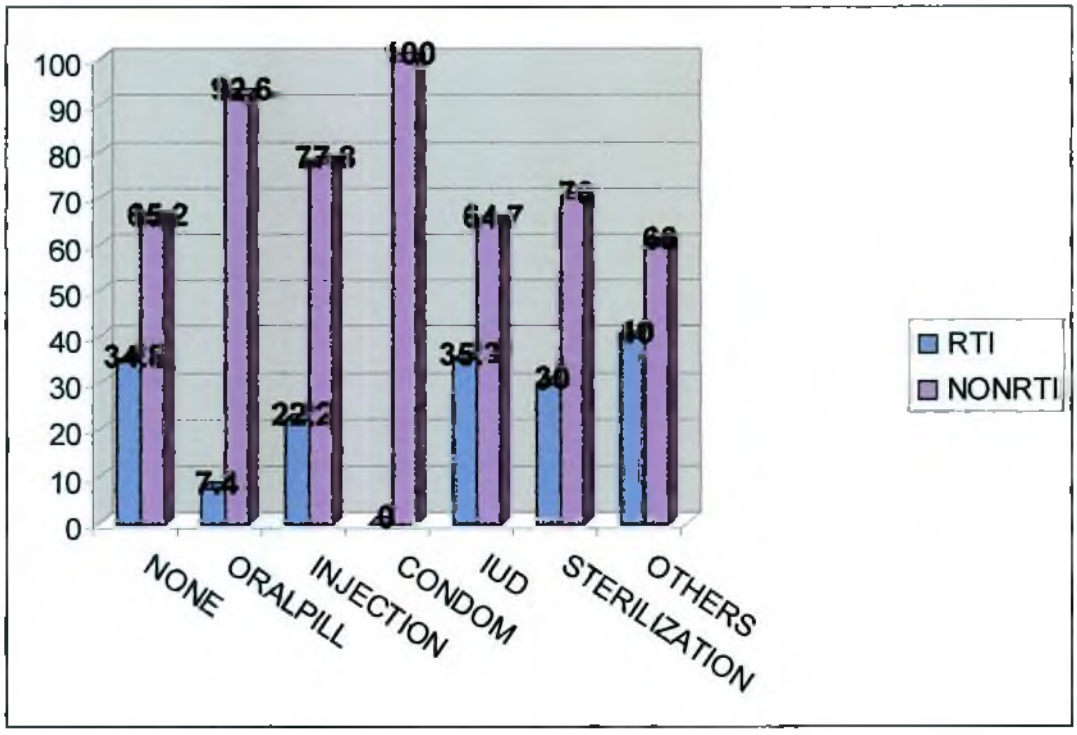
Graph shows that RTIs was more among the women who had >7 gravida (66.7%).

Fig 5.2.7:-Distribution of respondents by termination of pregnancy in different mode



Graph has shown the maximum respondents who had experience MR and abortion involved with RTIs.

Fig 5.2.8:- Distribution of respondents in relation to RTI& contraceptive method used



Graph shows that IUD users had more RTIs than others

Fig 5.2.9:-Distribution of respondents in relation to RTIs and coitus during menstruation

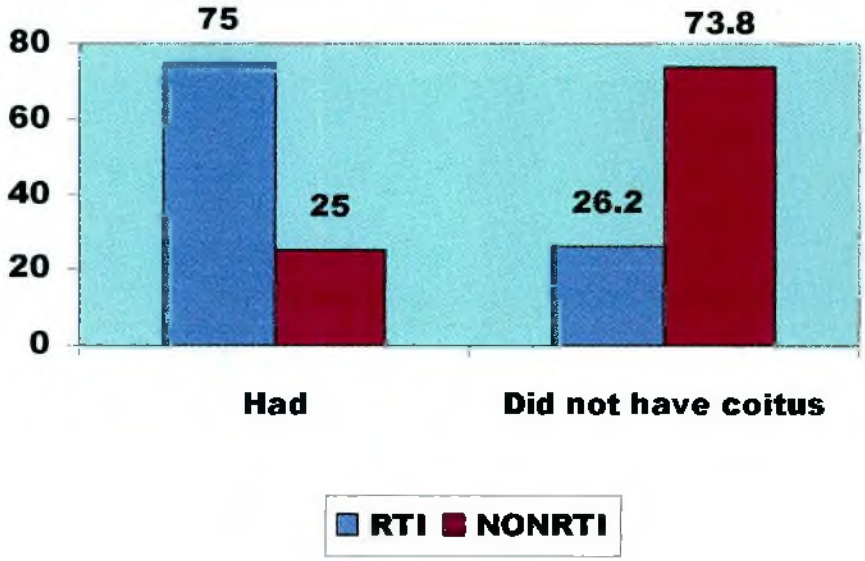
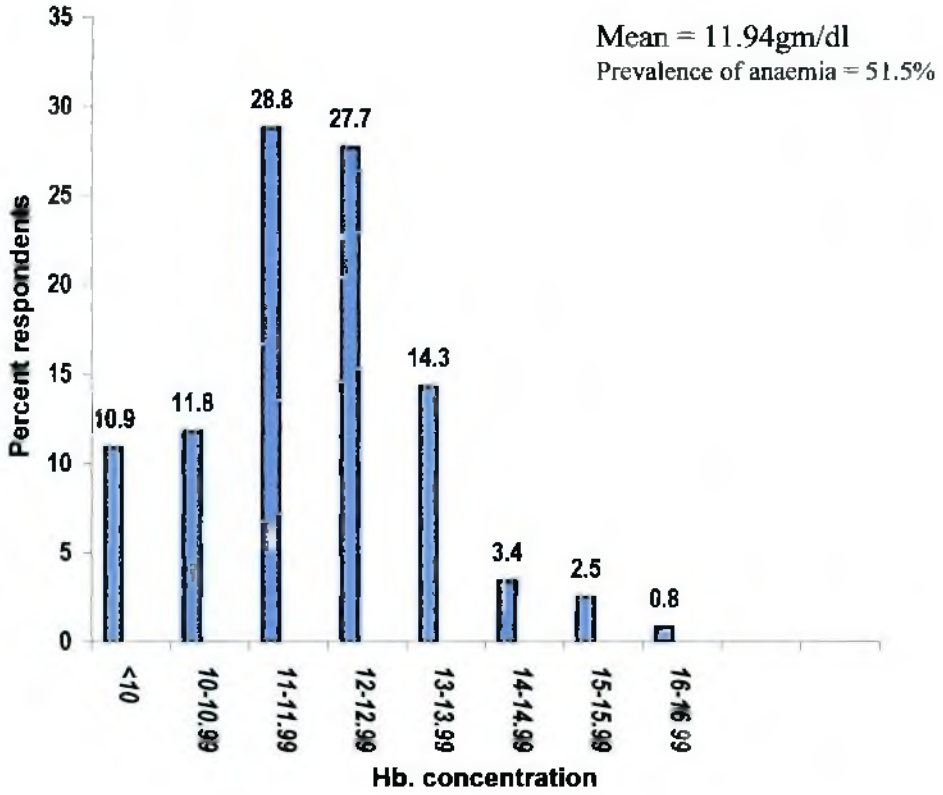


Fig5.2.10:-Frequency distribution of haemoglobin concentration of total respondents



Graph shows haemoglobin concentration of respondents. Here Mean was 11.94gm/dl.

Fig 5.2.11 :Dstribution of total respondents by BMI

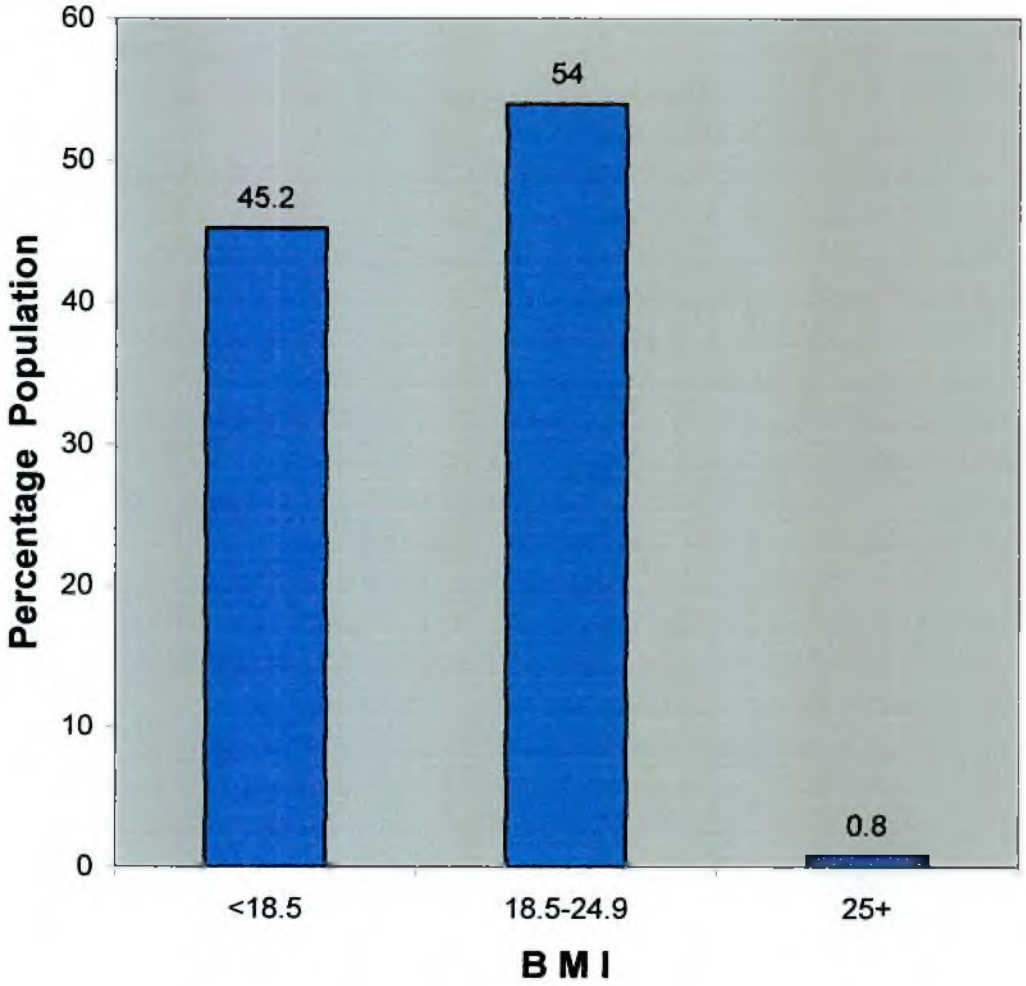
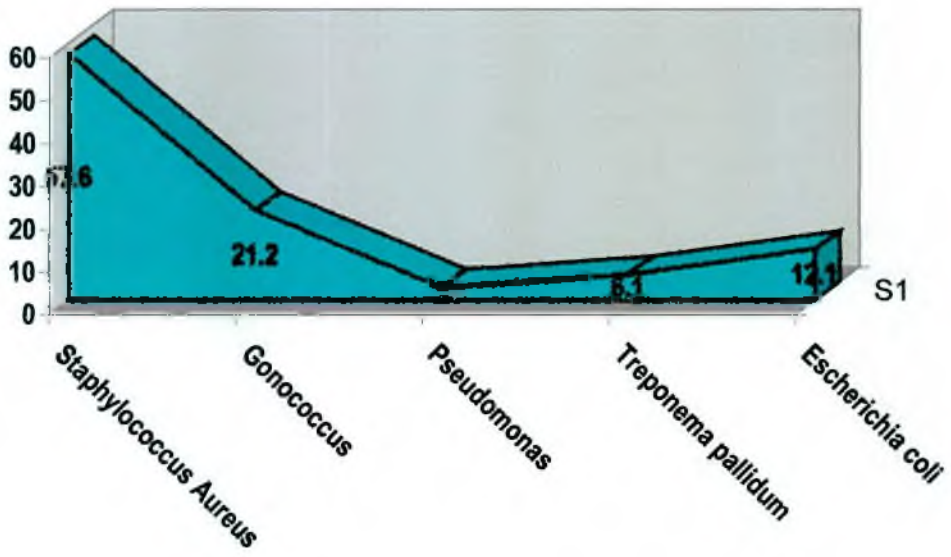


Fig:- 5.2.12 Percentage of micro-organisms



Graph has shown the percentage of microorganisms, which was found in high cervical and vaginal swab.

Fig 5.2.13- Distribution of respondents by socio-econpmic status

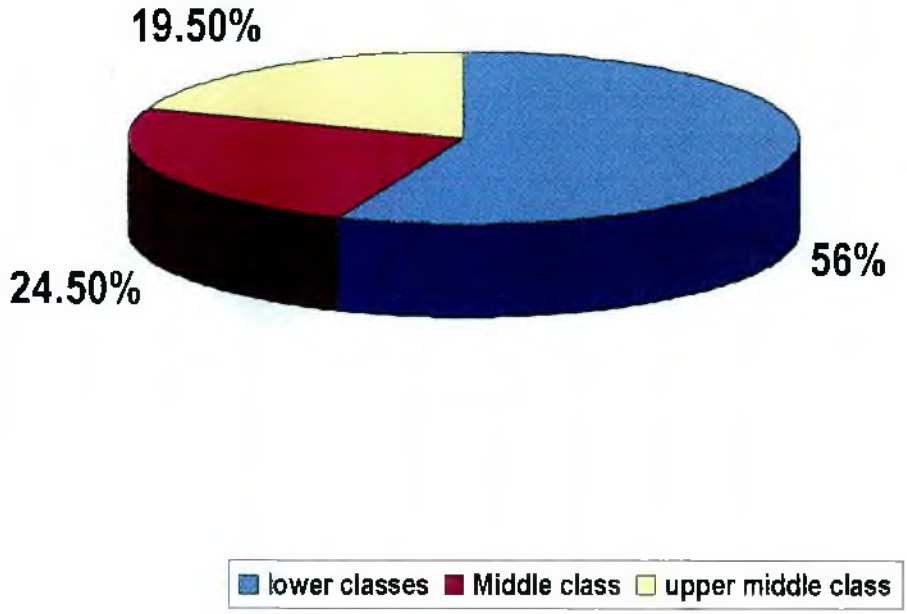


Fig 5.2.14- Distribution of hemoglobin concentration of the Respondents

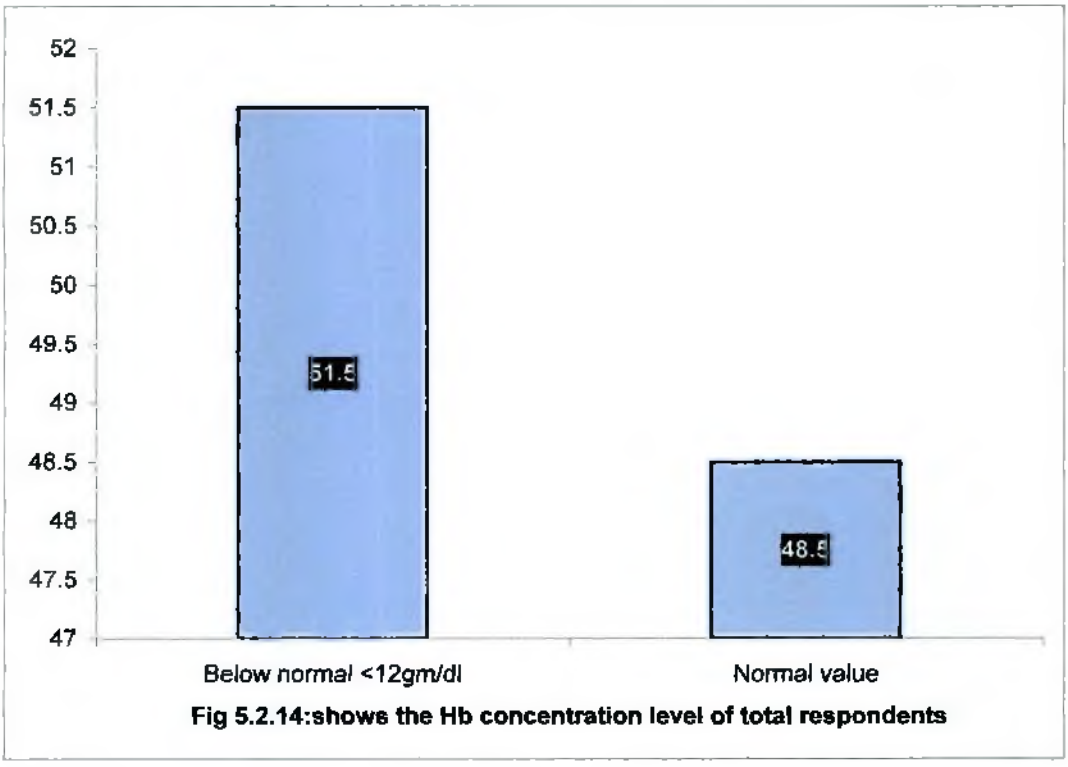
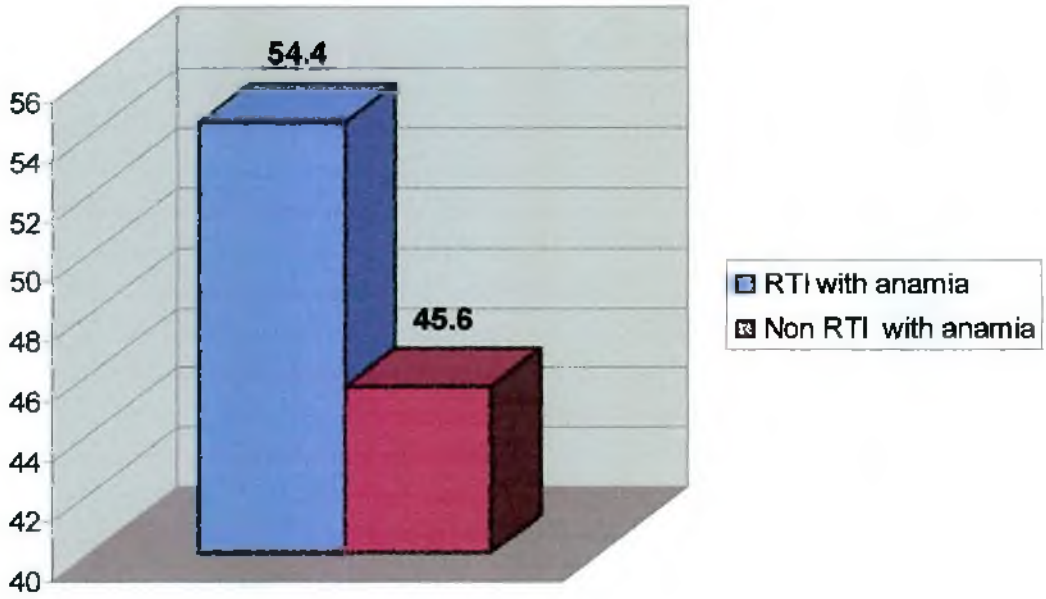


Fig 5.2.14:shows the Hb concentration level of total respondents

Fig 5.2.15-Respondents the percentage of anaemic respondents in relation with RTI



Graph has shown the relation of RTI among 103 anaemic respondents. 56 (54.4%) anaemic respondents had RTI& 47 (45.6%) had non reproductive tract infections.

Fig 5.2.16Represents the pecentage of respondents in relation of RTI and non RTI

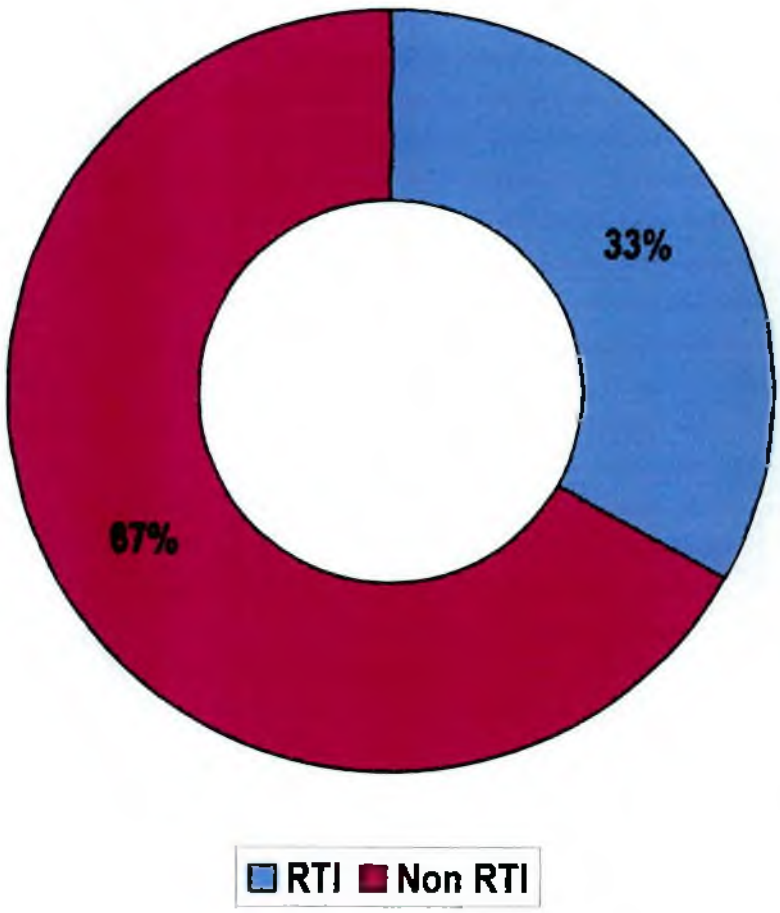
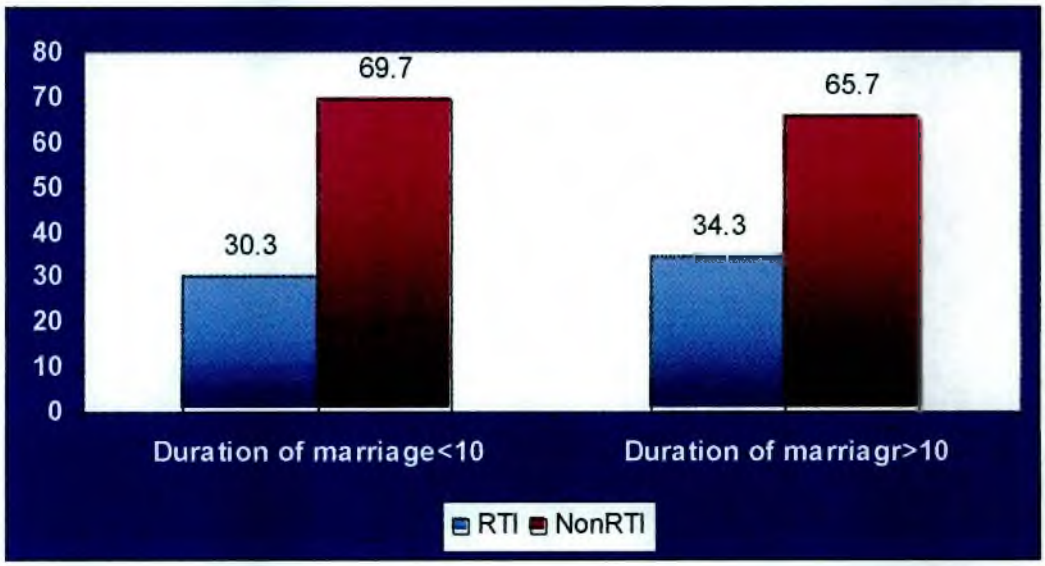


Fig 5.2. 17 - Distribution of respondents (percentage) in relation with RTI by their duration of marriage



CHAPTER SIX

DISCUSSION

DISCUSSION

6.1 PROPORTION OF RTIs (REPRODUCTIVE TRACT INFECTIONS) AMONG STUDY POPULATION.

The RTIs are important health problems affecting women of reproductive age but often remain unexplored in the current service delivery system of the Dhaka Medical College Hospital. The culture of silence around the issue of RTI related problems in our society also inhibit women to seek care. So it is therefore, difficult to estimate exact proportion of RTIs in a clinic based study. This study was conducted on symptomatic women attending in the gynecology OPD, Dhaka Medical College Hospital with one or other disease conditions with a view to assessing the disease load of RTIs existing in the women of community.

A total of 2061 women reported sick in the gynecology OPD from the first day of March, 2005 to 31 September, 2005. Out of this 2061 study population, 200 women of reproduction age group were interviewed to find out the proportion of RTIs.

In the study anthropometric indices, age, body weight and body mass index (BMI) were measured to assess the nutritional status of the respondents. The mean age of the total respondents was 30.56 years and SD±6 years. The mean body weight of total respondents was 41.70(±5.53) kg with a range of 28.60 to 56.00kg (table-5.1.2). The height of total respondents varied from 129.50 to171. 50 cm. The mean value was 148.45(± 5.82) cm as shown (Table-5.1.2). Fig 5.2.11 shows represents the body mass index (BMI) of the total respondents. Amongst them 54% were

found to be normal, 45.2% were under weight and only one cases (0.8%) was over weight. According to WHO, haemoglobin level below 12 g/dl in female is considered to be anaemic[32].The prevalence of anaemia in the present study was 51.5% among the total respondents on the basis of haemoglobin concentration (fig-5.2.14). Mean hemoglobin level of total respondents was 11.94(±1.53) g/dl. Among 103 anaemic respondents, 56 respondents were involved with RTI and 47 respondents involved with Non-RTI cases. The study has shown that anaemic and malnourished respondents were more prone to reproductive tract infections. (Fig- 5.2.14 and fig 5.2.15)

In this study the over all morbidity diagnosed clinically which was related to RTIs was found 33%. A clinic based study by chowdhury et al. done among women of reproductive age group in an urban area, showed an RTI prevalence of 60 percent. Several community based studies have been conducted to find out the RTI/STD RTI has been found to range from 21.9 % to 32.9 % among MWRA. Abnormal vaginal discharges being the most frequently encountered symptom. The proportion of RTIs found in the study was higher than the other clinical based studies, possibly because, the respondents of the study were mostly from lower socio-economic and low educational status. Even all these factor against the occurrence of RTIs the proportion rate, which found in this study, reflects a poor state of reproductive health of the study women. If that can be done by a study with sufficiently large sample size than the reproductive health picture of the women of Dhaka Medical College Hospital would have become even more alarming. Other risk factors which asserted with RTIs like increase number of MR and abortion; uses

of dirty sanitary materials during menstruation were also more in the lower group.

Among the type of RTIs problem diagnosed clinically, PID (30.3%) was the highest (Table-5.1.4) in proportion. This may be due to the study place was referral center, where more complicated cases were referred from various health service providing centers of Bangladesh. Abnormal vaginal discharge (22.7%) was the second highest in the frequency. This finding contradicts with the study conducted by Bhuiya, et al., 1998, where abnormal vaginal discharge was found the most common type of complaint.

6.2 SOCIO-DEMOGRAPHIC RELATIONS

The proportion or respondents suffering from RTI in different age groups from 20 to 40 years vary within very narrow range. However, because of the number of sample being less in the <20 & >40 years of age group, their contribution to the total number of RTI cases appears to be smaller too (Table-5.1.8). No significant difference was observed between the different age groups. ($p>0.05$) Maximum percentage of RTIs were in the active age group i.e. between 30-39 years indicates the influence of multiparity, increase age of marriage, and exposure to other risk factors. This finding is similar with the study conducted by Hussain et. Al. 1996; where age failed to show any statistically significant relationship. (Table 5.1.14)

Educational level of study population is high (72%) (Table5.1.9).Only 28% was with no formal education. However, considering the proportion

of the RTI cases from different educational level, the highest percentages (83.9%) were from the illiterate group. The percentage was gradually declined with increase of the level of education (Table-5.1.10). From cross tabulation, it was found significant relationship between educational level and occurrence of RTI (P<.001). The study findings is similar to Marie stops Clinic study. But in dissimilar with the study conducted by Population Council, which found married educated women having higher proportion of RTI problems.

Occupation of the respondents had significant role in the occurrence of RTIs (P<0.001) (Table-5.1.11 and Figure-5.2.4). However service holders (including maid servant, garment worker and any other job which was suitable for lower class) were more affected due to their unconsciousness of health hygiene , ignorance of balanced diet and sex partner. There was no significant difference found in the proportion of RTI among the respondents of different religion group also (fig-5.2.2).

Three socio-economic statuses were developed by a composite index. Majority of the respondents was from lower class (56%). But the respondents from lower class (48.2%) and middle class (18.4%) showed higher proportion of RTIs than upper middle class (7.6%) (Table-5.1.12). Higher proportion in lower class may indicate their health consciousness or the influence of small sample size in the study. The different is statistically significant (P<0.001). This is similar with the study conducted by Chowdhury et. Al, 1995; indicating low income groups as the worse victims of RTIs/STD.

Duration of marriage did not have any significant relationship with the RTIs (P>.05). In a cross tabulation of two groups i.e. <10 years and above group shows the proportion of 30.3 % and 34.3% (table-5.1.7) (fig 5.2.17).This is dissimilar with the study conducted by Chowdhury et. Al., 1995; indicating the women married for less than 10 years had two times risk of developing a RTI than the women who had been married for 10 years or more.

6.3 Possible risk factors for RTIs

Proportion of RTI was lowest (16.7%) among the women who did not conceive yet. There was not much difference in the proportion of RTI among women of multigravida, i.e. range varies between 27.5% to 37.5%. But frequency increases after 7 or above gravid state (Fig.-5.2.6). This finding coincides with the studies (Ronald and Aral; 1992) which showed that in developing countries the majority of cases of RTIs were older parous women and in the industrialized countries the majority was younger nullparous women.

Termination of pregnancies among the respondents either in the form of abortion or MR was about 15.5% and 29.5% respectively (Table-5.1.15). The respondent who had abortion has more chances of occurrence of RTI (41.9%) than those who did not have an abortion. But the difference has statistical significance ($p < 0.001$). (Fig5.2.7)

Among the respondents, the proportion of RTIs were more than twice (42.9%)in the women who had carried out one or more MR than the women (18.6%) who did not carry out any MR(fig-5.2.7).It might

indicate the MR is done by unauthorized or untrained persons with un sterilized instruments and procedures. The relationship between RTIs and MR is highly significant (P<0.001)

No major significant difference could be found among the women who had and did not have any complications in the last pregnancy(table -5.1.17).This contradicts the common understanding that, mishandling/manipulation of the reproductive tract during the child birth-may facilitate/cause RTIs. A study conducted by Hussain et.al. (1996) showed statistically significant negative relationship among the women who experienced complicated labor. Majority of the respondents(65%)delivered her last child at home, compared to the hospital delivery(35%)(table-5.1.18).No significant relationship was found between the home or hospital delivery with RTIs(p>0.05).

The contraceptive user's rate was found to be high about 77% among the respondents. Highest users were oral pills (30.7%) followed by injections (20.5%) and IUDs (19.2%) (Table-5.1.20). No significant difference could be found between the contraceptive users and the non users in terms of RTI proportion. However proportion was found lowest among pill users (7.4%) and highest in the IUD users (64.7%) (Table-5.1.19 and fig-5.2.8).

In this study it was found that proportion of RTIs was more than thrice (64.7%) in the IUD users than the contraceptive methods (Table-5.1.19). This finding also statistically highly significant.(p<0.0001).This result is similar with the study conducted by Hussain et.al.1996;which shows IUD users had highest prevalence of RTI amongst the contraceptive users.

All respondents were habituated to use some sorts of protection during menstruation. Use of home made pads was most commonly reported (93%) and followed by commercial pads (7%) and combinations (5%) which are home made pads and commercial materials such as panties, pads and cotton wool. Proportion of RTIs were highest (60.4%) among the respondents who used not always washed cloths (Table-5.1.21).The relationship between the dirty cloths used as protection of menstruation and proportion of RTIs is statistically significant ($P<0.05$).The study conduct by Naved et al, 1996 coincide with this result, which shows the respondents who were using dirty rags washed improperly by the polluted surface water and dried by stuffing them in dark corners had more RTIs related problems.

A good number of respondents 26 (13%) gave history of coitus during (Table-5.1.23) menstruation. But there was no significant relationship found amongst the respondents who engaged or did not engage in coitus during menstruation. A study conducted by Hussain et.al1996, also showed the same result.

No abnormality in the husband's genitalia was reported by majority of the respondents. Only 28 (14%) women gave the history of husband's genital problems in the form blisters, itching and small ulcers (Table-5.1.22). Proportion of RTIs among the respondents whose husband has/ had any sort of problem in the genitalia was very high (75%). It also supports the study conducted by Ahmed .et.al1995; which showed one third of the husbands of the women with RTI reportedly had some kind of genital problems.

High vaginal swab of the respondents were cultured and gram stained. Staphylococcus aureus 57.6%, Gonococcus21.2%, pseudomonas 3%, Treponema pallidum 6.1%, Escherichia coli 12.1%was found. (Table-5. 1.24).& Fig 5.2.12.

CHAPTER SEVEN

CONCLUSION AND RECOMMENDATION

CHAPTER-VII

CONCLUSION & RECOMMEDATIONS

7.1. CONCLUSIONS

The proportion of RTI found in the study population was comparatively high which requiring immediate attention by the policy makers, service provides, as well as the general population. It was assumed that, the condition of the RTI state would be better than the other part of country with a better socio-demographic indicators and medical facilities. But this study points to an alarmingly high number of women of the Dhaka those who are suffering from any of the RTI related problems, especially pelvic inflammatory diseases. Considering the impact of RTI on the personal health and well being of women, health and survival of the children, fertility and family planning program, as well as, the potentially in impending HIV epidemic, the graveness of the reproductive health situation at Dhaka can easily be visualized from this findings. This study was in a limited scale and a close community study. So the result may not depict the actual disease load of the whole communities. It requires careful exploration of the problem to find out the exact situation.

The socio-demographic and economic characteristics of the respondents have shown that the majority of the women were from active age group, the occupation was housewife and the Muslim by religion. The socio-demographic factors with RTI could not be established although there was a significant statistical difference. It may be due to the very small number of sample in the other side.

This study showed that proportion of RTI among malnourished. and anaemic woman was higher than nourished woman.

High educational level of the respondents of the study exerted a protective effect against RTI. It may be from the fact that with higher education women became more conscious regarding the health matters specially the reproductive health. This probably indicates the respondents from upper middle class with increase level of awareness about the reproductive health which could break the myth of the culture of silencer around RTIs.

This study showed that there was history of termination of pregnancy either in the form of MR or abortion. Ideally, MR should be done by trained persons. In Dhaka Medical College Hospital MR is performing routinely. So, the clients try to get the help from here but for some social problem like broker they are bound to go outside MR clinic and MR is done by un expert hand by cheap rate , which may increases the infection rates among the women. Among the contraceptive users, IUD causes highest occurrence of RTIs in the accepted women which might indicate the low quality and less cared services provided without proper health education to the clients.

Personal hygiene related to menstrual protection and sexual habits were assessed to examine its impact on the risk of infection. It was found that proportion of RTIs were highest among the respondents who used dirty cloths to absorb blood during menstruation. These women were not

aware about the risk involved with using dirty rags for menstrual protection.

Studies trying to grasp the broad based issues like RTI are bound to raise more questions then it can possibly answer at the first attempt. This study have identified some statistical association which are not sufficient to define the at 'risk' population. Presently, therefore need is felt for further studies to try to define 'causal' association of RTI. The findings of this study might be working as food for thoughts for conducting large scale study in this particular field in the future course of time.

7.2. RECOMMENDATIONS

Recognizing that reproductive health is fundamental in improving women welfare, investment in reproductive health has multiple benefits for families, communities and for next generations. Authority should develop long term goals and strategies as well as specific short term plans to achieve the objectives. Several steps of responsibilities should be carried out in order to achieve the reproductive health objectives.

- A comprehensive study involving both men and women in Bangladesh should be undertaken to determine the reproductive health and its status.
- Formulating strategies and specific planes to increase the utilization of the study suggestions to promote and implement reproductive health services.

- The development of simple affordable and effective diagnostic tests should be prioritized by policymakers and public health specialists to ensure the provision of adequate services among the higher risk groups in society.
- Establishing comprehensive reproductive health care within the existing health services system developing and organizational culture, which will value quality of care through.

    - Staffing and skill upgrading
    - Making services accessible to those who need most.

- Medical Officers working in the OPD should be trained on "Syndromic Approach" for screening, diagnosis and to provide preliminary treatment of reproductive tract infections.
- As there remains a culture of silence on issues of sexual health and well being, the providers need to be more proactive in dealing with clients and create and environment which enhances effective client provider interaction.
- Counseling, screenings and treatment of male partners should be done.
- Family planning services especially MR and insertion of IUD should thoroughly reviewed to strengthen the service delivery system which can prevent the provider-induced RTIs.
- Efficient follow-up mechanism for RTI/STDs clients needs to be developed for ensuring continuity of care.

- To organize an appropriate, awareness raising campaign, targeting both males and female population, through and appropriate IEC activities on RTIs.

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APPENDIX

Appendix-A

Dhaka Medical College Hospital

Dhaka

SELECTION CRITERIA-CHECK LIST

For preliminary selection of the respondents all potential candidates were checked each of the following criteria. For the study population, the women who met all the criteria were selected for the study.

Name of respondent :

Serial No. :

Date :

Criteria	Accept	Reject
1. Are you between 15-49 years of age?	Yes	No
2. Are you married?	Yes	No
3. Are you pregnant?	Yes	No

If accepted for the study, mention the name of the diagnosis made of the diagnosis made by the gynecologist.

Appendix-B

DHAKA MEDICAL COLLEGE HOSPITAL

DHAKA

CONSENT FORM FOR THE RESPONDENT

(English version)

A study on "Reproductive Tract Infection (RTIs) among Women Attending in Gynecology OPD of DMC will be conducted by a student of M.phil under Dhaka Medical College as a partial fulfillment of requirements to get the degree. This study will also help the authority concern to get information about the prevalence or RTIs among the women of Dhaka Medical College Hospital. The study may also enable the authority to improve the quality of reproductive health care service.

As a participant of the study you will be asked some questions related to reproductive health and also some very personal questions. It will be appreciated if you cooperate with the investigation and feel free to answer. Information obtained from you will be kept absolutely confidential and will not be used anywhere other than the study purpose.

Date: _____ Signature of the respondent

With full name

Appendix-C

DATA COLLECTION INSTRUMENT

Date [ ] Serial No. [ ]

IDENTIFICATION OF THE RESPONDENT

1. What is your name?

2. What is your Husband Name?
3. How old you are (in completed years)?

   ..... years

NUTRITIONAL STATUS MEASUREMENT INFORMATION

4. Height in ..... cm
5. Weight in ..... kg
6. Estimated Hemoglobin ..... %

SOCIO-DEMOGRAPHIC INFORMATION

7. What is your religion?
   a. Muslim
   b. Hindu
   c. Christian & others

8. Up to which class have you been studied in School/College?
   a. I–V
   b. VI – IX
   c. SSC
   d. HSC and above

9. Do you do any kind of work to earn a living?
   a. Housewife
   b. House-wife & handicraft
   c. Service

10. What is the average monthly income of your family (in taka)?
   a. Up to 2000
   b. 2001-5000
   c. 5001-10,000
   d. 10,000 and above

11. What is your present marital Status?
   a. Currently married
   b. Not currently married

12. How many members are there in your family?

..... members

13. How long have you been married (in completed Years)?

..... years.

OBSTETRICAL HISTORY

14. How many times did you conceive in total?

..... times

15. How many babies did you deliver after the age of viability i.e. 28 weeks of pregnancy?

..... baby/babies

16. Did you have any abortion? Yes/ No how many abortions did you have?

..... time/times

17. Did you perform any MR? Yes/No how many times did you perform MR?

..... Time/times

18. Was there any complications in your last pregnancy?

    a. Retained placenta
    b. Instrumental delivery
    c. Perineal tear
    d. Obstructed labour
    e. Others

19. What is the place of your last delivery?

    a. Home
    b. Hospital

c. Others

20. Have any premarital sexual experience- Yes/Not

21. Have nay sex partner accept husband- Yes/Not

CONTRACEPTION

22. Are you currently using any modern contraceptive method?

- Injection.
- Condom.
- IUD.
- Oral pill.
- Sterilization
- Others

23. Have you used any contraceptive method before?

- Injection.
- Condom.
- IUD.
- Oral pill.
- Sterilization
- Others

MENSTRUAL PROTECTION

24. What materials do you usually use during menses to absorb blood?

    a. Washed old cloth

    b. Not washed cloth

    c. Commercial pad

    d. Others

25. Do you engage yourself in coitus during menstruation?

    a. Yes, .always.

    b. Yes, sometimes

    c . Never

    d Refuse to answer

CONDITION OF HUSBAND'S GENITALIA

26. Does your husband have any kind problem in the genital region?

- Itching& blisters.
- Ulcer and pain
- Ulcer but no pain
- Abnormal discharge.
- Others

27. ..... Isolated from high vaginal swab.

PROVISIONAL DIAGNOSIS

28. What is the provisional diagnosis of the case by gynecologist?
    a. RTI related
    b. Non RTI

[Thank you very much for providing me with your personal information's and spent your valuable time for my study]