SEXUALLY TRANSMITTED INFECTIONS (STIs) AMONG URBAN MEN ATTENDING THE OUT PATIENT DEPARTMENT (OPD) OF FEDERAL GOVERNMENT SERVICES HOSPITAL (FGSH) ISLAMABAD, PAKISTAN.

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โรคติดต่อทางเพศสัมพันธ์ของผู้ป่วยนอกชายเขตเมืองที่มารับบริการโรงพยาบาลรัฐบาล ในเมืองอิสลามาบัด ประเทศปากีสถาน

นาย อิสราฮาท อาลี โจคิโฮ

วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาสาธารณสุขศาสตรมหาบัณฑิต
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อิสราฮาท อาลี โจคิโฮ: โรคติดต่อทางเพศสัมพันธ์ของผู้ป่วยนอกชายเขตเมืองที่มารับบริการโรงพยาบาลรัฐบาลในเมืองอิสลามาบัด ประเทศปากีสถาน. (Sexually Transmitted Infections (STIs) among Urban Men Attending the Out Patient Department (OPD) of Federal Government Services Hospital (FGSH) Islamabad, Pakistan. อาจารย์ที่ปรึกษาวิทยานิพนธ์หลัก : อ. อเลสซิโอ พันชา, M.D, M.P.H. 99 หน้า

การศึกษาครั้งนี้เป็นการศึกษาแบบภาคตัดขวางโดยทำการศึกษาในผู้ชายที่เข้ารับบริการผู้ป่วยนอกแผนกโรคติดต่อทางเพศสัมพันธุ์ โรงพยาบาลเฟดดาเรล ซึ่งได้รับการตรวจวินิจฉัยโรค จาก 1) การซักประวัติอาการ และการตรวจทางคลินิก และ 2) จากการตรวจทางห้องปฏิบัติการโดยเลือกกลุ่มตัวอย่างจำนวน 493รายจากข้อมูลผู้รับบริการผู้ป่วยนอกแผนกโรคติดต่อทางเพศสัมพันธุ์ ของโรงพยาบาลเฟดดาเรล ปี 2552

จากผลการศึกษาพบว่าค่าเฉลี่ยอายุของกลุ่มประชากร 27 ปี ซึ่งมากกว่าครึ่งหนึ่งของกลุ่มประชากรอายุระหว่าง 25 – 34 ปี ร้อยละ 57 ของประชากรกลุ่มตัวอย่างมีสถานะภาพสมรส ร้อยละ 59.4 รับราชการ ร้อยละ 40 จบการศึกษาสูงว่าระดับประถมศึกษา สองในสาม (ร้อยละ 73) มีรายได้ต่ำ ร้อยละ 64.7 นับถือศาสนาอิสลาม และมากกว่าครึ่งของประชากร (ร้อยละ 52) อาศัยอยู่ชุมชนแออัด พบว่าโรคติดต่อทางเพศสัมพันธุ์ที่พบได้รับการวินิจฉัยจากอาการและอาการแสดง (ร้อยละ 60.2) ซึ่งมากกว่าการวินิจฉัยจากการตรวจทางห้องปฏิบัติการ (ร้อยละ 39.7) จากกลุ่มตัวอย่างจำนวน 29 รายพบการกลับมาเป็นซ้ำของโรค (ร้อยละ 5.9)

จากจำนวนผู้ป่วยผู้ชายเขตเมืองที่เคยได้รับการวินิจฉัยโรคติดต่อทางเพศสัมพันธุ์โรงพยาบาลเฟดดาเรล ปี 2552 พบว่า มีการติดเชื้อโรคติดต่อทางเพศสัมพันธุ์ซ้ำหลังสิ้นสุดรับการรักษาครั้งแรกร้อยละ 1.2 และในจำนวนนี้ยังพบอุบัติการณ์การติดเชื้อโรคติดต่อทางเพศสัมพันธุ์ชนิดอื่นๆ ร้อยละ 3.8 นอกจากนั้นยังพบอุบัติการณ์การติดเชื้อโรคติดต่อทางเพศสัมพันธุ์ในผู้ป่วยรายใหม่ ร้อยละ 0.8 และจากการคำนวนทางสถิติพบว่า อายุ กับการได้รับการวินิจฉัยโรคหนองในแท้ และ โรคตับอักเสบ บี จากการตรวจทางห้องปฏิบัติการมีความสัมพันธ์อย่างมีนัยสัมพันธ์ทางสถิติ ($P<0.05$) และสถานะภาพสมรส กับการได้รับโรคหนองในแท้ และโรคแผลริมอ่อนจากการตรวจวินิจฉัยทางห้องปฏิบัติการมีความสัมพันธ์อย่างมีนัยสัมพันธ์ทางสถิติ ($P<0.05$) ไม่พบว่ามีปัจจัยอื่นๆ ที่มีความสัมพันธ์อย่างมีนัยสัมพันธ์ทางสถิติกับการซักประวัติอาการ /การตรวจทางคลินิก และ จากการตรวจทางห้องปฏิบัติการ

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This cross sectional study was conducted among urban men attending the STI OPD of FGSH in OPD of STI patients. Hospital record were reviewed for two types of diagnosis made by doctor one was syndromic diagnosis based on history and clinical examination and other was Laboratory diagnosis based on STI OPD record of FGSH 2009. The sample size 493 was used .The result showed the proportion of STI compared to all diagnosis in men from urban area was 12.2%. most of participants mean age was 27 years .More than half of patients were between 25-34 years age groups, 57% were married ,59.4% had government job more than 40% were educated up to primary level , near two third 73% was in low income, 64.7% had religion Islam and more than half 52% were belong from urban slum area. The overall percentage of STI by syndromic diagnosis 60.2% is more than diagnosed by laboratory 39.7% .The frequencies of follow up of patients of STI 29 (5.9%). The proportion of men in urban area with STI who come back with persistent signs and symptoms of STI after completion of first line treatment is (1.2%), and frequencies of incidence of new STI 19 (3.8%). There was significant association ($p<0.05$) between young age and married with Gonorrhea, , young age with hepatitis B and Chancroids with married by laboratory diagnosis, in syndromic diagnosis only scrotal swelling with address maintain statistically significant.

Field of Study: Public Health Student's Signature.....

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LIST OF ABBREVIATIONS

STI	Sexually transmitted infections
FGSH	Federal government services Hospital
OPD	Outpatient department

CHAPTER I

INTRODUCTION

1.1 Background and rational

Sexually transmitted infections (STIs) are major global causes of acute illness, infertility, long term disability and Death, with severe medical, psychological consequences for millions of men, women and infants (WHO, 2001).

World Health Organization (WHO) estimated that, globally, there are more than 340 million new cases of STIs occurred throughout in the world in every year. The largest number of new infections occurred in the region of South and Southeast Asia, followed by sub-Saharan Africa and Latin America and the Caribbean. However, the highest rate of new cases per 1000 population has occurred in sub Saharan Africa (WHO, 2001).

Sexually transmitted infections (STIs) have been recognized as a major public health problem for a number of years STI are among the most common causes of illness in the world and have far reaching health, social and economic consequences. In addition to their sheer magnitude, STIs are a major public health problem for two additional reasons: their serious sequelae, and the fact that they facilitate transmission of HIV Globally the predominant mode of transmission of HIV is sexual, which makes it a sexually transmitted infection, even though there are other modes through which the virus can be transmitted. Over the years, numerous epidemiological and biological studies have provided evidence that other STIs, if present in a person, acted as cofactors for HIV acquisition or transmission, which led to the common statement. STIs facilitate the transmission of HIV, Thus, prompt treatment for STIs is important to reduce the risk of HIV infection. Controlling STIs is important for preventing HIV in people at high risk, as well as in the general population (WHO, 2006).

Infections with sexually transmitted pathogens other than HIV impose an enormous burden of morbidity and mortality in both resource-constrained and developed countries, both directly through their impact on quality of life, reproductive health and

child health. Indirectly through their role in Facilitating the sexual transmission of HIV, their impact on national and individual economies (WHO, 2006).

According to a 1999 WHO Reported, STIs excluding HIV, accounted for 1.2% disability adjusted life years (DALYs) during 1998; 0.8% among males and 1.7% among females, because STIs and their sequelae have a widespread effects on men, women, youth and newborns. The problem of curable STIs is costly to individuals and the health care system (N.Rehan, 2003).

Since 1990 WHO has recommended a syndromic approach to diagnosis and management of STIs because for low income countries they don't have enough material and resources for conduct the laboratory reports. Syndromic approach to management of STIs is based on the identification of a consistent group of symptoms and syndromes. Syndromic case management offers many benefits in this effort. It enables all trained first-line service providers to diagnose an STI syndrome and treat patients "on the spot", without waiting for the results of time-consuming and costly laboratory tests. By offering treatment on the patient's first visit, it helps to prevent the further spread of STIs. It also includes patient education about the infection, how STIs are transmitted, risky sexual behavior and how to reduce risk, partner management and the provision of condoms (WHO, 2007).

Nearly a million peoples acquire a (STI) including the human immune deficiency virus (HIV) every day. The results of infection include acute symptoms, chronic infection, and serious delayed consequences (WHO, 2006).

1.2 Outcome of STI

Both symptomatic and asymptomatic infections can lead to the development of serious complications. The most serious complications and sequelae (long-term consequences) of untreated STI tend to be in women and newborn babies. These can include cervical cancer, pelvic inflammatory disease, chronic pelvic pain, fetal wastage,

ectopic pregnancy and related maternal mortality. Chlamydia infections and gonorrhea are important causes of infertility in men and women, with far-reaching social consequences. Chlamydia infection is an important cause of pneumonia in infants. Neonatal gonococcal infections of the eyes can lead to blindness. Congenital syphilis is an important and significant cause of infant morbidity and mortality. In adults syphilis can cause serious cardiac, neurological and other consequences which can ultimately be fatal.

STI are more common in female that's why a lot of previous studies has been conducted on STI on females in Pakistan(S. Wasti ' M.K. Ashfaq ,2008) (Shehla Sami, Shahnaz Naseer Baloch,2005) and very few studies on men mostly in urban men. Since only few studies on men has been conducted and no hospital based study regarding syndromic approach laboratory diagnosis has ever been done in Pakistan, So the researcher will help to fill in the gap. Pakistan's health indicators, health funding, and sanitation infrastructure are generally poor, particularly in rural areas. About 19 percent of the population is malnourished a higher rate than the 17 percent average for developing countries and 30 percent of children under age five year are malnourished. Leading causes of sickness and death include gastroenteritis, respiratory infections, congenital abnormalities, tuberculosis, malaria, and typhoid fever (Wikipedia). According to the WHO, Pakistan's total health expenditures amounted to 2.1 percent of gross domestic product (WHO, 2005) and per capita health expenditures were US$49. The government provided according to 2007-08 budgets for which Rs 3027.936 million rupees have been allocated for health (Askari,s,j ,2008).

Pakistan is developing country the exact incidence of STIs is difficult to calculate, especially in Pakistan, because of lack of adequate health infrastructure, reporting system, lack of epidemiological studies, and social shyness on part of the community in general and inadequate data on the male or female sex workers' community. STI constitute important primary health issues in Pakistan which face inadequacy of resources required in early detection and investigative procedures for their diagnosis and treatment.

Islamabad is the capital of Pakistan with an estimated population including peripheries around 950,000 people of which 66% is urban out of which 434,239 for males and 370,996 for females. The urban population of the city was 529,180 with 209,717 males and 238,463 females. In urban areas the percentage of Muslims is (93.83%) the second largest religion is Christianity with (4.07%) people (mostly they are living in slum area). Islamabad has the highest literacy ratio in Pakistan, at 72.88% the majority of the population lies in the age group of 15–64 years, around (59.38%). Islamabad has a list of public and private medical centers. The largest hospitals in Islamabad are Pakistan Institute of Medical Sciences, Federal government services hospital ,Capital hospital ,Al –shafa hospital (Wikipedia).

Islamabad is divided many zones, in residential zone divided in 8^{th} sectors by alphabetically from A to I in Islamabad have two urban squatter settlements of One of the settlements was in G-7/1 sector and the other in G-8/1 sector considered as a slum area there are about 500 households in each of these settlements. The men's of urban slums and non slum area of Islamabad mostly a large majority of young men's is not engage in either schooling or work .these young men's some studies shows the STI Are usually observed in socializing group in public places such as small streets and corners (Marshall BD 2009)Some areas of Pakistan including Islamabad have economic opportunities are limited for most of peoples are unemployed or part time or temporary employed (UNGASS, 2004).

Primary health care program in these areas and assistance is provided by Federal government services hospital Islamabad. The Federal Government Services Hospital (FGSH), Islamabad was established as Central Government Polyclinic in 1966 with only 8 indoor beds (FGSH), Islamabad is situated in the capitals most sensitive G-6 area, where the parliament house, supreme court, prime minster and president house are very near. In FGSH the Emergency Services are managed round-the-clock, pediatric Emergency Services are separate attend the children above the age of 12 years and Outpatient services are being offered in morning and evening shifts. The evening OPD is run for Dental, Medical, Surgical, Eye, ENT, and Paeds specialties.

The FGSH provides free medical care facilities to federal government employees, their families and the population of Islamabad urban and rural and its outskirts the hospital has 422 beds in the main block, 60 in MCH Center Aabpara, and 26 in other attached facilities. (Total bed strength=508).

Averages of Care Services Provided (2001-09)	**Outpatient department per year**	**Per month**	**Per Day**
Total Outpatients at the Hospital	987,542	82,295	3,292
General medical+STI from urban area	General medical=50000 visits STI female = 6500 visits = 64% male = 2400 visits = 36%	General medical=4000 STI=550	General medical=145 STI
Doctors (BS-17 and above)	298 Medical officer	22 specialist	56 Trainee medical officers(TRMOS)

Three medical officers including one female medical officer are posted to attend the OPD of general medical as well as STI patients because STI clinic work under medical department of FGSH.

The FGSH is organized into 18 clinical specialties that are providing indoor care through allocated beds, as listed below (arranged in chronological order).

1.	Cardiology	10.	Neonatology
2.	Casualty / Medico-legal Section	11.	Nephrology
3.	General Medicine	12.	Obstetrics
4.	General Surgery	13.	Ophthalmology (Eye)
5.	Gynecology	14.	Orthopedics
6.	Intensive Care Unit (Medical)	15.	Ottolaryngorhinology (ENT)
7.	Intensive Care Unit (Surgical)	16.	Pediatrics
8.	Intensive Medical Treatment Unit (ITC)	17.	Thoraco-vascular Surgery
9.	Neonatal Intensive Care Unit (NICU)	18.	Urology

Treatment protocol for laboratory diagnosed sexually transmitted infection in FGSH in year 2009.

1. GONORHEA: TAB ofloxin 200mg BID/day for 14 days
   Alternate inj ciprofloxacin 500mg i/v OD
2. CHLAMYDIA:TAB doxycycllin 100mg BID/day for 7 days
3. SYPHILLS: for primary/2ndry /or latent(for less than one year)
   Doxycycllin 100mg BID/day for 14 days or
   Alternate inj benzathine penicillin
4. AIDS/HIV: symptomatic, for ARV we refer to consultant clinic.
5. HEPATITS B AND C: multivitamin i/v glucose and refer to hepatics clinic for further management.

6 CHANCROID : Erythromycin base 500 mg orally three times a day for 10 days TAB diclofenic for pain (Advise follow-up when symptoms persistent)

Syndromic case management:

Identification of consistent groups of symptoms and easily recognized signs (syndromes) Treatment for main organisms responsible for causing the syndrome.

Treatment of syndromic approach according to common presentation of men.

- urethral discharge: counseling +TAB ofloxin 200mg BID/day for 14 days ,Alternate inj ciprofloxacin 500mg i/v BID for 7 days (advise follow-up when symptoms persistent
- Genital ulcer: counseling + inj ciproxin 500mg i/v TID for 3/days Alternate Erythromycin base 500 mg orally three times a day for 7 days TAB diclofenic for pain (Advise follow-up when symptoms persistent
- Scrotal swelling: cap Ampiclox 1gm orally for 3 days +TAB Diclofenic
- Inguinal swellings: Tab erythromycin 500mg orally three time/day for 10 days Alternate admit i/v inj ciproxin500mg i/v BD or ceftirixone 1gram I/v 8 hourly .
- Genital warts or growth: local lotion/gel of podopfilox TDS/Three days Alternate admission electro-cautry or surgical excision.

1.3 RESEARCH QUESTIONS

1. In 2009 what is the OPD based proportion of STI compared to all diagnoses in urban area men's from Islamabad Pakistan. Proportion of STI will be counted as STI based on syndromic approach with laboratory diagnosis and syndromic approach alone?

2. What are the socio- demographic characteristic of men in urban area with STI based on syndromic approach with laboratory diagnosis and syndromic approach alone diagnosis?

3. In 2009 what is proportion of men in urban area with STI who come back with persistent signs and symptoms of STI after completion of first line treatment?

4. In 2009 what is the incidence of new STI infections in men in urban area attending the OPD of FGSH?

1.4 OBJECTIVES

1 To describe OPD based proportion of STI, among urban area men from Islamabad.

2 To describe the socio-demographic characteristics of urban men with STI from Islamabad urban area.

3 To describe the proportion of men in urban area with STI who come back with persistent sign and symptoms of STI after completion of first line treatment.

4 To describe the incidence of new STI infections in men in urban area with STI attending the OPD of FGSH.

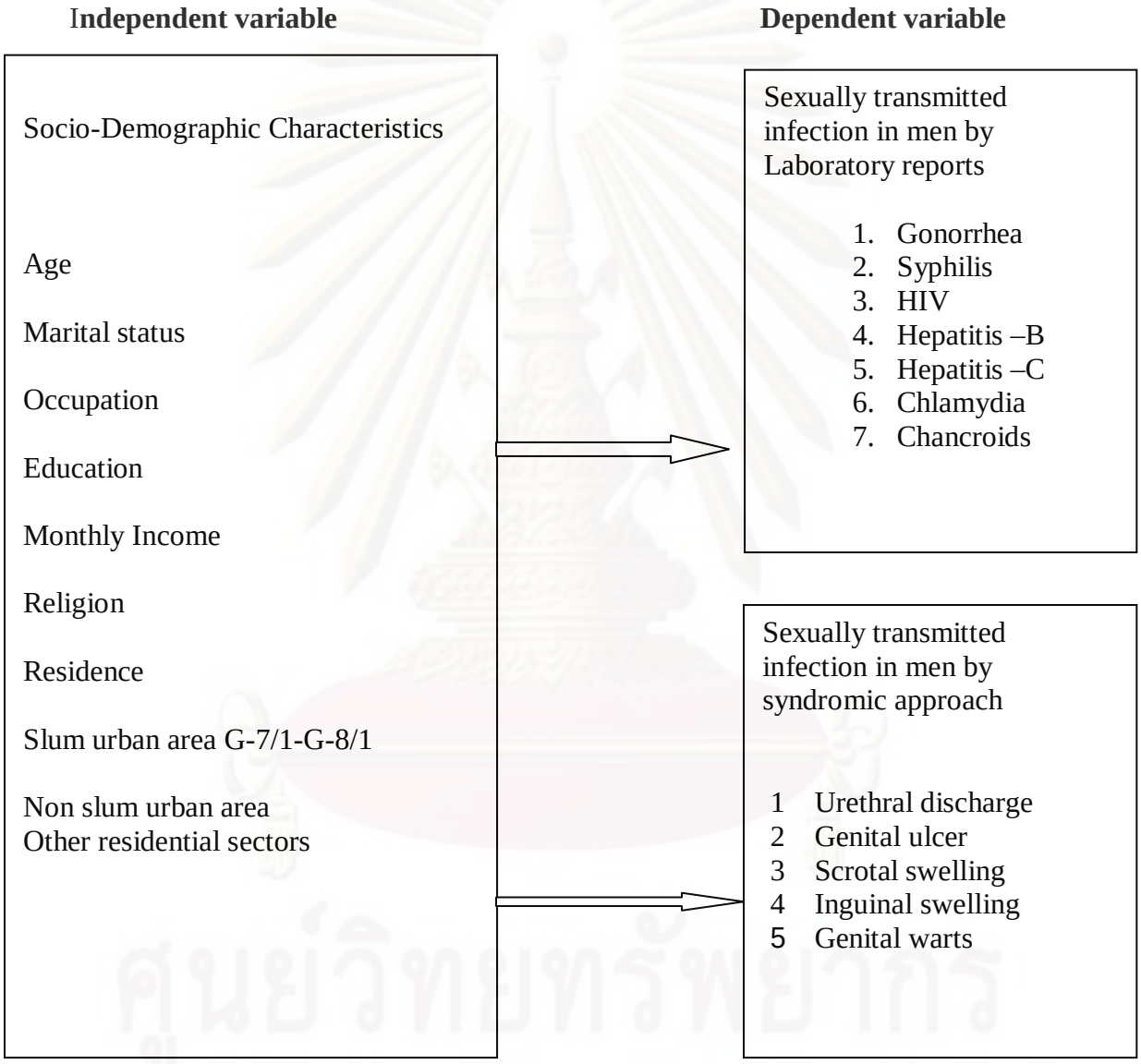
1.5 HYPOTHESIS

1 Fewer men from urban Islamabad have laboratory based STI diagnosis compared to syndromic approach STI diagnosis

2 The socio-demographic characteristics of STI patients with laboratory based STI diagnosis are similar to those of patients with syndromic approach diagnosis

3. There are more men with STI in slum urban area compared to non slum urban areas according to hospital record

1.6 CONCEPTUAL FRAMEWORK



1.5 Operational definitions

1.5.1 Independent variables

Independent variables consist of:

Age: Every age above 12 years because below 12 years children are not attend the OPD service they attend by pediatrics clinic.

Occupation: refers to the laborers, service, unemployment, self employee (business).

Marital status: refers to the married, unmarried, widow, divorced, live together and separated.

Educational achievement: refers to the level of education

No education, compulsory primary education, secondary education and higher secondary education or more.

Monthly household income: refers to the following monetary amount

Low income, less than 200 Pakistani rupees (about <2.5 US$) per day ,

Middle income 200- 500 Pakistani rupees (about 2.5-6.2 US$) per day

High income more than 500 Pakistani rupees (about > 6.2 US$) per day

Religions: refers to the, Muslims, Christians and Hindus.

Follow up: Is the visit for those patients who are not cured and return for second line treatment. FGSH does not require STI patients who are cured to come for follow up.

Relapse: A patient who successfully complete an adequate course of multidrug therapy but who subsequently develop new sign and symptoms of disease either during the surveillance period or thereafter. (WHO 1988).

Urban areas .They are divide in

- Slum urban area: dirty poor area of city where houses are in bad condition in Islamabad mostly in G-7/1 and G-8/1 sectors are considered to be a slum area (Oxford Dictionary 2005).
- Non slum urban areas: a city area considered as the inner city plus built-up environs, irrespective of local administrative boundaries (William Collins, 2003).

1.5.2 Dependent variable

1. Sexually transmitted infection (STIs) is infections that can be transferred from one person to another through any type of sexual contact In this context, sexual contact is more than just sexual intercourse vaginal and anal and also includes kissing, oral-genital contact .

2. Syndromic approach mean STIs grouped into five main categories according to symptoms and signs Each category is called a "syndrome "Each syndrome easily recognized on history & examination Treatment covers the most common organisms potentially responsible for the syndrome (WHO, 2007).

Laboratory diagnosis	Syndromic approach diagnosis
1. Gonorrhea 2. Syphilis 3. HIV 4. Hepatitis – B 5. Hepatitis – C 6. Chlamydia 7. Chancroids	1 Urethral discharge 2 Genital ulcer 3 Scrotal swelling 4 Inguinal swelling 5 Genital warts

CHAPTER II

LITERATURE REVIEW

Sexually transmitted infection (STIs) is infections that can be transferred from one person to another through any type of sexual contact. (STIs) since they involve the transmission of a disease ca using organism from one person to another during sexual activity. It is important to realize that sexual contact includes more than just sexual intercourse (vaginal and anal). Sexual contact includes kissing, oral-genital contact (Lawrence M,Tieney ,2003). STIs probably have been around for thousands of years, but the most dangerous of these conditions, the acquired immunodeficiency syndrome (AIDS) has only been recognized since 1984.

Recently Pakistan had been classified as a country with low sero prevalence but high potential for a HIV epidemic, but gradually in Pakistan HIV prevalence is increasing among injecting drug users. According to the national survey on drug abuse in 2004 there are total number of drug user estimated 5 millions, national assessment study conducted in 2000 on drug abuse sanitation in Pakistan about 60000 drug user are using drug through injection. So research studies conducted around the world the I/V drug user to increase risk of blood born infections including HIV and other STIs. One study was conducted in 2004 about 65 I/V drug user was tested of HIV + out of total 930 (S.A shah,et,al, 2006).

Other study in Karachi showed an increase in HIV prevalence among injecting drug users from under 1% in early 2004 to 26% in March 2005 while other studies have found that HIV prevalence among injecting drug users has reached 24% in Quetta (along the border with Afghanistan 12% in Sargodha, nearly 10% in Faisalabad and 8% in Larkana .HIV prevalence remains low in other populations at higher risk of infection. Among female sex workers in Karachi, HIV prevalence in 2005 was 2% while it was below 1% in Lahore and Rawalpindi (Ministry of health, 2005).

The sexual transmission of infectious diseases is a serious cause of concern, since STIs are a major public health problem in all countries, particularly in the developing countries can cause a number of serious clinical conditions and are the most important preventable cause of infertility e.g. gonorrhea,chamlydia. (F.R Ochsendorf, 2008). The consequences of STIs are particularly severe for women in developing countries as they are more susceptible than men to such infections and their complication specially a married women are more suffer (SB Mazharet,al ,2006). In addition, certain sections of the population such as, adolescents, commercial sex workers and immigrant groups who are essentially residing in urban slums are more susceptible to STIs because of their social, economic, cultural and behavioral patterns (Scensul,et,al ,2007).

Epidemiological studies from sub-Saharan Africa, Europe and North America have suggested that there is approximately four times greater risk of HIV-infection in the presence of a genital ulcer such as syphilis, Chancroids and significantly increased risk in the presence of STIs such as gonorrhoea, Chlamydia infection and trichomoniasis, which cause local accumulations of lymphocytes and macrophages.

2.1 AGE:

Sexual intercourse is commonly initiated during adolescence Young adults aged 18–24 years, report much higher annual rates of STI than older adults and carry a heavy disease burden. Over half of all new STI/HIV infections worldwide in each year are among young people between the ages of 15-25 years. Every day more than 6000 young people's become infected with HIV almost 5 every minute. This is especially tragic as young people are more likely to adapt and maintain safe behavior. But some studies shows acute STIs (Chlamydia, gonorrhea, and acute syphilis) were also more common in older age groups is somewhat unexpected (Hawkes, 2009).

Pakistani youth just like other young people in rest of the world are also vulnerable to HIV/STI infections adolescent in time when young people may be curious about sex and drugs, during formation of habits and values, and are heavily influenced by their peers. Moreover, other contributing factors like unemployment, easy availability of narcotic

drugs, and economic frustration can all influence young people to engage in unsafe behavior (UNGASS, 2004).

2.2 MARITAL STATUS:

Timing of sexual debut and subsequent marriage dynamics are considered important factors in the spread of HIV. The timing of marriage has been shown to be important as, at an individual level, early marriage for women has been associated with an increased risk of infection Conversely, late marriage has been linked to the spread of HIV as an increase in the time between sexual debut and first marriage allows for the acquisition of more premarital sexual partners and thus a higher risk of acquiring HIV /STI before first marriage, and a long time spent single and sexually active has been associated with a higher number of partners later in life (M.Marstan et,al ,2009).

The Pakistan is Islamic country where there are 97% are Muslims in some communities they are believe in Polygamous marriages we use the term "Polygamous marriages were defined as marriages in which the man reported to have more than one spouse or the woman identified co-wives. It was possible to disaggregate polygamous monogamous marriage" refer to marriage of two people rather than the absence of extramarital partners. Some studies show that STI/HIV are common in multiple sexual partners.

In previous studies (Hawkes, 2009) review of the literature on HIV in India reports that studies in the general population found premarital sexual activity among men to be between 7 and 48 percent. As mentioned 55 percent of the unmarried men in the study of migrant men in Lahore reported sexual experience.

2.3 HOMOGENEITY OF RISK POPULATION:

The infection can spread to the general population through individuals who have contact with both the high-risk groups and the general population. In epidemiological

prevalence, individuals who spread the infection from concentrated high-risk groups to the general heterosexual population are termed the bridging group or (bridging population). Current understanding of risk factors in Pakistan does not definitively point to a specific population as being the bridging population. Several studies from Pakistan suggest a crossover of risky behaviors that may blur the definition of the bridging population, one such example men who have sex with men but who also married and engaged with sexual activity with female other than sex workers (Agra Set,al, 2000).The man sex with men considered to be in slum population and one of the causes of sexually transmitted infection. Past studies prove that the man sex with man is more prone to sexually transmitted infection (Khan OA ,1998).

2.4 MIGRATION AND MORBLITY:

The migrant population is defined as those men and women who spreading significant a time away from their marital or natal family. The migrant population is seen is group that may engaged in risky behavior like drug use or sexually activity, they are also one of cause of spread of HIV and other sexually transmitted infection (A,Faisal,J ,2008). In spite the important link between migration and STI, the migration status is not registered in the FGSH then one cannot be study in the research.

2.5 OCCUPATIONAL STATUS:

Occupational status very important to consider when assesses the risk behavior. Occupational characteristic such those who have more STI prevalence form below occupation working in transport industry, long distances truck driver. Pakistan examined self-reported sexual behavior and condom use among truck drivers and their helpers at truck stands in Lahore. His study found that it was common for long-distance truck drivers to engage in high-risk sexual practices. 60 percent of truck derivers' had ever paid for sex with a man or woman. This study also found that while 11 percent of men reported having had sex with a male sex worker 49 percent of men reported having had sex with a man who was not a sex worker (Agha Set, al, 2002). Study of migrant men in

Lahore found variation in reporting of non-marital sex by occupation skilled workers, house servants/drivers, business or salesman were more likely to report non-marital sex .

2.6 RELIGION:

While there is no definitive evidence, some have argued that culturally prescribed behaviors i.e. prohibition of alcohol consumption, and prescription of female sexual behaviors may provide protection against HIV transmission in some countries (Seth.C. Kalichman, 2007).There is increasingly strong evidence that male circumcision is protective against the transmission of HIV (Steven JReynold ,2004),few studies suggests that the lack of male circumcision in the majority of the population of India explains its higher HIV levels as compared to Pakistan and Bangladesh (Prof Robert C Bailey, 2007). Study of a sample of African countries found that higher percentage of Muslims in a country was a negative predictor of HIV prevalence.

2.7 EDUCATION:

In general, risks of sexually transmitted infection elevated among individuals who have poor or limited education. It is likely that the major route by which poor education leads to STI and HIV is as a result of links between socioeconomic factors and STI. This association might be mediated by educational attainment, which may influence occupational opportunities and income (Nagot, Nicolas, 2002).

The traditional method of diagnosing STIs is by laboratory tests. However, these are often unavailable or too expensive. Since 1990 WHO has recommended a syndromic approach to diagnosis and management of STIs in patients presenting with consistently recognized signs and symptoms of particular STIs (WHO, 2007).

The syndromic approach is a scientifically derived approach and offers accessible and immediate treatment that is effective. The syndromic approach using flowcharts to guide diagnosis and treatment is more accurate than diagnosis based on clinical judgment alone, even in experienced hands, and more cost-effective for some syndromes than use

of laboratory tests. The organisms causing any particular syndrome need to be determined locally and flow charts adapted accordingly. Thus the one main rout the STI are spread in men is sexual contacts the exchange of blood, body fluid parental inoculations are main routs of transmission of HIV. Sexually transmission is clearly the predominant mode of infection worldwide. .Syphilis and HIV can also transmit from pregnant mother to child (Cullins ,2008).

Many infections have similar sign and symptoms, accurate treatment requires accurate diagnosis for most STIs, accurate diagnosis requires laboratory tests In developing countries, laboratory tests are often not available. The syndromic approach to STI case management developed by WHO in 1990,does not require laboratory tests. Tested in many countries since1970's reviewed, adapted & improved many times

2.8 Common STI syndromes/diseases

Urethral discharge	SIGN/SYMPTOMS Dysuria Frequent urination Urethral discharge	CAUSE Neisseria Gonorrhea Chlamydia Trachomaits
Genital ulcer	Genital sore Genital ulcer	Treponema palladum Haemophilus ducreyi Herpes simplex virus (HSV)
Scrotal swelling	Scrotal pain and swelling	Neisseria Gonorrhea Chlamydia Trachomaits
Inguinal bubo:	painful enlarged inguinal lymphnodes inguinal,lymphadenopathy, fluctuation, abscesses or fistulae	serovars L1, L2, and L3 of *Chlamydia trachomatis*Chancroids Haemophilus ducreyi
Anogenital Warts	Fleshy warts on anal side or growth	Haemophilus ducreyi,HPV

2.8.1 HIV/AIDS:

HIV/AIDS caused by HIV virus and HIV (Human immunodeficiency virus). It breaks down the immune system, his virus is passed from one person to another through blood-to-blood and sexual contact. In addition, infected pregnant women can pass HIV to their baby during pregnancy or delivery, as well as through breast-feeding. . Most of these people will develop AIDS as a result of their HIV infection (Cullins, 2008).

2.8.2 Gonorrhea:

Gonorrhea caused by bacteria Neisseria Gonorrhea, this bacterial STI can be spread through vaginal, anal or oral sex. Main presentation of Gonorrhea is urethrits, inflammation of the urethra (Jhon Tapsall, 2001). The major antibiotic resistance problem exists in the region where gonorrhea is most prevalent, in most of the region of world gonococci are resistant to penicillin, tetracycline and resistant to multiple agents, common in some developed countries. Penicillin are still used effectively but imposed infection must adentitify and treated accordingly. There is no reliable documents resistance to third generation cephalosporin antibiotic recommended for treatment for gonorrhea but the cost of these agents are limited use in many countries. There is a cross resistance between penicillin and earlier generation cephalosporin.

Significant qunolones resistance has emerged in WHO region of western pacific, South East Asia and spread to western Pacific Rim, the use of these agent need argent review. Co-trimoxazole,chloramphinicol,aminoglycoside,are used usually in poor setting, available data suggest the resistance of these agents some time reached unacceptable level (Jabeen khan E.R et al ,2008). But in Pakistan Quinolone-resistant Neisseria gonorrhea have not been reported to date.

2.8.3 Chlamydia:

Chlamydia is a disease caused by the bacteria Chlamydia trachomatis. Is five times as common as gonorrhea more than 30 times as common as syphilis. Chlamydia can infect the penis, vagina, cervix, anus, urethra, eye and throat. Half of men and 30% women with Chlamydia have no sign and symtoms (Robinson AJ, 2009). Chlamydial infections have historically been treated confidently, with tetracycline, doxycycline.

Recently, azithromycin. macrolides and fluoroquinolones have also been effective. The issue of resistance has not been an issue until very recently. Resistance in vitro has been demonstrated for several years, but these laboratory phenomena had not been associated with clinical treatment failures. For example, quinolone resistance has been produced in the laboratory in an L2 strain of *C. trachomatis*, resulting from a mutation of the *gyrA* gene. In one report, three chlamydial isolates were shown to be resistant to doxycycline, azithromycin, and ofloxacin. The mechanism by which *Chlamydia* becomes resistant is not understood (Rukhshan Khurshid, 2002).

In Pakistan Tetracycline and erythromycin have been used for decades to treat chlamydial infections, but these drugs are still in wide use, indicating that clinical resistance to them is not yet a major problem ,resistance to co-trimoxazole,, Erythrocine, , Tetracyclin and macrolids is less but reported in Pakistan (Rukhshan Khurshid, 2002).

2.8.4 Syphilis:

This STI is caused by bacteria Treponema palladium .It can be spread by blood transfusion vaginal, anal, or oral sex and pregnant women can transmit it to their babies. The disease has various phases. Primary, secondry and tertiary. Syphilis is starting to resist one of the

main antibiotics. The antibiotic is Azithromycin., penicillin are reported but in Pakistan the main reason of failure of response of antibiotic is locally made (Rutanarugsa A et al ,1990)

2.8.5 Hepatitis B:

Hepatitis B is liver inflammation (hepatitis) that is caused by the hepatitis B virus (HBV). Hepatitis B is transmitted in ways that are similar to the spread of HIV

2.8.6 Hepatitis C:

Hepatitis C is caused by the hepatitis C virus (HCV) unlike hepatitis B, however, hepatitis C is infrequently transmitted sexually, so that it is an unusual STI. In contrast to hepatitis B, where chronic.

2.8.7 Chancroids:

Chancroid is cause by bacteria Haemophilus ducreyi that is transmitted through sexual contact. It causes sores on the genitals. Chancroids were once common in the United States, but now it is rare. It is more common in men than in women (Rutanarugsa, A, 1990)

Chancroids resistance occur overall in the world including Asia, southeastasia, Africa is ampicillin, tetracycline, trimethoprim, sulfamethoxazole, All isolates were susceptible to chloramphenicol, ceftriaxone, erythromycin and the fluorinated quinolones ciprofloxacin, norfloxacin, ofloxacin and pefloxacin (Rutanarugsa, A,1990)

Many STIs can be present in and spread by people who do not have any symptoms of the condition and have not yet been diagnosed with an STI therefore public awareness and education about these infections and the methods of preventing them is important. There really is no such thing as "safe" sex. The

only truly effective way to prevent STIs is abstinence. Sex in the context of a monogamous relationship where in neither party is infected with a STI also is considered "safe." Most people think that kissing is a safe activity. Unfortunately, syphilis, herpes, and other infections can be contracted through this relatively simple and apparently harmless act (Carne,S.E.C.,1998) all other forms of sexual contact carry some risk. Condoms are commonly thought to protect against STIs. Condoms are useful in decreasing the spread of certain infections, such as Chlamydia and gonorrhea; however, they do not fully protect against other infections such as genital herpes, genital warts, syphilis, and AIDS condom protected 80% from these infections .Prevention of the spread of STIs is dependent upon the counseling of at-risk individuals and the early diagnosis and treatment of infection. Here are many sexually transmitted infections besides HIV some like herpes and HPV cannot be cured but can be managed. The most common conditions they cause are gonorrhea, Chlamydia infection, syphilis, trichomoniasis, Chancroids, genital herpes, infection and hepatitis B and C infection.

2.9 Past studies of STI in Pakistan:

The now current situation of human immunodeficiency virus (HIV) prevalence among those 15–49, with an estimated 180000 persons, or 0.1 percent of the adult population in Pakistan most of them are intravenous drug user.

Some studies show Prevalence survey of Pakistan they mention the prevalence of HIV among homosexual and bisexual Pakistani men is reaching alarming proportions

In Pakistan male sex workers are predominantly transvestites and transsexuals known as Hijras. In 1998 in Karachi, Pakistan, were studied the seroprevalence of HIV, HBsAg and syphilis and associated risk factors in Hijras. (Shehla, B, 2006)

Seroprevalence of HIV, HBV and Syphilis in male transvestites (Hijras) is total 208 participants for screening HIV=0, HBsAg=7,3.4% Syphilis=77,37% [44].

Another recent a cross-sectional survey by (Ali Mir 2009) 2400 urban men aged 16-45 years was carried out in six cities of Pakistan. Out of the total sample of 2,400 respondents, 2,396 agreed to provide blood samples. Out of these 106 (4.4 percent) tested positive for at least one of the five STIs. The Prevalence of the individual organisms was as follows: syphilis – 1.3 percent (30 cases); HIV – 0.1 percent (3 cases); gonorrhea – 0.8 percent (2 cases); and Chlamydia - (0 cases). Another study conducted for prevalence of HIV,HCV and other STI among the intravenous drug user in two cities of Pakistan ,Rawalpindi, Abbot bad .the prevalence of HIV in Rawalpindi was 2.6%,(n=302)and zero in abbot bad(n=102) prevalence of HCV in Rawalpindi at 17.3% in Abbot bad13.4% and other STI is 2%.

CHAPTER III

METHODOLOGY

3.1 Research Design

This research was designed as a cross-sectional study to assess the OPD based proportion of sexually transmitted infections on syndromic approach with laboratory diagnosis and syndromic approach alone diagnosis, in men from urban area of Islamabad.

3.2 Study Area

ISLAMABAD

3.3 Study Period

1st Feb 2010 to 28 Feb 2010

3.4 Study population and Research Participants

The study population was including men's from urban area of Islamabad using the OPD serves of FEDERAL GOVERNMENT SERVCES HOSPITAL.

3.5 Sample size: according to taro Yamani formula

$$n = \frac{N}{1 + N (e)^2}$$

Where n = sample size

N = total male OPD of FGSH from urban area in 2009

e = level of precision 96%

$$n = \frac{2326}{1 + 2326\,(0.04)^2}$$

Sample size= 493

NOTE: on the calculation of N = (2326): Total average OPD visits/year of men from urban area with STI. Total General Patient's 43200/year, consisting 56% female, 44% male means 24,200 females and 19,000 males/year 2009. In 19,000 male patients 13,685 males from urban area. 2,326(17%) out of this 13,685 patients with STI.

3.6 Sampling technique

1. Researcher first selects the male patients with STI from OPD register of general medical record.
2. Select the men from urban area with STI.
3. Select the patients of STI who diagnosis with syndromic approach with laboratory diagnosis.
4. Select the patients of STI who diagnosed with syndromic approach alone.

The first record is selected randomly using a computer based programme (http://www.random.org) using a series of numbers that start with the lowest hospital registration number and end with the highest hospital registration number

3.7 Sampling interval

The sampling interval is 5 (from 2,326/493 = 4.71)

3.8 Management of missing data

The issue of missing data was be addressed since ignoring this problem can introduce bias into the data being evaluated and lead to inaccurate conclusions. Methods of addressing missing data was

Use of complete data only

The research was including only those hospital records with complete data. This method was be used if the amount of missing data is small (less than 5% or 25 records). To compensate for this possible situation the sample size was increased of 25 records. Assumption 5% incomplete data the total sample size was increase of 25 records for total sample size was equal to 521 records.

Imputation methods for missing data

In case records with missing data are more than 25 the research was use Case substitution. Randomly selected records containing incomplete data was replaced by using the following available OPD record containing complete data.

The number and characteristic of the missing data of the randomly selected records with be recorded, computed and reported among the research results.

3.9 Inclusion criteria:

1 The men from Islamabad urban area.
2 Above the age of 12 years.
4 The men with STI diagnosis.

3.10 Exclusion Criteria:

All patients not fulfilling the above three condition of the inclusion criteria.

3.11 Measurement tools

Hospital registry of OPD

OPD slips

3.12Data collection:

Secondary data, data was collected from OPD patient history slips according to a data collection form prepared ad hoc (see annex) after obtaining permission from the head of department in the studied hospital and the approval from the faculty of public health ethical review committee.

To avoid the containing twice same patients who received more than one OPD register number in 2008 the researcher will compare whole hospital number with name, surname, and address of men with STI. Unic remember code number will be attributed to same patients have multiple OPD registration number.

3.13 Data analysis

Descriptive statistics: Researcher was check data, then record data in SPSS v 17
Descriptive statistic; frequency, percentage, range and means or medians with standard deviation and range.
Inferential statistics: for hypothesis testing - chi-square was used to find a possible association between STI syndromic approach with laboratory reports diagnosis and STI with syndromic approach diagnosis alone and socio- demographic characteristic, age ,occupation, education, monthly income , Religion, Residence .
Statistical significance: Significant level was $p<0.05$.

3.14 Ethical Considerations

The main ethical issue was confidentiality. However we have taken following steps to ensure that we do not breach patient confidentiality.

Since patients OPD registry slip number was used in this study, the permission on accessing to the records has to be obtained from the head of delivery department in the studied hospital. The letter to the authorize person is attached.

Only a unique 'patient code' was included into the data collection form (see annex 1) for verification purpose in case something may be unclear.

The patient code was linked to names, age and residence of the patients. These data was collected on a separate sheet (see annex 2). This sheet was kept strictly confidential, accessible to the researcher only, locked in a safe place and destroyed after completion of the research, analysis and publishing of data.

It is necessary to collect patients' personal data in the separate form in order to identify those patients who are not cured with the first line treatment or are re- infected with STI during the year 2009 (objectives 3 and 4 of the research).

We were not including any information that was making it possible to identify subjects if the study is published.

3.16 Limitation

1. The population being studied is located in one hospital only thus the information obtained may not be representative of whole population and not even of other hospitals in Islamabad.
2. Female excluded
3. The OPD records were not able to differentiate sexual and non-sexual transmission of HIV, Hepatitis B, and Hepatitis C.
4. Other variables not under study e.g. migration.

3.16 Benefits

- To provide information about a more effective management of STI cases in particular improved counseling for STI prevention in patients with relapse STI or not cured with the first line treatment.

- Understanding of the relationship between STI diagnosed with syndromic approach alone and with additional laboratory tests may suggest focused studies to clarify antibiotic resistance and sensitivity and, finally, improve treatment protocols.

- Advice for the Capital Development Authority (under the PM cabinet) to provide more accessible preventive and curative services to the men that share the higher burden of STI in Islamabad.

CHAPTER IV

RESEARCH RESULT

4.1 Table 1 presents the data of general medical OPD patients 43,200 patients consisting 24,200 (56%) female and 19,000 (44%) males were present in general medical OPD of FGSH. 13,685(72%) of men came from urban area and 5,315(28%) came from non-urban areas.

Table 1: Summary of General OPD data

All General medical OPD	Females	Males	Urban males	Non-urban males
43200 patients	24,200 (56%)	19,000 (44%)	13,685 (72%) of total males	5,315 (28%) of total males

4.2 Table 2 refers the data of General STI in males, the total 13,685(72%) were male patients belong to urban areas, 2,326 (17%) out of this were STI patients and 5,315(28%) patients were from non-urban areas, 504 (9.48%) out of this were STI patients from non-urban areas. the total males both urban and non-urban area with STI were 2,830(14.89%).

Table 2: Summary General STI in males

Urban males	Urban males with STI	Non-urban males	Non-urban males with STI	Total STI in males
13,685 (72%) of total men	2,326 (17%)of all urban men	5,315 28% of total men	504 (9.48%) of total non-urban men	2,830 (14.89%) of total male OPD

4.3 Table 3 shows **Age** the average age of patients is 27 years with a standard deviation of 5.64. The minimum age of patient was 16 years and maximum were 45 years. More than half of the i.e. 266 (54.0%) patients were between 25-34 years age groups, 187 (37.9%) of age group of 15-24 years and only 40 (8.1%) of 35-45 year old.

Marital status: The STI among married peoples were much higher i.e. more than half of total patients 281 (57%) were married. followed by the Singles i.e. 188 (38%) While there were 24(4.8%) divorced, separated and widows patients.

Occupation: highest frequency in occupation was Civil servants 293 (59.4) patients. Followed by Unemployed 117 (23.7) and Laborer and self-employee were 83(16.8%)

Educational achievement: primary education were highest frequency 201 (40.8), followed by un- educated or illiterate i.e. 135 (27%) and 157(31.8%) were educated up to secondary and higher secondary level.

Monthly Income: Near two third level i.e. 363 (73.6) patients was low income level, followed by 130 (26.3%) middle and high income levels.

Religion 319 (64.7%) of patients were Muslim, 174 (35.2) patients were Christians and Hindu's.

Residential areas More than half of patients i.e. 257 (52.1) were from slum urban area and 236 (47%) patients were from non-slum area.

Table 3(a): summary of Frequency and percentage of socio-demographic factors

Characteristic	Frequency	percentage
Age		
15-24	187	37.9
25-35	266	54.0
>35 years	40	8.1
Total	493	100.0
The mean age (in years)	27	
standard deviation	5.64	
Minimum and maximum age (in years)	16-45	
Marital status		
Married	281	57.0
Single	188	38.1
Divorced	12	2.4
Widow	7	1.4
Separated	5	1.0
Total	493	100.0
Occupation		
Civil servants	293	59.4
Unemployed	117	23.7
Laborers	55	11.2
Self employed	28	5.7
Total	493	100.0
Education		
Primary education	201	40.8
No education	135	27.4
Secondary education	104	21.1
Higher education	53	10.8
Total	493	100.0

Table 3 (b): Continue summary of Frequency and percentage of Socio-demographic

Characteristic	Frequency	Percentage
Income levels		
Low income <200PKR or< 2.5US$/day	363	73.6
Middle income 200-500 PKR about 2.5-6.2 US$ / day	86	17.4
High>500 PKR about > 6.2 US$) / day	44	8.9
Total	493	100.0
Religion		
Islam	319	64.7
Christians	166	33.7
Hindus	8	1.6
Total	493	100.0
Residential areas		
Slum	257	52.1
Non slum	236	47.9
Total	493	100.0

4.4 Table 4 shows Gonorrhea were 78 (39.8%) of total laboratory diagnosis. The highest frequency of gonorrhea 52 (26.5%) was in 25-34 years age group and 26 (13.2%) were other age groups.

Syphilis were 36 (18.3%) of total laboratory diagnosis. Half of patients frequency of Syphilis 18 (9.1%) in 15-24 years age group and half 18 (9.1%) were from other age groups.

Hepatitis B found 28 (14.2%) diagnosed by laboratory. The highest frequency of Hepatitis B 13 (6.6%) In the age group of 15-24 and 15 (7.6%) were from other age groups.

Hepatitis C found in 13 (6.6%) of total laboratory diagnosis. The highest frequency of Hepatitis C 7 (3.5%) In the age group of 25-34 and 6(3.6%) were from other age groups.

Chlamydia found in 24 (12.2%) of total laboratory diagnosis Half of patients of frequency of Chlamydia 12 (6.2%) in 15-24 years age group and half of patients 12 (6.2%) were from other age groups.

Chancroids found in 17 (8.6%) of total laboratory diagnosis. The highest frequency of Chancroids 9 (4.6%) In the age group of 15-24 and 8(4.0%) were 25-34 age group.

The total count in age group of 25-34 were more than half of total laboratory diagnosis that was 106(54%), and 90 (45%) were from other age groups.

Table 4: Detail of laboratory diagnosis by age

N=196*	15-24	25-34	>35	Total	% of total laboratory diagnosis
Gonorrhea	24(12.2%)	52(26.5%)	2(1.0%)	78	39.8%
Syphilis	18(9.1%)	17(8.6%)	1(0.5%)	36	18.3%
Hepatitis B	13(6.6%)	10(5.1%)	5(2.5%)	28	14.2%
Hepatitis C	4(2.0%)	7(3.5%)	2(1.0)	13	6.6%
Chlamydia	11(5.6%)	12(6.1%)	1(0.5%)	24	12.2%
Chancroids	9(4.5%)	8(4.0%)	0(0%)	17	8.6%
Total	79(40.3%)	106(54.0%)	11(5.6%)	196	100%

* The denominators of Percentage in bracket are laboratory diagnosis=196

Table 5 shows Urethral Discharge were found in more than half of patient i.e. 168 (56.56%) of total Syndrome diagnosis. The highest frequency of Urethral Discharge 95(31.9%) was in 25-34 years age group and 73(24.5%) were other age groups

Genital Ulcer were found more than one third of patient i.e. 75 (25.25%) of the total Syndromic diagnosis. The highest frequency of Genital Ulcer 33 (11.1%) was in 25-34 years age group and 42(14.1%) were other age groups.

Scrotal swelling were found 25 (8.41%) of the total Syndromic diagnosis. The highest frequency of Scrotal swelling 15 (5.0%) was in 25-34 years age group and 10(3.3%) were other age groups.

Inguinal swelling were found 15 (5.0%) of the total Syndromic diagnosis. The highest frequency of Inguinal swelling 9(3.0%) was in 25-34 years age group and 6(3.3%) were other age groups.

Anogenital wart were found 14 (4.71%) of the total Syndromic diagnosis. The highest frequency of Anogenital wart 8(2.6%) was in 25-34 years age group and 6(2.0%) were other age groups.

The total count in the age group of 25-34 were more than half of total laboratory diagnosis that were 160(53.8%), and 137 (46.1%) were from other age groups.

Table 5: Detail of Syndromic diagnosis by age.

N=297	15-24	25-34	>35	Total	% of total syndromic diagnosis
Urethral Discharge	61(20.5%)	95(31.9%)	12(4.0%)	168	56.56%
Genital Ulcer	31(10.4%)	33(11.1%)	11(3.7%)	75	25.2%
Scrotal swelling	7(2.3%)	15(5.0%)	3(1.0%)	25	8.4%
Inguinal swelling	5(1.6%)	9(3.0%)	1(0.3%)	15	5.0%
Anogenital wart	4(1.3%)	8(2.6%)	2(0.6%)	14	4.71%
Total	108(36.3%)	160(53.8%)	29(9.7%)	297	100%

* The denominators of Percentage in bracket are syndromic diagnosis=297

Table 6 shows Gonorrhea found 78 (39.7%) of the total laboratory diagnosis. 51(26%) patients were married and 27 (13.7%) were others.

Syphilis diagnosed by laboratory total 36 (18.3%). Out of which 17 (8.6%) patients were married and 19 (9.6%) were others.

Hepatitis B found 28 (14.2%) of total laboratory diagnosis. 17 (8.6%) patients were married and 11 (5.6%) were others.

Hepatitis C diagnosed by laboratory total 13(6.6%). 7 (3.5%) patients were married and 6 (3%) were others.

Chlamydia was found 24 (12.2%) of total laboratory diagnosis. 10 (5.1%) patients were married out of total laboratory diagnosis and 14 (7.1%) were others.

Chancroids diagnosed by laboratory 17 (8.6%) of total laboratory diagnosis 10 (5.1%) patients were single and 7 (3.5%) were others.

More than half of the total laboratory diagnosis were married 106(54. %), and 90 (45.1%) were from other age groups.

Table 6: STI by Laboratory diagnosis by marital status

N=196*	Single	Married	Widow	Separated	Divorced	Total	% of total laboratory diagnosis
Gonorrhea	26 (13.2%)	51 (26.0%)	0 (0%)	1 (0.5%)	0 (0%)	78	39.8%
Syphilis	16 (8.1%)	17 (8.6%)	0 (0%)	0 (0%)	3 (1.5%)	36	18.3%
Hepatitis B	10 (5.1%)	17 (8.6%)	0 (0%)	0 (0%)	1 (0.5%)	28	14.2%
Hepatitis C	6 (3.0%)	7 (3.5%)	0 (0%)	0 (0%)	0 (0%)	13	6.6%
Chlamydia	11 (5.6%)	10 (5.1%)	2 (1.0%)	0 (0%)	1 (0.5%)	24	12.2%
Chancroids	10 (5.1%)	4 (2.0%)	1 (0.5%)	0 (0%)	2 (1.0%)	17	8.6%
Total	79 (40.5%)	106 (54.0%)	3 (1.5%)	1 (0.5%)	7 (3.5%)	196	100%

* The denominators of Percentage in bracket are laboratory diagnosis=196

Table 7 shows Urethral Discharge were found more than half of patient's i.e.168 (56.5%) of total Syndromic diagnoses. 106 (35.6%) were found in married and 62 (20.8%) were single(divorced separated and widow).

Genital Ulcer was found 75 (25.2%) patients of the total Syndromic diagnosis. Married' were 41(13.6%) and others were 34(12%).

Scrotal swelling 25 (8.4%) diagnosed by Syndromic. Singles were13 (4.3%) patients and 12 (4%) were others.

Inguinal swelling were15 (5.0%) of total Syndromic diagnosis. 9 (3.0%) were married and 6(2%) were other patients.

Anogenital wart were 14 (4.7%) of total Syndromic diagnosis. Married were 7 (2.3%) patients and 7 (2.3%) were others.

The total count of married 175(58.9%) that is more than half of total diagnosed and single were 109(36.7%) Others were 13(4.3%).

Table 7: Detail of Syndromic diagnoses by marital status

N=297	Single	Married	Widow	Separated	Divorced	Total	% of total syndromic diagnosis
Urethral Discharge	56 (18.8%)	106 (35.6%)	2 (0.6%)	1 (0.3%)	3 (1.0%)	168	56.56%
Genital Ulcer	30 (10.1%)	41 (13.8%)	0 (0%)	3 (1.0%)	1 (0.3%)	75	25.2%
Scrotal swelling	13 (4.3%)	12 (4.0%)	0 (0%)	0 (0%)	0 (0%)	25	8.4%
Inguinal swelling	5 (1.6%)	9 (3.0%)	1 (0.3%)	0 (0%)	0 (0%)	15	5.0%
Anogenital wart	5 (1.6%)	7 (2.3%)	1 (0.3%)	0 (0%)	1 (0.3%)	14	4.71%
Total	109 (36.0%)	175 (58.9%)	4 (1.3%)	4 (1.3%)	5 (1.6%)	297	100%

* The denominators of Percentage in bracket are syndromic diagnosis=297

Table 8 shows Gonorrhea diagnosed by laboratory in 78 (39.8%) patients out of which 44 (22.44%) were Civil servants 34 (17.3%) others were laborers, unemployed and self-employed.

Syphilis were found in 36 (18.36%) laboratory diagnosed cases. 21 (8.71%) found in Civil servants and 15(7.6%) were found in others.

Hepatitis B found in 28 (14.28%) laboratory diagnosis. 17 (10.71%) were in Civil servants and 11(5.6%) were found in others.

Hepatitis C found in 13(6.63%) of total laboratory diagnosed cases. 7 (3.51%) found in Civil servants patients and 6(3.0%) found in others.

Chlamydia found in 24 (12.2%) of total laboratory diagnosed cases. 9 (4.5%) found in Civil servants and 15(7.6%) were found others.

Chancroids found in17 (8.6%) of total laboratory diagnosed cases. 9 (4.5%) were found in Civil servants and 8(4.0%) were found in others.

The total count of Occupation group in Civil servants was more than half i.e. 107(54.8) patients of total Laboratory diagnosed cases and others were 89(45.4%)

Table 8: Detail Laboratory diagnosis by Occupation

N=196	Laborers	Civil servants	Unemployed	Self employee	Total	% of total laboratory diagnosed cases
Gonorrhea	10 (5.1%)	44 (22.4%)	20 (10.2%)	4 (2.0%)	78	39.8%
Syphilis	4 (2.0%)	21 (10.7%)	8 (4.0%)	3 (1.5%)	36	18.3%
Hepatitis B	0 (0 %)	17 (8.6%)	9 (4.5%)	2 (1%)	28	14.2%
Hepatitis C	1 (0.5%)	7 (3.5%)	5 (2.5%)	0 (0 %)	13	6.6%
Chlamydia	4 (2.0 %)	9 (4.5%)	9 (4.5%)	2 (1.0 %)	24	12.2%
Chancroids	1 (0.5%)	9 (4.5%)	7 (3.5%)	0 (0 %)	17	8.6%
Total	20 (10.2%)	107 (54.5%)	58 (29.5%)	11 (5.6%)	196	100%

* The denominators of Percentage in bracket are laboratory diagnosis=196

Table 9 shows Urethral Discharge was more than half of patients i.e. 168 (56.5%) of total Syndromic diagnosed cases. 95 (31.9%) were Civil servant patients and 73(24.4%) were others.

Genital Ulcer was found 75 (25.2%) of total Syndromic diagnosed cases. 54 (18.1%) were Civil servant patients and frequency of others found in 21(8%).

Scrotal swelling were 25 (8.4%) of total Syndromic diagnosed cases. 20 (6.7%) were Civil servant patients out of total Syndromic diagnosis. 5(1.8%) were others.

Inguinal swelling were 15 (5.0%) of total Syndromic diagnosed cases. 11(3%). were Civil servant patients out of total Syndromic diagnosis and 4(1.3%) were others.

Anogenital wart were 14 (4.7%) of total Syndromic diagnosed cases. 6(2.04%) were Civil servant patients out of total Syndromic diagnosis, and frequency of other were 8(2.6%).

The total count of occupation group in Civil servants were more than half i.e. 186(62.62) patients of total Syndromic diagnoses by occupation group. Unemployed, self-employed, and laborer was 111(37.3%).

Table 9: Detail of Syndromic diagnosis by Occupation

N=297	Laborers	Civil servants	Unemployed	Self employed	Total	% of Syndromic Diagnosis
Urethral Discharge	26(8.7%)	95(31.9%)	36(12.1%)	11(3.7%)	168	56.56%
Genital Ulcer	6(2.0%)	54(18%)	12(4.0%)	3(1.0%)	75	25.2%
Scrotal swelling	1(0.3%)	20(6.7%)	4(1.3%)	0(0 %)	25	8.4%
Inguinal swelling	1(0.3%)	11(3.7%)	2(0.6%)	1(0.3)	15	5.0%
Anogenital warts	1(0.3%)	6(2.0%)	5(1.5%)	2(0.6%)	14	4.71%
Total	35(11.7%)	186(62.6%)	59(19.8%)	17(5.7%)	297	100%

* The denominators of Percentage in bracket are syndromic diagnosis=297

Table 10 shows Gonorrhea found 78 (39.8%) of total laboratory diagnosed cases, 37 (18.8%) patients had primary education 41(20.9%) were others.

Syphilis was 36 (18.3%) of total laboratory diagnosed cases. 14 (7.1%) had primary education 22(11.2%) were others education group.

Hepatitis B found 28 (14.2%) of total laboratory diagnosed cases, 12(6.1%) patients had no education and 16(8.1%) were others education group.

Hepatitis C found 13(6.6%) of total laboratory diagnosed cases. 5 (2.5%) had primary education and 8(4%) were others education group.

Chlamydia found 24 (12.4%) of total laboratory diagnosed cases. 11 (5.6%) had primary education and 13(6.6%) others education group.

Chancroids found 17 (8.67%) of total laboratory diagnosed cases. 10 (5.10%) patients had primary education and 7(3.5%) were others education group.

The total count of education group in primary education found in 88(44.8%). No education, Secondary education and higher secondary were more than half i.e. 108(55.1%)

Table 10: Detail of Laboratory diagnosis with Education

N=196	No education	Primary education	Secondary education	Higher secondary	Total	% of total laboratory diagnosed cases
Gonorrhea	21(10.7%)	37(18.8%)	12 (6.1%)	8 (4.0%)	78	39.8%
Syphilis	5 (2.5%)	14(7.1%)	8 (4.0%)	9 (4.5%)	36	18.3%
Hepatitis B	12 (6.1%)	11(5.6%)	4 (2.0%)	1 (0.5%)	28	14.2%
Hepatitis C	0 (0 %)	5 (2.5%)	5 (2.5%)	3 (1.5%)	13	6.6%
Chlamydia	4 (2.0%)	11(5.6%)	6 (3.0%)	3 (1.5%)	24	12.2%
Chancroids	4 (2.0%)	10(5.1%)	3 (1.5%)	0 (0%)	17	8.6%
Total	46 (23.4%)	88 (44.8%)	38 (19.3%)	24 (12.2%)	196	100%

* The denominators of Percentage in bracket are laboratory diagnosis=196

Table 11 shows Urethral Discharge were found more than half of patients i.e. 168 (56.5%) of total Syndromic diagnoses. 61 (20.5%) patients had primary education out of total Syndromic diagnoses and 107(36. %) others education group.

Genital Ulcer found in 75 (25.25%) patients of total Syndromic diagnosis 32 (10.7%) patients had primary education and 43(14.4%) were other education group.

Scrotal swelling found 25 (8.41%) of total Syndromic diagnosis. 9 (3.03%) were educated up to primary level and 16 were others education group.

Inguinal swelling were found 15 (5.0%) out of total Syndromic diagnosis. 6 (2.02%) of patients were un-educated and 9(3%) were educated.

Anogenital warts were found 14 (4.71%) out of total Syndromic diagnosis. 7 (2.35%) had primary education and 7(2.35%) were others education group.

The total count of education group in primary education was 113(38.04%) patients diagnosed by syndromic and more than half of patients i.e. 184 (61.9%) others.

Table 11: Detail of Syndromic diagnosis with Education

N=297	No education	primary education	Secondary education	Higher secondary	Total	% of total syndromic diagnosis
Urethral Discharge	45(15.8%)	61 (20.5%)	48 (16.1%)	14(4.7%)	168	56.56%
Genital Ulcer	27 (9.0%)	32 (10.7%)	7 (2.3%)	9(3.0%)	75	25.2%
Scrotal swelling	9 (3.0%)	9 (3.0%)	5 (1.6%)	2(0.6%)	25	8.4%
Inguinal swelling	6 (2.0%)	4 (1.3%)	3 (1.0%)	2 (0.6%)	15	5.0%
Anogenital warts	2 (0.6%)	7 (2.3%)	3 (1.0%)	2 (0.6%)	14	4.71%
Total	89 (29.9%)	113 (38.0%)	66 (22.2%)	29 (9.7%)	297	100%

* The denominators of Percentage in bracket are syndromic diagnosis=297

Table 12 shows Gonorrhea found in 78 (39.8%) of total laboratory diagnosed cases out of this, out of total laboratory diagnosed cases,57 (29.0%) patients were from Low income and 21(10.7%) were from middle and high income category.

Syphilis found in 36 (18.3%) of total laboratory diagnosed cases, 23 (11.7%) were low income patients and 13(6.6%) were others income group.

Hepatitis B found in28 (14.2%) of total laboratory diagnosed cases. 21 (10.7%) were from low income and 7(3,5%) were others income group.

Hepatitis C found in13 (6.6%) of total laboratory diagnosed cases. the majority of in low income were about 11 (5.6%).

Chlamydia found in24 (12.2%) of total laboratory diagnosed cases. out of this, 16 (8.1%) were from Low income category.

Chancroids found in 17 (8.6%) diagnosed by laboratory. 13(6.6%) were from Low income.

The total count of income group in Low income was near two third i.e. 141(71.93%) and 55(28%) were from middle and high income categories.

Table 12: Detail of Laboratory diagnosis with Income group

N-=196	Low income	Middle income	High income	Total	% of laboratory diagnosis
Gonorrhea	57 (29.0%)	15 (7.6%)	6 (3.0%)	78	39.8%
Syphilis	23 (11.7%)	11 (5.6%)	2 (1.0%)	36	18.3%
Hepatitis B	21 (10.7%)	5 (2.5%)	2 (1.0%)	28	14.2%
Hepatitis C	11 (5.6%)	2 (1.0%)	0 (0 %)	13	6.6%
Chlamydia	16 (8.1%)	4 (2.0%)	4 (2.0%)	24	12.2%
Chancroids	13 (6.6%)	1 (0.5%)	3 (1.5%)	17	8.6%
Total	141 (71.9%)	38(19.3 %)	17 (8.6%)	196	100%

* The denominators of Percentage in bracket are laboratory diagnosis=196

Table 13 shows Urethral Discharge was found in more than half of patients i.e. 168 (56.5%) of total Syndromic diagnoses. 124 (41.7%) were from low income and 44(14.8%) were others income group.

Genital Ulcer found in 75 (25.25%) diagnosed by Syndromic approach. 54 (18.3%) low income 21(7%) were others income group.

Scrotal swelling was found in 25 (8.4%) diagnosed by Syndromic approach. Majority of patients were from low income that was 21 (8.0%).

Inguinal swelling was found in 15 (5.0%) diagnosed by Syndromic approach. 12 (4.0%) was found in low income category.

Anogenital warts was found in 14 (4.7%) diagnosed by Syndromic. 11 (3.7%) were found in low income category.

The total count of income group in low income was near to two third were i.e. 222(74.93%) and 75(25.5%) were from middle and high income levels.

Table 13: Detail of syndromic diagnosis with Income group

N=297	Low income	Middle income	High income	Total	% of syndromic diagnosis
Urethral Discharge	124 (41. %)	26 (8.7%)	18 (6.0%)	168	56.56%
Genital Ulcer	54 (18.1%)	15 (5.0%)	6 (2.0%)	75	25.25%
Scrotal swelling	21 (7.0%)	3 (1.0%)	1 (0.3%)	25	8.41%
Inguinal swelling	12 (4.0%)	3 (1.0%)	0 (0 %)	15	5.0%
Anogenital warts	11 (3.7%)	1 (0.3%)	2 (0.6%)	14	4.71%
Total	221 (74.4%)	46(15.4%)	29 (9.7%)	297	100%

* The denominators of Percentage in bracket are syndromic diagnosis=297

Table 14 Gonorrhea found in 78 (39.7%) diagnosed by laboratory; out of this, 56 (28.5%) patients were Muslims and 22(11%) were religions christens or Hindus.

Syphilis found in 36 (18.36%) diagnosed by laboratory, 25 (28.5%) were Muslims; and 11(5.6%) were Christians and Hindus.

Hepatitis B found in 28 (14.28%) diagnosed by laboratory. 16 (8.1%) were Muslims and 12 patients were Christians and Hindus.

Hepatitis C found in 13(6.63%) cases diagnosed by laboratory; majority of patients i.e. 10(5.1%) were Muslims.

Chlamydia found in 24 (12.24%) cases diagnosed by laboratory. 13(5.6%) were Christians patients and 11(5.6%) were Muslims.

Chancroids found in 17 (8.6%) cases diagnosed by laboratory; majority of patients were Muslims i.e. 10(5.1%).

The total count of religion groups reveals that; Muslims were more than half i.e. 128(65.3%) and 68 (34.6%) were from other religions.

Table 14: Detail of Laboratory diagnoses by Religion

N=196	Islam	Christians,	Hindus	Total	% of laboratory diagnosis
Gonorrhea	56 (28.5%)	20(10.2%)	2 (1.0%)	78	39.8
Syphilis	25 (12.7%)	10 (5.1%)	1 (0.5%)	36	18.3
Hepatitis B	16 (8.1%)	11(5.6%)	1 (0.5%)	28	14.2
Hepatitis C	10 (5.1%)	3 (1.5%)	0 (0 %)	13	6.6
Chlamydia	11 (5.6%)	13 (6.6%)	0 (0 %)	24	12.2
Chancroids	10 (5.6%)	7 (3.5%)	0 (0 %)	17	8.6%
Total	128 (65.3%)	64(32.6%)	4 (2.0%)	196	100%

* The denominators of Percentage in bracket are laboratory diagnosis=196.

Table 15 Urethral Discharge: found in more than half of patients i.e. 168 (56.56%) of total Syndromic diagnoses. Muslim were 111(37.3%) and 57 (19.1%) were from other religions.

Genital Ulcer: found in more than one third i.e. 75(25.25%) patients of Syndromic diagnosis. Majority of patient's i.e. 50 (16.8%) were Muslims.

Scrotal swelling: found in 25 (8.41%) diagnosed by Syndromic approach. 13(4.3%) patients were Muslims and 12(4%) were from other religions.

Inguinal swelling: found in 15 (5.0%) cases of total Syndromic diagnosis. 9(3%) patients were Muslims.

Anogenital warts: found in 14 (4.71%) cases of total Syndromic diagnosis. Muslims were 8(2.6%) patients.

The total count of religion groups reveals that more than half i.e. 191 (64.3%) patients were Muslims and 106 (35.6 %) patients belonged to other religion.

Table 15: Detail of Syndromic diagnoses by Religion group

N=297	Islam	Christians,	Hindus	Total	% of syndromic diagnosis
Urethral Discharge	111(37.3%)	56 (18.8%)	1(0.3%)	168	56.56%
Genital Ulcer	50 (16.8%)	24 (8.0%)	1(0.3%)	75	25.25%
Scrotal swelling	13 (4.3%)	12 (4.0%)	0 (0 %)	25	8.41%
Inguinal swelling	9 (3.0%)	4 (1.3%)	2 (0.6%)	15	5.0%
Anogenital warts	8 (2.6%)	6 (2.0%)	0 (0 %)	14	4.71%
Total	191(46.3%)	102(34.3%)	4(1.3%)	297	100%

* The denominators of Percentage in bracket are syndromic diagnosis=297

Table 16 shows Gonorrhea: were found in 78 (39.7%) cases diagnosed by laboratory. 41 (20.9%) were from slum area and 37 (18.8%) from non-slum areas.

Syphilis: found in 36 (18.36%) cases diagnosed by laboratory 20 (10.0 %) from slum area and 16 (8.1%) of patients were from non-slum area.

Hepatitis B: found in 28 (14.28%) out of total laboratory diagnosed cases. 15 (7.6%) were from slum areas and 13 (6.6%) from non-slum areas.

Hepatitis C: found in 13(6.63%) of total laboratory diagnosed cases. 9 (4.5%) of patients belonged to non- slum areas and 4 (2.0%) were from slum areas.

Chlamydia: found in 24 (12.24%) patients. 15 (7.6%) were from slum areas and remains were from non- slum area.

Chancroids found in 17 (8.6%) cases diagnosed by laboratory. 10 (5.1%) patients were from non- slum area. 7 (3.5%) patients were from slum areas.

The total count of residential area reveals that; more than half i.e. 102 (52.0%) patients of total Laboratory diagnoses by Residential area were from slum areas and 94 (47.9%) patients of total laboratory diagnosed cases of residential area were from Non-slum areas.

Table 16: Detail of Laboratory diagnosis by Residential area

N=196	Slum area	Non Slum area	Total	% of laboratory diagnosis
Gonorrhea	41(20.9%)	37(18.8%)	78	39.8%
Syphilis	20(10.2%)	16(8.1%)	36	18.3%
Hepatitis B	15(7.6%)	13(6.6%)	28	14.2%
Hepatitis C	4(2.0%)	9(4.5%)	13	6.6%
Chlamydia	15(7.6%)	9(4.5%)	24	12.2%
Chancroids	7(3.5%)	10(5.1%)	17	8.6%
Total	102(52.0%)	94(47.9%)	196	100%

* The denominators of Percentage in bracket are laboratory diagnosis=196

Table 17 Urethral Discharge: was found in more than half of patients i.e. 168 (56.56%) of total Syndromic diagnoses. 87 (29.2%) from non-slum area. 81 (27.2%) were from slum areas.

Genital Ulcer: found in 75 (25.2%) cases diagnosed by syndromic. 44 (14.8%) were from slum areas and 31 (10.4%) were from non-slum area.

Scrotal swelling: found in 25 (8.41%) cases diagnosed by syndromic. 18 (6.0%) from slum areas and 7 (2.3%) were from non-slum area.

Inguinal swelling: found in 15 (5.0%) cases of total Syndromic diagnosis. 8 (2.6%) patients were from slum areas and 7 (2.3%) from non-slum areas.

Anogenital warts: found in 14 (4.71%) cases of total Syndromic diagnosis. 10 (3.3%) were from non-slum area and 4 (1.3%) were from slum areas.

The total count of Residential area reveals that 155(52.1%) patients were from slum and 142 (47.8%) patients were from non-slum.

Table 17: Detail of Syndromic diagnosis by residential area

N=297	Slum area	Non Slum area	Total	% of syndromic diagnosis
Urethral Discharge	81(27.2%)	87(29.2)	168	56.56%
Genital Ulcer	44(14.8%)	31(10.4%)	75	25.25%
Scrotal swelling	18(6.0%)	7(2.3%)	25	8.41%
Inguinal swelling	8(2.6%)	7(2.3%)	15	5.0%
Anogenital warts	4(1.3%)	10(3.3%)	14	4.71%
Total	155(52.1%)	142(47.8%)	297	100%

* The denominators of Percentage in bracket are syndromic diagnosis *297

4.4 Table 18 reveals that the frequencies of follow up of patients of STI 29(5.9%). The proportion of men in urban area with STI who come back with persistent signs and symptoms of STI after completion of first line treatment was (1.2%).

Table 18: Detail of frequency and percentage of Follow-up of patients

	Frequency	Percent	Cumulative Percent
Yes	29	5.9	5.9
No	464	94.1	100.0
Total	493	100.0	

4.5 Table 19 reveals that the frequency of incidence of new STI was 19 (3.8%) in 2009

Table 19: Detail of frequency and percentage of Incidence of New STI

	Frequency	Percent	Cumulative Percent
Yes	19	3.9	3.9
No	474	96.1	100.0
Total	493	100.0	100.0

Table 20 shows the total diagnosis of STI with laboratory and syndromic diagnosis. In age group of **laboratory diagnosis** highest prevalence of 25-34 years (21.5%) followed by 15-24 years (15.9%).In marital status highest prevalence of married (21.5%) followed by singles (16.0%) and (2.2%) of divorced separated and widow .In occupation highest prevalence of Civil Servant (21.7%) followed by Unemployed (11.7%)and (10.4%) of laborers plus self employee. In Education highest prevalence of primary education (17.8%) followed by no education (9.3%) secondary education (7.7%) and higher secondary education (4.8%). In income highest prevalence of low income (28.6%) followed by middle income (7.7%) and high income (3.4%). In Religion highest

prevalence of Muslims (25.9%) against non Muslims (13.6%). In residential area highest prevalence of slum (20.6%) against non slum (19.0%).

In age group of **syndromic diagnosis** highest prevalence of 25-34 years (32.4%) followed by 15-24 years (21.9%).In marital status highest prevalence of married (35.0%)followed by singles (22.1%)and (2.6%) of divorced separated and widow .In occupation highest prevalence of Civil Servant (37.7%)followed by Unemployed (11.9%) and (6.2%) of laborers plus self employee. In Education highest prevalence of primary education (22.9%) followed by no education (18.0%) secondary education (13.3%) and higher secondary education (5.8%). In income highest prevalence of low income (44.8%) followed by middle income (9.3%) and high income (5.8%). In Religion highest prevalence of Muslims (38.7%) against non Muslims (21.4%). In Residential area highest prevalence of slum (31.4%) against non slum (28.8%).

Table 20: Total STI diagnosis with laboratory and syndromic diagnosis

N=493	**Total STI diagnosis**		**Total**
Sociodemogrophic factor	**Laboratory diagnosis - syndromic diagnosis**		
	Yes	**No**	
Age			
15-24	79 (15.9%)	108 (21.9%)	
25-35	106 (21.5%)	160 (32.4%)	
>35	11(2.2%)	29 (5.8%)	100
Marital status,			
Married	106 (21.5%)	175 (35.0%)	
Single	79 (16.0%)	109 (22.1%)	
Divorced	7 (1.4%)	5 (1.0%)	
Widow	3 (0.6%)	4 (0.8%)	
Separated	1(0.2%)	4(0.8%)	
Occupation			
Civil Servant	107 (21.7%)	186 (37.7%)	
Unemployed	58 (11.7%)	59 (11.9%)	
Laborer	20 (4.0%)	35 (7.0%)	
Self employee	11(2.2%)	17(3.4%)	100%
Education			
primary education	88 (17.8%)	113 (22.9%)	
No education	46 (9.3%)	89 (18.0%)	
Secondary education	38 (7.7%)	66 (13.3%)	
Higher education	24(4.8%)	29 (5.8%)	100%
Income			
low,	141 (28.6%)	221 (44.8%)	
Middle	38 (7.7%)	46 (9.3%)	
High	17 (3.4%)	29 (5.8%)	100%
Religion			
Islam	128 (25.9%)	191 (38.7%)	
Christian	64 (12.9%)	102 (20.6%)	
Hindu	4 (0.8%)	4 (0.8%)	100%
Residence			
Slum area	102 (20.6%)	155 (31.4%)	
Non Slum area	94 (19.0%)	142 (28.8%)	100%

* The denominators of Percentage in bracket are total STI diagnosis=493

4.7 Association between independent variables with Laboratory diagnosis

Table 21 shows the association between **Gonorrhea** with independent factors. Independent factors were age, marital status, occupation, education, income levels, religion and address. The age of patients were categorized into three categories 15-24 years old 25-34 years old and >35 years old .the status Gonorrhea either yes or no.

The highest prevalence of gonorrhea of 25-35 age group (49.1%) followed by 15-24(30.4%) and > 35 years (18.2%).In marital status highest prevalence of singles (48.1%) followed by married (30%).In occupation (42%) are working group and (34.5%) of non working groups .In education highest prevalence of no education (45.7%) followed by primary education (42%) and > primary education (32.3%).In income level highest prevalence of low plus middle (40.2%) against high income level (35.3).In religion highest prevalence of Muslims (43.8%) against non Muslims (32.4%). In residential area (40.2%) from slum area while (17%) from non slum area.

Chi-square test for association between age with Gonorrhea (p- value .012) and marital status with Gonorrhea (p- value .010) is statistically significant.

Table 21: Association of Gonorrhea with independent variables

N=196	Gonorrhea		Chi-square	p-value
Sociodemogrophic factor	Yes	No		
Age			8.86	.012
15-24	24 (30.4%)	55 (69.6%)		
25-35	52 (49.1%)	54 (50.9%)		
>35	2 (18.2%)	9 (81.8%)		
Marital status			6.66	.010
Married	27 (30%	63 (70%)		
Singles	51 (48.1%)	55 (51.9%)		
Occupation			.971	.325
Working	58 (42%)	80 (58%)		
Non working	20 (34.5%)	38(65.5%)		
Education,			2.315	.314
No education	21 (45.7%)	25 (54.3%)		
primary education	37 (42%)	51 (58%)		
>primary education	20 (32.3%)	42 (67.7)		
Income			.157	.692
low, middle	72 (40.2%)	107 (59.8%)		
High	6 (35.3)	11(64.7%)		
Religion			2.408	.121
Islam	56 (43.8%)	72 (56.2%)		
Non Islam	22 (32.4%)	46 (67.6%)		
Residence			.014	.905
Slum area	41 (40.2%)	61(59.8)		
Non Slum area	37 (39.4%)	57(60.6%)		

*The denominators of percentages is the sum of data in each row of Socio-demo factors.

Table 22 shows the association between **Syphilis** with independent factors. Independent The highest prevalence of **Syphilis** of 15-24 age group ((22.8%) followed by 25-35 (16%)and > 35 years (9.1%)In marital status highest prevalence of married 21.1%)followed by singles (16% In occupation (20.3%)

Are working group and (13.8%)of non working groups .In education highest prevalence of > primary education (27.4%)followed by primary education (15.9%) and no education (10.9%). in income level highest prevalence of low plus middle (19%) against high income level (11.8).In religion highest prevalence of Muslims (19.5%) against non Muslims (16.3%). In residential area (19.6%) from slum area while (17.0 %) from non slum area.

Chi-square test for association between independent factors and Syphilis is not statistically significant.

Table 22: Association of Syphilis with independent variables

N=196	**Syphilis**		Chi-square	p-value
Sociodemographic factor	Yes	No		
Age			2.043	.360
15-24	18(22.8%)	61(77.2)		
25-35	17(16%)	89(84%)		
>35	1(9.1%)	10(90.9%)		
Marital status			.836	.361
Married	19(21.1%)	71(78.9%)		
Others	17 (16%)	89(84%)		
Occupation			1.150	.284
working	28(20.3%)	110(79.7%)		
Non working	8 (13.8%)	50(86.2%)		
Education			5.468	.065
No education	5 (10.9%)	41(89.1%)		
primary education	14(15.9%)	74(84.1%)		
>primary education	17(27.4%)	45(72.6%)		
Income			.541	.462
low, middle	34(19%)	145(81%)		
High	2 (11.8)	15(88.2%)		
Religion			.333	.564
Islam	25(19.5%)	103(80.5%)		
Others	11(16.2%)	57(83.8%)		
Residence			.218	.640
Slum area	20(19.6%)	82(80.4%)		
Non Slum area	16(17.0%)	78(83%)		

*The denominators of percentages is the sum of data in each row of Socio-demo factors.

Table 23 shows the association between **Hepatitis B** with independent factors. The highest prevalence of Hepatitis B of >35 years age group (45.5%) followed by 15-24 (16.5%) and 25-35years (9.4%). In marital status highest prevalence of married (12.2%) followed by singles (16.0%). In occupation (15.5%) are non working group and (13.8%) of working groups .In education highest prevalence of no education (26.1%) followed by primary education (12.5%) and > primary education (8.1%). In income level highest prevalence of low plus middle (14.5%) against high income level (11.8).In religion highest prevalence of non Muslims (17.6%) against Muslims (11.8%). In residential area (14.7%) from slum area while (13.8 %) from non slum area.

Chi-square test for association between age and Hepatitis B is statistically significant (p-value-.004).

Table 23 : Association of Hepatitis B with independent variables

N=196	**Hepatitis B**		Chi-square	p-value
Sociodemographic factor	Yes	No		
Age			11.069	.004
15-24	13(16.5%)	66(83.5%)		
25-35	10(9.4%)	96(90.6%)		
>35	5(45.5%)	6(54.5%)		
Marital status			.579	.447
Married	11(12.2%)	79(87.8%)		
Others	17(16.0%)	89(84%)		
Occupation			.102	.749
Working	19(13.8%)	119(86.2%)		
Non working	9(15.5%)	49(84.5)		
Education			7.421	.024
No education	12(26.1%)	34(73.9%)		
primary education	11(12.5%)	77(87.5%)		
>primary education	5(8.1%)	57(91.9%)		
Income			0.97	.756
low, middle	26(14.5%)	153(85.5%)		
High	2(11.8%)	15(88.2%)		
Religion			.961	.327
Islam	16(12.5%)	112(87.5%)		
Others	12(17.6%)	56(82.4%)		
Residence			.031	.861
Slum area	15(14.7%)	87(85.3%)		
Non Slum area	13(13.8%)	81(86.2%)		

*The denominators of percentages is the sum of data in each row of Socio-demo factors.

Table 24 shows the association between **Hepatitis C** with independent factors. The highest prevalence of Hepatitis C of >35 years age group (18.2%) followed by 25-35 years (6.6%) and 15-24 years (5.1%). In marital status highest prevalence of married ((6.7%) followed by singles (6.6% In occupation (8.6%) are non working group and (5.8%)of working groups .In education highest prevalence of > primary education (12.9%) followed by primary education (5.7%) and no education (0.0%) . In income level highest prevalence of low plus middle (7.3%) against high income level (0.0%).In religion highest prevalence of Muslims (7.8%) against non Muslims (4.4%). In residential area ((9.6%) from non slum area while (3.9 %) from slum area .

Chi-square test for association between independent factors and Hepatitis c is statistically not significant.

Table 24: Association of Hepatitis C with independent variables

N=196	**Hepatitis C**		Chi-square	p-value
Sociodemographic factor	Yes	No		
Age			2.684	.261
15-24	4(5.1%)	75(94.9%)		
25-35	7(6.6%)	99(93.4%)		
>35	2(18.2%)	9(81.8%)		
Marital status,			.000	6.986
Married	6(6.7%)	84(93.3%)		
Others	7(6.6%)	99(93.4%)		
Occupation			.527	.468
Working	8(5.8%)	130(94.2%)		
Non working	5(8.6%)	53(91.4%)		
Education			.7333	.026
No education	0(0%)	46(100.0%)		
primary education	5(5.7%)	83(94.3%)		
>primary education	8(12.9%)	54(87.1%)		
Income			1.322	.250
low, middle	13(7.3%)	166(92.7%)		
High	0(0%)	17(100.0%)		
Religion			.829	.362
Islam	10(7.8%)	118(92.2%)		
Others	3(4.4%)	65(95.6%)		
Residence			2.524	.112
Slum area	4(3.9%)	98(96.1%)		
Non Slum area	9(9.6%)	85(90.4%)		

*The denominators of percentages is the sum of data in each row of Socio-demo factors

Table 25 shows the association between **Chlamydia** with independent factors. The highest prevalence of Chlamydia of 15-24 years (13.9%) followed by 25-35 years (11.3%) and >35 years (9.1%) .In marital status highest prevalence of married (15.6%) followed by singles (9.4%)In occupation (15.5%) are non working group and (10.9%)of working groups .In education highest prevalence of primary education (14.5%)followed by >primary education (14.5%)and no education (8.3%) . in income level highest prevalence of high income (23.5%) against low plus middle income level (11.2)In religion highest prevalence of non Muslims (19.1%)against Muslims (8.6%)In residential area (14.7%%) from slum area while (9.6 %) from non slum area

Chi-square test for association between independent factors and Chlamydia is statistically not significant.

Table 25: Association of Chlamydia with independent variables

N=196	**Chlamydia**		Chi-square	p-value
Sociodemogrophic factor	Yes	No		
Age			.393	.821
15-24	11(13.9%)	68(86.1%)		
25-35	12(11.3%)	94(88.7%)		
>35	1(9.1%)	10(90.9%)		
Marital status			1.697	.193
Married	14(15.6%)	76(84.4%)		
Singles	10(9.4%)	96(90.6%)		
Occupation,			.821	.365
working	15(10.9%)	123(89.1%)		
Non working	9(15.5%)	49(84.5%)		
Education,			.842	.656
No education	4(8.7%)	42(91.3%)		
primary education	11(12.5%)	77(87.5%)		
>primary education	9(14.5%)	53(85.5%)		
Income			2.206	.137
Low, Middle	20(11.2%)	159(88.8%)		
High	4(23.5%)	13(76.5%)		
Religion,			4.5777	.032
Islam	11(8.6%)	117(91.4%)		
Others	13(19.1%)	55(80.9%)		
Residence			1.199	.274
Slum area	15(14.7%)	87(85.3%)		
Non Slum area	9(9.6%)	85(90.4%)		

*The denominators of percentages is the sum of data in each row of Socio-demo factors.

Table 26 shows the association between **Chancroids** with independent factors. The highest prevalence of Chancroids of 15-24 years (11.4%) followed by 25-35 years (7.5%) and >35 years (0.0%). In marital status highest prevalence of married (14.4%) followed by singles (3.8%).In occupation (12.1%) are non working group and (7.2%) of working groups .In education highest prevalence of primary education (11.4%) followed by no education (8.7%)and > primary education (8.3%) . in income level highest prevalence of high income (17.6%) against low plus middle income level (7.8%)In religion highest prevalence of non Muslims (10.3%) against Muslims (7.8 %)In residential area (10.6%)from slum area while (6.9 %) from non slum area.

Chi-square test for association between marital status factors and Chancroids is statistically significant (p-value-.008).

Table 26 : Association of Chancroids with independent variables

N=196	**Chancroids**		Chi-square	p-value
Sociodemogrophic factor	Yes	No		
Age			1.952	.377
15-24	9(11.4%)	70(88.6%)		
25-35	8(7.5%)	98(92.5%)		
>35	0(0.0%)	11(100%)		
Marital status			6.997	.008
Married	13(14.4%)	77(85.6%)		
Others	4(3.8%)	102(96.2%)		
Occupation			1.199	.274
Working	10(7.2%)	128(92.8%)		
Non working	7(12.1%)	51(87.9%)		
Education			1.9555	.374
No education	4(8.7%)	42(91.3%)		
primary education	10(11.4%)	78(88.6%)		
>primary education	3(4.8%)	59(95.2%)		
Income group			1.892	.169
low, middle	14(7.8%)	165(92.2%)		
High	3(17.6%)	14(82.4%)		
Religion			.345	.557
Islam	10(7.8%)	118(92.2%)		
Others	7(10.3%)	61(89.7%)		
Residence			.880	.348
Slum area	(6.9%)	95(93.1%)		
Non Slum area	10(10.6%)	84(89.4%)		

*The denominators of percentages is the sum of data in each row of Socio-demo facto

Association between independent variables with Syndromic diagnosis

Table 27 shows the association between and **Urethral discharge** with independent factors. The highest prevalence of **Urethral discharge** of 25-35 years (59.4%) followed by 15-24 years (56.5%) and >35 years (41.4%). In marital status highest prevalence of singles (60.6%) followed by Married (50.8%) In occupation (61%) are non working group and (55.5%) of working groups .In education highest prevalence of > primary education (65.3%) followed by primary education (54%)and no education (50.6%). in income level highest prevalence of high income (66.7%) against low plus middle income level (55.6%) In religion highest prevalence of Muslims (58.1%) against non Muslims (53.8%) in residential area (61.3%) from slum area while (52.3 %) from non slum area.

Chi-square test for association between independent factors and Urethral discharge is statistically not significant.

Table 27: Association of Urethral discharge with independent variables

N=297	**Urethral discharge**		Chi-square	p-value
	Yes	No		
Sociodemographic factor				
Age			3.236	.196
15-24	61(56.5%)	47(43.5%)		
25-35	95(59.4%)	65(40.6%)		
>35	12(41.4%)	17(58.6%)		
Marital status			2.782	.093
Married	62(50.8%)	60(49.2%)		
Singles	106(60.6%)	69(39.4%)		
Occupation			.594	.441
Working	132(55.5%)	106(44.5%)		
Non working	36(61%)	23(39%)		
Education			4.538	.103
No education	45(50.6%)	44(49.4)		
primary education	61(54%)	52(46%)		
>primary education	62(65.3%)	33(34.7%)		
Income			1.233	.267
low, middle	150(55.6%)	120(44.4%)		
High	18(66.7%)	9(33.3%)		
Religion			.523	.470
Islam	111(58.1%)	80(41.9%)		
Others	57(53.8%)	49(46.2%)		
Residence,			2.448	.118
Slum area	81(52.3%)	74(47.7%)		
Non Slum area	87(61.3%)	55(38.7%)		

*The denominators of percentages is the sum of data in each row of Socio-demo factors.

Table 28 shows the association between and **Genital ulcer** with independent factors. In age group the highest prevalence of **Genital ulcer** of >35 years (37.9%) followed by 15-24 years (28.7%) and 25-35years (37.9%). In marital status highest prevalence of Married (27.9%) followed by Singles (23.4%).In occupation (26.5%) Are working group and (20.3%) of non working groups .In education highest prevalence of no education (30.3%) followed by primary education (28.3%) and >primary education (16.8%). in income level highest prevalence of low plus middle income (25.6%) against high income level (22.2%). In religion highest prevalence of Muslims (26.2%) against non Muslims (23.6%) in residential area (28.4%) from slum area while (21.8 %) from non slum area.

Chi-square test for association between independent factors and Genital ulcer is statistically not significant.

Table 28: Association of Genital ulcer with independent variables

N=297	**Genital ulcer**		Chi-square	p-value
Sociodemographic factor	Yes	No		
Age			4.966	.083
15-24	31(28.7%)	77(71.3%)		
25-35	33(20.6%)	127(79.4%)		
>35	11(37.9%)	181(62.1%)		
Marital status, N=297			.751	.386
Married	34(27.9%)	88(72.1%)		
Singles	41(23.4%)	134(76.6%)		
Occupation, N=297				
Working	63(26.5%)	175(73.5%)	.952	.213
Non working	12(20.3%)	47(79.7%)		
Education, N=297			5.342	.069
No education	27(30.3%)	62(69.7%)		
primary education	32(28.3%)	81(71.7%)		
>primary education	16(16.8%)	79(83.21%)		
Income group			.144	.704
low, middle	69(25.6%)	201(74.4%)		
High	6(22.2%)	21(77.8%)		
Religion			.343	.622
Islam	50(26.2%)	141(63.5%)		
Others	25(23.6%)	81(76.4%)		
Residence			1.688	.194
Slum area	44(28.4%)	111(71.6%)		
Non Slum area	31(21.8%)	111(78.2%)		

*The denominators of percentages is the sum of data in each row of Socio-demo factors.

Table 29 shows the association between and **Scrotal swelling** with independent factors. In age group the highest prevalence of **Scrotal swelling** of >35 years (10.3%) followed by 25-35 years (9.4%) and (37.9%). In 15-24 years (6.5%) . In marital status highest prevalence of married ((10.7%) followed by Singles (6.9%).In occupation (8.8%) Are working group and (6.8%) of non working groups .In education highest prevalence of no education (10.1%) followed by primary education (8.0%) and >primary education (7.4%). in income level highest prevalence of low plus middle income (8.9%) against high income level (3.7%). In religion highest prevalence of non Muslims (11.3%) against Muslims (6.8%) in residential area (11.6%) from slum area while (4.6 %) from non slum area.

Chi-square test for association between address and **scrotal swelling** is statistically significant (p-value .o38).

Table 29: Association of Scrotal swelling with independent variables

N=297	**Scrotal swelling**		Chi-square	p-value
Sociodemogrophic factor	Yes	No		
Age			.855	.652
15-24	7(6.5%)	101(93.5%)		
25-35	15(9.4%)	145(90.6%)		
>35	3(10.3%)	26(89.7%)		
Marital status			1.346	.246
Married	13(10.7%)	109(89.3%)		
Singles	12(6.9%)	163(93.1%)		
Occupation			.256	.613
Working	21(8.8%)	217(91.2%)		
Non working	4(6.8%)	55(93.2%)		
Education			.497	.780
No education	9(10.1%)	80(89.9%)		
primary education	9(8.0%)	104(92%)		
>primary education	7(7.4%)	88(92.6%)		
Income			.856	.355
low, middle	24(8.9%)	246(91.1%)		
High	1(3.7%)	26(96.3%)		
Religion			1.802	.179
Islam	13(6.8%)	178(93.2%)		
Others	12(11.3%)	94(88.7%)		
Residence			4.294	.038
Slum area	18(11.6%)	137(88.4%)		
Non Slum area	7(4.9%)	135(95.1%)		

*The denominators of percentages is the sum of data in each row of Socio-demo factors.

Table 30 shows the association between and **Inguinal swelling with** independent factors. In age group the highest prevalence of **inguinal swelling** of 25-35 (5.6%) followed by 15-24 (4.6%) and > 35 (3.4%). Marital status highest prevalence of Singles (5.1%) followed by married (4.9%).In occupation (5.5%) Are working group and (3.4%) of non working groups .In education highest prevalence of no education (6.7%) followed by >primary education (5.3%) and primary education (3.5%).in income level highest prevalence of low plus middle income (5.6%) against high income level (0.0 %) .In religion highest prevalence of non Muslims (5.7%) against Muslims (4.5%) in residential area (5.2%) from slum area while (4.2 %) from non slum area.

Chi-square test for association between independent factors and inguinal swelling **is** statistically not significant.

Table 30: Association of Inguinal swelling with independent variables

N= 297	**Inguinal swelling**		Chi-square	p-value
Sociodemogrophic factor	Yes	No		
Age groups			.305	.858
15-24	5(4.6%)	103(95.4%)		
25-35	9(5.6%)	151(94.4%)		
>35	1(3.4%)	28(96.6%)		
Marital status			.008	.931
Married	6(4.9%)	116(95.1%)		
Singles	9(5.1%)	166(94.9%)		
Occupation			.423	.515
Working	13(5.5%)	225(94.5%)		
Non working	2(3.4%)	57(96.6%)		
Education,			1.077	.583
No education	6(6.7%)	83(93.3%)		
primary education	4(3.5%)	109(96.5%)		
>primary education	5(5.3%)	90(94.7%)		
Income			1.580	.209
low, middle	15(5.6%)	255(94.4%)		
High	0(0%)	27(100%)		
Religion			.128	.721
Islam	9(4.7%)	182(95.3%)		
Others	6(5.7%)	100(94.3%)		
Residence			.008	.927
Slum area	8(5.2%)	147(94.8%)		
Non Slum area	7(4.9%)	135(95.1%)		

*The denominators of percentages is the sum of data in each row of Socio-demo factors.

Table 31 shows the association between and **Anogenital warts with** independent factors. In age group the highest prevalence of **Anogenital warts of** > 35 (6.9%) followed by 25-35 (5.0%) and 15-24 (3.7%).In marital status highest prevalence of married 5.7%) followed by Singles (4.0%).In occupation (8.5%) Are non working group and (3.8%) of working groups .In education highest prevalence of primary education (6.2%) followed by (5.3%) and primary education no education (2.2%) in income level highest prevalence of high (7.4%) against low plus middle income (income level (4.4 %).In religion highest prevalence of non Muslims (5.7%) against Muslims (4.2%). in residential area (7.0%) from non slum area while (2.6 %) from slum area.

Chi-square test for association between independent factors and Anogenital warts is statistically not significant.

Table 31: Association of Anogenital warts with independent variables

N=297	**Anogenital warts**		Chi-square	p-value
Sociodemogrophic factor	Yes	No		
Age			.528	747
15-24	4(3.7%)	104(96.3%)		
25-35	8(5.0%)	152(95%)		
>35	2(6.9%)	27(93.1%)		
Marital status			.483	.487
Married	7(5.7%)	115(94.3%)		
Singles	7(4,0%)	168(96%)		
Occupation			2.318	.128
Working	9(3.8%)	229(96.2%)		
Non working	5(8.5%)	54(91.5%)		
Education,			1.821	.402
No education	2(2.2%)	87(97.8%)		
primary education	7(6.2%)	106(93.8%)		
>primary education	5(5.3%)	96(94.7%)		
Income group			.480	.489
low, middle	12(4.4%)	258(95.6%)		
High	2(7.4%)	25(92.6%)		
Religion			.329	.566
Islam	8(4.2%)	183(95.8%)		
Others	6(5.7%)	100(94.3%)		
Residence			3.284	.070
Slum area	4(2.6%)	151(97.4%)		
Non Slum area	10(7.0%)	132(93%)		

*The denominators of percentages is the sum of data in each row of Socio-demo factors.

4.9 Table 32 shows the association between socio demographic factors with all laboratory diagnosis. In age group the highest prevalence of Laboratory Diagnosis 15-24 (42.2%) followed by 25-35 (39.8%) and >35 years (27.5%). In marital status highest prevalence of Singles (49.3%) followed by married (33.9%). In occupation (49.5%) Are non working group and (36.7 %) of working groups .In education highest prevalence of primary education (43.7%) followed by > primary education (39.4%) and no education (34.0%). in income level highest prevalence of low plus middle income (39.8%) against high (income level (38.6%).In religion highest prevalence of Muslims (40.1%) against non Muslims (39.0%). in residential area ((39.8%)from non slum area while ((39.86%)%) from slum area.

Chi-square test for association between socio demographic factors with Laboratory Diagnosis in age group (p- value-.001), marital status (p-value- .012) is statistically significant.

Table 32: Association of socio demographic factors with laboratory diagnosis

N=493 Socio-demographic factors	Laboratory Diagnosis N=196		Chi-square	p- value
	Yes (Laboratory Diagnosis)	No (Syndromic Diagnosis)		
Age group			19.94	.011
15-24	79 (42.2%)	108 (57.8%)		
25-35	106 (39.8%)	160 (60.1%)		
>35	11 (27.5%)	29 (72.5%)		
Marital status			12.90	0.12
Married	90(33.9%)	175 (66.0%)		
Single	106 (49.3%)	109 (50.6%)		
Occupation			3.746	.441
Working group	138 (36.7 %)	238 (63.2%)		
Non Working group	58 (49.5%)	59(50.5%)		
Education			9.284	.319
primary education	88 (43.7%)	113 (56.3%)		
No education	46 (34.0%)	89 (66.0%)		
> primary education	62 (39.4%)	95 (60.5%)		
Income			4.946	.293
low, middle	179 (39.8%)	270 (60.2%)		
High	17 (38.6%)	27 (61.3%)		
Religion			6.11	.190
Islam	128 (40.1%)	191 (59.9%)		
Others	68 (39.0%)	106 (60.0%)		
Residence			2.574	.631
Slum area	102 (39.6%)	155 (60.4%)		
Non Slum area	94 (39.8%)	142 (60.1%)		

*The denominators of percentages is the sum of data in each row of Socio-demo factors.

4.10 Table 33 shows the association between socio demographic factors with all **syndromic diagnosis**. In age group the highest prevalence of **syndromic diagnosis** >35 (72.5%) followed by 25-35 (60.1%) and 15-24 years (57.8%). In marital status highest prevalence of married (66.0%) followed by singles (50.6%). In occupation (63.2%) are working group and (36.7 %) of non working groups .In education highest prevalence of no education (66.0%) followed by > primary education (60.5%) and primary education (56.3%). in income level highest prevalence of high income (61.3%) against low plus middle income level (60.2%). In religion highest prevalence of non Muslims (60.0%) against Muslims (59.9%). in residential area (60.4%)from non slum area while (60.1%)%) from slum area.

Chi-square test for association between socio demographic factors with **syndromic diagnosis** is statistically not significant.

Table 33: Association of socio demographic factors with syndromic diagnosis

N=493 **Socio-demographic factors**	syndromic Diagnosis N= 297 Yes syndromic D	No laboratory D	Chi-square	p.value
Age groups			6.74	.546
15-24	108 (57.8%)	79 (42.2%)		
25-35	160 (60.1%)	106 (39.8%)		
>35	29 (72.5%)	11 (27.5%)		
Marital status,			3.47	.482
Married	175 (66.0%)	90(33.9%)		
Single	109 (50.6%)	106 (49.3%)		
Occupation			3.808	.433
Working group	238 (63.2%)	138 (36.7 %)		
Non Working group	59(50.5%)	58 (49.5%)		
Education			9.178	.328
primary education	113 (56.3%)	88 (43.7%)		
No education	89 (66.0%)	46 (34.0%)		
> primary education	95 (60.5%)	62 (39.4%)		
Income			3.383	.496
low, middle	270 (60.2%)	179 (39.8%)		
High	27 (61.3%)	17 (38.6%)		
Religion			2.494	.646
Islam	191 (59.9%)	128 (40.1%)		
Others	106 (60.0%)	68 (39.0%)		
Residence			9.359	.052
Slum area	155 (60.4%)	102 (39.6%)		
Non Slum area	142 (60.1%)	94 (39.8%)		

*

The denominators of percentages is the sum of data in each row of Socio-demo factors.

CHAPTER V
DISCUSSIONS AND CONCLUSIONS

The present study examined the association of seven independent variables (age, marital status, occupation, education, income levels, religion and addresses) with STI by Laboratory diagnosis which includes Gonorrhoea, syphilis, Hepatitis B, Hepatitis C, Chlamydia, Chancroids and with syndromic approach diagnosis which consist according to sign/symptoms of patients including urethral discharge ,Genital ulcer, scrotal swelling ,Inguinal swelling and Anogenital warts with urban men attending the federal government services hospital Islamabad Pakistan in 2009.

Discussion of the result is organized into the following sections

5.1 General discussion of featured findings

5.2 Association of socio demographic factors with laboratory diagnosis and with syndromic diagnosis

5.2.1 Association between age with STI by laboratory diagnosis and by syndromic approach diagnosis.

5.2.2 Association between marital status with STI by laboratory diagnosis and by syndromic approach diagnosis.

5.2.3 Association between occupation with STI by laboratory diagnosis and by syndromic approach diagnosis.

5.2.4 Association between education with STI by laboratory diagnosis and by syndromic approach diagnosis.

5.2.5 Association between income level with STI by laboratory diagnosis and by syndromic approach diagnosis

5.2.6 Association between Religion with STI by laboratory diagnosis and by syndromic approach diagnosis.

5.2.7 Association between address with STI by laboratory diagnosis and by syndromic approach diagnosis.5.3 conclusions

5.4 Recommendation

5.5 further studies

5.1 General discussion of featured findings

There are two categories of STI patients were present in the outpatient department of FGSH one those who diagnosis by laboratory and other syndromic approach diagnosis by according to clinical sign/symptoms, which are treatable STI were common in the study population many received treatment according to national guide line built on the WHO algorithm · The exact epidemiologically sound data on the prevalence of STI among Pakistani men are not available four recent studies also provide some information about STIs in Pakistan (Ali Mir,et.al ,2009) on Study of Sexually Transmitted Infections Among Urban Men in Pakistan (Identifying the Bridging Population) Six "major urban" cities were purposively selected to include the four provincial Capitals Karachi, Lahore, Quetta, and Peshawar and two of the largest of the Remaining cities Rawalpindi and Faisalabad. Out of the total sample of 2,400 respondents, 2,396 agreed to provide blood and urine samples. Out of these106 (4.4 percent) tested positive for at least one of the following five STIs. The prevalence of the individual organisms syphilis 30 cases (1.3 percent), gonorrhea 2 cases (0.8 percent), and Chlamydia (0 cases) HIV 3 cases (0.1%) HSV2 83 cases (3.4%). The total number of STI diagnosed was 118 in 106 individuals implying that 12 individuals in the study were suffering from more than one STI.

(Shah and Nasir, 1998) Screened 60,716 blood donors for syphilis at a tertiary care hospital of Lahore a total of 47,538 subjects were tested over a period of four years. Three hundred nineteen (0.67%) were found to have a positive RPR test. Out of these, 44,686 (94%) were males.

The third study by(N-Rehan, 2003) profile of men suffering from STI out of 465 cases, 148 were from Lahore, 138 from Karachi, 98 from NWFP and 86 from Baluchistan. Majority of the cases (61.7%) were from hospitals, only 38.3% cases were interviewed in the clinics. Most cases of gonorrhoea were picked up from the clinics, while a majority of men interviewed in hospitals had various manifestations of syphilis, Chlamydia. Individual Syphilis (31%) Gonorrhea (27.5%) Chancroids (17.3%) Chlamydia (5.2%).

In the fourth study by (Shehla Baqi,et,al ,2006) three hundred male transvestites, which included 43 Gurus (leader of male transvestites) and 257 disciples, were approached. All agreed to answer the questionnaire, 208 agreed to serological testing. There was a high prevalence of syphilis (37%) whereas that of hepatitis B (3.4%) was low. None tested positive for HIV. Seroprevalence of HIV, HBV and Syphilis associated risk behaviors in male transvestites (Hijras) in Karachi, Pakistan. Of the 300 study subjects, 112 (37%) reported having had one or more STI syndromes, Of 112, dysuria and urethral discharge was reported in 70%, painless ulcer (25%); painful ulcer/erosions (18%) and warts (54%).

The incidence of **gonorrhoea** was in south and Southeast Asia region according to 1999 report was 15.99 million and the prevalence of **gonorrhoea** among Pakistani men are not available. The present study shows frequency of **gonorrhoea (10.5%)** of total STI diagnosis and(39.8%) of total laboratory diagnosis seems to be lower than that reported by previous study by (N-Rehan, 2003) .(27.5%) because (N-Rehan ,2003) who picked the case from four cities , data were collected from one or more teaching hospitals and a number of general practitioners, Majority of the cases (61.7%) were from hospitals and 38.3% cases were interviewed in the clinics. the percentage of gonorrhoea in present study seems to be higher than that reported by (Ali Mir,et.al, 2009) 0.8% because of diagnosed method in which (Ali Mir,et.al, 2009) diagnosed by blood sampling instead of sample of direct smear from infected sites. As in method of diagnosed in present study.

In present study the ((**(7.3%)** of total STI diagnosis (18.3%) of total laboratory diagnosis in men were suffering from **syphilis** seems to be lower than that reported by (N-Rehan 2003) **(31.7%.)** because of patients of present study were those which reported in OPD of STI clinic compare to (N-Rehan ,2003) study in which patients reported in multi departments like dermatology ,neurology and cardiology of many hospitals as well as clinics of general practitioners of Pakistan . The percentage of Syphilis in the present study is much higher than Shah and Nassir ,2009 study because in this study tests were conducted only in blood donors were out of 60,716 (**0.07%)** were

sero positive. In the study by (Shehla Baqi,et,al ,2006) there was a high prevalence of syphilis **(37%),** compared to present study because of that study conducted on male transvestites, in this group oral and anal sex are common in Karachi where study was conducted. So they are more predisposed to STI in community this reflects the low level of awareness of STIs in the high-risk group.

Recently Pakistan had been classified as a country with low sero prevalence but high potential for a **HIV** epidemic. In present study during the review of secondary data only two positive cases of HIV were found in 2009 in the OPD of FGSH. The data of these two HIV cases were not included in this study because these cases were not randomly selected by applying the study sample interval of 5.

Pakistan is among the worst afflicted nations and in the intermediate HBV prevalence area with a carrier rate of (3-4%). Regarding the transmission of hepatitis B in Pakistan the mostly through the blood products, transfusion network is poorly organized, Occupational risks, Shaving by barbers, Sexual contact Intravenous drug user are more to predisposed for Hepatitis B and C in the community, because of sharing of same needles, untrained local doctors reused the syringes. WHO estimates that in south and Southeast Asia, an average person receives four injections per year, most of which are unnecessary and up to 75% are unsafe or reused. Patient of hepatitis B were generally present in OPD with recent history of sex sharing along with general sign/symptoms of hepatitis with no any history of recent blood transfusion/v drugs uses so very difficult to say for hepatitis B transmission were due to sexually transmitted or transmitted by other source. Because no any tool for diagnosis of hepatitis due to sexually or transmitted by another way.

This present study shows the frequency of **hepatitis B** is **(5.6%)** out of total STI diagnosis and (**14.2%) of** total laboratory diagnosis. And Which was higher than reported by (Shehla Baqi,et,al, 2006) (3.4%) in male transvestites which are very sexually active. Low prevalence of HBV in this sexually active population, with low prevalence of hepatitis B is interesting. It may be due to the fact that the agglutination test used for screening by (Shehla Baqi,2006) does not have good sensitivity while in this study the diagnosis of hepatitis was based on hepatitis profile test (HBsAg, HBcAb, and HBeAg

antibodies). The pattern of STIs seen in the present study, collaborate with studies from Bangladesh (Laura Gibney, 2001**)** on truck drivers, 388 **men** (245 drivers, 143 helpers, The prevalence **of hepatitis B** surface antigen (5.9%), anti**b**ody to **hepatitis B** core antigen (48.1%). Prevalence of HBsAg positive is similar to present study but positive of HBcAb which shows acute infection because according (Laura Gibney ,2001) (40%) of the study participants had history of injection therapy for one year. so probably injection is main source of transmission of hepatitis in this low educated community or truck driver is high risk group of STI probably they involve more sexually activities as one study (Agha S, e., al) found that STI was common for long-distance truck drivers to engage in high-risk sexual practices.

Hepatitis C is less transmitted by sex than Hepatitis B. In present study the frequency of **hepatitis C** is (2.6%) of total STI diagnosis(6.6%) of total laboratory diagnosis and is lower compared to one cross-sectional survey by (L,Platt,et,al)among IDUs in two cities of Pakistan Rawalpindi and Abbott Abad where HCV was found in 17.3% and 8% of IDUs respectively. The higher prevalence was probably due to the high risk behavior of IDU compared to the hospital based population of this study. It may also be due to reported greater Injecting risk behaviors in Rawalpindi and the use of informal providers of new needles/syringes. Another similar study conducted in STI clinic of Baltimore where (7%) of HCV were positive out of 309 sexually active men.

Chlamydia infection is another common STI in males, which like gonorrhoea has higher rates of asymptomatic infection and serious sequelae. The world wide prevalence of Chlamydia 42 million and 18.93 million men in south and Southeast Asia region. The frequency of **Chlamydia** in present study is **(4.8%)** of total STI diagnosis and (**12.2%)** of total laboratory diagnosis is similar to the one reported by (N-Rehan ,2003) (5.2%. and by (Ali Mir ,2009) (0.8%) lower than the present study probably because (Ali Mir,et.al ,2009) tested blood and urine only but the present study tested swabs with discharge from infected area.

Another study on urethral discharge were conducted in STI clinic of Dhaka (Rehman ,2004) where (68%) of etiology of urethral discharge were positive for gonorrhea and (14%) were positive for Chlamydia.

The prevalence of **Chancroid**s varies greatly between countries and regions. For example in Swaziland and Kenya 44% and 62% respectively of genital ulcers were diagnosed as Chancroids in STD clinics. In western Algeria Chancroids is the most common STI observed and the primary cause of genital ulcer disease The frequency of **Chancroids** in present study was (**3.4%)** of total STI diagnosis is much lower than reported (N-Rehan ,2003) **(17.4%)** because of patient s of present study were those which reported in OPD of STI clinic compare to (N-Rehan ,2003) study in which patients reported in multi departments like dermatology ,neurology and cardiology of many hospitals as well as clinics of general practitioners of four Pakistan cities and by rural areas where prevalence of Chancroids could be higher than the one in Islamabad urban area only. One another previous study conducted on genital ulcer in STI clinic of Puna India 30,2 277 men with genital ulcer were tested out of this 23% had Chancroids and 10% had syphilis .

Uurethral discharge is total **34.0%** of total STI diagnosis and **56.5%** of syndromic diagnosis. Urethral discharge usually develops suddenly, most commonly in men with a prostate infection, gonorrhea, Chlamydia. (Shehla Baqi,et,al) study conducted on 300 male transvestites in Karachi reported 112 (37%) with , dysuria and urethral discharge and 210 (70%) reported one or more STI syndromes. Higher than present study because of (Shehla) study participants were sex workers.

9.7% of laboratory diagnosis are due to Gonorrhea and 56.5% of syndromic diagnosis are due to urethral discharge which means that most with urethral discharge are due to gonorrhea.

The **genital ulcer** is established cause of transmitted HIV. **25.2%** of syndromic diagnosis the most of the cause of genital ulcer is STI like syphilis. Patients with genital ulcer can present to other hospital departments like dermatology, urology and even some time in general surgery department of FGSH. The (Shehla Baqi), study on Karachi

transvestites reported Painless ulcer (25%); painful ulcer/erosions (18%) higher than present study because of study participants were involved more in sex worker in Pakistan.

Scrotal swelling (5 %) of total STI diagnosis and (8.4%) of syndromic diagnosis. The causes of scrotal swelling are epididymitis most commonly due to gonorrhea, Chlamydia. Scrotal welling was rare in OPD of FGSH probably because these patients report to the general surgery department. Underlying history of trauma, and infection with clinical examination are required before a scrotal swelling is treated as STI syndromic diagnosis. A study in north India amongst 268 males in an urban slum shows similar frequency of scrotal swelling (3.7%) as present the study and 90 (33.6%) reported one or more perceived symptom of sexual morbidity in last six months.

The frequency of **inguinal swelling (3.0%)** of total STI and (**5%**) of syndromic diagnosis. The causes of inguinal swelling are STI like Chancroids, the most common, (genital ulcer with inguinal swelling) and granuloma inguinalis (nodular swellings with ulcers of inguinal and Anogenital), and Chlamydia. The of inguinal swelling in FGSH OPD patients is partly due to the fact that these patients report to the general surgery department One study in Bangkok on 113 men who presented with inguinal swellings to a STI government- hospital Reported that the majority of patients (74; 65%) had received treatment previously; 31 (27%) were febrile, 13 (12%) had extra inguinal lymphadenopathy. Pus was obtained from 51 of the 110 buboes aspirated for culture; 21 (41%) of these cultures yielded Haemophilus ducreyi,(Chancroids) and 2 (3.9%) were positive for Chlamydia trachoma is on immunofluorescence microscopy.

Scrotal and inguinal swellings due to STI must be differentiated from similar swellings due underlying some systemic disease like chronic liver disease, congestive cardiac failure and nephritic syndrome which were common in Pakistan In case of systemic diseases scrotal an inguinal swellings are companied by swellings in other part of the body especially the lower parts

Anogenital warts (2.8%) of total STI diagnosis and **(4.71%)** of syndromic approach diagnosis. The causes of Anogenital warts are due to HPV and can rarely be confuse with the condiloma plana of secondary syphilis. HPV condiloma are a common

STI in men who have sex with men and one of the predisposing factors of anal cancer. The low frequency in FGSH OPD patient is probably due to the fact that these patients report to dermatology or surgery. The (Shehla Baqi,et,al ,2006) among 300 Karachi transvestites reported 112 men (18%) with warts. This is higher than in the present study because those participants were sex workers.

The frequencies of **follow up** of patients of STI were 29(5.9%). The proportion of men in urban area with STI who come back with persistent signs and symptoms of STI after completion of first line treatment is (1.2%).out of whole follow-up patients (not shows in tables) (3.4%) were married,(4.2%) were civil savants, (2.6%) education up to primary level,(3.6%) had low income level,(4.6%)had religion Islam and (3.8%) belong to slum residential area. Low frequency of follow-up of patients are because of FGSH does not require STI patients who are cured to come for follow up and Probably the patients had drug resistance or due to incompliance of drugs.

The frequencies of incidence of new STI were 19 (3.8%). patients in 2009. Probably they have not followed the preventive measures regarding risk factors of transmission of STI. Like unsafe sex, multiple sexual partners, homosexuality etc.

5.2 Association of socio demographic factors with laboratory diagnosis and by syndromic approach diagnosis.

5.2.1 Association between age with STI by laboratory diagnosis and by s yndromic approach diagnosis.

The Present study in table 32 shows that there is difference between age and STI by laboratory diagnosis with the15-24 year's age group having the highest prevalence (42.2%) followed by the 25-35 years old (39.8%) and >35 years age group (27.5%).The association is statistically significant at (p-value 0.011). When we look at the single STI disease within the laboratory diagnosis group only gonorrhea table 21 and hepatitis B table 23 maintain the statistically significant association.

Table 33 also shows that there is difference between age and STI by syndromic diagnosis with the 25-35 years old group having the highest prevalence (60.1%)

followed by the 15-24 years age group (57.8%)and >35 years age group (72.5%).The association is, however, not statistically significant either in the analysis.

One would expect the same significant association between age groups and STI regardless of the method of diagnosis used It is very difficult to explain this difference. A possible reason is that laboratory diagnosis are distorted by the fact that the study collected positive laboratory results only and not the number of patients sent for a laboratory test and have come back with a negative result. While a distortion can be hypothesized it is impossible to say in which way it has influence the statistically significant association between age group and STI by laboratory diagnosis. (N-Rehan) study found that(76.7%) of men with STI were between 20 and 39 years, while in the present study STI in this age group are (90%) and only(6.7%) cases were below 20 years of age while in the present study the (6.4%) (Ali Mir) reported similar average age of participants at 29 years. A study among 2,227 males, 15-29 years old, in Zimbabwe (Loo V, McNaghten ,2009). on age-specific patterns of HIV infection and STI symptom self-reported history found overall 15% prevalence that increased with age (from 2.8% among 15-19 year-olds to 25.5% among 25-29 year-olds). Similarly, 16.2% reported a history of STI symptoms. Among HIV positive males, 31% reported a history of STI symptoms that increased with age (from 18% among 15-19 year-olds to 35% among 25-29 year-olds).

Previous study also reported young who lives alone have more STI than who lives with family (N-Rehan, 2003).

5.2.2 Association between marital status with STI by laboratory diagnosis and by syndromic approach diagnosis.

(Table 32) shows that there is difference between married and single status and STI by laboratory diagnosis with the singles having the highest prevalence (49.3%)and the married men having the lowest (33.9%)The association is statistically significant at

(p-value 0.012). When we look at the single STI disease within the laboratory diagnosis group only gonorrhea table 21 and Chancroids table 26 maintain the statistically significant association.

Table 33 also shows that there is difference between age and STI diagnosis by syndromic approach but with opposite direction showing married ones with the highest prevalence (66.0%) and the singles with the lowest (50.6%)The association, however, is not statistically significant either in the analysis.

One would expect the same significant association between marital status and STI regardless of the method of diagnosis used. It is very difficult to explain this difference. A possible reason is that laboratory diagnosis is distorted by the fact that the study collected positive laboratory results only as explained above in 5.2.1.

Worldwide, the prevalence of STIs tends to be higher unmarried individuals, and young reported by (Taiwo O Lawyin) 415 married men had interviewed (43.6%) had steady girl friends (25.8%) had new girl friends and (19.8%) had polygamous (10.6%)adults patronise commercial sex workers (22%) men reported life time history of sexually transmitted infection (40.2%) got recent infections from his new girl friend(38%) from steady girl friend and(19%) from commercial sex worker Yet much importance cannot be attached to this fact because this study is about hospital based data.

5.2.3 Association between occupation with STI by laboratory diagnosis and by syndromic approach diagnosis.

Table 32 shows that there is difference between working group and non working group with STI by laboratory diagnosis within the non working group having the highest prevalence (49.5%)and the working group is having the lowest (36.7 %)The association is statistically not significant. When we look at the working group STI disease within the syndromic diagnosis Table 33 (63.2%) are having the highest prevalence and the non working group having the lowest 50.5%)The association is statistically not significant.

The working group has more STI probably because working group ahs more money to pay for sex than non working group and this is consistent by what was found in the study.

5.2.4 Association between education with STI by laboratory diagnosis and by syndromic approach diagnosis

Table 32 shows that there is difference between educational level with STI with patients at primary education level having higher STI, (43.7%) and %) followed by all higher level of education having the (39.4%) and no education (34.0%)

The association is statistically not significant. When we look at the Table 33 we see that there is difference between educational levels with STI by syndromic diagnosis. Higher than primary education having the highest prevalence (60.5%) followed by no educated (66.0%) and Primary education (56.3%). The association is statistically not significant

The majority of participants have primary level education or no education. It has been found that risks of sexually transmitted infection are elevated among individuals who have poor or limited education. (Nagot,Nicolas ,2002).

5.2.5 Association between income levels with STI by laboratory diagnosis and by syndromic approach diagnosis.

Table 32 shows that there is difference between income levels with STI by laboratory diagnosis. High income groups having the highest prevalence (61.3%) followed by the Low plus middle income group (61.2%). The association is statistically not significant.

Table 33 shows that there is difference between income levels with STI by syndromic diagnosis. Low plus middle income groups having the highest prevalence (39.8%) followed by the high income group (38.6%).The association is statistically not significant.

In laboratory diagnosis the high income level are slightly higher than low plus middle income, the pattern is opposite in syndromic diagnosis where low and middle

income reported more STI. In the present study low plus middle income are overall higher than higher income level probably because they use commercial sex that is affordable for their salary levels. It is worth nothing that the low-middle income group has the same pattern of STI infection the laborer groups and primary education group. The three groups are in fact the same and one group in the Pakistan context. In fact most of the laborers (59.4%) in the study belong to the civil servant group that in Islamabad is mainly made of unskilled government employees (such as gardeners, cleaners, night watchmen, office boy etc). This civil servant also gets the low-middle income pay and has the primary educating level.

5.2.6 Association between Religion with STI by laboratory diagnosis and by syndromic approach diagnosis

Table 32) shows that there is difference between Religions with STI by laboratory diagnosis with other religion having the highest prevalence (60.0%) followed by the non Muslims group having the (59.9%)The association is statistically not significant.

When we look at the (Table 33) shows that there is difference between Religions with STI by syndromic diagnosis. Muslims having the highest prevalence (40.1%) followed by the non Muslims having the (39.0%) The association is statistically not significant.

5.2.7 Association between Residential area with STI by laboratory diagnosis and by syndromic approach diagnosis.

Table 32 shows that there is difference between residential area and STI by laboratory diagnosis with residents in slum areas having slightly higher STI prevalence than the residents in none slum areas (60.4%) against (60.1%) of all laboratory diagnosis). The difference is statistically not significant.

Table 33 shows that there is difference between residential area and STI by syndromic diagnosis with residents in slum areas having higher STI prevalence than

residents in none slum areas (39.8%) against (39.6%) of all syndromic diagnosis). The difference is almost statistically significant at p-value 0.052.

When we look at the single STI disease within the syndromic diagnosis group only scrotal swelling (table 29) maintains a statistically significant association at p-value 0.038.

One would expect the same significant association between age groups and STI regardless of the method of diagnosis used. It is very difficult to explain this difference. A possible reason is that laboratory diagnosis are distorted by the fact that the study collected positive laboratory results only and not the number of patients sent for a laboratory test and have come back with a negative result. While a distortion can be hypothesized it is impossible to say in which way it has influence the statistically significant association between age group and STI by laboratory diagnosis.

Because STI are commonly found in slum urban area .The resident of slum area mostly attends the OPD of FGSH because FGSH provide free serves' for slum area. Even participant of present study belong from non slum area they usually use private medical serves 'because people in non slum urban area are economically sound than from slum area.

In FGSH the prevalence of STI in young age, married, low income, low education, civil servants and Muslims had seen more in 2009. These five sociodemogrophic characteristics are in fact common to the same group of men, because in Islamabad the civil servants are unskilled government employees (such as gardeners, cleaners, night watchmen, office boy, drivers, etc) that have low education, low income and are married. This group of men with similar characteristics attends the OPD of FGSH because FGSH provides free medical care facilities to federal government employees and their families.

5.3 Conclusion

Sexually transmitted infection among urban men attending the OPD of FGSH Based on the findings of the present study, the proportion of STI compared to all

diagnosis in urban area men from Islamabad Pakistan was 12.2%. The prevalence of STI measured by both laboratory and syndromic approach diagnosis was higher in young age, married, low income, low education and civil servant resident in slum urban area and Muslims than in men with the remaining sociodemogrophic characteristic under study. The proportion of men in urban area with STI who come back with persistent signs and symptoms of STI after completion of first line treatment was 1.2%. The incidence of new STI was 3.8% in 2009.

Duty doctor in FGSH STI clinic use more syndromic approach diagnosis patients and less patients sent for laboratory diagnosis. The prevalence of Gonorrhea is more by laboratory diagnosis and urethral discharge is more than other syndromic diagnosis. Urethral discharge is common feature of Gonorrhea so overall prevalence of Gonorrhea in both laboratory and syndromic diagnosis is more. In laboratory diagnosis Chi-square test for association between ages and marital status with Gonorrhea, age with Hepatitis B, marital status with Chancroids is statistically significant. In syndromic approach diagnosis only address with scrotal swelling is maintain statistically significant.

5.4 Recommendations

5.4.1 Based on the findings of the study, it is proposed to ministry of health Pakistan and FGSH authorities to keep complete data in the medical records of patients with STI. In particular keep record of laboratory test results that are negative.

5.4.2 Health care deliveries to improve service delivery at OPD level,

Gynecology department in OPD to integrate antenatal care, delivery, male involvement and STI .Make more efforts from treatment of partners of STI patients

In-service refresher trainings for OPD staff that focus on counseling, diagnosis and management of STIs, as well as the importance of maintaining privacy and confidentiality. There is a need for developing interventions in terms of early diagnosis and treatment and secondary prevention of new infections

5.4.3 Based on the findings of the study, it is proposed to capital development authority (CDA) (under the PM cabinet) to provide more accessible preventive services at community level to the men form slum areas that share the higher burden of STI in Islamabad.

5.4 Further studies

The present study found four statistically significant associations between independent and dependent variables it is, therefore, recommended to conduct further study using a different study design that compares an appropriate sample size of OPD patients with STI with OPD patients without STI.

The study was based on hospital records and therefore cannot be generalized to the male population of Islamabad, since men attending the OPD may have different characteristics than men in the community. Furthermore the FGSH OPD records contain limited information. Sex behavior information is for example not recorded. To describe the situation of STI among men in Islamabad it it therefore necessary to conduct out-of-hospital studies in different settings (households, schools, universities, and workplace) and including information about sex behavior.

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