

# Risk Factors Of Sexually-Transmitted Infections (Stis) Among Men And Women In A Mining Community In Western Ghana: A Study Of Lifetime Occurrence

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**ABSTRACT:** The paper seeks to identify risk factors associated with STIs and its prevalence in western Ghana. This study explored the relationship between STI diagnosis and demographic factors as well as contraceptive use in a mining community in western Ghana. Selected hospitals in the district were surveyed. The sample consisted of 117 males and 253 female patients attending outpatient clinics. 92% of 400 individuals approached agreed to complete a questionnaire. The majority (72%) of the respondents was between 20-39 years; 14% were adolescents; 94% had some form of education, of which 43% had completed middle school; 50% of males and about 80% of females were married. Use of contraceptives by married and never married was 57% and 43%, respectively. The vast majority of males were engaged in small scale mining; 42% of the women were into trading. About 11% had gonorrhea, 27% had candidiasis and only 1 had chlamydia. Of the 150 respondents who had STIs, 84% were females. The odds of an STI diagnosis significantly increased when respondents were female (odds ratio (OR) = 3.0) compared to males and younger respondents (19-24 years) compared to older ones (OR = 3.68). Odds decreased with use of contraceptives (OR = 0.56) compared to non-users and with marital status (OR = 0.42) compared to never-married. The overall logistic model was statistically significant ( $\chi^2$  (8, N=370) = 56.19,  $p < .001$ ). Females, younger individuals, never-married and contraceptive non-users are at relatively high risk for STIs in a mining district in western Ghana.

**Index Terms:** Contraceptive, Prevalence, Sexually Transmitted Infections,

## 1 INTRODUCTION

Sexually-Transmitted Infections (STIs) are among the five most important causes of healthy productive life lost in developing countries and is a leading cause of maternal morbidity and mortality among women within the age of 17-35 years (CDC, 2004). Among the STIs, HIV/AIDS has wreaked the most havoc in sub-Saharan Africa. United Nations estimates in 2009 show that "68% of global HIV infections, 68% of new adult HIV infections, 92% of new adult HIV infections, 92% of new infections in children and 72% of all AIDS-related deaths" occurred in sub-Saharan Africa (Lewis, 2011). Moreover, Lewis (2011) notes that women and young girls bear the brunt of the infection with women aged 15-24 are eight times more likely to be infected than men in the same age group.

A UNAIDS report (2014) showed that in 2013, there were 2.9 million children aged 0-14 and another 2.9 million youths aged 15 to 24 in sub-Saharan Africa who are with the HIV virus. Moreover, the United Nations Children's Fund (UNICEF, 2006) estimated that 12 million children aged 0 to 17 have lost one or both parents to HIV/AIDS in same region in 2005. According to the WHO (2012), 92.6 million, or 18.5% of new cases of curable STIs (syphilis, gonorrhea, chlamydia, trichomoniasis) worldwide occurred in Africa. In 2008, the prevalence rates in Africa were 2.4% for chlamydia, 2.1% for gonorrhea, 3.7% for syphilis and 11.1% for trichomoniasis. However, for the latter, the prevalence rate among women was 20.2%. The WHO (2001) also reported that compared to other regions, sub-Saharan Africa had the highest rate of new cases and the highest prevalence of curable STIs per 1000 population in 1991. Left untreated, these curable STIs could cause serious health consequences. According to the Centers for Disease Control and Prevention (CDC) Fact Sheets (2014), when chlamydia and gonorrhea are left untreated, infertility (Siemer et al., 2008), pelvic inflammatory disease (Romoran et al., 2007), ectopic pregnancies and long-term pelvic pain could occur. Infants born to mothers with chlamydia are susceptible to eye infection and pneumonia soon after birth (CDC Fact Sheet, 2014). Scarring of the eyelids leading to blindness (trachoma) is also an outcome of untreated chlamydia. Late stage syphilis could result in paralysis, blindness, dementia, damage to internal organs and death (CDC Fact Sheet). These four STIs have been associated with adverse birth outcomes such low birth weight and pre-term birth (Johnson et al., 2011). There are few published studies that have estimated lifetime prevalence of STIs (Yavorksy et al., 2014), especially in Africa. In these few studies, mostly of high-risk populations, the estimated lifetime infection rates ranged from about 13% to 65%. A study by Siegel et al., (1999) found that among drug users in the United States, black women (64.7%) reported the highest rates of infection in the past, followed by white women (55.9%), black men (53.6%) and white men

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(29%). They all reported they had an STI infection in the past. A second study of female drug users estimated that 50% of black women and 28% of white women had a lifetime STI (Cavanaugh et al., 2011). A study of male prisoners in Cape Town, South Africa estimated that 54.9% had an STI at least once in their lifetime (Stephens et al., 2006-2007). In Nigeria, among patients seeking treatment in a general practice clinic, the lifetime STI prevalence was 32% (Olakolu, et al., 2010). In Kenya, lifetime STIs among sex workers ranged from 12.5% to 43.6% estimated in six surveys among antenatal clinic attenders between 1992 and 1999 (Moses et al., 2002).

### 1.1 Curable STIs in Ghana

To our knowledge there are no published lifetime occurrence rates in Ghana. However, a government report that used a visit to a STI clinic for treatment as a proxy indicator, estimated that the lifetime infection rate may be 57% among sex workers (Government of Ghana, 2006). Published current prevalence rates of four STIs in Ghana are scarce and are estimated from hospital samples or non-probability sampling surveys conducted in urban areas (Siemer et al., 2008). Appea-Kubi et al., (2004) estimated prevalence of syphilis at 5.6%, chlamydia at 3% and gonorrhoea at 0.6% in a sample of hospital patients in Accra, the capital of Ghana. Estimates of chlamydia prevalence in Ghana ranged from 1.6% among healthy women, 2.4% among infertile women (Siemer et al., 2008), 3% to 4.9% (Bentsi et al., 1985) among women attending an obstetric gynecological clinics in Ghanaian cities. Bentsi et al., also estimated that among postpartum women, prevalence for chlamydia was 7.7% and 3.4% for gonorrhoea. Prevalence rates were higher among female non-sex workers engaged in high risk sexual behaviours (4.8%, Opoku et al., 2010), and among female sex workers in Accra. According to Deceuninck et al. (2000), prevalence rates were 33.7% for gonorrhoea, 10.1% for chlamydia, and 4.6% for syphilis among sex workers in Accra. There are few studies that have estimated prevalence in western Ghana. Nyarko et al., (2013) estimated prevalence at 20.4% from a hospital population. Prevalence may be very much higher in mining communities as a result of migrants and sex workers in search of wealth. Another reason may be due to self-medication and having limited access to antibiotics (Appea-Kubi et al., 2004). The findings of Nyarko et al., was similar to estimates by studies conducted in rural areas in sub-Saharan Africa. For example, the estimated prevalence of chlamydia was 13% in a rural area in Tanzania (Orroth et al., 2003), 13.1% among Ghanaian sex workers in Benin (Alary et al., 2002) and 15.4% among sex workers in KwaZulu-Natal, South Africa (Ramjee et al., 1998).

### 1.2 Risk Factors

In Africa, the common risk factors for STI infections are young age at first sexual intercourse, sex workers, lack of formal education, single status, use of hormonal contraceptives, multiple of sexual partners, duration of sexual activity, income, immigrant status, and female gender (Opoko, 2006; Nyarko et al., 2013). The prevalence among women is twice that of men (WHO, 2011). Female sex workers had the highest prevalence and incidence of acquiring Chlamydia trachomatis, Neisseria gonorrhoea and other STIs including HIV/AIDS (Alary et al., 1998; Asamoah-Adu et al., 2001). Lack of knowledge about STIs is risk factor for infection. According to Nyarko et al., (2013), very few individuals knew about Chlamydia as an STI, unlike HIV/AIDS, gonorrhoea and syphilis which is well known.

Majority of the respondents knew about medical services but few use it. The preferred place for treatment of an STI was a drugstores and pharmacies. Fear of being stigmatized is an obstacle to seeking medical treatment and partner notification (Ulasi et al., 2007).

### 1.3 Sexual Practices in Ghana

A review by Awusabo-Asare et al. (2004) of the 1993 and 1998 Ghana Demographic and Health Surveys and the 1998 Ghana Youth Reproductive Health Survey (GYRHS) revealed several sexual practices among populations at high-risk for STIs. The 1998 survey showed that females had first sexual intercourse and first marriage earlier than males. Among females aged 20-24, 51% had the first sexual intercourse by 17.4 years, two years younger than the median age (19.4) for males in the same age cohort. In the same female cohort, 51% married by 19.3 years whilst the males first marriage was 24.8 years based on the 30-35 cohort. An older cohort was used because half of the males in the 20-24 cohort had not married (Opoku, 2006). Early marriage exposes young women to risks of STIs, especially young women in the northern Ghana, as a result of their cultural practices (Nyarko et al., 2013). Awusabo-Asare et al. (2004) also reported that several studies show that adolescents had multiple sexual partners with males having more partners than females. In one survey of adolescents aged 10-19 who had previous sexual experience, 77% had one sexual partner, 15% had 2-4 partners and the remainder had five or more partners in the 12 months before the survey. The Awusabo-Asare et al. (2004) study also reported that awareness of condom use was very high among female (66%) and male (77%) adolescents and that the condom was the most commonly used contraceptive method. Nevertheless, condom use rates were still low – 29% of females and 55% of males aged 15-19 who had experienced sex had ever used a condom. Awusabo-Asara et al. added that among currently sexually active females and males, 12% and 27%, respectively used condoms. A survey of 1,070 of women who were recruited in areas at high-risk for sexually transmitted disease, revealed that only 32% used a condom. Despite this low contraceptive rate, the women had an average of 2.0 sexual partners in the last three months and had sexual intercourse on average 3.6 times in the past week (Opoku, 2010). The women, mostly single and in their early twenties, were at high risk for STIs because of their low condom use rate and high risk sexual behaviour.

### 1.4 The Study

In Ghana, many young people especially women are at high risk for STIs because of early onset of sexual intercourse, multiple partners, and low rates of condom use. Knowledge about some STIs is particularly lacking in rural and mining areas. Moreover, the majority of individuals with STIs fail to seek correct diagnosis and adequate treatment (Wasserheit, 1992). The consequences of long-term untreated STI infection could severely affect the health of a woman and her children. Medical services to screen and diagnose STIs in Ghana are severely limited, especially in rural areas (Siemer et al., 1998). Some medical staff also does not appreciate the seriousness of an STI and provide adequate treatment (Awusab-Asare, 2004). It is also possible that health officials do not have enough time to counsel a patient diagnosed with STIs, and give practical information about the disease, its name, symptoms and treatment. This study aims to contribute to the

body of knowledge about STIs and its risk factors in a mining community in Western Ghana. The results of the study could inform stakeholders about the extent of the infection and identify populations who are most at risk of the infection. Stakeholders could improve STI management practices and control in Ghana. The hypotheses of the study are that an association will exist between STI and (H1) age, (H2) gender, (H3), education, (H4) occupation, (H5) condom use and (H6) having multiple partners.

## 2 MATERIALS AND METHODS

### 2.1 Sample

Data collection began two weeks after letters were sent to major hospitals in the municipality to inform officials about the impending study and to solicit their consent to recruit participants from their hospitals. The study was conducted from February 2012 to July 2012 at three selected hospitals in Tarkwa Nsuaem municipality in Western Ghana. Participants were both visitors and patients attending the Outpatient Departments. Four hundred questionnaires were distributed but only 370 respondents' complete data, 30 were incomplete.

### 2.2 Measures

Information on demographic characteristics, contraceptive practices, and selected medical history were obtained using a self-administered questionnaire.

#### 2.2.1 Dependent Variable

The dependent variable was ever had an STI. 'No' responses were coded '0' whilst 'Yes' was coded '1'. Respondents were also asked which type of STI they had.

#### 2.2.2 Independent Variables

To identify risk factors for STIs, we asked respondents to provide their age, gender, whether they had used birth control methods, marital status, years of education, and their occupation, and aspects of their sexual life. In addition, respondents were asked also about health conditions associated with untreated STI such as having had an abortion or miscarriage and whether a child contracted or developed an eye infection and pneumonia soon after birth.

### 2.3 Data Analysis Procedures

We used Chi-Square tests to investigate the associations between lifetime STIs and the independent variables. We used logistic regression to compare the relative importance of the independent variables in predicting STI outcomes.

## 3 RESULTS

### 3.1 Descriptive Analysis

#### 3.1.1 Demographic characteristics

The sample consisted of 370 individuals; the majority was comprised of women (68%), within the age 20-39 year old. (72.4%), had some form of education (94.1%) and currently married (61.9%). The most common occupation was trade (n=184) or public service.

#### 3.1.2 Health status

Of the respondents, 151 (40.8%) reported they had an STI at least once in their lifetime. The most common reported type

was candidiasis (66% of all STIs) and gonorrhoea (26.5% of all STIs). Among the respondents who reported having had STI, 6.6% did nothing about it, 9.2% sought treatment from a pharmacist or used traditional medicines, 11.9% self-medicated, and 63.6% received treatment at a hospital.

#### 3.1.3 Birth Control Methods

Respondents were asked about their current use of birth control methods. Among the 370 respondents, 37.3% used a method to prevent pregnancies and 18.1% used condom the only contraceptive method that protects a person from STIs (see Table 1).

#### 3.1.4 Male Characteristics

A separate set of analyses was conducted for men and females. Among 117 men, 59% had secondary education or more; 47.8% reported they were into trading. Another 23.9% said that they were students. Less than half of the men (47.9%) were married. Men married much later than the women. Only 16% of men age 35 and younger were ever married; however, by age 35, almost all the men were never married. Only a small portion (5.1%) said that they have more than one sexual partner. In terms of birth control methods, 32.5% reported using condoms, and the remainder did not use a birth control method that protects them from STIs. About 20.5% (n = 24) said they had contracted an STI before, mostly gonorrhoea. Of the 24, 20 went for treatment at a hospital or had gone to a pharmacist.

#### 3.1.5 Female Characteristics

Among 253 women, 36% had secondary education or more; 73.2% reported they were traders. Another 7.5% were students. In terms of marital status, 68.4% were currently married and 78% were never married. Compared to male respondents, female respondents married much earlier. Close to half of female respondents in the 15-24 age bracket was never married. This proportion rose to 66% in the 25-29 age group and close to 100% in 30 year olds and older age groups. Only a small portion (2.4%) of married women has more than one sexual partner. In terms of contraceptive use, 11.5% reported using condoms, and the remainder did not use any or use a birth control method that does not protect them from STIs; 9.2% reported they used hormones or birth control method.

### 3.2 Bivariate Analysis

As Table 1 shows, all of the demographic factors were independently associated with lifetime STI. A much larger proportion of females (50.2%) compared to men (20.5%) reported having had an STI,  $\chi^2(1, N = 370) = 29.19$ ,  $p < 0.001$ . Married respondents (45.1%) had higher lifetime infection rates than never married respondents (31%),  $\chi^2(1, N = 368) = 6.60$ ,  $p = 0.01$ . Younger respondents in the 20-34 age cohorts (43-55%) had a higher lifetime infection rate than older respondents (25%) and the youngest respondents (18.2%),  $\chi^2(1, N = 370) = 19.71$ ,  $p < 0.001$ . Respondents who had fewer years of education (i.e., basic or middle school) had a higher lifetime infection rate (about 52%) than those who had secondary or tertiary education (33.3%),  $\chi^2(5, N = 368) = 19.3$ ,  $p = .002$ . Finally, one occupation (trading) had a higher lifetime infection rate (53%) than other occupations (range of 12% to 37%)  $\chi^2(5, N = 368) = 32.64$ ,  $p = 0.001$ . Respondents who used condoms did not have a

significantly different infection rate (34.3%) than those who did not (42.2%)  $\chi^2(1, N = 370) = 1.42, p = .23$  (See Table 2)

### 3.2.1 Risk Factors of Gender

We examined whether the risk factors for lifetime STI identified in the previous paragraphs would hold true when responses of women and men are analysed separately (Table 2). Among men, there were no differences with age groups, marital status, and condom use. Compared to female respondents, male respondents contracted STI much later. No respondent in the 15-19 age group and only about 20% of the other age groups reported having had STI. The age group 25-29 had the highest lifetime infection rate (29%). When the educational and occupational categories were collapsed in order to meet Chi-Square test assumptions, it was found that men with less than secondary education had higher lifetime infection rates (31.3%) than men with secondary or more education (13%)  $\chi^2(1, N = 117) = 5.76, p = .016$ . Likewise, men whose primary occupation is business had higher lifetime infection rates (35.7%) than men in other occupations (15.7%)  $\chi^2(1, N = 117) = 5.217, p = .02$ . Having many partners was also a risk factor. The small number of men who reported multiple partners had a higher infection rate (66.7%) than those who said they did not (18%)

$$\chi^2(1, N = 117) = 8.26,$$

$p = .004$ . About a third (29.5%) of men who made a woman pregnant in the past had been infected compared to 10.7% who had not  $\chi^2(1, N = 117) = 6.33, p = .012$ . Female respondents in the three age cohorts between 20 and 39 years had a higher lifetime infection rate (49-66%) than the youngest age cohort (26.7%) and the oldest cohort (28.5%),  $\chi^2(5, N = 253) = 17.16, p = .004$ . Compared to male respondents, female respondents contracted an infection much earlier than men. In contrast to younger male groups who had zero or low infection rates, close to a third of female respondents in the 15-19 age group and more than half in the 20-29 age group had contracted STI. The 30-34 age group had the highest lifetime infection rate at 66%. Occupations that had the highest infection rates were clerical (83.3%), business (56.4%) and no occupation (53.1%). Public servants had the lowest rates (13.8%)  $\chi^2(6, N = 253) = 21.43, p = .001$ . Infection rates among the categories of education were not significantly different among women. However, when the categories were collapsed, women with secondary or higher education had lower infection rates (41.8%) than those with less education (54.9%)  $\chi^2(1, N = 253) = 4.05, p = .04$ . Never married female respondents had a lower infection rate (38.9%) than ever married respondents (53.3%),  $F(1, 253) = 4.27, (p = .039)$ . However, currently married respondents did not have significantly different infection rate than never-married respondents. Women who used a method of preventing pregnancies had higher infection rate (59.1%) than those who did not (45.5%)  $\chi^2(1, N = 253) = 4.27, p = .04$ . There was no significant difference between those who reported using condoms and those who did not. Having many partners was also a risk factor. Although only a handful of women reported having more than one partner, all of them reported having had an STI compared to 49% who had an STI but who reported having had only one partner. The research also examined whether the reported long-term outcomes of untreated STIs could indicate a history of STIs. None of the

indicators had a significant relationship with history of STIs.

## 3.3 Multivariate Analysis

### 3.3.1 Overall

In the initial logistic regression iterations, all variables that were significant in bivariate analysis were entered. Variables that were not significant in the first iteration were released from the model in the succeeding iterations. The overall model was statistically significant with  $\chi^2(10, N = 370) = 85.22, p < 0.001$ . The *Pseudo R<sup>2</sup>* was .21 (Cox and Snell) and .28 (Nagelkerke). The odds of a reported STI significantly increased when respondents had many partners (odds ratio (OR) = 12.4), were female (OR = 2.8) compared to men; when respondents reported business as their occupation (OR = 1.9). The odds of STI increased with the 20-24 (OR = 3.7), 25-29 (OR = 3.9) and 30-34 (OR = 4.7) age cohorts when compared to respondents in the 40 and older cohort. The odds of 15-19 and 35-39 age cohorts were not significantly different from the oldest age cohort. Odds decreased when birth control methods were not used (OR = 0.66) compared to when they were used and when respondents had completed secondary or tertiary education (OR=.67).

### 3.3.2 Male Model

The model was evaluated with only men in the sample. Education and occupation categories were collapsed because some of them had few or no cases. The overall model was statistically significant with  $\chi^2(10, N = 370) = 85.22, p < 0.001$ . The *Pseudo R<sup>2</sup>* was .13 (Cox and Snell) and .20 (Nagelkerke). The odds of a reported STI significantly increased when respondents were in the 20-30 age category (OR = 3.9) compared to the younger or older age categories, and when they reported having made a woman pregnant (OR = 3.5). The odds of STI decreased when respondents had completed secondary or tertiary education (OR=.21) compared to having no or middle school education.

### 3.3.3 Female Model

The same model was evaluated with only women in the sample. However, STI infection was added during a pregnancy (e.g., a child developing an eye infection with three months of its birth) in the model. This variable along with having many partners was not significant because of the small number of cases in these categories. The overall model was statistically significant with  $\chi^2(8, N = 253) = 39.99, p < 0.001$ . The *Pseudo R<sup>2</sup>* was .15 (Cox and Snell) and .20 (Nagelkerke). As shown in Table 3, among women, the odds of a lifetime STI significantly increased with three age cohorts: 20-24 (OR = 8), 25-29 (OR = 7.3), 30-34 (OR = 6.4), and 35-39 (OR = 3.1) compared to respondents in the oldest cohort (40 and older). The odds of a lifetime STI in the 15-19 age cohort were not significantly different from the oldest age cohort. Odds decreased when birth control methods were not used (OR = 0.48) compared to when they were used and when respondents had completed secondary or tertiary education (OR=.38).

## 4 DISCUSSION

The study generated new information about risk factors for STIs in a rural area in Western Ghana. The study hypothesized that socio-economic factors, namely age,

gender, marital status education, and occupation will be associated with self-reported lifetime STI. In addition, the study examined sexual practices that could be protective of STIs such as use of condoms during sexual intercourse, and number of sexual partners. About 41% reported that they had an STI at least once in their lifetime with men reporting half that rate. This lifetime prevalence rates are within range of published lifetime estimates found in the literature. Previous research also supports our finding that female lifetime infection rates are much higher than those of men. These high rates suggest that much work needs to be done to reduce or eliminate these infections, especially among women. As it has been shown in other studies, individuals with less education had higher infection rates than those with more education. Education and prevention measures are believed to have the greatest impact on changing behaviours and attitudes, especially among the youth (Duda et al., 2005). According to Muula (2008), a lack of education, especially among women, often results in unemployment and reduced opportunities to obtain a livelihood. With limited alternatives, many women may resort to becoming sex workers or to engage in "transactional sex" in which they provide sex in exchange for money and material resources from a partner (Muula, 2008). In addition, young girls may seek to marry early with much older men as way out of poverty (Muula, 2008). Studies have shown that an occupation can be a risk factor for STIs. Occupations (e.g., long- distance truck driving and mining) that require an individual to be away from home and their partners tend to have higher infection rates than those that do not (Johnson et al., 2002). Additionally, Mohan et al. (2005), found that in India, the unskilled profession, many of whom were unemployed were also predictive of STIs. In our study, respondents who reported their occupation as traders had the highest infection rates. Close to 62% of the women reported trading as their profession and within that profession, 67% only had basic or middle school education. Given these facts, it is likely that trading in this context is an unskilled and low-income occupation. As numerous studies have shown, women have higher infection rates than men. The women in this sample had multiple factors that raised their risks for infection. A smaller proportion of female respondents compared to male respondents had secondary education or more years of education. A higher proportion of women who were married, reported trading as the main occupation. Furthermore, infection occurred earlier and in higher proportions in the younger age groups compared to men. About a quarter of women in the 15-19 age group and more than half in the 20-24 age group had been infected. It was revealed that marriage was not protective against STIs among women. Although there is a common belief that marriage is protective of STIs, several studies in Zambia, Kenya, and Uganda have shown that HIV prevalence rates are much higher for married women than unmarried women (Nour, 2006). Nour (2006) further explains that many of the women were married at a very young age and under pressure to prove their fertility, have unprotected sex with husbands. Often, husbands are substantially much older, have had several sex partners in the past, and most likely are infected with HIV. Moreover, the young wives have no leverage to make demands on their husbands to get an HIV test, be monogamous, or use a condom because they are financially dependent on them. This practice of "intergenerational sex", where a husband is many years older than his wife is common in many parts of Sub-Saharan African

(Doyle et al., 2012, Muula, 2008). The effects of husbands STI/HIV infections on their wives were also demonstrated in a study in Ethiopia of women whose first and only sexual relationship was with their husbands. Despite their monogamous status and reflecting the promiscuity of their husbands, the prevalence rates among these women were 40% for gonorrhoea, 54% for genital chlamydia, and 19% for syphilis (Duncan et al., 1994). The research also revealed low rates of condom use among men and women. Similar low rates have been found in several studies among women (Baiden and Rajulton, 2011) and among men (Adih and Alexander, 1999) in Ghana. Lack of knowledge and access to condoms, the price of condoms, and embarrassment in purchasing a condom, were some of the main barriers to its frequent use, especially among young adults (Adih and Alexander, 1999, Ohene and Akoto, 2008).

#### 4.1 Limitations of the study

This study utilises self-reported data which are subject to faulty recall and bias. The findings may also be biased by a non-probability sample comprised of patients and visitors to hospitals. Despite these limitations, the findings of this study, especially regarding gender differences and onset of sexual activity, were consistent with prior research findings.

## 5.0 CONCLUSION

The study examined the effects of socio-economic factors on lifetime STI rates in a mining community in Western Ghana. Women were more likely to have had an infection than men and were more likely to get infected at an earlier age compared to men. More years of education decreased the odds of an STI. Marriage was not protective of STIs and condom use rates were low.

## ACKNOWLEDGEMENTS

The authors are very grateful to the officials of the hospitals where this study was conducted and for supporting us administratively. The authors are greatly indebted to Prof. N. N. N. Nsawah-Nuamah for his assistance towards the publication of this paper.

**Table 1: Demographic Characteristics and STI Prevalence**

Characteristics of Respondents	Total	Percent of Total (%) (N=370)	Has History of STI (n=151)	Percent of Category Total (%)	Chi-square	p-value
<b>Gender</b>					29.18	.001
Male	117	32	24	20.5		
Female	253	68	127	50.2		
<b>Age</b>					19.71	0.001
15-19	22	6	4	18.2		
20-24	67	18	31	46.3		
25-29	92	25	42	45.7		
29-34	56	15	31	55.4		
35-39	53	14	23	43.4		
40 and older	80	22	20	25		
<b>Education</b>					19.3	.002
None	27	7.3	9	33.3		
Basic	31	8.4	16	51.6		
Middle School	152	41.1	79	52		
Secondary	70	18.9	22	31.4		
Tertiary	90	24.3	25	27.8		
<b>Occupation</b>					32.64	.001
None	55	14.6	20	37		
Student	47	12.7	17	36.2		
Clerical	15	4.1	5	33.3		
Trading	184	49.7	98	53.3		
Farmer	13	3.5	4	30.8		
Public Servant	57	15.4	7	12.3		

**Table 1 Continued: Demographic Characteristics and STI Prevalence**

Characteristics of Respondents	Total	Percent of Total (%) (N=370)	Has History of STI (n=151)	Percent of Category Total (%)	Chi-square	p-value
<b>Marital Status</b>					6.52	.011
Never Married	113	30.5	35	31.1		
Married	257	69.5	116	45.1		
<b>Uses Contraceptive Methods</b>					2.83	.06
Yes	138	37.3	64	46.4		
No	232	62.7	87	37.5		
<b>Contraceptive Method Used</b>					12.19	.03
Natural Method	19	5.1	9	47.4		
Condom	67	18.1	23	34.3		
Hormonal Method	11	3	5	45.5		
Pills	23	6.2	15	65.2		

Sterilization	17	4.6	11	64.7		
None	233	64	88	37.8		
<b>Number of Sexual Partners</b>					8.26	.004
One	330	96.5	137	41.5		
More than one	12	3.5	8	83.3		
<b>Type of STI Contracted</b>					3.62	<0.001
Gonorrhoea	40	10.8	40	26.5		
Candidiasis	100	27.0	99	65.6		
Others	11	3.0	11	7.3		
<b>Type of Treatment for STI</b>					3.68	<0.001
Self-medication	18	4.9	17	94.4		
Traditional Medicine	14	3.7	14	9.3		
Pharmacist	14	3.7	14	9.3		
Hospital	96	26.0	96	63.6		
No Treatment	228	61.6	10	6.6		

Table 2: STI Prevalence by Gender

Characteristics of Respondents	Male		Female		Chi-square (p-value)
	History of STI number	Percent of Row Items	History of STI number	Percent of Row Items	
<b>Age</b>					17.16 (.004)
15-19	0	0	4	26.7	
20-24	4	16.7	27	56.3	
25-29	10	41.7	32	55.2	
29-34	0	0	31	66	
35-39	2	8.3	21	48.8	
40 and older	9	33.3	12	28.6	
<b>Education</b>					Ns
Basic	0	0	16	57.1	
Middle School	15	37.5	64	57.1	
Secondary	0	0	22	47.8	
Tertiary	9	20	16	35.6	
None	0	0	9	40.9	
<b>Occupation</b>					21.43,001)
Student	8	28.6	9	47.4	
Clerical	0	0	5	83.3	
Trading	10	35.7	88	62.4	
Farmer	0	0	4	36.4	
Public Servant	3	10.7	4	13.8	
None	3	13.6	17	53.1	

<b>Marital Status</b>					4.27(0.03)
Never Married	14	23.7	21	38.9	
Married	10	17.2	106	53.3	
<b>Contraceptive Use</b>					
Yes	12	25	52	59.1	29.2(0.00)
No	12	17.9	75	45.5	
<b>Type of Contraceptive in Use</b>					12.2(0.03)
Condom	8	21.1	15	51.7	
Others or none	16	20.3	112	50	
<b>Number of Sexual Partners</b>					5.81(0.016)
One	19	20	118	50.2	
More than one	4	66.7	6	100	

\*Ns: Not significant

**Table 3: Logistic Regression Model of Respondents' Characteristics**

All Respondents	B	S.E.	Wald	df	Sig.	Exp(B)
Has more than one partner	2.52	0.85	8.85	1	0.003	12.39
Female	1.03	0.31	11.17	1	0.001	2.79
Secondary education or more	-0.93	0.28	10.83	1	0.001	0.39
Occupation (Trade)	0.63	0.28	4.96	1	0.026	1.87
No birth control method	-0.41	0.26	2.51	1	0.113	0.67
Age			20.57	5	0.001	
15-19	-0.45	0.73	0.39	1	0.534	0.64
20-24	1.32	0.41	10.52	1	0.001	3.75
25-29	1.35	0.39	11.89	1	0.001	3.85
30-34	1.45	0.42	11.68	1	0.001	4.26
35-39	0.75	0.42	3.27	1	0.071	2.12
Constant	-1.79	0.41	19.52	1	0	0.166
<b>Men</b>						
Secondary education or more	-1.31	0.55	5.65	1	0.017	0.27
Age 20-29	1.37	0.56	6.01	1	0.014	3.93
Constant	-2.15	0.60	12.63	1	0	0.12
<b>Female</b>						
Secondary education or more	-0.97	0.31	9.87	1.00	0.002	0.38
No birth control method	-0.74	0.30	5.98	1.00	0.014	0.48
Age (Ref category: 40 and older)			23.98	5.00	0.000	
15-19	0.52	0.73	0.51	1.00	0.477	1.68
20-24	2.07	0.53	15.59	1.00	0.000	7.96
25-29	1.99	0.50	15.99	1.00	0.000	7.29
30-34	1.86	0.49	14.59	1.00	0.000	6.45
35-39	1.12	0.48	5.57	1.00	0.018	3.08
Never married	-1.08	0.41	7.08	1.00	0.008	0.34
Constant	-0.35	0.40	0.76	1.00	0.383	0.70



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