Prevalence of Chlamydia and Gonorrhea Among Adolescents in Kisumu, Kenya

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BACKGROUND

Diagnosis of Sexually Transmitted Infections (STIs)

- Diagnostic algorithm for STIs in Kenya is based on syndromic management
- Syndromic management underestimates prevalence of STIs
- Asymptomatic STIs often go undiagnosed and untreated
  - Can lead to onward transmission
  - Can result in infertility and pelvic inflammatory disease

Prevalence of Undiagnosed STIs Among Adolescents

- Adolescents are at particularly high risk of having undiagnosed STIs
  - Lack of knowledge of common symptoms associated with infection
  - Lack of routine screening for STIs by healthcare providers

Objectives

- To estimate the prevalence of *Chlamydia trachomatis* and *Neisseria gonorrhoeae* among adolescents in Kisumu, Kenya.

METHODS

Study Participants

- Eligibility Criteria
  - Adolescent boys and girls aged 15 to 19
  - Residents of informal settlements in Kisumu
- Recruitment Procedures
  - Participants recruited using respondent-driven sampling
    - Truong HM, et al., Annals of Epidemiology, 2023; 78:68-73
  - Initial seeds selected from focus group participants
  - Survey participants provided with up to five referral coupons

Cross-sectional Survey

- Survey collected data on demographic characteristics, sexual behaviors, perceived STI risk and history of STI symptoms, diagnosis and treatment

STI Testing

- Testing for chlamydia and gonorrhea offered to sexually-active adolescents
  - 3,061 participants completed the survey
  - 1,238 participants reported having engaged in sex
  - 1,167 participants accepted STI testing
  - 1,159 participants had interpretable test results
- Self-collected urine specimens were screened using Molecular Xpert CT/NG test (Cepheid, Sunnyvale, CA)

Data Analysis

- Associations assessed by Chi Square tests

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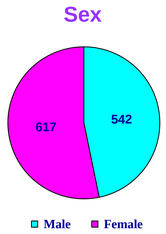
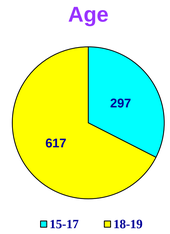
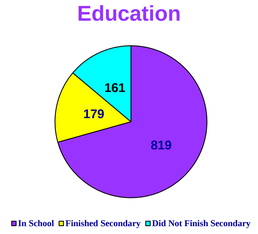
RESULTS

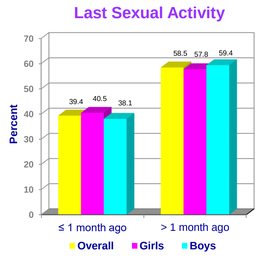
Demographic Characteristics of Testers

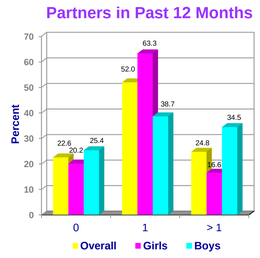


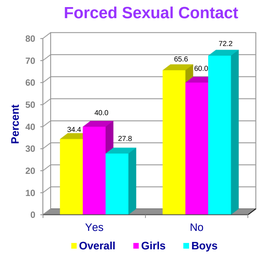


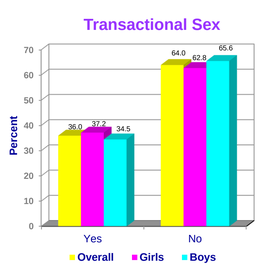


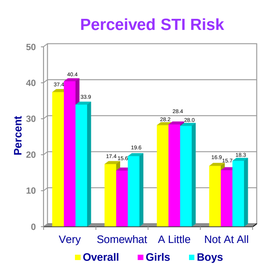
Sexual Behaviors and STI Characteristics of Testers

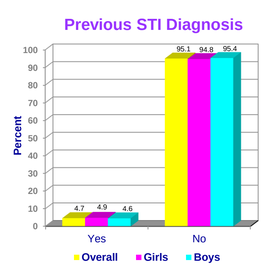


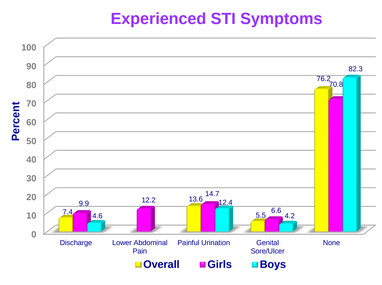


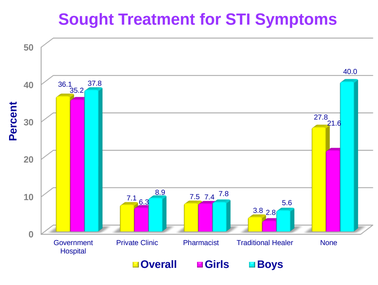












RESULTS

Characteristics of Testers by STI Diagnosis

Characteristics	Positive N (%)	Negative N (%)	Odds Ratio (95% CI)	p-value
Chlamydia or Gonorrhea or Both	111 (9.6)	1,048 (90.4)	-	-
Chlamydia	102 (8.8)	1,057 (91.2)	-	-
Gonorrhea	15 (1.3)	1,144 (98.7)	-	-
Sex				
Girls	77 (12.5)	540 (87.5)	2.13 (1.40 – 3.25)	< 0.001
Boys	34 (6.3)	508 (93.7)	ref	
Age				
15-17 years	24 (8.0)	275 (92.0)	ref	
18-19 years	87 (10.1)	773 (89.9)	1.29 (0.80 – 2.07)	0.291
Education				
Currently in school	70 (8.5)	749 (91.5)	ref	
Out of school, finished secondary	20 (11.2)	159 (88.8)	1.35 (0.80 – 2.28)	0.268
Out of school, did not finish secondary	21 (13.0)	140 (87.0)	1.61 (0.95 – 2.70)	0.075
Last Sexual Activity				
≤ 1 month ago	54 (12.8)	369 (87.2)	1.69 (1.13 – 2.54)	0.011
> 1 month ago	50 (8.0)	578 (92.0)	ref	
Number of Partners in Past 12 Months		20		
0 partners	15 (6.2)	227 (93.8)	ref	
1 partner	56 (10.0)	502 (90.0)	1.69 (0.93 – 3.05)	0.082
> 1 partners	33 (12.4)	233 (87.6)	2.14 (1.13 – 4.05)	0.019
Experienced Forced Sexual Contact				
Yes	47 (12.7)	322 (87.3)	1.60 (1.06 – 2.39)	0.024
No	59 (8.4)	645 (91.8)	ref	
Engaged in Transactional Sex				
Yes	50 (13.0)	336 (87.0)	1.68 (1.12 – 2.51)	0.012
No	56 (18.2)	631 (91.8)	ref	
Worried About Getting an STI				
Very worried	39 (9.0)	394 (91.0)	0.92 (0.52 – 1.64)	0.783
Somewhat worried	26 (12.9)	176 (87.1)	1.38 (0.73 – 2.58)	0.318
A little worried	27 (8.3)	300 (91.7)	0.84 (0.45 – 1.55)	0.575
Not worried at all	19 (9.7)	177 (90.3)	ref	
Ever Experienced STI Symptoms				
Yes	38 (13.8)	238 (86.2)	1.77 (1.17 – 2.69)	0.007
No	73 (8.3)	810 (91.7)	ref	
Previously Diagnosed with an STI				
Yes	5 (9.1)	50 (90.9)	0.94 (0.37 – 2.41)	0.897
No	106 (9.6)	996 (90.4)	ref	

CONCLUSIONS

- STI prevalence overall was 9.6% and was higher among girls and adolescents who reported recent sexual activity, transactional sex or forced sexual contact.
- Two-thirds of adolescents who tested positive for an STI were asymptomatic and most likely would have gone undiagnosed and untreated.
- Undiagnosed or misdiagnosed STIs can result in onward transmission and significantly impact the reproductive health of adolescents.
- Our findings lend support for offering STI testing to adolescents with risk factors to enhance sexual and reproductive health.