STI Rates and Risk Factors among Female Sex Workers Attending STI Testing Sites in Germany

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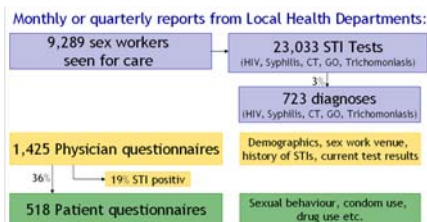
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Background

From 1 January 2010 to 1 April 2011, selected German local health departments (LHD) offering STI testing services, collected test results as well as demographic and behavioural data among female sex worker (FSW) attendees.
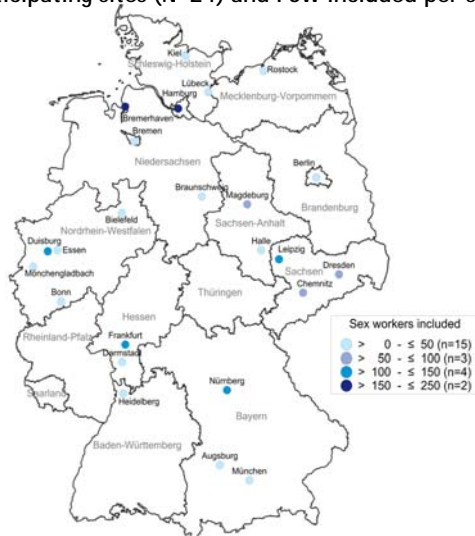
Objectives:

1) Describe the characteristics of the FSW attending low threshold STI testing sites in Germany and

2) Determine STI positivity rates and identify risk factors for testing "STI positive" among these women.

Methods

Overview of data collection

Monthly or quarterly reports from Local Health Departments:

- 9,289 sex workers seen for care → 23,033 STI Tests (HIV, Syphilis, CT, GO, Trichomoniasis)
- 723 diagnoses (HIV, Syphilis, CT, GO, Trichomoniasis)
- 1,425 Physician questionnaires — Demographics, sex work venue, history of STIs, current test results
- 19% STI positiv
- 518 Patient questionnaires — Sexual behaviour, condom use, drug use etc.

Participating sites (N=24) and FSW included per site

Sex workers included
- ○ 0 - ≤ 50 (n=15)
- ◔ 50 - ≤ 100 (n=3)
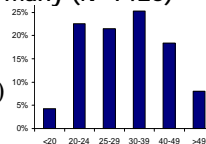- ● 100 - ≤ 150 (n=4)
- ● > 150 - ≤ 250 (n=2)

Statistical methods: Relevant risk factors were identified using uni- and multivariable logistic regression models. Variables associated with the outcome in the univariable analyses at P≤0.2 were included in two multivariable models.
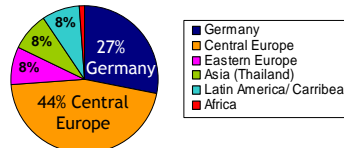
Characteristics of female sex workers attending STI testing sites in Germany (N=1425)

- **Age:**
  Median: 30 years
  (IQR: 24-40 years)

- **Area of origin:** 73% migrants, mostly from Central Europe

  - Germany 27%
  - Central Europe 44%
  - Eastern Europe 8%
  - Asia (Thailand) 8%
  - Latin America/ Carribean 8%
  - Africa

- **German language skills:** 36% none / very poor
- **First visit to clinic:** 46%
- **Where are clients met:** (overlapping categories)
  - 35% Brothel, 26% Flat, 17% Internet/Adds, 9% Street, 7% Bars/Strip clubs
- **HIV test in the last 12 months:** 68%

Characteristics from the behavioural questionnaire (N=518)

- Duration in sex work: Median 3 years (IQR: 1-7 years)
- Number of clients per week: Median 13 (IQR: 7-25)
- Had unprotected vaginal sex with clients: 9%
- Had sex with a non-steady partner in last 6 mo.: 22%
- Ever injected drugs: 5%

STI Test-results from the 9,289 examinations among FSW

	HIV	Syphilis	Chlamydia	Gonorrhoea	Trich.
N tests	3,880	4,474	5,383	6,032	3,264
% positive	0.2%	1.1%	6.9%	3.2%	3.0%

~ 17% of chlamydia diagnosis co-infected with gonorrhoea.

Results

Association between selected risk factors and being "STI positive" (diagnosed with chlamydia, gonorrhoea, syphilis and/or trichomoniasis)

Characteristics	All (N=1425) n	All %	STI positive (N=271) n	STI positive %	Univariable analysis OR 95% CI	Univariable p Value	Multivariable analysis Model 1 OR 95% CI	Multivariable p Value
Age (years)								
<20	60	4%	26	43%	1.82 (1.03-3.2)	0.038	1.65 (0.9-3.2)	0.134
20-24	318	23%	93	30%	1		1	
25-29	304	22%	59	20%	0.58 (0.4-0.8)	0.004	0.51 (0.3-0.8)	0.005
30-39	357	25%	52	15%	0.41 (0.3-0.6)	<0.001	0.45 (0.3-0.7)	0.001
40-49	260	18%	27	10%	0.28 (0.2-0.4)	<0.001	0.32 (0.2-0.6)	<0.001
>49	113	8%	11	10%	0.26 (0.1-0.5)	<0.001	0.29 (0.1-0.7)	0.005
German language								
Fluent or medium	878	64%	105	12%	1		1	
Very poor / none	490	36%	160	33%	3.61 (2.7-4.8)	<0.001	1.57 (1.1-2.3)	0.026
Health insurance								
Yes	753	57%	92	12%	1		1	
No	569	43%	166	30%	2.98 (2.2-4.0)	<0.001	1.61 (1.1-2.4)	0.016
First time in clinic Yes	612	46%	152	25%	1.86 (1.4-2.4)	<0.001	1.47 (1.0-2.1)	0.026
No	718	54%	109	15%	1		1	
Where clients are met § *(multiple answers possible)*								
Brothel	469	35%	73	16%	0.72 (0.6-0.98)	0.034	0.65 (0.5-0.9)	0.024
Internet/Add	222	17%	24	11%	0.48 (0.3-0.8)	0.001	0.90 (0.5-1.5)	0.688
Flat	350	26%	53	15%	0.71 (0.5-0.99)	0.044	1.10 (0.7-1.7)	0.625
Street	126	9%	51	41%	3.54 (2.4-5.2)	<0.001	1.70 (1.0-2.8)	0.041
Bars/ Strip clubs	89	7%	25	28%	1.76 (1.1-2.9)	0.022	1.70 (0.9-3.0)	0.075
Contraception § *(multiple answers possible)*								
Oral contraception	371	28%	55	15%	0.72 (0.5-1.0)	0.053	0.98 (0.7-1.5)	0.934
Condom	571	43%	109	15%	0.6 (0.5-0.8)	<0.001	0.57 (0.4-0.8)	0.001
No contraception used	291	22%	80	28%	2.09 (1.5-2.9)	<0.001	0.88 (0.5-1.4)	0.579
Have children								
Yes	639	49%	135	21%	1.24 (0.9-1.6)	0.13	1.89 (1.3-2.7)	0.001
No	675	51%	120	18%	1		1	
From behavioural questionnaire (N=518)							Model 2	
Duration in sex work								
0-6 months	54	13%	18	33%	9.17 (3.4-24.9)	<0.001	4.91 (1.3-18.7)	0.020
7-12 months	57	14%	13	23%	5.42 (1.9-15.2)	0.001	5.30 (1.4-20.8)	0.017
1-2 years	63	16%	7	11%	2.33 (0.7-7.3)	0.144	2.35 (0.5-10.1)	0.250
2-3 years	50	12%	4	8%	1.59 (0.4-5.9)	0.486	1.48 (0.3-7.6)	0.634
3-5 years	63	16%	5	8%	1.58 (0.4-5.4)	0.465	1.56 (0.4-6.8)	0.554
> 5 years	118	29%	6	5%	1		1	
Sex with a non-steady partner in last 6 months	111	22%	20	19%	1.89 (1.1-3.4)	0.031	2.61 (1.1-6.1)	0.026
No	392	78%	42	11%	1		1	
What happend last time a client wanted sex without condom?								
Had sex without a condom	35	9%	11	32%	3.79 (1.7-8.4)	0.001	10.0 (3.0-34.2)	<0.001
No sex without condom	358	91%	40	11%	1		1	

§ When multiple answers possible, individual dichotomous variables were contructed with the reference group being those not exposed e.g. "not meeting clients on the street" or "not using oral contraception".
Model 1 adjusted for age, language, health insurance, first time in clinic, where clients are met, contraception, having children.
Model 2 adjusted for age, language, duration in sex work, sex with non-steady partner, sex without condom.
Variables not significantly associated with the outcome included: number of clients per week, drug use and HIV test in the last 12 month

Summary of key results: • The risk of being diagnosed with an STI decreases with age.
• Women working <1 year in sex work seem more vulnerable to STIs than those working for several years.
• Language skills are more important than area of origin. FSW with poor language skills are more at risk for STIs and interventions are needed for these women.

Conclusions

• Few young, African or drug injecting FSW reached. More work needed to assess the potential gap in access to services among these groups.

• Overall, STI positivity rates, especially for HIV and syphilis seem relatively low among FSW attending STI testing sites in Germany.

• STI rates are highest among the younger, uninsured, street-based women, who do not speak German and visit the STI clinic for the 1st time as well as those recently starting in sex work, who report unprotected sex with clients. Public health efforts should support these women.