

# **High HIV prevalence within a generalized epidemic: condom use, violence, and sexually transmitted infections among female sex workers in Dar-es-Salaam, Tanzania.**

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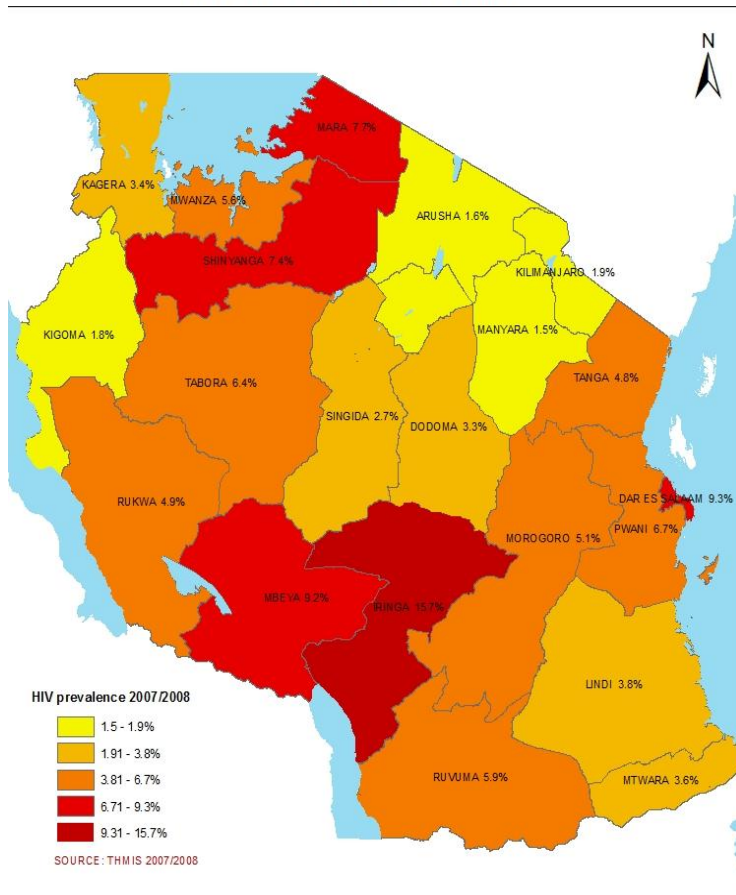
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# Background

HIV PREVALENCE 2007/2008



- HIV Prevalence (adult)
  - Dar-es-Salaam: 9.3%
    - 10.4% women / 7.9% men
  - Tanzania: 5.7%
    - 6.6% women / 4.6% men
- Limited information on FSWs across mainland Tanzania
- Evidence base required for advocacy and program planning for HIV prevention and care of female sex workers (FSW)

# Objectives

For FSW Population in Dar-es-Salaam:

- Estimate population size
- Describe socio-demographic and behavioral characteristics
- Measure prevalence of
  - HIV
  - Hepatitis B & C
  - Syphilis
  - Other STIs
- Generate data for advocacy, policy-making and intervention program design

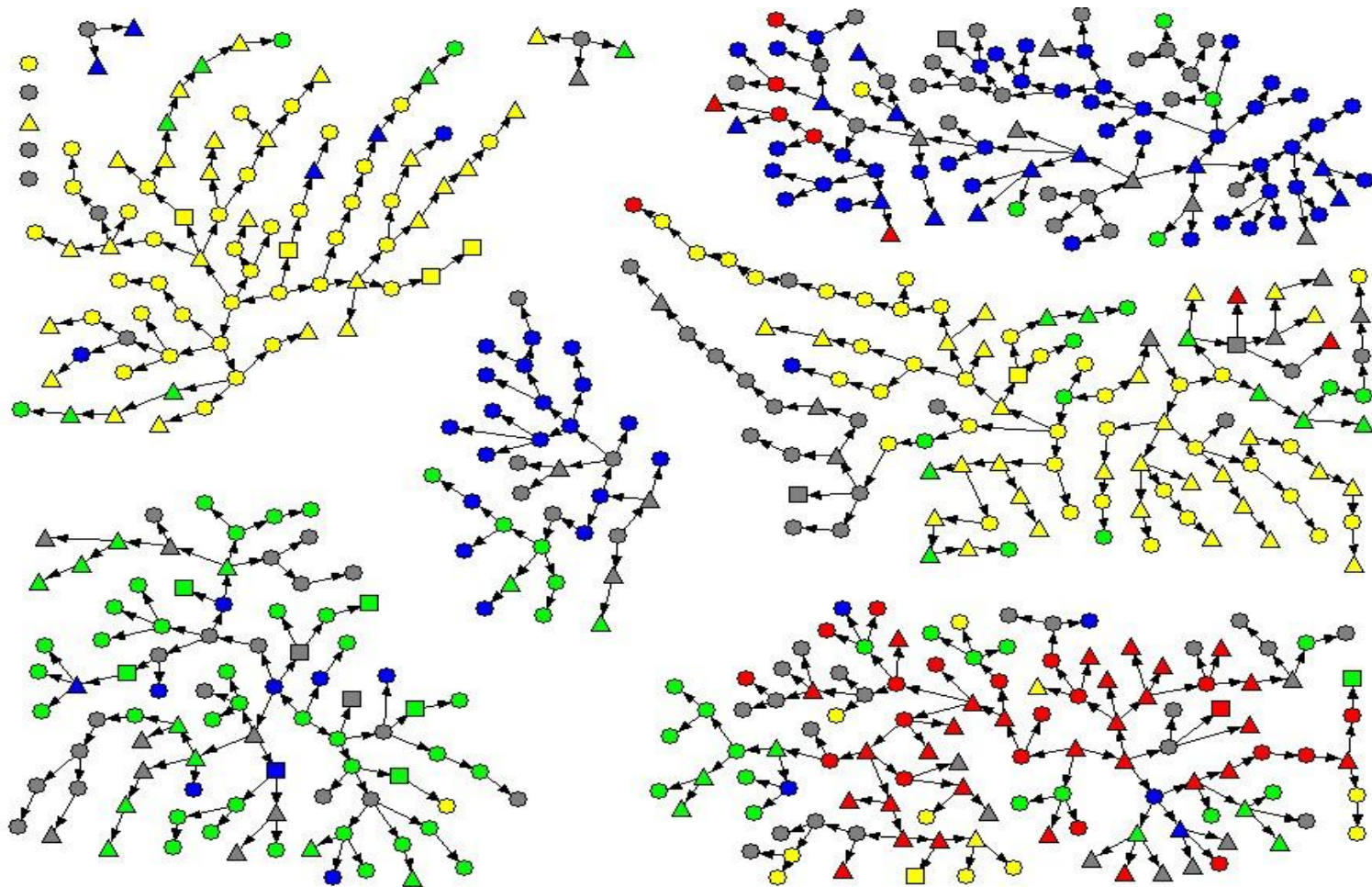
# Methodology

Respondent Driven Sampling (RDS) a chain referral method used to identify study participants

- Interviews
  - Socio-demographics
  - Risk behaviors (condom use, sexual partnership, drug use)
  - Health seeking behavior
  - Vulnerability
- Biological Tests
  - Blood/serum: HIV, Hepatitis B & C and Syphilis,
  - Vaginal swabs for STIs: gonorrhea, chlamydia, Trichomonas vaginalis, bacterial vaginosis, and Candida
- FSW Population Size Estimation
  - Unique object (handkerchief) distributed to FSWs at venues
  - Study participants were asked if they received the object
  - Population size  $N=1/P*M$ 
    - P = proportion of FSWs in study who received object
    - M = number of FSWs in Dar es Salaam who received objects before study (1100)
- Analysis
  - Point estimates and 95% confidence intervals adjusted for social network size and recruitment patterns using RDS Analysis Tool (RDSAT)

# Results

537 FSW recruited between April – August, 2010



Yellow – Location 1  
Red – Location 2  
Green – Location 3  
Blue – Location 4  
Grey--Location 5

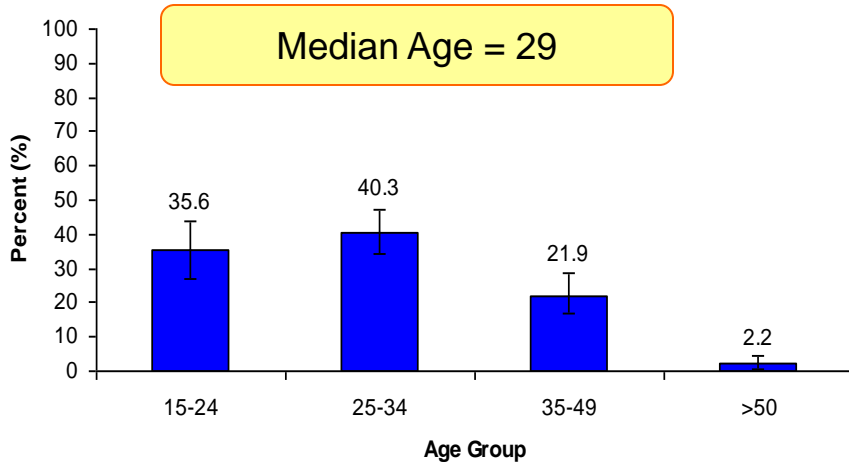
△ HIV-positive  
○ HIV-negative  
□ Missing results

# Results

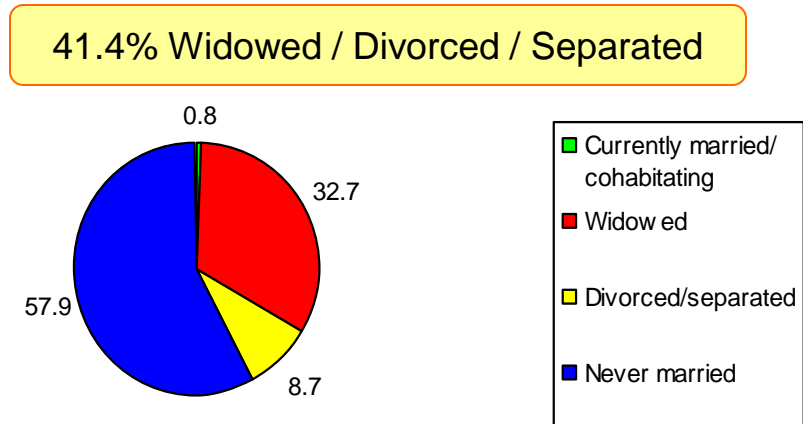
- Estimated size of FSW population in Dar-es-Salaam 7,000 (range 5,000-10,000) of 954,916 adult females
  - 0.7% or 1 in 143 women engage in sex work
- Median age at sexual debut 17 years old (IQR 15-18)
- Median age at first selling sex 24 years old (IQR 19-29)

# Socio-demographics

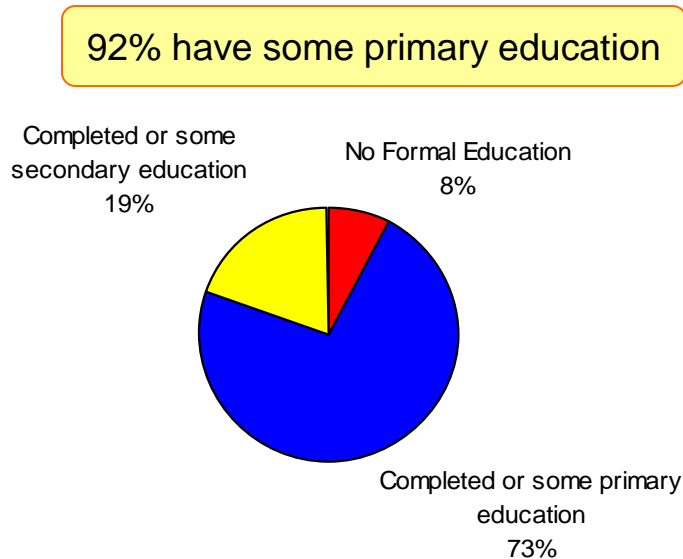
## Age Distribution



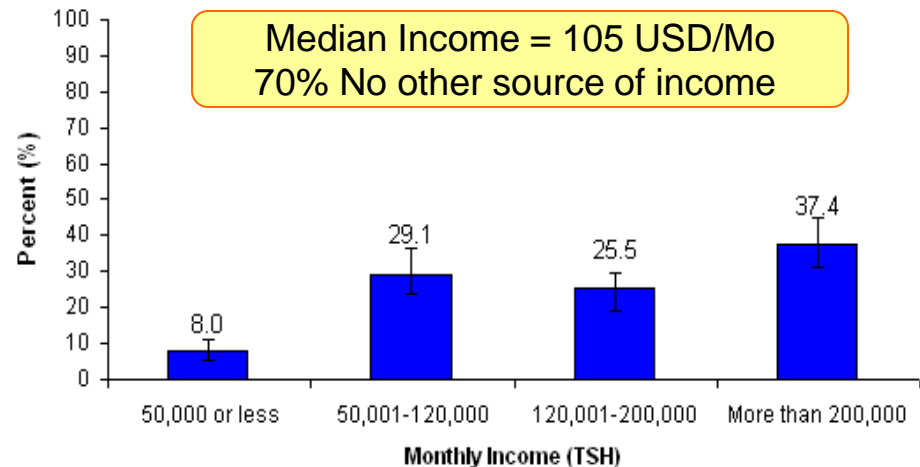
## Marital Status



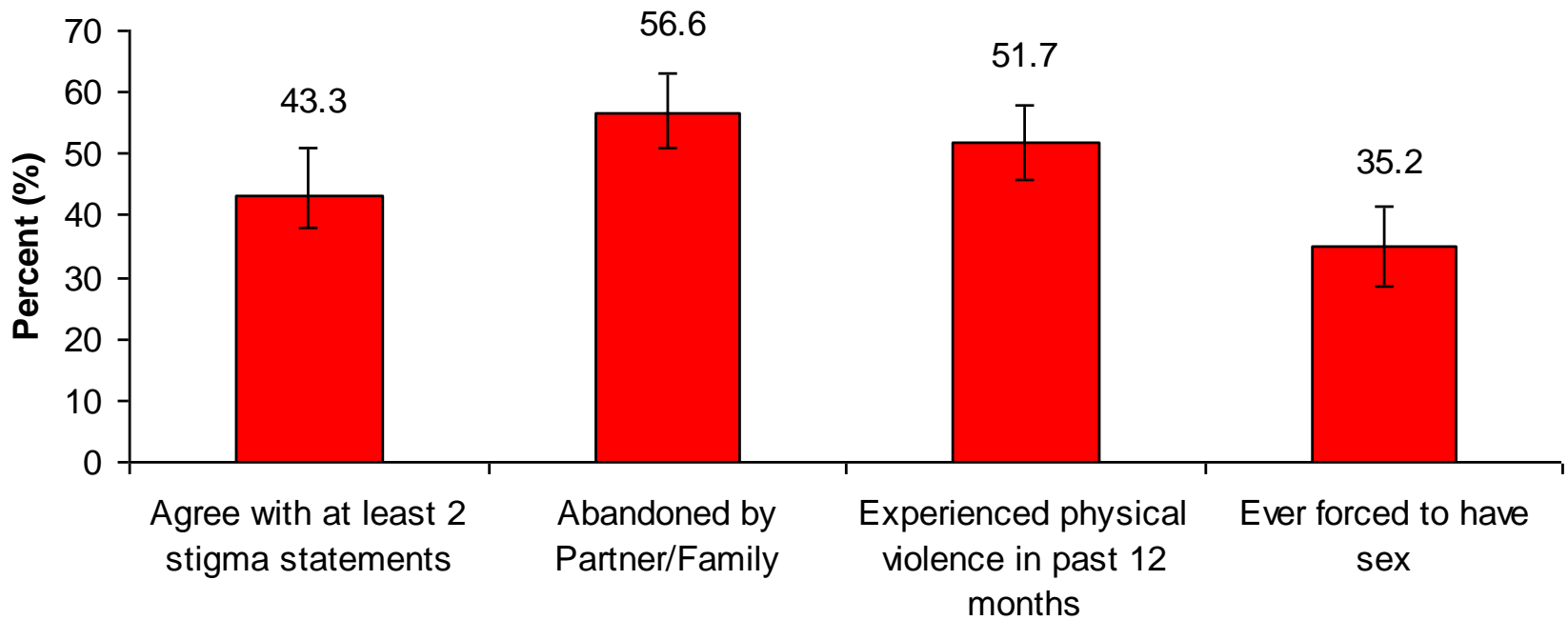
## Education



## Income (Monthly)



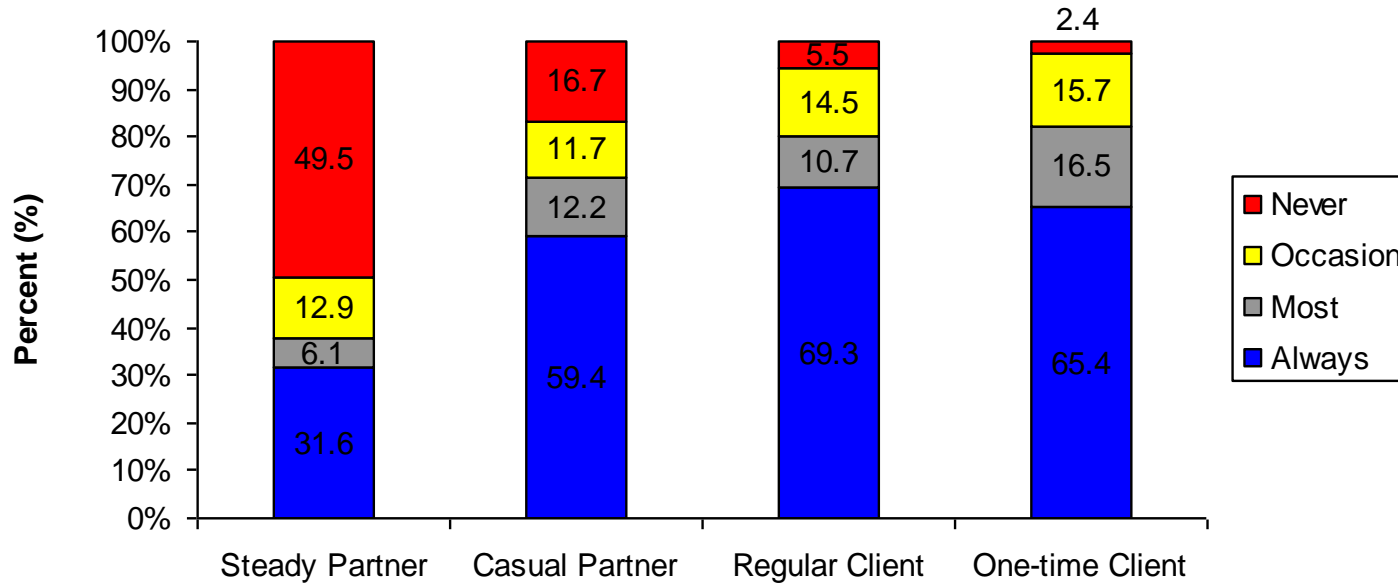
# Stigma and Violence





# Condom Use

## Male Condom Use by Partner Type



## Female condom use

- 18.3% ever used a female condom
- 32.9% had never heard of female condom (of those who had not used)

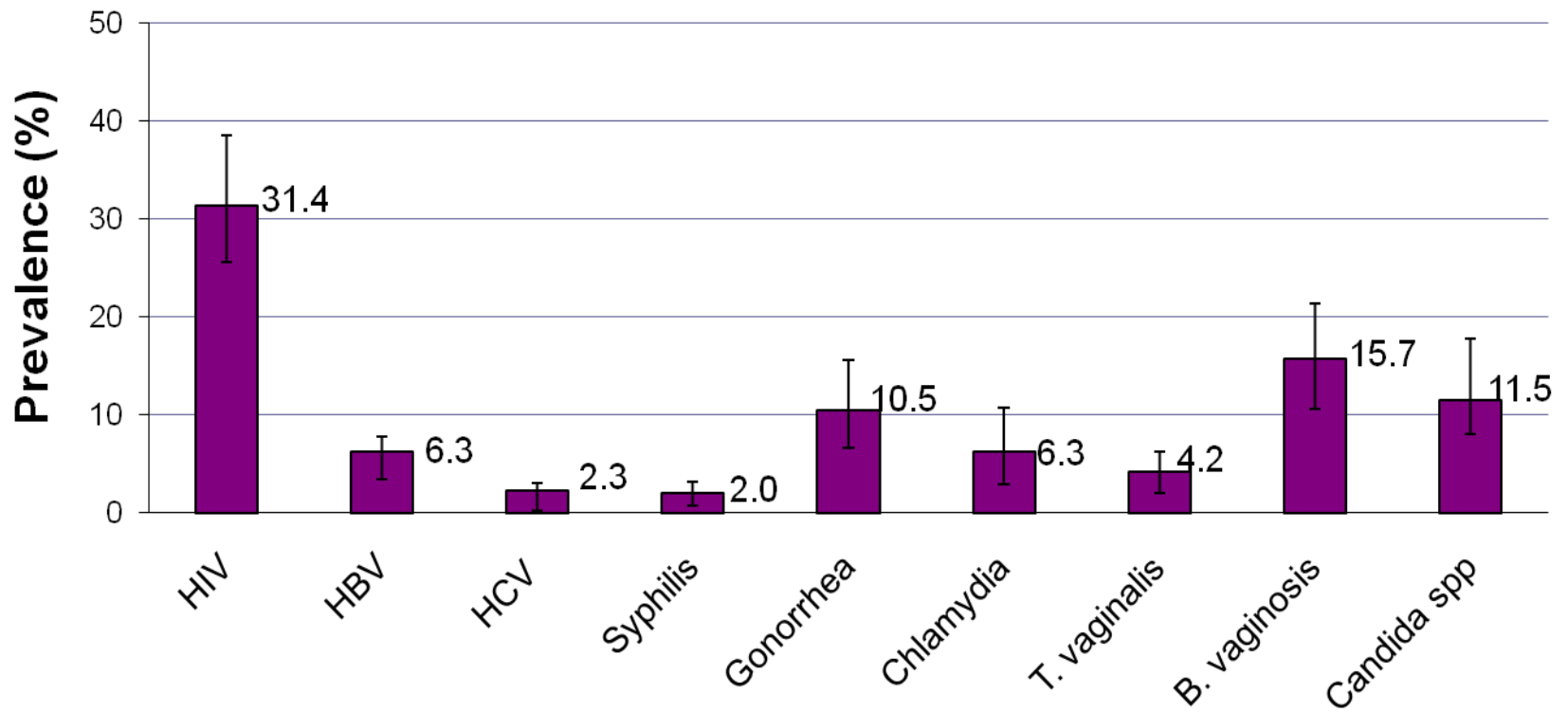
# HIV/STI Prevention

- 83.7% believed they were at high risk of acquiring HIV
- 69.3% had ever had an HIV test
- 50.1% of those who reported STI symptoms in past 6 months sought care at government facilities while 32.3% did nothing
- 98.8% had heard of HIV, though only 31.5% had comprehensive knowledge of HIV

# Other Risk Behaviors

- Substance use was low
  - 1.3% reported injecting drug use (IDU) themselves
- Having a partner who injects drugs (or is suspected of injecting) put them at high risk for HIV **46.9** versus **23.2%**
- High risk sex
  - 14.6% reported ever having dry sex
  - 17.2% reported ever anal sex
  - These occurring broadly similarly across partner types

# Prevalence of HIV, STIs and RTIs



# Discussion

- FSWs have 3 times greater prevalence of HIV than general population
- Condom use with all partner types is inconsistent, especially with non-paying partners
- Abandonment and physical and sexual violence are common in this population
- Reported drug use was low, but FSWs may engage in sexual risk behaviors with IDU partners

# Limitations

- Social desirability bias due to self-reported behaviors
- Recall bias due to behaviors reported over 12 months
- Possible duplication of participants because of two sites
- Missed some FSW categories (less than 3 months in Dar es Salaam, FSWs aged less than 15 years, Asian, diversity of 'transactional sex')

# Conclusions and Recommendations

- Baseline survey provided important data to understand the current context of HIV and STIs among FSWs in Dar es Salaam
- Need for comprehensive prevention and care and treatment package for HIV and STIs in this population
- Need for interventions that empower FSWs to reduce vulnerability and violence and enable them to negotiate condom use
- Further research is needed on clients to fill gaps in knowledge of HIV and STI risk and transmission between FSWs and the general population

# Acknowledgements

- Study participants
- Field staff
- African Medical Research Foundation and Temeke Hospital administration
- National Laboratory Quality Assurance and Training Centre, Dar-es-Salaam
- CDC (Dar-es-salaam & Atlanta)
- University of California, San Francisco





Population	Chlamydia	Trichomonas	Syphilis	Gonorrhoea	Source
Youth Dar	5.70%	23%	1.40%	0.68%	From Sylvia Kaaya, MUHAS
HIV positive women Dar es Salaam	3.50%	4.20%	7.30%	0.20%	From Sylvia Kaaya, MUHAS
females 24-44 Moshi, gen pop	n/a	11%	2%	n/a	Ghebrimichael et al 2008
males Moshi, gen pop	n/a	6%	n/a	n/a	Ghebrimichael et al 2009
male community members (Shinyanga gold mines)	n/a	n/a	9%	n/a	Clift et al, 2003
female community members (Shinyanga gold mines)	n/a	n/a	11%	n/a	Clift et al, 2003
pregnant women 3rd trimester Moshi (HIV+)	30%	7.10%	3.30%	1.60%	Msuya et al 2009
pregnant women 3rd trimester Moshi (HIV-)	16.60%	4.90%	0.70%	0.40%	Msuya et al 2009

# Socio-demographic characteristics of FSWs, Dar es Salaam, 2010

Socio-demographic characteristics	N	%	95% CI
<b>Age</b>			
15-24 years	172	35.6	27.1-43.9
25-35 years	209	40.3	34-47.1
36-50 years	141	21.9	16.7-28.5
>50	15	2.2	0.7-4.3
Median age in years (IQR)		29 (23-36)	
<b>Education</b>			
No Formal Education	38	7.7	4.1-12.0
Completed or some primary education	404	72.9	67.1-78.1
Completed or some secondary education	92	19.4	14.8-24.6
<b>Marital Status</b>			
Currently Married/Cohabiting	6	0.8	0.2-2.0
Divorced/Separated	200	32.7	26.1-40.2
Widowed	54	8.7	5.0-11.0
Never Married	271	57.9	50.5-66.1
<b>Current living situation</b>			
Alone	293	51.6	45.4-59.0
Husband/boyfriend/Family	154	30.5	24.1-35.7
Friends/other FSWs	89	17.9	13.2-23.1
No fixed address	0	0	0
<b>Alternative sources of income</b>			
No other income besides sex work	343	69.7	63.1-76.2
Have other income generating activities	139	30.3	23.8-36.9
<b>Personal income (TZS)</b>			
< 50,000	44	8.0	(5.1-11.0)
50,000 – 120,000	156	29.1	(23.6-36.5)
120,001 – 200,000	130	25.5	(18.9-29.8)
≥ 200,001	198	37.4	(31.4-45.0)
Median income in TZS (IQR)		160,000TSH (100,000-300,000)	

# Stigma and Violence

	Proportion	95% CI
<b>Have been abandoned by partner/husband/family</b>		
Yes	56.6	50.0-62.1
<b>Experienced physical violence in past 12 months</b>		
Yes	51.7	45.4-57.5
<b>Who physically abused</b>		
Police	5.7	2.6-9.4
Client	33.3	26.6-41.6
Co-worker	38.3	28.8-45.4
<b>Ever forced to have sex</b>		
Yes	35.2	29.0-41.9