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Article

Paid sex among men in sub-Saharan Africa: Analysis of the demographic and health survey

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ABSTRACT

Background: Paying for sex is regarded as a risky sexual behavior (RSB) among heterosexual men. Men paying for sex are considered to be a bridging population for sexually transmitted infections (STIs). Despite the link between paid sex and sexual and reproductive health outcomes such as STIs, little is known about the prevalence and factors associated with paid sex among men in sub-Saharan Africa. This study examined the prevalence of paid sex and the socio-demographic factors associated with it among men in sub-Saharan Africa.

Methods: The study made use of pooled data from the Demographic and Health Surveys (DHS) conducted from January 1, 2010 to December 3, 2016 in 27 countries in sub-Saharan Africa. Binary and multivariable logistic regression models were used to investigate the relationship between the explanatory and the outcome variables.

Results: The results of the study showed that of the 139,427 men who participated in the study, 4.3% reported they had paid for sex in the 12 months preceding the survey. Men in Mozambique had the highest proportion (13.6%) of paying for sex in the 12 months preceding the survey. The results of the multivariable analysis indicated that men from DR Congo [AOR = 9.74; 95% CI = 7.45–12.73], men who had completed only primary level of education [AOR = 1.31; 95% CI = 1.18–1.45], men aged 25–34 years [AOR = 2.84; 95% CI = 2.26–3.56], men belonging to "other" religious groups [AOR = 1.20; 95% CI = 1.09–1.32] and men who were employed [AOR = 1.73; 95% CI = 1.58–1.90] had higher odds of paying for sex. Men who were divorced [AOR = 4.52; 95% = 3.89–5.25], men who read newspaper/magazine almost every day [AOR = 1.34; 95% CI = 1.12–1.63], men who listened to radio almost every day [AOR = 1.19; 95% CI = 1.05–1.36] and men who watched television at least once a week [AOR = 1.10; 95% CI = 1.01–1.19] also had higher odds of paying for sex. On the other hand, men in rural areas [AOR = 0.88; 95%CI = 0.82–0.95], men in the richest wealth quintile [AOR = 0.83; 95%CI = 0.74–0.93] and those with tertiary level of education [AOR = 0.77; 95% CI = 0.65–0.90] had lower odds of paying for sex.

Conclusion: The odds of paid sex were high among men with only primary level of education, men aged 25–34, men who professed 'other' religious affiliation, men who are employed and men who are divorced. However, paid sex was low among men in the richest wealth quintile, men with tertiary level of education and men living in rural areas. This means that the decision to pay for sex is influenced by several social and demographic factors. Hence, these factors should be taken into consideration for sexual and reproductive health interventions and services. Policy and interventional measures should aim at reducing high-risk behavior of men who pay for sex.

1. Introduction

Paying for sex is regarded as a risky sexual behaviour (RSB) among heterosexual men, as men paying for sex are considered to be a bridging population (Alary & Lowndes, 2004; Patterson et al., 2012) for sexually transmitted infections (STIs), including HIV/AIDS (Jones et al., 2015). Goldenberg et al. (2011) indicates "that clients of female sex workers function as a 'bridge' for HIV/STI transmission through unprotected sex with female sex workers, spouses, girlfriends, men, and others". RSB is defined as behaviours that put an individual at risk of contracting STIs and facing unwanted pregnancies (Centre for Disease Control [CDC], 2010). It has been classified to include behaviours such as having sex at

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an early age, having multiple sexual partners, having sex under the influence of alcohol or drugs, and having unprotected sex (CDC, 2010).

Paid sex is an element of transactional sex, which has been considered to involve the exchange of sex for money, gift, services or other favours such as promotion at the work place and grades in school (Amo-Adjei, Kumi-Kyereme, & Anamaale Tuoyire, 2014; Choudhry, Ambresin, Nyakato, & Agardh, 2015; Wamoyi, Ranganathan, Kyegombe, & Stoebenau, 2019). This can include both men paying women for sex and men paying men for sex (Berg, Schmidt, Weatherburn, & The EMIS Network, 2015; Groom & Nandwani, 2006; Smith et al., 2015). Transactional sex, including sex tourism, can occur across both sexes (Wamoyi et al., 2019). In this paper, paying for sex means purchasing sexual services. Specifically, it involves a man using money to buy sexual satisfaction. Paying for sex is often associated with several health outcomes such as STIs, lower sexual performance and depression (Huang et al., 2011; Jones et al., 2015; Wamoyi et al., 2019).

Globally, there are variations between countries on the prevalence of paid sex among men. Although different methods of estimation have been used to obtain prevalence of paid sex among men, the prevalence ranges from 26.7% in Israel (Rich, Leventhal, Sheffer, & Mor, 2018), 25% in Spain (Belza et al., 2008), 23.9% in Russia (Girchenko et al., 2015) and 11.3% in Denmark (Buttmann, Nielsen, Munk, Liaw, & Kjaer, 2011). Norway also has a prevalence of 12.9% (Schei & Stigum, 2010) and the prevalence of paid sex in Britain is 11% (Jones et al., 2015). Also, 2% is recorded in Australia (Richters et al., 2014; Rissel et al., 2017) and 0.9% is recorded in India (Decker, Pearson, Illangasekare, Clark, & Sherman, 2013). In Africa, it ranges from 34% in South Africa (Jewkes, Morrell, Sikweyiya, Dunkle, & Penn-Kekana, 2012) to 5.2% in Uganda (Choudhry et al., 2015).

Existing evidence reveals an elevated risk of STIs among men paying for sex and their clients (Belza et al., 2008; Booysen, 2004; Cote et al., 2004; Groom & Nandwani, 2006; Jones et al., 2015; Patterson et al., 2012; Rich et al., 2018). STIs are major public health issues that have drawn global attention (WHO, 2016). Globally, STIs account for major acute illnesses, infertility, long-term disability and death (Rowley, Toskin, & Ndowa, 2012). Evidence suggests that clients of commercial sex workers are at an increased risk of contracting STIs than those who do not have sex with commercial sex workers. For example, in India, Shaw et al. (2011) found that 5.6%, 28.4%, 3.6% and 2.2% of clients of commercial sex workers had HIV, syphilis, herpes simplex virus type 2, chlamydia and gonorrhea respectively and the duration of paying for sex was associated with an increased risk of contracting HIV and herpes simplex virus type 2. In Russia, Niccolai et al. (2012) found that 29% of clients of female sex workers reported history of an STI. In addition, in Mexico, Patterson et al. (2012) found that the prevalence of any STI or HIV was 16.5% among men who had sex with commercial sex workers, compared to only 2.3% among men who had sex with only their regular partners. In sub-Saharan African, Wamoyi et al. (2016) found a positive relationship between transactional sex and vulnerability to HIV/AIDS. In Ghana, Cote et al. (2004) found, that among men aged 15–59 years, 84.0% of HIV cases were attributable to transactional sex.

Despite the research and attention on commercial sex work in some parts of the world (Dandona et al., 2005; Gangopadhyay et al., 2005; Jones et al., 2015), little is known about the clients (men who pay for sex) (Ompad et al., 2013). This notwithstanding, there is evidence to support the claim that men who pay for sex tend to inconsistently use condoms and have an increased risk of contracting STIs (Jones et al., 2015; Newman, Chakrapani, Cook, Shunmugam, & Kakinami, 2008). Preventive interventions for STIs have become critical since RSBs such as paying for sex, having multiple sexual partners and not using condoms have been found to increase the rate of STIs (Aral, Douglas, & Lipshutz, 2007; Earle & Sharp, 2016; Farley, Macleod, Anderson, & Golding, 2011; Price et al., 2012). Despite the link between paid sex, and sexual and reproductive health outcomes such as STIs, little is known about the prevalence and factors associated with paid sex among men in sub-Saharan Africa (Choudhry et al., 2015; Jewkes et al., 2012).

Previous studies have revealed that socio-demographic, economic and behavioral factors are associated with paid sex among men. The socio-demographic factors include age (Girchenko et al., 2015; Jewkes et al., 2012; Rich et al., 2018; Rissel et al., 2017), educational level (Choudhry et al., 2015; Dizechi et al., 2018; Galvan, Ortiz, Martinez, & Bing, 2009; Jewkes et al., 2012; Pitts, Smith, Grierson, O'brien, & Misson, 2004), place of residence (Balekang & Dintwa, 2016; Dizechi et al., 2018; Pan, Parish, & Huang, 2011) marital status (Belza et al., 2008; Rissel et al., 2017; Schei & Stigum, 2010; Ward et al., 2005) and wealth status (Dizechi et al., 2018; Jewkes et al., 2012; Jones et al., 2015; Rich et al., 2018). It has also been found that exposure to mass media (newspapers, magazines, radio and television) are associated with risky sexual practices, which may include paid sex (Asekun-Olarinmoye, Asekun-Olarinmoye, Adebimpe, & Omisore, 2014; Bleakley, Hennessy, Fishbein, & Jordan, 2011; Fisher, Hill, Grube & Grube, 2004). Additionally, there are personal and behavioural reasons that increase the likelihood for men to pay for sex, such as satisfying sexual desire, desire for particular sexual acts or practices that regular partners are unable or unwilling to accommodate (Mwapu, Hilhorst, Mashanda, Bahananga, & Mugenzi, 2016), sexual relief, convenience, entertainment and the belief that people are not meant to be monogamous (Dizechi et al., 2018). Other factors include the influence of alcohol and drugs, and companionship (Dizechi et al., 2018; Pitts et al., 2004), travelling issues, problems in households, unavailability of wives and reasons of health (menstruation, pregnancy and disease) (Dizechi et al., 2018; Mwapu et al., 2016).

This study focused on sub-Saharan Africa due to social issues surrounding commercial sex workers and paid sex, such as stigma and discrimination towards commercial sex workers (Nakanwag et al., 2016; Nnko et al., 2019; Wamoyi et al., 2019) and men who have sex with men (Cloete, Simbayi, Kalichman, Strebel, & Henda, 2008; Shangani, Naanyu, Operario, & Genberg, 2018; Zahn et al., 2016), the additional risk of STIs including HIV and AIDS (WHO, 2016), cultural attitudes towards non-monogamy (Falen, 2008; Henrich, Boyd, & Richerson, 2012; Kenyon, Colebunders, Dlamini, Meulemans, & Zondo, 2016), and public health issues surrounding commercial sex work (Papworth et al., 2013). For example, paid sex has been found to be associated with increased HIV risk behaviors such as inconsistent condom use and multiple concurrent sexual partners (Choudhry et al., 2015). Chersich et al. (2013) indicated that “most interventions addressing sex workers and clients in Africa operate in isolation with little or no support from national governments or international donors and consequently have limited coverage”. These interventions include education on consistent and correct condom use, reduction in partner number, HIV testing and counselling, alcohol harm reduction, family planning counselling and contraception, post-exposure prophylaxis following sexual violence and knowledge of HIV, STI and local services (WHO, 2011). This means that the target of such interventions often excludes heterosexual men who may be frequenters of CSWs. One of the reasons for this could be that there is inadequate literature about this group of people in sub-Saharan Africa. This study, therefore, sought to examine the prevalence of paid sex and the socio-demographic factors associated with it in 27 countries in sub-Saharan Africa. A better understanding of the different socio-demographic factors associated with paid sex among men in sub-Saharan Africa can inform future strategies to deploy public health interventions aimed at this group.

2. Data and methods

2.1. Data

The study made use of pooled data from the most recent DHS conducted between January 1, 2010 and December 3, 2016 in 27 countries that had data on paid sex out of the 49 countries in sub-Saharan Africa (Burkina Faso, Burundi, Cameroon, Chad, Comoros,

Congo, the Democratic Republic of Congo, Ivory Coast, Ethiopia, Gabon, Ghana, Gambia, Guinea, Kenya, Lesotho, Liberia, Malawi, Mali, Mozambique, Namibia, Nigeria, Rwanda, Sierra Leone, Senegal, Togo, Zambia, Zimbabwe). The DHS is a nationwide survey conducted every five-year period across low- and middle-income countries in Asia and Africa. The DHS focuses on maternal and child health by interviewing women in their reproductive age (15–49 years). Additionally, men aged 15–64 are also interviewed. DHS surveys follow the same standard procedures—sampling, questionnaires, data collection, cleaning, coding and analysis—that allow for cross-country comparison.

The survey employed a stratified two-stage sampling technique to make it nationally representative (Aliaga & Ren, 2006). The first-stage sampling frame consisted of a list of primary sampling units (PSUs) or enumeration areas (EAs) that covered the entire country and usually were obtained from the latest national census—when available. Each EAs were further subdivided into standard size segments of about 100–500 households per segment. In this stage, a sample of predetermined segments was selected randomly with probability proportional to the EA's measure of size (number of households in EA). In the second stage, the DHS survey personnel selected households systematically from a list of previously enumerated households in each selected EA segment, and in-person interviews were conducted in selected households to target populations: women aged 15–49, men aged 15–64, and children under 5. The number of selected households per EA varied but ranged from 30 to 40 households/women per rural cluster and from 20 to 25 households/women per urban cluster (ICF International, 2012; Mejia-Guevara, Zuo, Bendavid, Li, & Tuljapurkar, 2019). All men aged 15–64 years old who were usual residents of selected households or visitors who slept in the households on the night before the survey were interviewed. For the purpose of this study, only men for whom there was information on paying for sex were included for analysis of this study (N = 139,427).

Sample sizes are determined by the number of men in the selected households who fall within the ages of 15–64. Consistency in the DHS across the various countries is ensured by employing the same variables and measures. Nonetheless, countries are allowed to add specific variables of interest in their countries. The survey staff are trainees who are instructed in standard DHS procedures. These procedures include general interviewing techniques, conducting interviews at the household level, measuring blood pressures and review of each question and mock interviews between participants. The DHS in sub-Saharan Africa are usually conducted in English, French and Portuguese, depending on the official language of the country. To ensure participants comprehended/understood the questions being asked, the definitive questionnaires are first prepared in the official language in the specific country and subsequently translated by experts into the major local languages at the various data collection points. Interviews are also conducted in local languages. Men gave oral and written consent. Ethical approval was given by individual national institutional review boards and by ICF International institutional review board. The surveys were done in different times due to the variations in the starting points of the DHS in the various countries. As evident in other studies combining the DHS in sub-Saharan Africa (see Chol, Negin, Agho, & Cumming, 2019; Darteh, Dickson, & Doku, 2019; Mejia-Guevara et al., 2019), although the starting points of the data surveys are different, this does not defeat the ability to compare the DHS in those countries. Permission to use the dataset was requested from MEASURE DHS. The data set is available to the public at www.measuredhs.org.

2.2. Measurement of variables

The outcome variable used was paid sex—men were asked if they had paid for sex in the past 12 months preceding the survey. The response category of this variable was yes and no (0 = no and 1 = yes). The explanatory variables consisted of: place of residence, age, wealth status, religious affiliation, employment status, level of education, marital status, frequency of watching television, frequency of reading newspaper or magazine, and frequency of listening to radio. These variables were extracted from the males recode file in the various countries' DHS datasets from MEASURE DHS and some of them were recoded. Residence was coded as urban = 1 and rural = 2; age was categorised into 15–24 = 1, 25–34 = 2, 35–44 = 3, 45–54 = 4, 55–64 = 5. Marital status was captured as never married = 1, married = 2, living with partner = 3, widowed = 4, divorced = 5 and separated = 6. Level of education was classified into four categories: no formal education = 1, primary = 2, secondary = 3 and tertiary = 4. Wealth status was categorised as poorest = 1, poorer = 2, middle = 3, richer = 4 and richest = 5. Religious affiliation was recoded as Christian = 1, Islam = 2 and 'other' = 3. The categorisation of religious groups was informed by the majority religious traditions across the countries. Employment status was also categorised into two: unemployed = 1 and employed = 2. Frequency of watching television was captured as not at all = 1, less than once a week = 2, at least once a week = 3 and almost every day = 4. Frequency of reading newspaper or magazine was coded as not at all = 1, less than once a week = 2, at least once a week = 3 and almost every day = 4. Frequency of listening to radio was also categorised as not at all = 1, less than once a week = 2, at least once a week = 3 and almost every day = 4. The choice of these explanatory variables was based on previous studies (Belza et al., 2008; Carael, Slaymaker, Lyerla, & Sarkar, 2006; Dizechi et al., 2018; Jones et al., 2015; Regushevskaya, Haavio-Mannila, & Hemminki, 2013; Schei & Stigum, 2010).

2.3. Analytical procedure

Descriptive and inferential statistics were conducted. Descriptive figures were reported in percentages by countries. Specifically, bivariate analyses were conducted using Pearson chi-square tests. After that, Logistic regression models were used to estimate the association between explanatory variables and the dependent variable (see Table 1). The choice of the reference categories for the logistic regression analysis was informed by previous studies (Belza et al., 2008; Careal et al., 2006; Dizechi et al., 2018; Jones et al., 2015; Regushevskaya et al., 2013; Schei & Stigum, 2010). In terms of country, Burkina Faso was chosen as the reference category due to the fact that it is one of the countries in Africa where prostitution is not illegal (Duvall et al., 2015; Mgbako & Smith, 2009). Another reason for choosing Burkina Faso as the reference category is that Traore et al. (2016) found that although HIV prevalence among people of reproductive age in Burkina Faso has reduced, the epidemic is concentrated in vulnerable groups such as female sex workers. Also, Burkina Faso is one of the countries with contraceptive prevalence less than 25% (United Nations, 2015), compounding the risk associated with paid sex in the country. Based on the fact that the outcome variable was dichotomously coded, a discrete choice model was used. Specifically, the binary logistic regression was employed as the analytical technique, which is more appropriate when the outcome variable of a study is a dichotomous variable. The major assumption underlying the binary logistic regression model is that the dependent variable should be dichotomous and the data should not have any outlier. This also allowed for the calculation of the odds ratios (see Table 2). Specifically, two logistic regression models were used to assess the odds of paid sex among men in sub-Saharan Africa. Model I looked at a bivariate analysis of country and paid sex and we controlled for the effects of the socio-demographic variables. As a result, crude odds ratios (CORs) were generated. Model II adjusted for country by including it in the model together with all the other independent variables and adjusted odds ratios (AORs) were derived from the model. This was done to find the association between all the independent variables and the outcome variable. All frequency distributions were weighted while the survey command (svy) in STATAwas used to adjust for the complex sampling structure of the data in the regression analyses. According to (Rutstein & Rojas, 2006p.12)

Table 1
Prevalence of paid sex among men in sub-Saharan Africa.

Explanatory factors	Weighted N	Paid Sex		P value
		Frequency	Percent	
Country				0.000***
Burkina Faso, 2010	5,158	76	1.5	
Burundi, 2011	2,999	13	0.4	
Cameroon, 2011	5,394	274	5.1	
Chad, 2014–2015	3,823	138	3.6	
Comoros, 2012	1,487	106	7.2	
Congo 2011–2012	4,536	417	9.2	
DR Congo, 2013–2014	7,391	893	12.1	
Ivory Coast, 2011–2014	4,428	118	2.7	
Ethiopia, 2011	9,345	149	1.6	
Gabon, 2012	5,174	257	5.0	
Ghana, 2014	3,562	100	2.8	
Gambia, 2013	2,521	27	1.1	
Guinea, 2012	3,114	78	2.5	
Kenya, 2014	10,907	316	7.2	
Lesotho, 2014–2015	1,766	74	4.2	
Liberia, 2013	3,507	192	5.5	
Malawi, 2015	6,478	41	1.4	
Mali, 2012–2013	2,942	42	1.4	
Mozambique, 2011	3,671	498	13.6	
Namibia, 2015	3,815	43	1.1	
Nigeria, 2013	12,142	285	2.4	
Rwanda, 2014–2015	3,888	74	1.9	
Sierra Leone, 2013	6,103	251	4.1	
Senegal, 2010–2011	2,699	32	1.2	
Togo, 2013–2014	3,652	43	1.2	
Zambia, 2013–2014	12,466	645	5.2	
Zimbabwe, 2015	6,455	296	4.6	
All countries (Total)	139,427	5,961	4.3	
Wealth status				0.133
Poorest	22,843	920	4.0	
Poorer	25,806	1,079	4.2	
Middle	26,852	1,224	4.6	
Richer	29,954	1,318	4.4	
Richest	33,972	1,418	4.2	
Education				0.000***
No education	29,231	609	2.1	
Primary	43,100	2,130	4.9	
Secondary	53,434	2,802	5.2	
Tertiary	13,662	420	3.1	
Age				0.000***
15–24	32,837	2,186	6.7	
25–34	44,549	2,059	4.6	
35–44	35,358	1,151	3.3	
45–54	21,330	481	2.3	
55–64	5,353	83	1.6	
Religious affiliation				0.000***
Muslims	38,344	1,178	3.1	
Christians	90,096	4,153	4.6	
Others	10,987	628	5.7	
Employment status				0.639
Unemployed	14,065	590	4.2	
Employed	125,362	5,371	4.3	
Marital status				0.000***
Never married	38,383	2,626	6.8	
Married	81,477	2,122	2.6	
Living with partner	13,194	571	4.3	
Widowed	963	41	4.3	
Divorced	1,992	216	10.8	
Separated	3,418	384	11.3	
Residence				0.000***
Urban	57,575	2,735	4.8	
Rural	81,852	3,226	3.9	
Frequency of reading newspaper or magazine				0.000***
Not at all	83,097	3,403	4.1	
Less than once a week	25,082	1,158	4.6	
At least once a week	28,005	1,240	4.4	
Almost every day	3,243	258	4.9	
Frequency of listening to radio				0.000***
Not at all	26,316	1,288	4.9	
Less than once a week	26,965	1,174	4.4	
At least once a week	75,823	3,010	4.0	
Almost every day	10,323	490	4.7	
Frequency of watching television				0.000***
Not at all	57,465	2,466	4.3	
Less than once a week	26,022	1,123	4.3	
At least once a week	45,185	1,841	4.1	
Almost every day	10,755	530	4.9	

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

"sampling weights are adjustment factors applied to each case in tabulations to adjust for differences in probability of selection and interview between cases in a sample, either due to design or happenstance. In the DHS surveys, many times the sample is selected with unequal probability to expand the number of cases available (and hence reduce sample variability) for certain areas or subgroups for which statistics are needed. In this case, weights need to be applied when tabulations are made of statistics to produce the proper representation. When weights are calculated because of sample design, corrections for differential response rates are also made." Stata 14.1 (College Station, TX) statistical analysis tool was used for the analysis. This software has the advantage of directly including robust standard errors that account for the complex sample design (two stage sample design). The results from the regression analyses are presented as CORs and AOR, with values less than 1 indicating lower odds of a respondent paying for sex, and those above 1 indicating higher odds of paying for sex. The statistical significance level was set at $p < 0.05$.

3. Results

3.1. Bivariate analysis

The survey included weighted total male population of 139,427 from 27 countries in sub-Saharan Africa. The results of the study showed that 5,961 men, representing 4.3%, reported they had paid for sex in the 12 months prior to the survey. The country with the highest proportion of men who had ever paid for sex in the past 12 months preceding the survey was Mozambique (13.6%) while the country with the lowest proportion of men who had ever paid for sex in the past 12 months preceding the survey was Burundi (0.4%) (see Table 1). The results further revealed that 4.6% of the respondents who had ever paid for sex in the past 12 months preceding the survey were in the middle wealth quintile, 5.2% had secondary level of education, 6.7% were aged 15–19 years and 5.7% were in "other" religious groups. Additionally, 4.3% of the respondents who had ever paid for sex in the past 12 months preceding the survey were employed, 11.3% were separated and 4.8% resided in urban areas. Finally, 4.9% of the respondents who had ever paid for sex in the past 12 months preceding the survey read newspaper/magazine or watched television almost everyday whereas 4.9% never listened to radio (see Table 1). It was also found that there were statistically significant differences in country, education, age, religious affiliation, marital status, residence, frequency of reading newspaper or magazine, frequency of listening to radio and frequency of watching television and paid sex (see Table 1).

3.2. Multivariable analysis

In Table 2, results from the binary logistic regression on the factors associated with paid sex are presented. It was found that men in several countries have statistically significant higher odds of paying for sex compared to men in Burkina Faso, with the highest odds among men in DR Congo [AOR = 9.74; 95% CI = 7.45–12.73], Mozambique [AOR = 8.15; 95% CI = 6.21–10.70] and Congo [AOR = 6.10; 95% CI = 3.87–7.36]. With wealth status, men in the richer [AOR = 0.87;

Table 2
Logistic regression analysis of paid sex among men in sub-Saharan Africa, 2010–2016.

Explanatory factors	Model I Crude Odds Ratio (COR)	Model II Adjusted Odds Ratio (AOR)
Country		
Burkina Faso, 2010	Ref	Ref
Burundi, 2011	0.34***(0.19–0.63)	0.34**(0.19–0.63)
Cameroon, 2011	4.00***(3.04–5.26)	3.17***(2.37–4.24)
Chad, 2014–2015	2.85***(2.11–3.84)	3.07***(2.27–4.16)
Comoros, 2012	6.38***(4.68–8.71)	5.34***(3.87–7.36)
Congo 2011–2012	8.42***(6.48–10.96)	6.10***(4.61–8.08)
DR Congo, 2013–2014	10.39***(8.06–13.40)	9.74***(7.45–12.73)
Ivory Coast, 2011–2014	2.07***(1.52–2.81)	1.53**(1.12–2.09)
Ethiopia, 2011	1.22(0.91–1.64)	1.19(0.88–1.60)
Gabon, 2012	4.63***(3.53–6.07)	3.57***(2.64–4.83)
Ghana, 2014	1.85**(1.33–2.57)	1.45**(1.04–2.03)
Gambia, 2013	0.99(0.64–1.51)	0.79(0.51–1.21)
Guinea, 2012	1.83***(1.31–2.57)	1.71**(1.21–2.40)
Kenya, 2014	1.97***(1.40–2.77)	1.63**(1.23–2.58)
Lesotho, 2014–2015	2.64***(1.84–3.79)	1.79**(1.24–2.59)
Liberia, 2013	5.17***(3.91–6.84)	4.11***(3.08–5.48)
Malawi, 2015	6.61***(5.09–8.58)	5.52***(4.21–7.23)
Mali, 2012–2013	1.14(0.78–1.69)	1.27(0.86–1.88)
Mozambique, 2011	10.33***(7.93–13.46)	8.15***(6.21–10.70)
Namibia, 2015	0.90(0.61–1.32)	0.64**(0.43–0.95)
Nigeria, 2013	1.90***(1.45–2.49)	1.66***(1.26–2.19)
Rwanda, 2014–2015	1.55**(1.11–2.16)	1.45**(1.03–2.04)
Sierra Leone, 2013	3.44***(2.62–4.53)	3.18***(2.41–4.21)
Senegal, 2010–2011	1.23(0.84–1.80)	1.01(0.69–1.49)
Togo, 2013–2014	0.84(0.57–1.26)	0.68(0.46–1.03)
Zambia, 2013–2014	4.36***(3.37–5.63)	3.53***(2.68–4.66)
Zimbabwe, 2015	3.76***(2.87–4.93)	3.12***(2.35–4.13)
Wealth status		
Poorest	–	Ref
Poorer	–	0.97(0.89–1.06)
Middle	–	1.00(0.92–1.09)
Richer	–	0.87**(0.79–0.96)
Richest	–	0.83**(0.74–0.93)
Education		
No education		Ref
Primary	–	1.31***(1.18–1.45)
Secondary	–	1.13**(1.01–1.27)
Tertiary	–	0.77**(0.65–0.90)
Age		
15–24	–	2.55***(2.02–3.22)
25–34	–	2.84***(2.26–3.56)
35–44	–	2.28***(1.81–2.86)
45–54	–	1.54***(1.22–1.96)
55–64	–	Ref
Religious affiliation		
Muslims	–	1.08(0.98–1.18)
Christians	–	Ref
Others	–	1.20***(1.09–1.32)
Employment status–		
Unemployed	–	Ref
Employed	–	1.73***(1.58–1.90)
Marital status		
Never married	–	2.58***(2.37–2.80)
Married	–	Ref
Living with partner	–	1.23***(1.11–1.36)
Widowed	–	2.20***(1.64–2.93)
Divorced	–	4.52***(3.89–5.25)
Separated	–	3.70***(3.28–4.17)
Residence		
Urban	–	Ref
Rural	–	0.88**(0.82–0.95)
Frequency of reading newspaper or magazine		
Not at all	–	Ref
Less than once a week	–	1.03(0.956–1.11)
At least once a week	–	1.07(0.99–1.16)
Almost every day	–	1.34**(1.12–1.63)
Frequency of listening to radio		
Not at all	–	Ref
Less than once a week	–	1.01(0.93–1.11)
At least once a week	–	1.13**(1.05–1,22)
Almost every day	–	1.19**(1.05–1.36)
Frequency of watching television		
Not at all	–	Ref
Less than once a week	–	1.03(0.95–1.12)
At least once a week	–	1.10**(1.01–1.19)
Almost every day	–	0.88(0.77–1.03)

Ref = Reference, * p < 0.05, ** p < 0.01, *** p < 0.001.

95% CI = 0.79–0.96] and the richest [AOR = 0.83; 95% CI = 0.74–0.93] wealth quintiles had lower odds of paying for sex, compared to men in the poorest wealth quintile. The odds of paying for sex was significantly greater among men who had only completed primary [AOR = 1.31; 95% CI = 1.18–1.45] and secondary levels of education [AOR = 1.13; 95% CI = 1.01–1.27], compared to those with no formal education status. However, men with tertiary level of education had lower odds of paying for sex, compared to men with no formal education [AOR = 0.77, 95% CI = 0.65–0.90].

With age, men aged 25–34 years had the highest odds of paying for sex, compared to men aged 55–64 years [AOR = 2.84; 95% CI = 1.81–2.86]. There was a significant association between religious affiliation and paid sex. Those who belonged to "other" religious sects apart from Christianity and Islam had higher odds of paying for sex [AOR = 1.20; 95% CI = 1.09–1.32]. Men who were employed had higher odds of paying for sex, compared to those who were unemployed [AOR = 1.73; 95% CI = 1.58–1.90]. The study found that men who were divorced [AOR = 4.52; 95% CI = 3.89–5.25], separated [AOR = 3.70; 95% CI = 3.28–4.17] and never married [AOR = 2.58; 95% CI = 2.37–2.80] had higher odds of paying for sex than men who were married. The results further revealed that men in rural areas had lower odds to pay for sex, compared to men in the urban centres [AOR = 0.88; 95% CI = 0.82–0.95]. Men who read newspaper or magazine almost every day had higher odds to pay for sex, compared to men who did not read newspaper at all [AOR = 1.34; 95% CI = 1.12–1.63]. In relation to frequency of listening to radio, men who listened to radio almost every day had higher odds of paying for sex than men who did not listen to radio at all [AOR = 1.19; 95% CI = 1.05–1.36]. Similarly, men who watched television at least once a week had higher odds of paying for sex than men who did not watch television at all [AOR = 1.10; 95% CI = 1.01–1.19] (see Table 2).

4. Discussions

This study examined the prevalence of paid sex and the factors associated with it in sub-Saharan Africa. The study made use of pooled data from the Demographic and Health Surveys (DHS) conducted from January 1, 2010 to December 3, 2016 in 27 countries in sub-Saharan Africa. In this current study, the proportion of men who indicated they had paid for sex for the past 12 months prior to the survey was 4.3%. The findings of paid sex in the sub-region are similar to what was found by Carael et al. (2006). Whilst overall prevalence may be similar to Carael et al, there are substantial variations at the country-level which warrant further analysis.

It was revealed from the study that men in DR Congo had higher odds to pay for sex, compared to men in Burkina Faso. The plausible explanation to this could be the high proportion of people engaged in commercial sex in DR Congo. For example, UNAIDS (2018) revealed that there are about 350 sex workers per 1000 population in DR Congo, compared to about 31 per 1000 population in Burkina Faso. Another possible reason accounting for this finding could be as a result of the fact that prostitution is legal in Dr Congo and Mozambique and for that matter the increase may relate to liberal sexual attitudes and greater acceptance of commercial sex services over time in these countries.

In our study, we found an association between wealth status and

paid sex. It was shown that men in the richer and richest wealth quintiles had lower odds of paying for sex, compared to men in the poorest wealth quintile. A similar observation was made in previous studies by Chirwa (1997), Dizechi et al. (2018), Jewkes et al. (2012) and Jones et al. (2015). A significant association was also observed between educational level and paid sex. The odds of paying for sex decreased as level of education increased. The relationship between level of education and paid sex as found in this study is in line with previous studies conducted in India (Newman et al., 2008), Spain (Belza et al., 2008), USA (Galvan et al., 2009) and Australia (Rissel, Richters, Grulich, de Visser, & Smith, 2003) where paid sex was high among men with no formal education. In addition, Jewkes et al. (2012) found in South Africa that men with only primary school education were more likely to engage in paid sex, than those with secondary education. Choudhry et al. (2015) also found that lower educational attainment was associated with paying for sex among men in Uganda.

Unlike other studies (Rissel et al., 2003; Schei & Stigum, 2010; Ward et al., 2005), our study found an association between employment status and paid sex. Similar findings were obtained in a study in Tanzania (Silas, 2013) where it was found that having multiple sexual partners is more common among men who are employed, compared with men who are not employed. The possible reason accounting for this could be that men who are employed have access to finances to facilitate paying for sex (Ompad et al., 2013). Again, some of the men who are employed might travel in the course of their duties and being away from home may provide a different situation for behaviour, such as buying sex (Marttila, 2008; Regushevskaya et al., 2013).

There was also a statistically significant association between age and paid sex. The study found that the odds of paying for sex was highest among men aged 25–34. The findings in this study are similar to what was found by Jones et al. (2015). They found that men aged 25–34 years were more likely to report paying for sex, compared to men aged 64 years and above. However, other studies have found contrary results. For example, studies by Booysen (2004) and Silas (2013) found younger men paying for sex in the past 12 months than older men. A possible explanation could be that young men, generally, have been found to engage in riskier sexual behavior including paid sex, compared with adults (Nwankwo & Nwoke, 2009; Ugoji, 2014; Zakayo & Lwelamira, 2011). However, using lifetime prevalence means that older men, unlike younger ones, may have experienced a lot of exposure to the risk factor due to their age and those who pay for sex may continue paying for sex as they age (Jones et al., 2015).

Our study also found that paying for sex differed by religious affiliation. It was shown that men who belonged to “other” religious affiliation had higher odds to pay for sex, compared to Christians and Muslims. These findings are different from what was found by Chatterji, Murray, London, and Anglewicz, (2005) who found that Muslim religious affiliation increased the risk for Muslim men to engage in transactional sex.

The study also identified a statistically significant association between marital status and paid sex. It was found that men who were divorced, separated and never married had higher odds to pay for sex, compared to those who were married. This result corroborates a South African study by Jawkes et al. (2012), who found that cohabiting, widowed or divorced men were more likely than married men to engage in transactional relationships. In addition, our results confirm previous studies in Australia, (Rissel et al., 2017), Spain (Belza et al., 2008) and Norway (Schei & Stigum, 2010) which found that men without regular partners had higher odds to pay for sex, compared to married men. It has also been found in Britain (Ward et al., 2005) and USA (Galvan et al., 2009; Monto & McRee, 2011) that men who are married are less likely to pay for sex.

The finding that men in rural areas had lower odds to pay for sex, compared to men in urban centres, is supported by studies in Botswana (Balekang & Dintwa, 2016), China (Pan, Parish, & Huang, 2011) and Cambodia (Dizechi et al., 2018) where it was found that men in urban areas were significantly more likely to pay for sex. The reason could be that the sex partners of men who pay for sex may be predominant in urban areas. Carael et al. (2006) also indicated that commercial sex is more prevalent in urban than in rural areas and, as a result, men in urban centres can easily seek those services, compared to those in the rural areas. A possible reason for a higher concentration of commercial sex in cities include, among others, a disproportionate number of male migrants searching for job (Carael et al., 2006). However, as shown by results in West Africa and in Latin America, rural areas also include highly mobile male population groups working on commercial farms and mines who also have a higher likelihood of paying for sex (Carael et al., 2006). A study in rural Zimbabwe has shown that among male workers, 29% reported sexual contact with a sex worker in the last 12 months (Cowan et al., 2005). Another possible reason why men in rural areas are less likely to pay for sex could be due to low income status.

The study showed that men who were exposed to mass media (Newspaper, radio and television) had higher odds of paying for sex than men who were not exposed to these sources. This has been similarly reported in other studies on the association between mass media exposure and sexual behavior (Fisher, Hill, Grube & Grube, 2004; Asekun-Olarinmoye et al., 2014; Bleakley et al., 2011). The possible explanation for these findings could be as a result of the fact that in some instances men are exposed to sexually explicit materials, on some of these channels. These can influence the men to seek for sexual pleasures from commercial sex workers since men are sometimes moved by what they see.

The major strength of this study is the fact that it utilised data from large nationally representative surveys, which, to a larger extent, are generalizable to other men in the sub-region (Carael et al., 2006). The study, however, has some inherent limitations that need to be acknowledged. It is worthy to acknowledge that men with tertiary educational level and those in the richest wealth quintile had lower odds to pay for sex. However, those who are employed and are exposed to mass media have higher odds to pay for sex. We could not offer any explanation to this contradiction and interaction between education and household wealth which are proxy measures for employment and media consumption. Again, the study relied solely on a cross-sectional data, which focuses on associations and, for that matter, it is difficult to account for causality. Another limitation is that there is the possibility of recall bias on the side of the respondents since the study relied solely on self-reported responses. Moreover, the differences in prevalence rates may be due to reporting bias which can result from stigma. We also acknowledge that information on sexual behaviour can be affected by social desirability biases which can lead to underreporting of the phenomenon under investigation (Carael et al., 2006).

5. Conclusions and policy implications

Generally, prevalence of paid sex among men is low but varies in sub-Saharan African countries. Paid sex among men in sub-Saharan Africa is associated with some socio-demographic variables including education, religious affiliation, wealth status, residence, employment status, age and marital status, with cross-country variations. The odds of paid sex were high among men with primary and secondary levels of education, men aged 25–34, men who professed ‘other’ religious affiliation, men who are employed and men who are divorced. However, paid sex was low among men in the richest wealth quintile, men with tertiary level of education and men living in rural areas. The findings show that low level of education among men can possibly be a barrier to receiving information on safe sexual behaviors. This implies that men from poor households, those without formal education and those with lower level of education should be targeted in terms of public health education on the consequences of RSBs including paid sex. This means that the decision to pay for sex is influenced by several social and demographic factors. Hence, in considering men who pay for sex as a core-group for sexual health interventions and services, policy interventional

measures should take into consideration the factors associated with such high-risk behaviour.

Ethics approval and consent to participate

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. Consent to participate is not applicable to our study since we utilised DHS data.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.ssmph.2019.100459.

References

Alary, M., & Lowndes, C. M. (2004). The central role of clients of female sex workers in the dynamics of heterosexual HIV transmission in sub-Saharan Africa. *AIDS, 18*(6), 945–947.

Aliaga, A., & Ren, R. (2006). Optimal sample sizes for two-stage cluster sampling in demographic and health surveys (DHS working paper No. 30). Retrieved from https://www.popline.org/node/178147.

Amo-Adjei, J., Kumi-Kyereme, A., & Anamaale Tuoyire, D. (2014). Transactional sex among female university students in Ghana: Implications for HIV education. *Health Education, 114*(6), 473–486.

Aral, S. O., Douglas, J. M., & Lipshutz, J. A. (Eds.). (2007). *Behavioral interventions for prevention and control of sexually transmitted diseases*. USA: Springer.

Asekun-Olarinmoye, O. S., Asekun-Olarinmoye, E. O., Adebimpe, W. O., & Omisore, A. G. (2014). Effect of mass media and internet on sexual behavior of undergraduates in Osogbo metropolis, Southwestern Nigeria. *Adolescent Health, Medicine and Therapeutics, 5*, 15.

Balekang, G. B., & Dintwa, K. F. (2016). A comparison of risky sexual behaviours between circumcised and uncircumcised men aged 30-44 years in Botswana. *African Health Sciences, 16*(1), 105–115.

Belza, M. J., de la Fuente, L., Suárez, M., Vallejo, F., García, M., López, M., et al. (2008). Men who pay for sex in Spain and condom use: Prevalence and correlates in a representative sample of the general population. *Sexually Transmitted Infections, 84*(3), 207–211.

Berg, R. C., Schmidt, A. J., Weatherburn, P., & The EMIS Network (2015). Transactional sex: Supply and demand among European men who have sex with men (MSM) in the context of local laws. *International Journal of Sexual Health, 27*(3), 286–302.

Bleakley, A., Hennessy, M., Fishbein, M., & Jordan, A. (2011). Using the integrative model to explain how exposure to sexual media content influences adolescent sexual behavior. *Health Education & Behavior, 38*, 530–540.

Booysen, F. (2004). HIV/AIDS, poverty and risky sexual behaviour in South Africa. *African Journal of AIDS Research, 3*(1), 57–67.

Buttmann, N., Nielsen, A., Munk, C., Liaw, K. L., & Kjaer, S. K. (2011). Sexual risk taking behaviour: Prevalence and associated factors. A population-based study of 22 000 Danish men. *BMC Public Health, 11*(1), 764–771.

Carael, M., Slaymaker, E., Lyerla, R., & Sarkar, S. (2006). Clients of sex workers in different regions of the world: Hard to count. *Sexually Transmitted Infections, 82*(3), 26–33.

Centers for Disease Control and Prevention (2010). *Youth risk behavior surveillance, United States, 2009*. Available at: http://www.cdc.gov/mmwr/preview/mmwrhtml/ss5905a1.htm.

Chersich, M. F., Luchters, S., Ntaganira, I., Gerbase, A., Lo, Y. R., Scorgie, F., et al. (2013). Priority interventions to reduce HIV transmission in sex work settings in sub-Saharan Africa and delivery of these services. *Journal of the International AIDS Society, 16*(1), 17980.

Chirwa, W. C. (1997). Migrant labour, sexual networking and multi-partnered sex in Malawi. *Health Transit Rev, 7*(Suppl 3), 5–16.

Chol, C., Negin, J., Agho, K. E., & Cumming, R. G. (2019). Women's autonomy and utilisation of maternal healthcare services in 31 sub-Saharan African countries: Results from the demographic and health surveys, 2010–2016. *BMJ Open, 9*(3), e023128.

Choudhry, V., Ambresin, A. E., Nyakato, V. N., & Agardh, A. (2015). Transactional sex and HIV risks–evidence from a cross-sectional national survey among young people in Uganda. *Global Health Action, 8*(1), 27249.

Cloete, A., Simbayi, L. C., Kalichman, S. C., Strebel, A., & Henda, N. (2008). Stigma and discrimination experiences of HIV-positive men who have sex with men in Cape Town, South Africa. *AIDS Care, 20*(9), 1105–1110.

Cote, A. M., Sobela, F., Dzokoto, A., Nzambi, K., Asamoah-Adu, C., Labbé, A. C., et al. (2004). Transactional sex is the driving force in the dynamics of HIV in Accra, Ghana. *AIDS, 18*(6), 917–925.

Cowan, F. M., Langhaug, L. F., Hargrove, J. W., Jaffar, S., Mhuriyengwe, L., Swarthout, T. D., & Mabey, D. (2005). Is sexual contact with sex workers important in driving the HIV epidemic among men in rural Zimbabwe? *JAIDS Journal of Acquired Immune Deficiency Syndromes, 40*(3), 371–376.

Dandona, R., Dandona, L., Kumar, G. A., Gutierrez, J. P., McPherson, S., Bertozzi, S. M., et al. (2005). HIV testing among female sex workers in Andhra Pradesh, India. *AIDS, 19*(17), 2033–2036.

Darteh, E. K. M., Dickson, K. S., & Doku, D. T. (2019). Women's reproductive health decision-making: A multi-country analysis of demographic and health surveys in sub-Saharan Africa. *PLoS One, 14*(1), e0209985.

Decker, M. R., Pearson, E., Illangasekare, S. L., Clark, E., & Sherman, S. G. (2013). Violence against women in sex work and HIV risk implications differ qualitatively by perpetrator. *BMC Public Health, 13*(1), 876.

Dizechi, S., Brody, C., Tuot, S., Chhea, C., Saphonn, V., Yung, K., et al. (2018). Youth paying for sex: What are the associated factors? Findings from a cross-sectional study in Cambodia. *BMC Public Health, 18*(1), 113–120.

Duvall, S., Irani, L., Compaoré, C., Sanon, P., Bassonon, D., Anato, S., & Nigobora, B. (2015). Assessment of policy and access to HIV prevention, care, and treatment services for men who have sex with men and for sex workers in Burkina Faso and Togo. *JAIDS Journal of Acquired Immune Deficiency Syndromes, 68*, S189–S197.

Earle, S., & Sharp, K. (2016). *Sex in Cyberspace: Men Who Pay for Sex*. London: Routledge.

Falen, D. J. (2008). Polygyny and christian marriage in Africa: The case of Benin. *African Studies Review, 51*(2), 51–74.

Farley, M., Macleod, J., Anderson, L., & Golding, J. M. (2011). Attitudes and social characteristics of men who buy sex in Scotland. *Psychological Trauma: Theory, Research, Practice, and Policy, 3*(4), 369–383.

Fisher, D. A., Hill, D. L., Grube, J. W., & Gruber, E. L. (2004). Sex on American television: An analysis across program genres and network types. *Journal of Broadcasting & Electronic Media, 48*(4), 529–553.

Galvan, F. H., Ortiz, D. J., Martinez, V., & Bing, E. G. (2009). The use of female commercial sex workers' services by Latino day laborers. *Hispanic Journal of Behavioral Sciences, 31*(4), 553–575.

Gangopadhyay, D. N., Chanda, M., Sarkar, K., Niyogi, S. K., Chakraborty, S., Saha, M. K., et al. (2005). Evaluation of sexually transmitted diseases/human immunodeficiency virus intervention programs for sex workers in Calcutta, India. *Sexually Transmitted Diseases, 32*(11), 680–789.

Girchenko, P., Ompad, D. C., Kulchynska, R., Bikmukhametov, D., Dugin, S., & Gensburg, L. (2015). Correlates of lifetime history of purchasing sex services by men in Saint Petersburg and Leningrad Oblast, Russia. *Journal of Urban Health, 92*(6), 1105–1116.

Goldenberg, S. M., Strathdee, S. A., Gallardo, M., Nguyen, L., Lozada, R., Semple, S. J., et al. (2011). How important are venue-based HIV risks among male clients of female sex workers? A mixed methods analysis of the risk environment in nightlife venues in Tijuana, Mexico. *Health & Place, 17*(3), 748–756.

Groom, T. M., & Nandwani, R. (2006). Characteristics of men who pay for sex: A UK sexual health clinic survey. *Sexually Transmitted Infections, 82*(5), 364–367.

Henrich, J., Boyd, R., & Richerson, P. J. (2012). The puzzle of monogamous marriage. *Philosophical Transactions of the Royal Society B: Biological Sciences, 367*(1589), 657–669.

Huang, Z. J., Wang, W., Martin, M. C., Nehl, E. J., Smith, B. D., & Wong, F. Y. (2011). Bridge population: Sex workers or their clients? STI prevalence and risk behaviors of clients of female sex workers in China. *AIDS Care, 23*(1), 45–53.

ICF International (2012). *Demographic and health survey sampling and household listing manual*. Calverton, Maryland, U.S.A.: ICF International: MEASURE DHS.

Jewkes, R., Morrell, R., Sikweyiya, Y., Dunkle, K., & Penn-Kekana, L. (2012). Men, prostitution and the provider role: Understanding the intersections of economic exchange, sex, crime and violence in South Africa. *PLoS One, 7*(7), e40821.

Jones, K. G., Johnson, A. M., Wellings, K., Sonnenberg, P., Field, N., Tanton, C., et al. (2015). The prevalence of, and factors associated with, paying for sex among men resident in Britain: Findings from the third national survey of sexual attitudes and lifestyles (Natsal-3). *Sexually Transmitted Infections, 91*(2), 116–123.

Kenyon, C., Colebunders, R., Dlamini, S., Meulemans, H., & Zondo, S. (2016). *A critical appraisal of the ideology of monogamy's influence on HIV epidemiology*.

Marttila, A. M. (2008). Desiring the 'other': Prostitution clients on a transnational red-light district in the border area of Finland, Estonia and Russia. *Gender, Technology and Development, 12*(1), 31–51.

Mejia-Guevara, I., Zuo, W., Bendavid, E., Li, N., & Tuljapurkar, S. (2019). Age distribution, trends, and forecasts of under-5 mortality in 31 sub-Saharan African countries: A modeling study. *PLoS Medicine, 16*(3), 27–57.

Mgbako, C., & Smith, L. A. (2009). Sex work and human rights in Africa. *Fordham Int'l LJ, 33*, 1178.

Monto, M. A., & McRee, N. (2011). A comparison of the male customers of female street prostitutes with national samples of men. *International Journal of Offender Therapy and Comparative Criminology, 49*(5), 505–529.

Mwapu, I., Hilhorst, D. J. M., Mashanda, M., Bahananga, M., & Mugenzi, R. (2016). Women engaging in transactional sex and working in prostitution (Report No. 10). Retrieved from https://library.wur.nl/WebQuery/wurpubs/fulltext/401353.

Nakanwagi, S., Matovu, J. K., Kintu, B. N., Kaharuza, F., & Wanyenze, R. K. (2016). Facilitators and barriers to linkage to HIV care among female sex workers receiving HIV testing services at a community-based organization in Periurban Uganda: A qualitative study. *Journal of sexually transmitted diseases, 2016*.

Newman, P. A., Chakrapani, V., Cook, C., Shunmugam, M., & Kakinami, L. (2008).

Correlates of paid sex among men who have sex with men in Chennai, India. *Sexually Transmitted Infections, 84*(6), 434–438.
Niccolai, L. M., Odinokova, V. A., Safiullina, L. Z., Bodanovskaya, Z. D., Heimer, R., Levina, O. S., et al. (2012). Clients of street-based female sex workers and potential bridging of HIV/STI in Russia: Results of a pilot study. *AIDS Care, 24*(5), 665–672.
Nnko, S., Kuringe, E., Nyato, D., Drake, M., Casalini, C., Shao, A., & Changalucha, J. (2019). Determinants of access to HIV testing and counselling services among female sex workers in sub-Saharan Africa: A systematic review. *BMC Public Health, 19*(1), 15.
Nwankwo, B. O., & Nwoke, E. A. (2009). Risky sexual behaviours among adolescents in Owerri Municipal: Predictors of unmet family health needs. *African Journal of Reproductive Health, 13*(1), 135–145.
Ompad, D. C., Bell, D. L., Amesty, S., Nyitray, A. G., Papenfuss, M., Lazcano-Ponce, E., et al. (2013). Men who purchase sex, who are they? An interurban comparison. *Journal of Urban Health, 90*(6), 1166–1180.
Pan, S., Parish, W. L., & Huang, Y. (2011). Clients of female sex workers: a population-based survey of China. *Journal of Infectious Diseases, 204*(suppl 5), S1211–S1217.
Papworth, E., Ceesay, N., An, L., Thiam-Niangoin, M., Ky-Zerbo, O., Holland, C., & Baral, S. D. (2013). Epidemiology of HIV among female sex workers, their clients, men who have sex with men and people who inject drugs in West and Central Africa. *Journal of the International AIDS Society, 16*, 18751.
Patterson, T. L., Volkmann, T., Gallardo, M., Goldenberg, S., Lozada, R., Semple, S. J., et al. (2012). Identifying the HIV transmission bridge: Which men are having unsafe sex with female sex workers and with their own wives or steady partners? *Journal of Acquired Immune Deficiency Syndromes, 60*(4), 414–420 1999.
Pitts, M. K., Smith, A. M., Grierson, J., O'brien, M., & Misson, S. (2004). Who pays for sex and why? An analysis of social and motivational factors associated with male clients of sex workers. *Archives of Sexual Behavior, 33*(4), 353–358.
Price, M. A., Rida, W., Mwangome, M., Mutua, G., Middelkoop, K., Roux, S., & Stevens, G. (2012). Identifying at-risk populations in Kenya and South Africa: HIV incidence in cohorts of men who report sex with men, sex workers, and youth. *JAIDS Journal of Acquired Immune Deficiency Syndromes, 59*(2), 185–193.
Regushevskaya, E., Haavio-Mannila, E., & Hemminki, E. (2013). Sociodemographic characteristics and attitudes of men buying sex in Finland. *Scandinavian Journal of Public Health, 41*(7), 729–736.
Rich, R., Leventhal, A., Sheffer, R., & Mor, Z. (2018). Heterosexual men who purchase sex and attended an STI clinic in Israel: Characteristics and sexual behavior. *Israel Journal of Health Policy Research, 7*(1), 19–25.
Richters, J., de Visser, R. O., Badcock, P. B., Smith, A. M., Rissel, C., Simpson, J. M., et al. (2014). Masturbation, paying for sex, and other sexual activities: The second Australian study of health and relationships. *Sexual Health, 11*(5), 461–471.
Rissel, C., Donovan, B., Yeung, A., de Visser, R. O., Grulich, A., Simpson, J. M., et al. (2017). Decriminalization of sex work is not associated with more men paying for sex: Results from the second Australian study of health and relationships. *Sexuality Research and Social Policy, 14*(1), 81–86.
Rissel, C. E., Richters, J., Grulich, A. E., de Visser, R. O., & Smith, A. M. (2003). Sex in Australia: Experiences of commercial sex in a representative sample of adults. *Australian & New Zealand Journal of Public Health, 27*(2), 191–197.
Rowley, J., Toskin, I., & Ndowa, F. (2012). *Global incidence and prevalence of selected curable sexually transmitted infections-2008*. Geneva: World Health Organization.
Rutstein, S. O., & Rojas, G. (2006). *Guide to DHS statistics*. MD: ORC Macro: Calverton38.
Schei, B., & Stigum, H. (2010). A study of men who pay for sex, based on the Norwegian national sex surveys. *Scandinavian Journal of Public Health, 38*(2), 135–140.
Shangani, S., Naanyu, V., Operario, D., & Genberg, B. (2018). Stigma and healthcare-Seeking practices of men who have sex with men in Western Kenya: A mixed-methods approach for scale validation. *AIDS Patient Care & Stds, 32*(11), 477–486.
Shaw, S. Y., Deering, K. N., Reza-Paul, S., Isac, S., Ramesh, B. M., Washington, R., et al. (2011). Prevalence of HIV and sexually transmitted infections among clients of female sex workers in Karnataka, India: A cross-sectional study. *BMC Public Health, 11*(6), S4.
Silas, J. (2013). *Poverty and risky sexual behaviors: Evidence from Tanzania.* Calverton, Maryland, USA: ICF International DHS Working Papers No. 88.
Smith, A. D., Muhaari, A. D., Agwanda, C., Kowuor, D., van der Elst, E., Davies, A., & Sanders, E. J. (2015). Heterosexual behaviours among men who sell sex to men in coastal Kenya. *AIDS, 29*(0 3), S201.
Traore, I. T., Hema, N. M., Sanon, A., Some, F., Ouedraogo, D., Some, R., & Meda, N. (2016). HIV risk and behaviour among part-time versus professional FSW: Baseline report of an interventional cohort in Burkina Faso. *Sexually Transmitted Infections, 92*(7), 550–553.
Ugoji, F. N. (2014). Determinants of risky sexual behaviours among secondary school students in Delta State Nigeria. *International Journal of Adolescence and Youth, 19*(3), 408–418.
United Nations Programme on HIV/AIDS (UNAIDS). (2018). Sex workers: Population size estimate - number, 2016. Retrieved from www.aidsinfoonline.org.
United Nations, Department of Economic and Social Affairs, & Population Division (2015). *Trends in contraceptive use Worldwide 2015.* ST/ESA/SER.A/349.
Wamoyi, J., Ranganathan, M., Kyegombe, N., & Stoebenau, K. (2019). Improving the measurement of transactional sex in sub-Saharan Africa: A critical review. *Journal of Acquired Immune Deficiency Syndromes, 80*(4), 367–373.
Ward, H., Mercer, C. H., Wellings, K., Fenton, K., Erens, B., Copas, A., et al. (2005). Who pays for sex? An analysis of the increasing prevalence of female commercial sex contacts among men in Britain. *Sexually Transmitted Infections, 81*(6), 467–471.
WHO (2011). *Preventing HIV in sex work settings in sub-Saharan Africa.* Geneva: WHO.
WHO (2016). Sexually transmitted infections (STIs): Factsheet. Retrieved from: http://www.who.int/mediacentre/factsheets/fs110/en/.
Zahn, R., Grosso, A., Scheibe, A., Bekker, L. G., Ketende, S., Dausab, F., & Baral, S. (2016). Human rights violations among men who have sex with men in Southern Africa: Comparisons between legal contexts. *PLoS One, 11*(1), e0147156.
Zakayo, M. O., & Lwelamira, J. (2011). Sexual behaviours among adolescents in community secondary schools in rural areas of central Tanzania: A case of Bahi district in Dodoma region. *Age, 14*(3), 1–5.