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Predictors of condom use among unmarried sexually active women of reproductive age in Tanzania

Christopher H Mbotwa[1,2*], Fabiola V Moshi[3], Idda H Mosha[4], Shadrack E Kibona[5], Mangi J Ezekiel[4], Method R Kazaura[2]

[1]*Department of Epidemiology and Biostatistics, Muhimbili University of Health and Allied Sciences, Dar es Salaam, Tanzania*
[2] *Mbeya College of Health and Allied Sciences, University of Dar es Salaam, Mbeya, Tanzania*
[3]*Department of Nursing Management and Education, University of Dodoma, Dodoma, Tanzania*
[4] *Department of Behavioral Sciences, Muhimbili University of Health and Allied Sciences, Dar es Salaam, Tanzania*
[5]*Department of Statistics, University of Dar es Salaam, Dar es Salaam, Tanzania*

Abstract

Background: Condom is one of the methods for prevention against Human Immunodeficiency Virus and other Sexually Transmitted Infections. It is also considered an effective method for preventing unwanted pregnancies. Despite the several interventions that have been put to promote condom use, still, a large proportion of women do not use condoms during sexual intercourse.

Objectives: This study aimed at determining predictors of condom use among unmarried sexually active women of reproductive age in Tanzania.

Methods: This study used secondary data from the 2015-16 Tanzania Demographic and Health Survey and Malaria Indicator Survey (2015-16 TDHS-MIS). It involved unmarried sexually active women aged 15-49 years. Multiple binary logistic regression was used to determine predictors for condom use at last sexual intercourse.

Results: Overall, a lower proportion (31.1%) of unmarried sexually active women used condoms at last sexual intercourse. The odds of using condoms during last sexual intercourse were lower for older women (aOR=0.67 and aOR=0.65 for women aged 20-24 and 25+ years respectively). Women who reported higher age (18+ years) at first sex had higher odds (aOR=1.65) of using condoms compared to those who started having sex before 15 years old. Women from rich households (aOR=1.5) and those owning phones (aOR=1.44) had higher odds using condoms at their last sexual intercourse. Also, higher odds of using condoms were observed for women in the Southern, South West highlands, and Eastern zones compared to the Central zone.

Conclusion: The level of condom use among unmarried women in Tanzania is very low and varies by age, age at sex intercourse, household wealth index status, ownership of a phone and domicile zones. Targeted interventions are needed to promote condom use among unmarried women to mitigate the risk of HIV and unintended pregnancies.

Keywords: Condom use; Unmarried; sexually active women; reproductive age; Tanzania

*Correspondence: Christopher H Mbotwa, cmbotwa@udsm.ac.tz

Introduction

A sexually transmitted infection remains a public health challenge worldwide. It has been estimated that more than one million people are infected with STIs every day worldwide amounting to 376 million new infections yearly (WHO, 2019). In 2016, there were 86 million new cases of curable STIs

like gonorrhoea, chlamydia, syphilis and trichomoniasis in sub-Saharan Africa (WHO, 2017). Likewise, in 2015, more than 1.4 million new cases of HIV infections, equal to about 65% of the global HIV incidence, were reported in sub-Saharan Africa (Kharsany & Karim, 2016). The burden of morbidity and mortality caused by sexually transmitted infection compromises the quality of life, as well as sexual and reproductive health, and newborn and child health (WHO, 2017).

There are more than 20 different bacteria and viruses known to be transmitted through sexual contact. Some examples of these bacteria include chlamydia, gonorrhoea and syphilis and viruses such as HIV, herpes simplex virus, human papilloma, hepatitis B, cytomegalo (CMV), and Zika (National Institute of Child Health and Human Development, 2017). Due to low socio-economic status and biological structure make-up, women are more vulnerable to STIs than men. Their social and economic dependency pre-dispose them to failure to practice safe sex (Guérard et al., 1983). Furthermore, with their low chances of accessing formal education make them remain most uninformed abo STIs prevention methods (Guérard et al., 1983). Previous studies have reported that unmarried women are more likely to have multiple sexual partners when compared to married women (Kanté et al., 2015; Wilson Chialepeh & Sathiyasusuman, 2015). The behaviour of multiple sexual partners plus their low ability to resist unsafe sex put this group of women at increased risk of sexually transmitted infections than their counterparts.

Sexually Transmitted Infections are of more concern to pregnant women because some infections such as Zika, gonorrhea, chlamydia, HIV, and syphilis can pass to the fetus during pregnancy or childbirth (National Institute of Child Health and Human Development, 2017). The complications of the infection can lead to miscarriage, ectopic pregnancy, preterm labour and delivery, low birth weight, birth defects, stillbirth, illness during neonatal period, newborn deaths.

It is evidenced those male latex condoms when used correctly and consistently is among the most effective methods to protect against HIV infection and several STIs such as chlamydia, gonorrhea, and trichomoniasis (Exavery et al., 2015; WHO, 2019). In family planning, condoms have an imperious role in reducing the risk of unintentional pregnancies, with their efficiency estimated at 85-98% and 79-95% for male and female condoms respectively (CDC, 2012). Therefore, promoting condom use has been and continues to receive substantial attention in the fight against HIV and other STIs. This is very important particularly in sub-Saharan Africa where unprotected heterosexual is a major pathway for HIV and other STIs transmission (Kharsany & Karim, 2016). Therefor to motivate females to use condoms, health planners and program managers need to have extensive strategies to promote condom use among sexually active populations. These strategies should also consider correlates of condom use among unmarried women.

Furthermore, barriers to condom use point towards cultural definition of good sex and perceptions of people toward the use of condoms. There are studies that show non-use of condoms is due to several reasons including assertions that it decreases sexual enjoyment, uncomfortable to use, they come off inside a woman and that they pedal promiscuity (Bond & Dover, 1997; Mnyika et al., 1995). Other barriers such as doubt in the efficacy of condoms, myths, physical side-effects and others have also been reported (Versteeg & Murray, 2008).

There is dearth of empirical evidence on factors predicting condom use among unmarried females of reproductive age in Tanzania. Therefore, this study aimed to determine predictors of condom use among unmarried women of reproductive age in Tanzania. Findings from this study will add knowledge to the literature by determining factors predicting condom use among unmarried females of reproductive age and lay as a foundation for designing an effective HIV prevention program for unmarried females of reproductive age in Tanzania.

Specifically, the objectives of this study are twofold: first, to estimate the proportion of unmarried sexually active women of reproductive age who used condom at their last sexual

intercourse in Tanzania; second, to identify factors associated with condom use at last sexual intercourse among sexually active women of reproductive age in Tanzania. The findings of the present study are expected to contribute insights into potential interventions that could be designed to further promote the use of condoms.

Methods

Study design and data source

This study was a cross-sectional analysis of data from the 2015-16 Tanzania Demographic and Health Survey and Malaria Indicator Survey (2015-16 TDHS-MIS).

The 2015-16 TDHS-MIS

The 2015-16 TDHS-MIS is a nationwide cross-sectional study to measure levels, patterns, and trends in demographic and health indicators (Ministry of Health, Community Development, Gender, Elderly and Children (MoHCDGEC) [Tanzania Mainland], Ministry of Health (MoH) [Zanzibar], National Bureau of Statistics (NBS), Office of the Chief Government Statistician (OCGS). The 2015-16 TDHS-MIS collected information on fertility levels, marriage, sexual activity, fertility preferences, awareness, and use of family planning methods, breastfeeding practices, nutrition, childhood and maternal mortality, maternal and child health, malaria, and other health-related issues.

The sample design for the 2015-16 TDHS-MIS was done in two stages and was intended to provide estimates for the entire country, for urban and rural areas in Tanzania Mainland, and for Zanzibar. The first stage involved selecting clusters. These consisted of enumeration areas delineated for the 2012 Tanzania Population and Housing Census. A total of 608 clusters were selected. In the second stage, a systematic selection of 13,360 households was done and out of those households selected, 12,767 were occupied. Of the occupied households, 12,563 were successfully interviewed, yielding a response rate of 98%. In the interviewed households, 13,634 eligible women were identified for individual interviews; interviews were completed with 13,266 women, yielding a response rate of 97%.

Study population and data extraction

The study involved unmarried sexually active women aged 15-49 years. We extracted the data of eligible women from individual file recode (TZIR7BFL). From 13,266 women interviewed, we dropped all individuals who were married or living with their partners during the survey period which resulted to 5,077 women. We then dropped all women who reported to have never had sex to get sexually active women which resulted to 3,096 women. Finally, we dropped all observations with the missing information on the outcome variable (i.e. condom use during the last sexual intercourse) and we reached a sample of 2,223 unmarried sexually active women.

Study variables

The outcome variable for this study was condom use, which was measured as use of condom during the last sexual intercourse. The explanatory variables were socio-demographic characteristics (age, marital union, and education level, place of residence, occupation, and geographical zone) and exposure to mass media variables (ownership of mobile phone, reading newspapers, listening to radio and watching television).

Data management

Data were analyzed using STATA version 14. Descriptive statistical analysis was first conducted on socio-demographics and exposure to mass media. Binary logistic regression was conducted to all

variables and results were reported as crude odds ratio. All explanatory variables with a p-value < 0.2 during the univariate analysis were carried further to multivariable logistic regression to determine independent predictors of condom use. All analyses were weighted to adjust for over and under-sampling in the sampled regions. A p-value less than 0.05 was an indication for the statistically significant association. The crude odds ratios and adjusted odds ratios with their corresponding computed the 95% confidence intervals were presented.

Results

Socio-demographic characteristics of respondents

The results show that almost half (48.8%) of the respondents were aged between 25-49 years. More than half, (51.3%) reported to have never been married or cohabiting while 48.7% reported that previously were in marital union. Most respondents (58.9%) had primary level of education. About 16% of respondents had started sexual intercourse before reaching age 15. Furthermore, most of respondents, (64.4%) reported owning a mobile phone. On the other hand, exposure to mass media per week was as follows: radio (45.8%); newspapers (16.5%) and television (32.8%) (Table 1).

Table 1: Socio-demographic characteristics of respondents, unweighted sample (n = 2223)

Variable	Count (%)
Age (years)	
15-19	567 (25.5)
20-24	571 (25.7)
25+	1085 (48.8)
Previous married/Cohabiting	
No	1140 (51.3)
Yes	1083 (48.7)
Education level	
No formal education	200 (9.0)
Primary	1310 (58.9)
Secondary+	713 (32.1)
Wealth index status	
Poor	606 (27.3)
Middle	377 (16.9)
Rich	1240 (55.8)
Age at first sex	
Below 15	350 (15.7)
15-17	1139 (51.3)
18+	734 (33.0)
Parity	
0	796 (35.8)
1	519 (23.3)
2+	908 (40.9)
Owns a mobile telephone	
Yes	1432 (64.4)
No	791 (35.6)

Reads a newspaper at least once a week	
Yes	366 (16.5)
No	1857 (83.5)
Listen to radio at least once a week	
Yes	1019 (45.8)
No	1204 (54.2)
Watch television at least once a week	
Yes	730 (32.8)
No	1493 (67.2)
Geographical zone	
Western	149 (6.7)
Northern	221 (9.9)
Central	194 (8.7)
Southern highlands	198 (8.9)
Southern	174 (7.8)
South west highlands	219 (9.9)
Lake	553 (24.9)
Eastern	370 (16.7)
Zanzibar	145 (6.5)

Predictors of condom use among unmarried sexually active women in Tanzania

Overall, the proportion of unmarried sexually active women who used condoms during the last sex was 31.1% (95% CI: 28.1-34.1). Among women who used condoms, they were mostly aged 15-19 years (36.2%); were not in marital status (35.7%); had a secondary and above education (40.6%); started sex at age 18 and above (34.8%); had no live birth (38.4%).

From bivariate logistic regression with crude odds ratios (cORs) results, we observed association between condom use at last sexual intercourse and being aged 25 years above, previous in marital union, having secondary education and above, age at first sex, parity, wealth index status, owning telephone, exposure to mass media, and coming from northern, southern, south west highland and eastern geographic zones.

From multiple logistic regressions with adjusted odds rations (aORs), the study revealed significant predictors for condom use to be current age and age at first sexual intercourse, in rich households, owning telephone, from southern, south west highland and eastern zones. For age, the odds for using condom were 0.67 (95% CI: 0.47-0.93) and 0.65 (95% CI: 0.44-0.97) for women aged 20-24 years and 25+ years respectively. Likewise for age at first sex, the odds of using condom increase as the age at first sex rises (aOR: 158, 95% CI: 1.12-2.22 and aOR: 1.65, 95% CI: 1.11-2.44 for women who started sex at age 15-17 years and 18+ years respectively). Women who owned telephone had a higher odds (aOR: 1.44, 95% CI: 1.09-1.90) of using condoms as compared to women with no telephone. The odds of using condom for women in the southern zone, south west highland zone and eastern zone was significant higher when compared to women in the central zone. Marital union status, education level, parity, and exposure to mass media were not found to be significant predictor of condom use in the multiple logistic regressions.

Table 2: Predictors of condom use at last sexual intercourse

Variable	N (Weighted)	Used Condom N (%)	cOR (95% CI)	aOR (95% CI)

Overall	2528	785 (31.1)	-	-
Age (years)				
15-19 (ref)	660	239 (36.2)	1.0	1.00
20-24	652	209 (32.1)	0.8 (0.63-1.10)	0.7 (0.47-0.93)*
25+	1216	337 (27.7)	0.7 (0.53-0.87)**	0.7 (0.44-0.97)*
Marital union				
Never in union (ref)	1332	475 (35.7)	1.00	1.00
Previous in union	1196	310 (25.9)	0.6 (0.50-0.79)**	1.0 (0.76-1.41)
Education level				
No education (ref)	223	52 (23.5)	1.00	1.00
Primary	1488	401 (26.9)	1.2 (0.77-1.86)	0.8 (0.48-1.19)
Secondary+	817	332 (40.6)	2.2 (1.42-3.50)**	1.0 (0.57-1.58)
Age at first sex				
Below 15 (ref)	379	78 (20.5)	1.00	1.00
15-17	1339	426 (31.8)	1.8 (1.30-2.51)**	1.6 (1.12-2.22)**
18+	810	282 (34.8)	2.1 (1.43-2.98)**	1.7 (1.11-2.44)*
Parity				
0 (ref)	932	358 (38.4)	1.00	1.00
1	593	176 (29.7)	0.7 (0.49-0.93)*	0.9 (0.61-1.20)
2+	1003	251 (25.0)	0.5 (0.40-0.71)**	0.9 (0.60-1.44)
Wealth index status				
Poor (ref)	665	125 (18.8)	1.00	1.00
Middle	386	102 (26.4)	1.6 (1.08-2.23)*	1.3 (0.91-1.88)
Rich	1477	558 (37.8)	2.6 (1.97-3.52)**	1.5 (1.08-2.14)*
Own telephone				
Yes	1657	594 (35.8)	2.0 (1.54-2.56)**	1.4 (1.09-1.90)*
No	871	191 (22.0)	1.00	1.00
Read a newspaper at least once a week				
Yes	462	201 (43.6)	2.0 (1.50-2.57)**	1.3 (0.93-1.70)
No	2066	584 (28.3)	1.00	1.00
Listen to radio at least once a week				
Yes	1171	432 (36.9)	1.7 (1.33-2.09)**	1.1 (0.89-1.46)
No	1357	353 (26.0)	1.000	1.00
Watch a TV at least once a week				
Yes	881	367 (41.6)	2.1 (1.65-2.64)**	1.2 (0.84-1.56)
No	1647	419 (25.4)	1.00	1.00
Geographical zone				
Central (ref)	172	44 (25.5)	1.00	1.00
Western	293	104 (35.6)	1.6 (0.73-3.36)	1.5 (0.71-3.11)

Northern	223	40 (17.9)	2.5 (1.37-4.68)**	1.7 (0.94-3.17)
Southern highlands	164	44 (26.7)	1.7 (0.91-3.04)	1.4 (0.79-2.63)
Southern	163	48 (29.5)	1.9 (1.04-3.52)*	2.0 (1.07-3.86)*
South west highlands	222	83 (37.3)	2.7 (1.44-5.14)**	2.4 (1.32-4.44)**
Lake	645	147 (22.8)	1.4 (0.78-2.34)	1.4 (0.81-2.34)
Eastern	616	269 (43.7)	3.6 (2.03-6.20)**	2.4 (1.39-4.23)**
Zanzibar	27	5 (19.8)	1.1 (0.62-2.08)	0.8 (0.43-1.46)

*p<0.05; **p<0.01

Discussion

This study focused on women due to the higher risk of acquiring sexually transmitted diseases compared to their male counterparts. Their biological structures predispose them to sexually transmitted infections as compared to males. Notwithstanding that condom use is among the key strategies towards protection against sexually transmitted infections, women are disadvantaged by their cultural upbringing on their ability to negotiate the use of condoms (Ahmed & Abdu Seid, 2020, Holmes et al., 2004).

The predictors of condom use were the cage of unmarried women, age at sexual debut, household wealth index of unmarried woman, access to mobile phones, and zones within Tanzania where the unmarried women were living. This is attested by the findings where only slightly more than 30%of unmarried women used a condom during their last sexual intercourse.

The low proportion of condom use for women during sexual intercourse raises a public health concern of increased risk of contracting STIs including HIV among unmarried women in Tanzania. Similar findings were reported in previous studies in Africa (Ajayi et al., 2019; Fagbamigbe et al., 2011).The possible explanation for low condom use among unmarried women relates to both structural and individual factors. For instance, recent evidence among unmarried bar workers indicates that female bar workers possess limited power and negotiation skills to influence condom use when men do not choose to use one (Ezekiel et al., 2022). Also, low condom use was attributed to lack of skilled health care providers especially on sexual reproductive services and gender disparities were the main barriers to sexual reproductive services among youths in Mtwara district (Exavery et al., 2012; Mbeba et al., 2012). Likewise, negative attitudes, male dominance in decision, and religious teaching making was reported to influence condom use (Wang et al., 2016).

The results from this study also showed that the age of women significantly predicted condom use. Older women had fewer odds to use the condom when compared with young women. Women aged 20 to 24 years have more than 30% reduced odds to use the condom when compared with unmarried women aged 15 to 19 years. Equally, unmarried women aged at least 25 years have 35% reduced odds to use the condom when compared with unmarried women aged 15 to 19 years. Chandran et al. reported similar finding in South Africa (Chandran et al., 2012). This might imply the higher risk of STIs among older unmarried women than the youth. This could be due to most condom use campaigns that mostly target youth (Bull et al., 2002; Jewkes et al., 2010) assuming that older women are less sexually active and perhaps they know what to do if they want to have sex something which is not true.

This study also found that the age at first sex encounter significantly influenced condom use. Unmarried women who delayed initiation of sexual intercourse have higher odds of condom use when compared to unmarried women who initiated sexual intercourse at a younger age. The findings are in line with study by Morris et al. who reported early sexual debut as one of the factors associated with inconsistent condom use among adolescents in northwest Cameroon (Morris et al.,

2014), also a study by Shafii et al. who revealed that women who used condom in their sexual debut are more likely to use condom in subsequent sexual intercourse (Shafii et al., 2007). The reason could be because of immaturity at sex debut, and lack of information and skills to negotiate about condom use.

Household wealth index of an unmarried woman was the other predictor of condom use. Women from rich household had higher odds of using condom when compared to those from poor households. The possible reason for this could be the ability to purchase condoms when they are not freely available and also are exposed to family planning information. Similarly, rich women have a high possibility of dating affluent men because of their shared economic status. It is easy for such couples to pay for condoms when they are not freely available. A previous study done among male respondents reported that male respondents who had middle and high income significantly used condoms in their last sexual intercourse compared to poor male respondents (Adebowale et al., 2013). This finding suggests that stakeholders of condom supply should prioritize this intervention and make deliberate efforts in order to facilitate easy access to condoms as a matter of urgency. For instance, an evaluation of a three years condom use intervention in India revealed an increased use of condom using social marketing targeting peer networks (Rachakulla et al., 2011).

It was also reported that unmarried women who owned mobile phones had higher odds of using condom during sexual intercourse when compared to women who did not own a mobile phone. Owning a mobile phone could have exposed them to information and messages about sexuality and sexual and reproductive health education which often include information about appropriate and consistent condom use. Most of the mobile phones used in Tanzania have applications to connect to locally available radios. Our study finding is in line with what was reported by Olaniran et al. on Significant relationship between access to sexual education and the use of condoms (Olaniran et al., 2012).

This study revealed that condom use is significantly associated with geographical zone of domicile for women. Unmarried women from Southern, South-western highland and Eastern zones had significantly higher odds to use the condom in their last sexual intercourse when compared to women from the Central zone. The possible reason could be the attention these populations received compared to the central zone. All the zones have a remarkable number of fisher folk whose risk of HIV infection is three times if compared to other Tanzanian population (Kapesa et al., 2018). HIV prevention campaigns could have enhanced condom use in these zones if compared to the central zone.

This study has some potential limitations. First, it used exclusively quantitative methods to determine associations between variables with little narrative explanation. With that, a corresponding study using a qualitative methodology for a more narrative overview of the findings might be useful to explore the research question in greater depth. Second, the study was cross-sectional, and thus it was not possible to establish the causal relationship between variables. Therefore, we recommend for an intervention study to gain insights on causal relationship between condom use and its predictors.

Conclusion

The proportion of unmarried women who used condom was substantially low that may suggest increased risk of acquiring sexually transmitted infections including HIV/AIDS among unmarried in Tanzania. The risk of acquiring STIs was higher among older women, those who had a sexual debut at a young age (under 15 years), from poor households, those without access to mobile phones, and those living in central Tanzania.

The study recommends tailored sexual and reproductive education interventions to increase condom use among different groups of women in order to mitigate the risk of HIV and other STIs. Likewise continuous health education on safe sex negotiation skills should also be integrated with mobile phones due to its large accessibility and significant association with condom use.

Ethical considerations

This study makes use of secondary data without involving human subjects. Therefore, no formal ethical approval was required. However, the request to use the data was sought from DHS measures. The permission was given subject to using the data for research purposes only.

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Competing Interests
The authors declare that they have no competing interest

Authors' contributions
CHM conceptualized the idea, drafted the methodology, extracted data, did analysis, and prepared the draft; IHM drafted the introduction and revised the discussion; FVM revised the introduction and drafted the discussion; SEK reviewed the analysis and revised the introduction; MJE and MRK critically reviewed and revised the manuscript. All authors read and approved the final version of the manuscript.

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