Determinants of Gender Inequality In Sexual Debut Among Youth In Uganda: A Decomposition Analysis

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Abstract

Introduction: Teenage pregnancies and sexually transmitted diseases are major public health problems in Uganda. Early sexual debut is one of the main routes for these public health problems. Determinants of gender inequality in sexual debut are crucial for developing gender specific sexual and reproductive health promotion programs that delay sexual debut. Hence the aim of this study was to identify factors that explain gender inequality in sexual debut among Ugandan youth.

Methods: This study used secondary data from a cross sectional Uganda demographic health survey of 2016. Participants were 10,235 sexually experienced youth. Using stata 14, intermediary analysis was done to assess statistical association between explanatory variables and sexual debut in a multiple logistic regression analysis. Oaxaca decomposition was used to decompose factors that explain inequalities in sexual debut between male and female youth.

Results: Intermediary results showed Islam, many household members, eastern Uganda and being divorced/widowed were predictors of early sexual debut. While secondary education, higher education, blue collar jobs, being 20 to 24 and 25 to 30 years old were protective factors against early sexual debut. Material, behaviour/cultural, psychosocial, and demographic explanatory factors jointly explained a statistically significant portion of the observed gap in sexual debut between female and male youth. More female were at a disadvantage of early sexual debut as compared to male youth. About 96.37% of this gap was explained by unequal distribution of material, behaviour/cultural, psychosocial, and demographic factors between male and female youth. Relationship to household head (49%), education (16.87%), occupation (8.94%), number of household members (8.57%), frequency of using internet (7.99%) and reading newspaper or magazines (4.39%) made significant contribution to the explanation of sexual debut inequality between male and female youth.

Conclusions: Results showed sexual debut inequality between female and male youth that favoured men. Programs designed to address early sexual debut and related health outcomes such as teenage pregnancies, HIV must combat inequities in education, sex education, employment opportunities, access of internet and reading newspaper or magazines across gender. They should also foster household relationships and monitor girls to reduce sexual debut inequality across gender.

Introduction

Early sexual debut poses a bigger threat to the reproductive health of male and female youth globally. In developing countries more than 38 million women aged 15–19 years are sexually active (1), and they experience physically forced sex contrary to men (2). Several studies have revealed that male youth are more likely to debut sexual practice in their early age (3-5) and during that time they may not perceive the risk of having unprotected sexual intercourse with non-regular partners as compared to women (6). While early sexual initiation is more likely among female youth with low self-esteem, in men, it is done due to high self-esteem (7). Masculinity entails men to be sexual risk takers (8). While

feminineness habitually requires women to be passive in sexual relations and uninformed of sexual matters, reducing their ability to access information on the dangers of sex (9). Culturally, men are rewarded for this sexual activity while women are ashamed (10). This unequal balance of power between men and women leads to unequal access to resources, sexual and reproductive information as well as services by gender. Evidence shows that men and women who begin sex at earlier ages are more likely than those who do not to have multiple sexual partners in future (11, 12), concurrent sexual partners, transactional sex (12), and are less likely to use condoms (13).

Early sexual debut is associated with lowered likelihood of contraceptives use (14). Contraceptive use in Uganda is low with only 9.4% of female adolescents using contraceptives(15). This predisposes victims to sexually transmitted diseases (STDs) including human immune deficiency virus (HIV), teenage pregnancies, unwanted pregnancies, abortions (14), unfavourable academic outcomes, and related complications such as obstetric fistulas (15).

Early sexual debut exposes women to an unplanned pregnancies which pushes them to looking after children and altering their personal development plans (16). Globally, 1 out of 5 young women are married, or in union, before attaining age 18 and in the developing countries, 40% of women are married before 18 years (17). While child marriages are rare for men (18). The proportion of teenage marriages in Uganda is higher among females (3.5%) as compared to male (0.2%) youth (19). Approximately half of the Ugandan women and 4 in 10 men aged 15–19 have ever had sex (20). A more recent study which was done in rural Uganda found females were less like to ever have had sexual intercourse as compared to male youth (21).

As a result of early sexual debut, Uganda faces major public health challenges of teenage pregnancies and HIV/AIDS. Approximately 354,736 teenage pregnancies were registered in 2020 and 196,499 in the first 6 months of 2021 (22). Though the whole country is affected, Busoga region found in eastern Uganda is most affected (19). Additionally, due to early sex initiation female and male youth are susceptible to HIV. The prevalence of HIV is nearly four times higher among women aged 15 to 24 compared to men of the similar age in Uganda (23).

Gender differences and inequalities influence exposure to risk factors for sexual initiation. Some studies have shown both negative and positive effects of media exposure towards initiation of sex in youth. Odimegwu et al. reported that exposure to mass media was linked to early sexual debut for female youth but not for men (24). Additionally, Gazendam et al. reported girls who spent more time on social media (using electronic devices) were more likely to engage in early sexual activity, an association that was less marked in boys (25).

Lack of employment and low education propels female youth in vulnerabilities of sexual exploitation for survival (26). Community norms anticipate that women should marry and start sex before men (27). Women in child marriages tend to be less educated and are more likely to live in rural areas (17). They are socio-economically more vulnerable than men; particularly those in poor communities which

predisposes them to coercion into sexual debut and early marriage than males (28). Furthermore, due to poverty, some parents marry off their daughters in order to get money for survival (17).

There is an association between family structure and early sexual debut as absence of parental supervision, severe family impairment are linked to female and male youth sexual activity (29). Evidence reveals male youth raised by men are less likely to engage in sex (30). Additionally, a study which was done in Uganda, found absence of both parents from the household was associated with earlier sexual debut in female youth (31). Interactions of parents with their children and processes have a direct effect on early sexual debut. More parent-child communication (exclusively on sexual and reproductive health matters) has been linked with greater protection and less sexual risk in both female and male youth (32).

Shortage of disaggregated data by gender among the youth portrays that gap in specific health needs and vulnerabilities are not seen by policy makers and program designers hence presenting challenges in achieving the SDG 5, of gender equality and SDG 3, by addressing poor health outcomes of early sex onset by gender. This paper examined gender inequalities in sexual debut in Uganda using the 2016 Uganda Demographic Health Survey (UDHS).

Methods

Study context

Uganda has a population of 41 million people of which 54% are below 18 years and over 78% are under 30 years (33). The distribution of population by age in Uganda is explained by effects of excessive mortality due to HIV/AIDS and high fertility rate (33). About 76.23 % of the population stay in rural areas and agriculture is the main source of employment (34). Although the entire youth population is affected by unemployment in Uganda, female youth are disproportionately affected, as their rate is as twice as for male youth (35).

Study design and participants

Data from the 2016 UDHS conducted between 20th June 2016 and 16th December 2016 were used (19). It was a representative cross-sectional study and used validated questionnaires. The women's questionnaire was administered to women aged 15 to 49 years. While the men's questionnaire was administered to all men aged 15-54 years in the sample of households selected for the male survey (19). Both questionnaires collected information about household members', individuals' socio-demographic and reproductive health information. Stratified two stage cluster sampling design was used and census enumeration areas were used as primary sampling units (19). Selection of households was done through equal probability systematic sampling (19). The 2016 UDHS report has a full description of the sampling process which can be accessed in the reference (19).

The Uganda national youth policy definition of youth as young people aged 12–30 years was used (36) in this study. While age of sex initiation at 18 years and above was considered as delayed sex debut and sex onset below 18 years was regarded as early sex debut. We chose 18 years to be our cut off point because it is the legal age of sexual consent in Uganda. A person who makes a sexual act with another who is below 18 years commits defilement and his conviction is liable to life imprisonment in Uganda.

This study only included data of sexually experienced youth aged 15-30 years . Overall, the total number of youth who participated in this survey were 15,003 , of which 4768 had never been sexually active, leading to a final sample of 10,235 (9,309 female and 1,758 male) sexually experienced youth aged 15-30. Women were more than men because according to the UDHS(2016) report (19) all women aged 15-49 who were in permanent residents of the selected households and visitors who stayed in the household the night prior to the survey were interviewed. However, the survey only included men in only one-third of the sampled households (19).

Operationalisation of variables

Study variables were selected based on literature focusing on behavioral/cultural, materialist, psychosocial theoretical perspectives of health inequality (37). We grouped these variables into behavioral/cultural, materialist, psychosocial and demographic factors.

Outcome variables

Sexual debut was the health outcome variable of this study, and it was measured on a binary scale.

Our outcome variable was derived from “age at first sex”. A youth was considered to have early sexual debut when he or she had first sex at an age below 18 years which was coded 1. While youth who had their first sex at 18 years and above were considered to have delayed sexual debut and was coded 0. The reason why we chose 18 years to be our cut off point is because it is the legal age of sexual consent in Uganda.

Gender

Youth were classified as female youth, coded as 0, or male youth, coded as 1. The women database was apprehended with the men dataset.

Explanatory variables

Explanatory variables were got from literature and behavior/cultural, materialist, psychosocial explanation of health inequality guided us in the selection of potential variables from the UDHS questionnaire. Explanatory variables which did not fit in the behavior/cultural, materialist theoretical and psychosocial perspectives were categorised as demographic variables. Explanatory variable categories were grouped into dummy variables which were used in Oaxaca decomposition model.

Material variables

Education level was categorized as no education, primary, secondary, and higher level. The reference category for education level was no education.

Occupation was categorized into three categories; not working, blue collar jobs and white-collar jobs. Manual, household, domestic, security work, driving and agriculture were categorised as blue-collar jobs. While sales, professional, technical, managerial, and clerical were categorised as white-collar jobs. Not working was used as the reference.

Wealth quintile was calculated in the UDHS, by using principal component analysis in which scores were based on the number and kinds of consumer goods households owned, ranging from a television to a bicycle, car, housing characteristics such as source of drinking water, toilet facilities, and flooring materials. It was computed basing on all age groups in the survey. First quintile represents the poorest households, and the fifth quintile is the richest household. In this study, poorest household was made the reference.

Frequency of reading newspaper or magazines was categorised as, “at least once a week”, “less than once a week”, “not at all”. At least once a week was the reference category.

Frequency of listening to radio was categorised as “at least once a week”, “less than once a week”. At least once a week was the reference category.

Frequency of watching television was categorised as “at least once a week”, “less than once a week”, “not at all”. At least once a week was the reference category.

Frequency of using internet last month was categorised as “almost every day”, “less frequent”, “not at all”. Almost every day was the reference category.

Behavior/cultural variables

Region was categorised as, “central”, “eastern”, “northern” and “western”. These regions have both rural and urban areas. Central region was the reference category.

Religion was categorised as, Christianity, Islam, and other religions such as traditional, Buddhism. Christianity was made a reference.

Number of times travelled and slept away from home in the last 12 months was coded as, “0 to once”, “2 to more times” and “do not know”. The reference category was 0 to once.

Psychosocial explanations

Number of household members was grouped into “one household member”, “2 to 5 household members”, “More than 5 members”. The reference category was one household member.

Sex of household head was categorised as “male”, “female”. The reference category was male.

Relationship to household head was categorised as “head”, “wife”, “daughter/son”, “other relatives”. The reference category was head.

Demographic variables

Marital status was categorised as “never married”, “married/cohabiting” and “separated/divorced/widowed”. Never married was used as a reference group.

Area of residence was classified as urban and rural areas. Rural area was made a reference category.

Age of respondent was grouped into “15-19”, “20-24 years” and “25-29 years”. The reference category was 15-19 years.

Data analysis

Descriptive statistics

Descriptive statistics was used to get estimates of the prevalence of sexual debut by gender and the proportions or frequencies of material, behavior/culture, psychosocial and demographic variables across gender. Sample weights were applied.

Intermediary analysis

The Individual dataset which was derived from the women’s questionnaire and men’s questionnaire was used. The men dataset and women dataset were apprehended together and examined for missingness as well as multicollinearity. Multicollinearity was assessed using variance inflation factor (vif) and the mean vif was 2.95. Sample weights were used, and analysis was done using STATA 14. The selected statistical significance level (alpha) was <0.05. Material, behavior/cultural, psychosocial, and demographic explanatory variables were regressed with age of onset of sex in a multivariable logistic regression analysis to get adjusted odds ratios and to ascertain whether, material, behavior/cultural and demographic variables were associated with sexual debut.

Oaxaca decomposition analysis

The aim of this study was addressed by using Blinder-Oaxaca decomposition analysis through Oaxaca command (38) in stata 14. Blinder-Oaxaca decomposition analysis attributes a health gap between two groups to the independent contributions of a group of explanatory factors (39). Blinder-Oaxaca decomposition analysis is grounded on two linear regression models that are fit for each of the group. Non-linear (logit) blinder-Oaxaca decomposition was used because it is suitable for binary outcome and sexual debut is a binary outcome. It explains the gap in the means (or proportion) of an outcome variable between two groups which are male and female youth in our study. In this study, the outcome is absolute difference (proportion/prevalence difference) of sexual debut between female and male youth. The

sexual debut gap(y) is then expressed as a result of differences in explanatory variables(x's), and from differences in regression coefficients. For an explanatory variable to create an important independent contribution to the sexual debut inequality, it needs to be related to the health outcome (sexual debut; indicated by the intermediary analyses) as well as unequally distributed between the comparison groups (female and male youth) indicated in the descriptive statistics.

The gap between female and male youth was decomposed with sexual debut with all explanatory variables described above were added to explain the health gap of sexual debut. The model provides estimates which illustrate how well the explanatory variables jointly explained the total health gap and are reported as total explained portion (the sum of contributions of all explanatory factors) and the unexplained portion, corresponding to the fraction of the gap attributed to differences in the association to outcome of all factors, as well as the contribution of unobserved factors.

The total contributions are expressed in both absolute term (same as prevalence difference) and relative contributions (percentage of the absolute total health gap) with p values and confidence intervals. Contributions of each individual explanatory variable to the observed health gap are likewise reported as absolute and relative contributions with p values, but for which relative contributions are relative to the absolute explained proportion rather than to the total health gap. The normalize subcommand was used to summarize the total contribution of all categories of each categorical variable which are reported in the results section. Sample weight was applied during the analysis.

Results

The description of study participants by gender and sexual debut is presented in **table 1**. Overall, 10,235 sexually experienced youth reported their sexual debut. The prevalence of early sexual debut was higher in female youth (67.55%) than male youth (58.13%). While more male youth (41.87%) vs female youth (32.45%) reported delayed sexual debut.

Table1: Weighted descriptive characteristics of study population by gender and sexual debut.

VARIABLES	FEMALE YOUTH 8,263.26	FEMALE YOUTH 80.73 %	MALE YOUTH 825.72	MALE 19.27%	TOTAL 10,235.18	% 100
OUTCOME VARIABLE: sexual debut						
Delayed sexual debut	2,681.25	32.45	825.72	41.87	3,506.97	34.26
Early sexual debut	5,582.01	67.55	1,146.20	58.13	6,728.21	65.74
MATERIAL VARIABLES						
Education						
No education	407.06	4.92	50.13	2.54	457.19	4.46
Primary	4,665.76	56.43	992.64	50.34	5,658.40	55.25
Secondary	2,446.77	29.59	681.9	34.58	3,128.67	30.55
Higher	749.02	9.06	247.25	12.54	996.27	9.73
Occupation						
Un employed	1,769.33	21.43	47.57	2.43	1,816.90	17.78
Blue collar jobs	4,503.95	54.54	1,557.13	79.48	6,061.08	59.32
White collar jobs	1,984.92	24.04	354.56	18.1	2,339.48	22.9
Wealth quintile						
Poorest	1,498.41	18.12	323.99	16.43	1,822.41	17.8
Poorer	1,579.11	19.1	366.62	18.59	1,945.73	19
Middle	1,456.09	17.61	374.48	18.99	1,830.57	17.88
Richer	1,596.29	19.31	429.36	21.77	2,025.65	19.78
Richest	2,138.70	25.87	477.47	24.21	2,616.17	25.55
Frequency of reading newspapers or magazines						
At least once a week	796.01	9.63	291.75	14.8	1,087.76	10.62
less than once a week	1,145.89	13.86	419.22	21.26	1,565.12	15.28
Not at all	6,326.71	76.51	1,260.95	63.95	7,587.66	74.09
Frequency of listening to radio						
At least once a week	3,230.95	39.07	516.18	26.18	3,747.13	36.59
Less than once a week	5,037.66	60.93	1,455.74	73.82	6,493.40	63.41
Frequency of watching television						

At least once a week	1,884.28	22.79	664.69	33.71	2,548.98	24.89
less than once a week	921.81	11.15	461.65	23.41	1,383.46	13.51
Not at all	5,462.51	66.06	845.58	42.88	6,308.09	61.6
Frequency of using internet last month						
Almost everyday	431.83	5.22	261.68	13.27	693.51	6.77
Less frequent	404.22	4.89	265.83	13.48	670.06	6.54
NOT at all	7,432.56	89.89	1,444.41	73.25	8,876.97	86.68
BEHAVIOR/CULTURAL VARIABLES						
Religion						
Christianity	6993.6	84.58	1637.82	83.06	8631.42	84.29
Islam	1,182.28	14.3	308.9	15.66	1,491.18	14.56
Other religion	92.73	1.12	25.2	1.28	117.93	1.15
Times travelled and slept away from home in the last 12 months						
0 to once	5,441.40	65.81	1,016.06	51.53	6,457.47	63.06
2 to more travels	2,795.75	33.81	902.15	45.75	3,697.90	36.11
Do not know	31.46	0.38	53.71	2.72	85.17	0.83
PSYCHOSOCIAL VARIABLES						
Number of household members						
one	189.69	2.29	234.06	11.87	423.76	4.14
02 to 5 members	4,867.55	58.87	1,069.33	54.23	5,936.87	57.97
More than 5 members	3,211.37	38.84	668.53	33.9	3,879.91	37.89
Sex of household head						
Male	6,051.69	73.19	1,649.89	83.67	7,701.57	75.21
female	2,216.92	26.81	322.03	16.33	2,538.96	24.79
Relationship to household head						
Head	1,062.98	12.86	1,136.22	57.62	2,199.20	21.48
Wife	4,630.87	56.01	16.04	0.81	4,646.91	45.38
Daughter/son	1,248.26	15.1	470.53	23.86	1,718.79	16.78
Other relatives	1,326.50	16.04	349.14	17.71	1,675.64	16.36

DEMOGRAPHIC VARIABLES						
Regions						
Central	2,504.10	30.28	615.82	31.23	3,119.92	30.47
Eastern	2,257.07	27.3	509.36	25.83	2,766.43	27.01
Northern	1,519.14	18.37	357.42	18.13	1,876.56	18.32
Western	1,988.30	24.05	489.33	24.81	2,477.63	24.19
Residence						
Rural	2,276.55	27.53	537.03	27.23	2,813.57	27.47
Urban	5,992.06	72.47	1,434.90	72.77	7,426.96	72.53
Age of respondent						
15-19	1,644.75	19.89	376.7	19.1	2,021.45	19.74
20-24	3,222.47	38.97	720.79	36.55	3,943.26	38.51
25-30	3,401.39	41.14	874.43	44.34	4,275.82	41.75
Marital status						
Never married	1,427.84	17.27	826.47	41.91	2,254.31	22.01
Married/Living together	6,074.53	73.46	1,043.87	52.94	7,118.40	69.51
Separated/Divorced/Widow	766.24	9.27	101.59	5.15	867.83	8.47

Regarding material variables, overall, both female and male youth had a slight difference in Wealth quintile as shown in table 1. While there was a big difference in the level of occupation by gender, more female (21.43%) vs male (2.43%) youth were unemployed, a higher number of male youth had blue collar jobs (79.48%) vs female youth (54.54%) although there was a smaller difference in white collar jobs by gender. Generally, a higher number of male youth (14.8%, 21.26%) vs female (9.63%, 13.86 %) read newspapers/magazines, watched television (33.71%, 23.41 %) vs female youth (22.79%, 11.15%), used internet (13.27%, 13.48 %) vs female youth (5.22%, 4.89%) and more female youth (39.07%) listened to radio as compared to males (26.18%). Overall, more female youth were less educated as compared to male youth.

As shown in table 1, for the behavioural/cultural variables, there was not much difference in religion by gender distribution. However, more male youth (45.75%) travelled many times and slept away from home in the last 12 months as compared to female youth (33.81%).

Among the psychosocial variables, number of household members variable, had more male youth who stayed alone (11.87%) vs female (2.29 %) and a higher number of female youth (58.87%, 38.84%) vs

male (54.23%, 33.9%) stayed with other household members. Furthermore, a greater number of male youth were household heads, sons/daughters of the household head as compared to female youth. However female youth reported were wives of household heads about 69 times as often as the male youth.

Regarding demographic variables, there was not much difference in frequency between female and male youth in the different regions of Uganda, age distribution and type of residence. Though more male youth (41.91%) vs female youth (17.27%) were never married, and a higher number of female youth (73.46%) vs (52.94%) male youth were married/living together as illustrated in table 1.

Factors related to early sexual debut

Among all variables, secondary education, higher level of education, blue collar jobs, white collar jobs, Islam, staying in a household with more than 5 members, being related to the household head, eastern region, being 20-24 years old, 25-30 years old and being separated/divorced/widowed were statistically significant factors associated with early sexual debut ($P<0.05$) in a multivariable logistic regression analysis as shown in table 2. Youth with secondary education (AOR=0.49, CI=0.38-0.63) and higher education (AOR=0.24, CI= 0.18-0.33) were less likely to have early sexual debut as compared to the uneducated. Similarly, youth with blue collar jobs (AOR =0.81, CI= 0.69-0.94), white-collar jobs (AOR =0.81, CI=0.68-0.97), daughter/son (AOR=0.70, CI= 0.56-0.89) and other relatives (AOR =0.77, CI=0.62-0.95) to the household head were less likely to have early sexual debut as compared to those with no employment and heads of households respectively. Correspondingly, youth from large households of more than 5 members (AOR=1.8, CI= 1.31-2.52), Islam religion (AOR = 1.32, CI= 1.12-1.55), Eastern Uganda (AOR =1.39, CI=1.18-1.64), separated/divorced/widowed (AOR =1.79, CI =1.41-2.27) and wife of household head (AOR =1.43, CI =1.22-1.68) were more likely to have early sexual onset. Whereas youth aged 20-24 (AOR = 0.21, CI =0.17-0.25) and 25 to 30 (AOR =0.19, CI= 0.15-0.23) were less likely to have early sexual debut as shown in table 2.

Table 2. Intermediary analysis: Factors related to early sexual debut.

SEXUAL Debut	Adjusted odds ratio	P>z	[95% CI Interval]
MATERIAL VARIABLES			
Education (ref: no education)			
Primary	0.93	0.502	0.73-1.16
Secondary	0.49	0.000	0.38-0.63
Higher	0.24	0.000	0.18-0.33
occupation(ref: unemployed)			
Blue collar jobs	0.81	0.005	0.69-0.94
White collar jobs	0.81	0.023	0.68-0.97
Wealth quintile(ref: poorest)			
Poorer	0.98	0.771	0.83-1.15
Middle	0.91	0.308	0.76-1.09
Richer	0.89	0.235	0.74-1.08
Richest	0.85	0.163	0.67-1.07
Frequency of reading newspaper or magazines(ref: at least once a week)			
Less than once a week	1.04	0.732	0.84-1.29
Not at all	1.21	0.066	0.99-1.47
Frequency of listening to radio" (ref: At least once a week)			
Less than once a week	1.02	0.772	0.91-1.14
Frequency of watching television" (ref: AT least once a week)			
Less than once a week	1.03	0.765	0.85-1.25
Not at all	0.94	0.431	0.79-1.11
Frequency of using internet last month (ref: Almost every day)			
Less frequent	1.04	0.798	0.77-1.40
Not at all	1.27	0.07	0.98-1.63
BEHAVIOR/CULTURAL VARIABLES			
Religion			
Islam	1.32	0.001	1.12-1.55
Other religion	1.06	0.785	0.69-1.64

Times travelled and slept away from home in the last 12 months (REF:0 to once)			
2 to more travels	1.03	0.638	0.92-1.14
Do not know	0.73	0.299	0.40-1.32
PSYCHOSOCIAL VARIABLES			
2 to 5 household members	1.22	0.194	0.90-1.65
More than 5 members	1.82	0.000	1.31-2.52
Sex of household head (ref: male)			
female	1.14	0.086	0.98-1.31
Relationship to household head (ref: head)			
wife	1.43	0.000	1.22-1.68
Daughter/son	0.70	0.002	0.56-0.89
Other relatives	0.77	0.017	0.62-0.95
DEMOGRAPHIC VARIABLES			
Regions(ref: Central)			
Eastern	1.39	0.000	1.18-1.64
Northern	0.93	0.417	0.78-1.11
Western	0.89	0.13	0.76-1.04
Residence(ref: Rural)			
Urban	0.91	0.213	0.78-1.06
Age of respondent(ref:15-19)			
20-24	0.21	0.000	0.17-0.25
25-30	0.19	0.000	0.15-0.23
Marital status(ref: Never married)			
Married/Living together	0.83	0.063	0.69-1.01
Separated/Divorced/Widowed	1.79	0.000	1.41-2.27

The key findings of the results in table 2 are bolded.

Decomposition of gender inequality in sexual debut

In the upper part of table 3, the results show the sexual debut gap or difference between female and male youth, and a considerable portion of that gap was explained by observable characteristics which were grouped as material, behaviour/cultural, psychosocial, and demographic variables. The “explained” part is the proportion of the difference explained by material, behaviour/cultural, psychosocial, and demographic variables included in the analysis. If female and male youth had the same material, behaviour/cultural, psychosocial, and demographic variables, then the “explained” portion would reduce the gender-based gap in sexual debut which is the outcome variable of interest. The lower part of table 3 shows estimates of the contribution of material, behaviour/cultural, psychosocial, and demographic variables to the explained portion of the gap.

Material, behavior/cultural, psychosocial, and demographic explanatory factors jointly explained a statistically significant and considerable portion of the observed gap in sexual debut between female and male youth as 96.37%. With more female youth being at a disadvantage of sexual debut as compared to male youth. This gap (96.37%) was explained by unequal distribution of material, behavior/cultural, psychosocial, and demographic factors between male and female youth, table 3.

Table 3: Weighted Oaxaca decomposition of the inequality in sexual debut by gender

Blinder-Oaxaca decomposition				
Age of onset of sex	Coef.	Relative contribution (%)	P>z	95% Interval Conf.
Women	0.676		0.000	0.66-0.69
men	0.58		0.000	0.56-0.61
Women - men difference	0.095		0.000	0.07-0.12
Explained	0.091	96.37	0.000	0.06-0.12
Unexplained	0.003	3.63	0.867	-0.04-0.04
Explained contributions				
Material variables				
Education	0.016	16.87	0.000	0.01-0.02
Occupation	0.008	8.94	0.015	0.002-0.02
Wealth quintile	0.0002	0.26	0.692	-0.001-0.001
Frequency of reading newspaper or magazines	0.004	4.39	0.028	0.001-0.008
Frequency of listening to radio	-0.0005	-0.49	0.767	-0.003-0.003
Frequency of watching television	-0.004	-4.24	0.229	-0.01-0.003
Frequency of using internet	0.007	7.99	0.036	0.001-0.014
Behavior/cultural variables				
Religion	-0.001	-0.77	0.279	-0.002-0.001
Times travelled and slept away from home in the last 12 months	0.0009	0.91	0.682	-0.003-0.01
Regions	0.001	1.53	0.159	-0.0006

PSYCHOSOCIAL VARIABLES				
Number of household members	0.008	8.57	0.015	0.002
Sex of household head	0.003	2.79	0.159	-0.001
Relationship to household head	0.0465	49.05	0.000	0.024
Demographic variables				
Residence	0.00005	0.05	0.853	-0.0005
Age	0.0035	3.71	0.355	-0.004
Marital status	-0.0027	-2.87	0.566	-0.012

The key findings of the results in table 3 are bolded.

As shown in table 3, relationship to household head made the biggest (49%) statistically significant contribution to the explanation of sexual debut inequality between male and female youth and showed a substantial difference in the various types of relationships to the household heads across gender in table 1. Additionally, it was statistically associated with early sexual debut in intermediary analysis of multivariable logistic regression analysis as shown in table 2. It was followed by education (16.87%), occupation (8.937%), number of household members (8.573%), frequency of using internet (7.988%) and frequency of reading newspaper or magazines (4.394%). While none of the behavior/cultural variables and demographic variables made a significant independent contribution to the explanation of sexual debut inequality between female and male youth.

Discussion

This is the first study to be done in Uganda with the aim of determining factors that explain sexual debut inequality between male and female youth. Our findings confirm the presence of sexual debut inequality by gender. Results from this study showed more female youth had early sexual debut as young as 8 years as compared to male youth. Differing from our findings, a study which was done in rural Uganda found females were less likely to ever have had sexual intercourse as compared to male youth (21).

Additionally, studies which were done in several African countries including Uganda, found more Ugandan men had early sexual debut as compared to women (40, 41). In our study the sexual debut inequality is to the advantage of the male youth which may be attributed to the strong cultural influence that positions Ugandan women in subordinate positions but also encourages male domination even in sexuality (42). Additionally, evidence shows more female youth are raped/forced and coerced into early

sexual activities as compared to male youth (4). Furthermore, some parents marry off their daughters in order to get money for survival due to poverty (17).

Our study revealed, material, behavior/cultural, psychosocial, and demographic explanatory factors jointly explained a statistically significant portion of the observed gap in sexual debut between female and male youth. This gap was explained by the unequal distribution of material, behavior/cultural, psychosocial, and demographic factors between female and male youth. Among all these variables, relationship to household head, a psychosocial variable made the biggest (49%) statistically significant contribution to the explanation of sexual debut inequality between female and male youth. From the descriptive results, more female youth were spouses of household heads as compared to male youth, and this variable was a predictor of early sexual debut in the intermediary analysis. Furthermore, more male youth were heads of households, and more males were children of the household heads as compared to female youth yet being a child (son or daughter) of the household head was protective against early sexual debut in the intermediary analysis. In support of this finding, Bruederle et al. found male youth raised by men which is a proxy for male household head in this study had lower odds of having sex (30). Research done in four African countries discovered that parent-child communication about sexual matters was associated with delayed sexual debut among female youth (32). While studies done elsewhere found the opposite especially among male youth (43).

Evidence shows that family structure is important to female youth's sexual behaviour (31). Parental supervision and monitoring decreases engagement of female youth in sexual activity (44). Monitoring and supervision of male and female youth may depend on household adults' relationship to the youth (12).

Number of household members is another psychosocial variable, which contributed significantly to the explanation of early sexual debut inequality between female and male youth in Uganda. Generally, from the descriptive statistics, more female youth stayed with other household members as compared to male youth and staying with many household members was a predictor of early sexual debut in the intermediary analysis results. It may be attributed to lack of adequate parental monitoring and supervision of female youth because of large household size. Yet studies have found female youth deficient of parental support are at particular risk of sexual risk-taking (30). There is limited evidence of relationship of number of household members and sexual debut across gender. We recommend more research to be done in Uganda to establish the association between household members and sexual debut by gender.

Programs targeting to decrease sexual risk behaviours of youth, particularly early sexual debut need to comprehend on the complex influences of sexual debut by gender and precisely, the role of household heads and household members. Prevention strategies should include dimensions of household heads and other household members' involvement in addition to incorporating gender-specific messages as well as interventions that strengthen the program's specific goals of promoting delayed sexual debut among female and male youth.

Among material factors, education, occupation, frequency of reading newspapers or magazines and frequency of using internet made a significant contribution in explaining inequality of sexual debut by gender. Generally, in our study less female youth, were educated, employed, read newspapers or magazines, and used internet as compared to male youth. Most female youth were disadvantaged in having material variables as shown in table 1. While some of these material variables such as education and occupation are protective against early sexual debut in our intermediary analysis results. Several studies found education provided significant protection against early sexual debut among women (45-47). This unequal balance of education and employment between female and male youth leads to unequal access to resources, sexual and reproductive information as well as health services by gender with female youth being disadvantaged. Lack of employment and low education propels female youth in vulnerabilities of sexual exploitation for survival (27). When most men are involved in economic activities, many women in Uganda are more likely to be in in domestic work such as cooking, collecting firewood and water, caring for the children plus sick relatives which are often unpaid. This justifies why more female youth in our study were unemployed as compared to male youth, yet occupation was protective against early sexual debut in intermediary analysis.

While some studies have reported that women who used media frequently were more likely to have early sexual debut (25), in our study more male youth used newspapers/magazine and internet as compared to female youth and sexual debut inequality was in the favour of male youth. Frequency of using newspapers/magazine and internet contributed to the explanation of sexual debut inequality between female and male youth which favoured men. We can, therefore, say that sexual information encouraging delay of sex initiation via media, particularly from newspapers/magazines and internet has not been well targeted to female youth to address their peculiarities. Moreover, policies to disseminate sexual information via mass media particularly newspapers/magazines and internet by our government, rarely address or do not implement differentials in the characteristics between female and male youth. Interventions, which do not encourage fairness in access of media, education and employment opportunities for both female and male youth widen the sexual debut inequality gaps by gender. Targeted intervention strategies should be designed to promote delay in sex initiation across gender. They should address variations in educational levels, occupation status and access to sex education by gender. For example, policy makers must empower girls with income generating skills, adequate information about their bodies, reproductive processes, and advantages of delaying sexual initiation. The government of Uganda should also make media affordable and accessible to all youth irrespective of gender to positively empower them with sex and reproductive health information in earlier stages of their development before their sexual debut for improved sexual health. Contrary to our findings, research done in other settings shows male youth who had frequent media exposure were significantly more likely to engage early sexual debut than those who had no media exposure (48).

Implications of the study

Inequality in early sexual debut between female and male youth favours men. In order to combat this challenge, gender issues need to be considered. Since household head contributed most to the

explanation of the inequality and number of household members made a significant contribution, household heads and members should sex educate girls as well as monitor them during their growth. They should bond with all children irrespective of their gender status and support them to adopt healthy behaviours including delayed sexual debut throughout all stages of their development.

Methodological considerations

Strength

This study used data from a nationally representative standard survey, and it had a large sample size.

Limitations

Our study used secondary data, hence limiting us to variables which were collected during the survey. We had more female as compared to male youth and it didn't have important indicators of peer influence, parents' education, parental supervision, social economic status of parents, whether sexual debut was forced or consented and did not capture cultural as well as gender norms which are particularly important to explain gender inequalities in sexual debut.

Furthermore, sexual behaviour is a sensitive topic, interviewing youth on sexuality may have biases that may affect answers given. Additionally, our study used data collected from a cross-sectional survey, and therefore we didn't determine causality or directions of associations.

Conclusion

Our findings demonstrate sexual debut inequality between male and female youth in Uganda. Policies and programs designed to address early sexual debut and related health outcomes such as teenage pregnancies and HIV in youth, must combat inequities in education, occupation, frequency of using internet and reading newspaper or magazines across gender. Additionally, they should also incorporate dimensions of household heads in addition to other household members and gender-specific messages to strengthen the program's specific goals of promoting delayed sexual debut among female and male youth. Furthermore, they should encourage household heads and household members to always bond with girls and empower them with sexual reproductive information as well as monitor them. This study can be followed up with a qualitative study to gain a deeper understanding of the phenomena.

Abbreviations

EA	Enumeration area
AOR	Adjusted Odds Ratio
CI	Confidence Interval

COR	Crude Odds Ratio
DHS	Demographic Health Survey
UDHS	Uganda Demographic Health Survey
OR	Odds Ratio
SD	Standard Deviation

Declarations

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Availability of data and materials

The data set used is openly available upon permission from MEASURE DHS website (URL: <https://www.dhsprogram.com/data/available-datasets.cfm>). However, authors are not authorized to share this data set to the public, but anyone interested in the data set can seek it with written permission from MEASURE DHS website (URL: <https://www.dhsprogram.com/data/available-datasets.cfm>).

Author contributions

LM Conceived the idea, drafted the manuscript, performed analysis, interpreted the results, and drafted the subsequent versions of the manuscript. QS and KN reviewed the first draft and drafted the subsequent versions of the manuscript. All authors read and approved the final manuscript.

Ethics approval and consent to participate

High international ethical standards are ensured during MEASURE DHS surveys and the study protocol is performed in accordance with the relevant guidelines. The UDHS 2016 survey protocol was reviewed and approved by the ICF Institutional

Review Board. Written informed consent was obtained from human participants and written informed consent was also obtained from legally authorized representatives of minor participants.

Consent for publication

Not applicable.

Competing interests

All authors declare that they have no competing interests.

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