

Health Inequalities in Unmet Need for Family Planning Among Ugandan Women: Repeated Cross Sectional Surveys in the Years 2014 to 2018.

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Research

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**Health inequalities in unmet need for family
planning among Ugandan women: repeated cross
sectional surveys in the years 2014 to 2018.**

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ABSTRACT

Background: Health inequalities in unmet need for family planning have been documented in Uganda, however, little is known about their magnitude and whether these have remained the same.

Objective: This study sought to examine health inequalities in unmet need for family planning among Ugandan women between 15-49 years of age in the years 2014 to 2018.

Methods: Five data sets of the Performance Monitoring Accountability 2020 family planning cross-sectional surveys were used to assess health inequalities in unmet need for family planning across four socio-economic position variables (age, education, wealth status and geographical location) at five time points (2014 to 2018). Chi-square (χ^2) test and a logistic regression-based measure, the Relative Index of Inequality (RII) were used to assess differences and relative health inequalities respectively.

Results: The data of 19,670 women aged 15 to 49 years were analysed. Between 2014 and 2018, unmet need for family planning (limiting, spacing and total) were 2 or more times more prevalent among the uneducated (RII value range: 1.94 to 2.73), and poorest women (RII value range: 1.90 to 3.78), in comparison with women with post-secondary education and richest women respectively. Unmet need for family planning was more prevalent among women older than 35 years (RII between 0.41 and 0.63). No geographic-related health inequalities were observed. Education-related inequalities reduced, wealth-related health inequalities increased, while age-related inequalities remained fairly consistent.

Conclusion: Age, education and wealth related health inequalities were observed in unmet need for family planning. The magnitude of health inequalities varied between 2014 and 2018, with largest inequalities based on wealth status variable.

Key words: Unmet Need for Family Planning (UNFP), Health Inequalities, Relative Index of Inequality.

Background

The use of modern contraceptive methods among women of reproductive age could reverse Uganda's high maternal and child deaths.¹⁻³ Although modern contraceptive use in Uganda has increased^{4,5}, a sizeable proportion (33.2%) of fecund women who would either want to delay or stop having children are currently not using any contraceptive method (known as unmet need for family planning) persists.^{1,6}

Unmet Need For Family Planning (hereafter abbreviated as UNFP) has been associated with unintended pregnancies.^{7,8} These could result in unsafe abortions⁹⁻¹² in Uganda where abortion is illegal.¹³ Furthermore, UNFP has been associated with short inter-pregnancy intervals (the period between a live birth and following pregnancy) and high parity.¹⁴⁻¹⁶ Both short inter-pregnancy intervals and high parity have been associated with anaemia, pre-eclampsia, gestational diabetes, congenital malformations, preterm delivery neonatal deaths and chronic malnutrition among infants.¹⁷⁻²³ Consequently, UNFP significantly contributes to maternal and child morbidity and mortality rates in Sub-Saharan countries like Uganda.^{24,25} For primary health care programmes, UNFP indicates failures in reaching those in most need of family planning services and consequently their reproductive health needs.^{26,27}

UNFP is often unequally distributed with some disadvantaged socio-economic groups suffering higher burdens.^{28,29} In response, global initiatives through the 2012 London Summit on Family Planning committed to identify women with a higher UNFP and develop tailored interventions addressing their needs.³⁰ Previous studies in Sub-Saharan countries including Uganda have suggested that young, rural, least educated and poorest women are more likely to have a higher UNFP compared to their counterparts.³¹⁻³⁷ Such differences in health status where lower socio-economic positions suffer higher burdens of negative health outcomes such as UNFP suggest health inequalities.³⁸ In Uganda, health inequalities in UNFP may limit health gains anticipated from the remarkable progress in increased modern contraceptive use.³⁹ Furthermore, they may prevent the achievement of Uganda's Family Planning 2020 targets of reducing UNFP to 10% by 2020.⁴⁰

Although health inequalities in UNFP in Uganda have been documented³⁷, whether these have remained the same over time is questionable. Previous studies have indicated health inequalities in UNFP at particular time points in 1995, 2001 and 2006.³⁷ However, these assessments were done over ten years ago and may not reflect recent changes if any. This presents a need to utilise more contemporary data for examining any changes in health inequalities in UNFP. Recent studies have been restricted to particular geographic areas^{41,42} and are therefore limited in national representativeness. Therefore, this study conducted a secondary analysis of repeated cross-sectional survey data to examine health inequalities in UNFP among women aged between 15-49 years in Uganda over five years.

Methods

Data source

This study conducted a quantitative analysis of secondary data from the Performance Monitoring Accountability 2020 (PMA 2020) repeated cross-sectional surveys conducted annually in the years 2014 to 2018. These surveys collected data on socio-economic characteristics and family planning practices to inform progress in achieving family planning 2020 targets in Uganda.⁴³ These surveys targeted Ugandan women of reproductive age (between 15 and 49 years), who are the main focus of family planning interventions.⁴⁴

In each survey year, the sample size was determined using the Kish Leslie formula as detailed in Zimmerman.⁴⁵ Two-stage stratified cluster sampling was used to construct nationally representative sample at low cost.⁴⁶ A total of 110 enumeration areas (primary sampling unit) were selected based on rural/urban stratification within the ten sub-regions using probability proportion to size from the Uganda Bureau of Statistics master sampling frame created during the 2002 National Population and Housing Census.

A total of 44 households were randomly selected from an up to date list of households in each enumeration area. All consenting females between 15 to 49 years of age were included in the study in each of the survey rounds.

Data were collected using the household and female structured questionnaires socio-economic and family planning information respectively as detailed in Zimmerman.⁴³ Data were collected using a mobile phone device by a female resident enumerator.

Variables of interest

Outcome variable

UNFP was defined using Bradley et al's⁴⁷ most recent definition.

UNFP- the proportion of all exposed women (currently married and sexually active unmarried women) that were classified as fecund, not using contraception despite not wanting more children or not wanting a child in the next two years and pregnant and postpartum amenorrheic women (up to two years) whose pregnancy or last birth was unwanted or mistimed.

Pregnant and postpartum amenorrheic women with pregnancy or last birth resulting from contraceptive failure were not classified as having UNFP.

Independent variables

These included socio-economic position indicators namely: age, geographical location, level of education and wealth status. These were categorised as follows:

- 1) **Age** - was categorised into four groups namely: group 1 (15 - 19 years), group 2 (20 - 24 years), group 3 (25 - 35 years) and group 4 (36 - 49 years).
- 2) **Geographical location**- was categorised into either rural or urban areas.
- 3) **Level of education**- was categorised based on the highest level of education attained in the Ugandan education system to include: no education, primary level, secondary level and post-secondary level.
- 4) **Wealth status**-was assessed by computing wealth quintile index, a composite variable constructed using principal component analysis of the data on ownership of consumer items and livestock, characteristics of the dwelling unit, water sources and sanitation facilities.¹²⁷ This was categorised into five quintiles namely lowest, lower, middle, higher and highest quintile.

The group 1(15 to 19 years), rural, no education and lowest wealth quintile categories were considered as the lowest socio-economic position in regards to age, geographic location, education, and wealth status respectively.

Data Analysis

Only completed questionnaires were considered for analysis. The survey responses were weighted for the data analysis to correct for the disproportionality of the sample introduced by the complex survey design.⁴⁸ Survey weights were derived by taking into account the probability of selected enumeration areas, households and non-response adjustments.⁴⁹ Final weights were normalised at the national level. Descriptive statistics were used to generate proportions of women with UNFP in the various categories in all the survey years. Chi-square (χ^2) test was used to test whether there were differences in the distribution of UNFP across socio-economic position categories for each indicator in the various survey years.⁵⁰ Statistically significant differences consisted of those with p-values less than 0.05.

The Relative Index of Inequality (RII) was used to assess relative health inequalities. RII is an odds ratio that can be interpreted as the odds of UNFP in the lowest socio-economic position category compared to the highest socio-economic position category.⁵¹ Values of RII greater than 1 indicate health outcomes are concentrated in the lowest socio-economic position category while values less than one indicate health outcomes are concentrated in the

highest socio-economic position category if the 95% Confidence Interval (CI) does not include one and p-value is less than 0.05.⁵² This was computed as explained further below.

Individuals were ranked in each socio-economic position indicator.⁵³ To construct this, categories in each socio-economic position were arranged cumulatively from the lowest to the highest categories. Redit scores were used to obtain the relative rank of each category based on the mid-point range of cumulative distribution in each category. The relative ranks were weighted to account for population size in each category. The lowest socio-economic position was assigned a rank of 0 while the highest socio-economic position was assigned a rank of 1.⁵³

A logistic regression was used to regress the obtained relative ranks in each of the socio-economic position indicators on the binary outcomes (yes/no) for UNFP. Adjustment for covariates was done by a forward stepwise approach while maintaining the socio-economic position variable of interest. Changes in health inequalities in UNFP were assessed by comparing the values of the RII obtained in each socio-economic indicator across the survey years. All statistical analysis was conducted using the software STATA (version 12).

Ethical consideration

Anonymised publicly accessible data was obtained from the PMA 2020 website following approval of the PMA2020 Coordinating Office.

Result

Socio-demographic characteristics of the study participants

Data from 19,670 women were analysed. During the study period (years 2014 to 2018), the highest proportion of respondents were reported in the 25 to 35 year age group, rural and primary level education categories. With regards to the level of education attained, there was a rise in respondents having a primary level education (from 57.92% in the year 2014 to 80.94% in 2018) and a reduction in those with no education (from 13.58% in the year 2014 to 9.48% in 2018). Respondents were approximately evenly distributed across the wealth categories with limited variation throughout the study period. Overall, the response rates were high with the lowest obtained in the year 2014 (94%). The socio-demographic characteristics of the study participants in each of the five survey years have been further detailed in table 1 below.

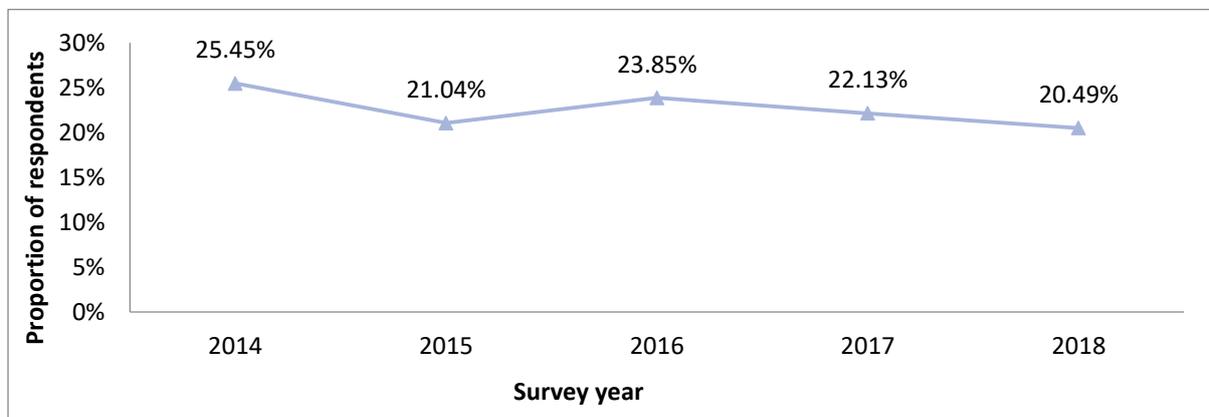
Table 1: Socio-demographic characteristics of female respondents in each survey year.

Survey Year	2014	2015	2016	2017	2018
Weighted N	3754	3617	3800	4119	4227
Unweighted N	3669	3631	3793	4119	4227
Characteristic	Weighted n (%)				
15-19 years	787 (20.84)	816 (22.66)	780 (20.64)	902 (20.29)	919 (21.65)
20-24 years	803 (21.45)	787 (21.27)	809 (21.41)	897 (22.86)	895 (21.65)
25-35 years	1,332 (35.30)	1,250 (33.59)	1,329 (34.30)	1,435 (35.05)	1,443 (34.48)
36-49 years	832 (22.42)	778 (22.48)	875 (23.65)	886 (21.10)	970 (22.42)
Rural area	2,812 (79.50)	2,660 (79.02)	2,820 (80.91)	3,023 (78.74)	3,084 (77.62)
Urban area	942 (20.50)	971 (20.98)	973 (19.09)	1,096 (21.26)	1,143 (22.38)
No education	567 (13.58)	412 (9.68)	393 (8.90)	447 (8.46)	515 (9.49)
Primary	2,083 (57.92)	2,037 (58.95)	2,234 (61.76)	2,307 (57.74)	3,312 (80.94)
Secondary	898 (22.83)	943 (25.42)	947 (23.93)	1,076 (26.65)	265 (6.42)
Post-Secondary	202 (5.57)	239 (5.95)	211 (5.23)	287 (7.10)	133 (3.14)
Lowest quintile	681 (18.04)	646 (17.08)	707 (19.15)	1,010 (20.88)	1002 (20.29)
Lower quintile	660 (18.27)	639 (18.64)	695 (18.63)	740 (18.59)	764 (19.08)
Middle quintile	734 (19.65)	731 (21.02)	743 (20.05)	767 (20.37)	767 (19.78)
Higher quintile	780 (21.63)	675 (20.93)	720 (20.41)	710 (18.85)	721 (19.10)
Highest quintile	899 (22.41)	940 (22.32)	928 (21.72)	892 (21.32)	953 (21.75)

Secondary analysis of the Performance Monitoring Accountability (PMA) 2020 data

UNFP generally decreased across the study period from 25.45% (95% CI: 23.15-27.75) in 2014 to 20.49% (95 CI: 18.12-22.86) in 2018 despite a slight increase in 2016 23.84% (95% CI: 21.88-25.82) as indicated in the figure 1 below.

Figure 1: Proportion of respondents with UNFP in the years 2014 to 2018.



Secondary analysis of the Performance Monitoring Accountability (PMA) 2020 data

Differences in UNFP across each socio-economic position indicator

UNFP varied across categories in each ‘socio-economic position’ variable. UNFP was highest among older age groups, no education, rural and lowest wealth quintile (poorest) categories in the age, education, geographical location and wealth status variable. Differences across age, education and wealth status were statistically significant with p-values less than 0.05 in all survey years as detailed in table 3 below.

Table 2: Differences in UNFP across each socio-economic position variable

	2014	2015	2016	2017	2018
Age					
15-19 years	15.00%	10.84%	16.20%	15.10%	12.88%
20-24 years	25.27%	21.49%	22.92%	23.12%	20.04%
25-35 years	31.23%	25.98%	29.07%	25.76%	24.31%
36-49 years	26.24%	23.93%	23.77%	22.02%	22.42%
χ^2 value,(df), p-value	68.66 (3), p=0.0000*	73.38 (3), p=0.0000*	45.15 (3), p=0.0000*	36.37 (3), p=0.0000*	47.85 (3), p=0.0000*
Geographical location					
Rural	26.37%	21.76%	25.86%	23.00%	21.47%
Urban	21.89%	18.78%	15.75%	18.88%	17.10%
χ^2 value,(df), p-value	6.45 (1), p=0.0528	3.21 (1), p=0.2649	34.04 (1), p=0.0000*	6.81 (1), p=0.0966	8.58 (1), p=0.1295
Level of education					
No education	35.50%	27.78%	28.79%	29.00%	29.34%
Primary	27.94%	23.20%	26.48%	23.80%	20.81%
Secondary	15.80%	15.86%	18.63%	19.68%	9.12%
Post-secondary	15.09%	12.38%	8.96%	9.69%	8.63%
χ^2 value,(df) ,p-value	89.48 (4), p=0.0000*	40.12 (3), p=0.0000*	53.46 (4), p=0.0000*	44.09 (4), p=0.0001*	52.73 (4), p=0.0000*
Wealth status					
Lowest quintile	33.59%	25.00%	32.16%	31.95%	27.93%
Lower quintile	30.59%	23.81%	32.53%	24.87%	27.96%
Middle quintile	23.26%	21.59%	21.42%	19.04%	18.87%
Higher quintile	23.40%	20.47%	19.78%	19.99%	15.72%
Highest quintile	18.61%	16.15%	15.13%	14.95%	12.66%
χ^2 value,(df), p-value	57.62 (4), p=0.0000*	20.86 (4), p=0.0060*	101.00(4), p=0.0000*	84.42 (4), p=0.0000*	103.97 (4) P=0.0000*

*indicates statistically significant differences with p-values less than 0.05

Secondary analysis of the Performance Monitoring Accountability (PMA) 2020 data

Health inequalities in UNFP

Age-related health inequalities

Throughout the study period, UNFP was concentrated among the 36-49 year age group with both the unadjusted and adjusted RII values (detailed in table 3 below) were less than 1. These were statistically significant with 95% confidence intervals not including 1 and p-values less than 0.05. Throughout the study period, women in the 15 to 19 years age group were 37% to 59% less likely to experience UNFP in comparison to women in the 36 to 49 years age group, following adjustments for education, geographic location and wealth status.

Table 3: Age-related health inequalities in UNFP

	Unadjusted RII (95% CI)	P-value	Adjusted RII (95% CI)	P-value
2014	0.46 (0.34 – 0.61)*	0.000	0.58 (0.44- 0.78)*	0.000
2015	0.36 (0.26 – 0.50)*	0.000	0.41 (0.29- 0.58)*	0.000
2016	0.56 (0.41- 0.76)*	0.000	0.60 (0.43- 0.84)*	0.000
2017	0.60 (0.45- 0.79)*	0.000	0.63 (0.45 – 0.89)*	0.009
2018	0.50 (0.34- 0.63)*	0.000	0.50 (0.37- 0.69)*	0.000

*indicates statistically significant differences with 95% confidence intervals excluding 1 and p-values less than 0.05,Secondary analysis of the Performance Monitoring Accountability (PMA) 2020 data

Education-related health inequalities

UNFP was concentrated among those with no education with both the unadjusted and adjusted RII values greater than 1. Following adjusting for other covariates, education related health inequalities observed in 2014, 2015 and 2018. (RII values with 95% confidence intervals not including 1 and p-values less than 0.05) At these survey points women with no education were 2 to 3 times more likely to experience UNFP compared to those with post-secondary education following adjustments for age geographical location and wealth status. Although the unadjusted RII indicated health inequalities in the years 2016 and 2017, these values became insignificant after addition of the wealth status variable while adjusting for covariates. Details are shown in table 4 below.

Table 4: Education-related health inequalities in UNFP

	Unadjusted RII (95% CI)	P-value	Adjusted RII (95% CI)	P-value
2014	4.21 (2.79 - 6.34)*	0.000	2.73 (1.80 – 4.15)*	0.000
2015	2.89 (2.01 - 4.15)*	0.000	1.90 (1.26 – 2.86)*	0.002
2016	2.95 (2.13 – 4.10)*	0.000	1.42 (0.97- 2.09)	0.074
2017	2.51 (1.57 – 4.00)*	0.000	1.36 (0.76 – 2.45)	0.297
2018	4.09 (2.64 – 6.32)*	0.000	1.94 (1.15 – 3.29)*	0.000

*indicates statistically significant differences with 95% confidence intervals excluding 1 and p-values less than 0.05. Secondary analysis of the Performance Monitoring Accountability (PMA) 2020 data

Geographic-related health inequalities

UNFP was concentrated among urban women (adjusted RII less than 1) across the survey period, except in the year 2016. However, none of these findings was statistically significant. Based on the results, evidence for geographic-related health inequalities in UNFP was inconclusive. Details are provided in table 5.

Table 5: Geographic-related health inequalities in UNFP

	Unadjusted RII (95% CI)	P-value	Adjusted RII (95% CI)	P-value
2014	1.63 (0.99 - 2.68)	0.053	0.87 (0.58-1.34)	0.542
2015	1.44 (0.75 – 2.79)	0.265	0.91 (0.42- 1.98)	0.806
2016	2.95 (2.13 – 4.10)*	0.000	1.72 (1.13- 2.60)	0.074
2017	1.65 (0.91- 2.98)	0.097	0.80 (0.51 – 1.26)	0.317
2018	1.76 (0.84- 3.65)	0.130	0.73 (0.42 – 1.27)	0.262

*indicates statistically significant differences with 95% confidence intervals excluding 1 and p-values less than 0.05. Secondary analysis of the Performance Monitoring Accountability (PMA) 2020 data

Wealth-related inequalities

UNFP was concentrated among the poorest women with both the unadjusted and adjusted RII values greater than 1. Wealth-related health inequalities in UNFP were observed throughout the survey period except in the year 2015(95% confidence intervals not including 1 and p-values less than 0.05). The poorest women were 2 to 4 times more likely to experience UNFP compared to the richest women following adjustments for age, education and geographical location. Table 6 below shows the details.

Table 6: Wealth-related health inequalities in UNFP

	Unadjusted RII (95% CI)	P-value	Adjusted RII (95% CI)	P-value
2014	2.69 (1.81 – 4.01)*	0.000	1.90 (1.25- 2.90)*	0.003
2015	1.94 (1.32 - 2.87)*	0.001	1.54 (0.99 – 2.39)	0.056
2016	3.83 (2.66 – 5.50)*	0.000	2.96 (1.98 – 4.42)*	0.000
2017	3.38 (2.27- 5.04)*	0.000	3.19 (1.99 - 5.13)*	0.000
2018	4.02 (2.78- 5.84)*	0.000	3.78 (2.40 – 5.94)*	0.000

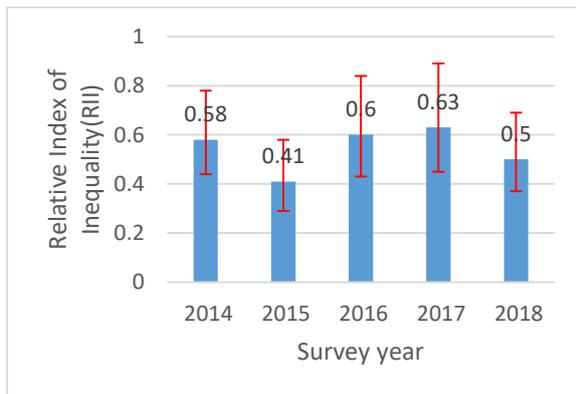
*indicates statistically significant differences with 95% confidence intervals excluding 1 and p-values less than 0.05. Secondary analysis of the Performance Monitoring Accountability (PMA) 2020 data

Changes in health inequalities in UNFP

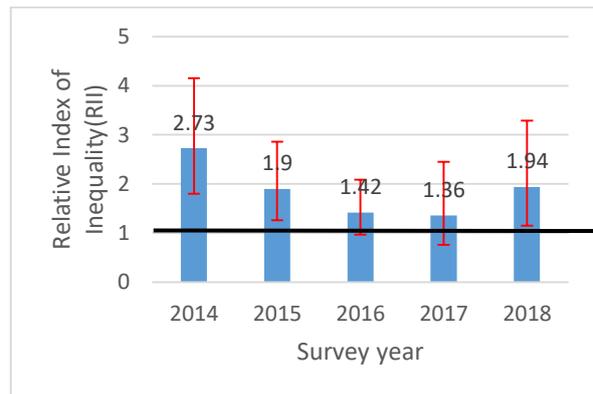
The magnitude of age, education and wealth related inequalities in UNFP varied throughout the study period. Age-related inequalities reduced between the years 2014 and 2017 with RII values moving closer to 1 from 0.58 (95% CI: 0.44- 0.78, $p=0.000$) to 0.63 (95% CI: 0.45- 0.89, $p=0.009$), however this later increased in the year 2018 to 0.50 (95% CI: 0.37- 0.69, $p=0.000$). Education-related health inequalities in UNFP reduced from 2.73 (95% CI: 1.80 – 4.15, $p=0.000$) in the year 2014 to 1.94 (95% CI: 1.15 – 3.29, $p=0.000$) in the year 2018. Wealth-related health inequalities in UNFP increased from the year 2014 (RII=1.9, 95% CI: 1.25– 2.90, $p=0.003$) to 2018 (RII= 3.78 (95% CI: 2.40 – 5.94, $p=0.000$) as shown in figure 2 below.

Figure 2: Changes in health inequalities in UNFP between the years 2014 and 2018

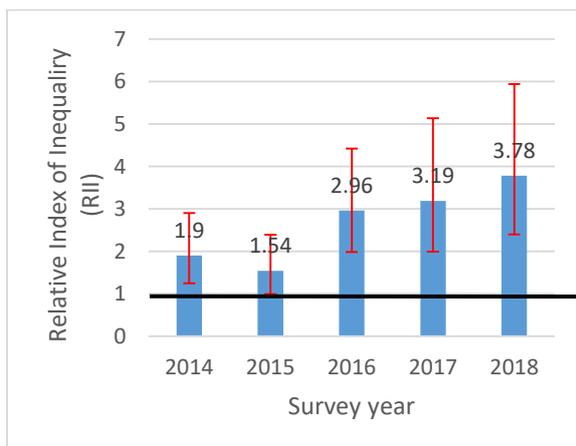
Age



Education



Wealth Status



Secondary analysis of the Performance Monitoring Accountability (PMA) 2020 data

Discussion

This study examined health inequalities in UNFP among Ugandan women 15-49 years of age between the years 2014 to 2018. Health inequalities in UNFP were observed across age, wealth and education. Wealth-related inequalities were the highest. Over the study period, education-related inequalities reduced, wealth-related health inequalities increased, while age-related inequalities remained fairly consistent.

This study documents a considerable UNFP (between 20.49% and 25.45%), which is comparable to the African region estimate of 22%.⁵⁴ This shows that a sizeable proportion of Ugandan women still failed to meet their fertility desires through the use of modern contraceptive methods between the years 2014 and 2018.

UNFP among all women (23.84%) reported in this study was slightly lower than those obtained by the Uganda Demographic and Health Survey 2016 (UDHS 2016) (28.4% and 31.9 % among currently married and sexually active unmarried women respectively).¹ Although both studies used two-stage stratified cluster sampling; the UDHS 2016 obtained enumeration areas from 15 sub-regions based on the 2014 Uganda Population and Housing Census. This led to differences in sampling fractions, and consequently different weighting of survey responses and final estimates.⁵⁵

As indicated by previous literature³³, women in the lowest ‘socio-economic position’ categories (namely least educated, poorest and rural) consistently reported a higher UNFP. These suggest persistent health inequalities. UNFP generally increased with decreasing socio-economic position except for the age variable, suggesting a social gradient.

Age-related health inequalities.

Interestingly, the results show persistent reverse age-related health inequalities in UNFP. Reverse health inequalities occur when adverse health outcomes are concentrated among the highest ‘socio-economic position’(oldest women).⁵⁶ Some studies in Nigeria⁵⁷ and Ethiopia⁵⁸ have shown that older women are less likely to use modern contraceptives. Because of their age, women older than 35 years perceive themselves as less likely to get pregnant due to their reducing sexual exposure and fecundity, and so do not use contraceptives.⁵⁹

Education-related health inequalities

The study showed sizeable education-related health inequalities. Those with no education were two to three times more likely to have of UNFP compared to women with post-secondary education. Low levels of education have been associated with lower health literacy.⁶⁰ Women with no education may, therefore, have reduced exposure to family planning information due to their inability to read, which can also contribute to inaccurate perceptions about their risk of pregnancy and the side-effects of modern contraceptives. This may make these women less likely to use modern contraceptives to fulfil their pregnancy intentions (wanting to space their next pregnancy or have no more pregnancies) in comparison to their more educated counterparts.

There was a reduction in education-related health inequalities in UNFP. This is similar to study conducted in Egypt⁶¹ that used the concentration index to show declining education-related health inequalities in UNFP. The observed decline could be attributed to the larger increases in modern contraceptive use observed among Ugandan women with no education compared to those with secondary and post-secondary education over time as documented by Namasivayam et al.⁶²

Geographic-related health inequalities

In this study, as demonstrated previously in Ethiopia^{35,36,63}, rural women reported a higher UNFP. However, no geographic-related inequalities were observed following adjustments for age, wealth status and education. This might suggest that rural-urban differences could result from differences in the distribution of wealth, education attainment and age between the two areas. This lends support to previous findings in Ghana⁶⁴ that indicated that regional variation in UNFP was associated with the distribution socio-economic and demographic variables such as age, wealth and education within these areas.

Wealth-related health inequalities

The findings of this study indicated that substantial wealth-related inequalities, with the poorest women being two to four times more likely to have UNFP compared to the richest women. Wealth-related inequalities in UNFP have also been documented by Chauhan⁶⁵ in India. However, comparisons could not be made due to the different measures used to assess health inequalities (concentration index in Indian study and the RII in this study). Poor women may be unable to access free modern contraceptive services offered at health facilities

due to transport costs.⁶⁶ The subsidised community-based services may remain unaffordable to the poorest women as their priority is meeting their basic needs first with the few available resources they may have. Based on this, the poor are less likely to access and therefore benefit from the increased availability of modern contraceptives compared to richer women.⁶⁷

This study shows increasing wealth-related inequalities in UNFP. This could be attributed to higher reductions in UNFP among the richest women in comparison to the poorest women over the period selected in this study.

Strengths and Limitations

This study benefitted from using large nationally representative samples with high response rates making the results generalisable to Ugandan women aged 15 to 49 years.^{68,69} The use of multiple socio-economic position parameters which provided a comprehensive picture of the health inequalities in UNFP.⁷⁰ In absence of longitudinal data, repeated cross-sectional surveys allowed assessment of population-level changes in health inequalities over five years.⁷¹ The RII allowed assessment and comparison of the magnitude of health inequalities while accounting for the changes in the distribution of age, education, wealth and geographical areas during the five years.⁷²

However, the proportion of women who participated in a previous survey year (14.73% to 28.93%), may have reduced the independent nature of the observations.⁷³ However, this is likely to have had a minimal impact as a women's pregnancy intentions and contraceptive use patterns are likely to change over a short time.⁷⁴ The ranking of women categories introduced value judgments while considering the least and most advantaged positions. Results may therefore, differ if there are alterations made.⁷⁵ The secondary data analysed did not contain information on occupation which is a key 'socio-economic position' variable. The exclusion of occupation status while adjusting for other covariates may have resulted in residual confounding.⁷⁶

Conclusion

The study showed substantial health inequalities related to age, wealth and education in UNFP, whose magnitude has changed over time. The reverse age health inequalities observed question the overly simplistic assumption that those in lower socio-economic positions inevitably bear the highest burden of unfavourable health outcomes. Future research needs to

use time series analysis further to establish the period effects, such as changes in policy and family planning interventions) that have influenced changes in health inequalities.

Declarations

Ethical Approval and Consent to participate

Anonymised publicly accessible data was obtained from the PMA 2020 website following approval of the PMA2020 Coordinating Office.

Consent for publication

Not Applicable

Availability of data and materials

The datasets analysed in this study are publicly accessible data from the PMA 2020 website upon approval of the PMA2020 Coordinating Office.

Competing interests

The Author has no conflict of interest to disclose.

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Authors' contributions

Ms Wanyana Mercy Wendy was responsible for the design, analysis, interpretation and writing this research article.

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