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Co-Wives and Co-Siblings: Does the Rank of Wives Matter in Fertility among Women in Ghana?

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Abstract: Fertility in sub-Saharan Africa (SSA) continues to be among the highest in the world. Studies on fertility in SSA have examined dimensions such as marital versus non-marital fertility and fertility in monogamous versus polygamous unions. Very few studies have examined variations based on wife rank. This study explores fertility variations based on wife rank among women of reproductive age in Ghana. Descriptive statistics and Poisson regression techniques were used in analysing data on 8,136 women (weighted sample) aged 15-49 years who were surveyed in the 2022 Ghana Demographic Health Survey. The findings indicate that fertility varies significantly based on the rank of wives. After controlling for some proximate determinants of fertility and the socio-demographic characteristics of women and their partners, being a second and higher order wife was found to be associated with lower fertility compared to being the only wife in the union. Partners' characteristics did not significantly predict the fertility of their spouse regardless of the rank of the wives. These findings suggest that fertility is not always higher among women in polygamous unions when the rank of co-wives is considered, as such there is the need for more focused research to aid our understanding of the underlying factors and dynamics in fertility among women in polygamous unions, especially in similar socio-cultural context where polygamy is commonly practiced.

Keywords: Fertility; Wife rank, Ghana

1. Introduction

Marriage takes different forms and is defined differently in different contexts. One common type of marital union defined by the number of women in the union is a monogamous union where there is only one wife versus a polygamous union where there is more than one wife in the same union. Polygamy is less common in the world but more common in the African region especially among the Central and Western parts of the region where about 11% of the population live in unions that involve more than one wife [1-3]. Polygamy is still prevalent in Africa because traditional practices in most African countries allow polygamous unions. In northern Cameroon for instance, a traditional ruler could marry several wives as he wishes and after a king dies, the heir inherits his wives. Also, traditionally, polygamy was viewed as a sign of wealth and practiced by rich men who had money and land to support a large family [4,5].

In Ghana, infant betrothal through trokosi (though obsolete and now criminal is still an extant practice) and the inheritance of widows on the demise of the husband encouraged the practice of polygamy [5-7]. Given the context of polygamous unions in the African region, there has been previous research on variations in fertility among women in polygamous versus monogamous marriages. However, the evidence from previous research is not entirely conclusive as some studies have found that women in polygamous unions have more children than monogamous women [8] while others have found the fertility of monogamous women to be higher [9,10] and some others have found that fertility is lower among polygamous women [11].

While previous research has focused on this divide in the fertility of monogamous versus polygamous women, there has been limited research focused on variations on fertility among women in polygamous unions based on the rank of the wife in the polygamous union. Therefore, while there is the need for more research on fertility among monogamous

versus polygamous, an even more important dimension that needs further research is the variations in fertility among women in a polygamous union based on the rank of the wife in the union. Such research is important because there are indications that, by virtue of the position of the wife in a polygamous union, there could be some dynamics that could affect the fertility of a wife of a certain rank [11]. For example, being a first, second, or third wife in a polygamous marriage might affect the number of children ever born to the women in the union due to various reasons and the factors the women may be exposed to. Anthropologists have found that among co-wives, there is a strong reproductive rivalry [12] that could influence the number of children born by wives. In the few studies conducted outside Ghana, fertility increased based on wife rank while in other studies fertility decreased, and in some studies, wife rank did not make a difference [12]. This indicates a research gap that requires further research to understand the variations in the fertility of women in polygamous unions depending on the rank of wives in the union.

This study therefore aims to investigate the variations in fertility among Ghanaian women of reproductive age (15-49 years) from the perspective of the rank of wives in polygamous unions. To the best of our knowledge, this study is the first of its kind to investigate fertility in the context of monogamous and polygamous unions among the same group of women.

2. Materials and Methods

2.1 Study Setting

This study was undertaken in the Republic of Ghana, a West African country bordered by French speaking countries; Burkina Faso, Cote D'Ivoire, Togo, and the Gulf of Guinea to the south. Ghana has a total land mass of 238,537 square kilometres (Ghana Statistical Service, 2015). There are currently 16 administrative regions in Ghana with the Greater Accra region being the administrative and political capital. According to the results of the recent national population and housing census, the total population of the country in 2021 was 30.8 million representing a 2.1% increase from 24.7 million as recorded in the 2010 census. The average household size was 3.6 persons whilst the national population density is about 129 persons per square kilometre (Ghana Statistical Service, 2021).

2.2 Source of Data

This study uses secondary data from the 2022 Ghana Demographic and Health Survey (GDHS) conducted as part of the global Demographic and Health Surveys (DHS). The survey was conducted by the Ghana Statistical Service (GSS), and other partners including the Ghana Health Service (GHS) and funded by international organisations such as the United States Agency for International Development (USAID), the Global Fund, the United Nations Children's Fund (UNICEF) and the United Nations Populations Fund (UNFPA). The 2022 GDHS is the seventh in the series of demographic and health surveys conducted in Ghana since 1988. The primary objective of the survey was to create reliable and recent information on demographic and health indicators including fertility, family planning, infant and child mortality, maternal and child health and nutrition as well as HIV prevalence and malaria treatment for planning and informed policy decision-making related to general and reproductive health at all levels.

2.3 Sample design and selection

The sampling frame for the 2022 GDHS was generated by the Ghana Statistical Service from the 2021 Population and Housing Census. The survey was a household-based survey, as such nomadic and institutional populations were excluded from the survey enumeration. A two-stage cluster sampling design that allowed for estimates at the national and regional levels as well as for rural and urban areas was used to select respondents for the survey. At the first stage of sampling, a total of 618 clusters were selected from both rural and urban areas in the 16 regions. At the second stage, about 30 households were selected from each of the previously selected clusters to comprise the total sample size of 18,450 households. Men and women aged 15-59 years and 15-49 years respectively who were either permanent residents of the households that were selected or visitors who stayed in the household the night before the survey were eligible to be interviewed.

2.4 Study Subjects

This unit of analysis for the present study is women in the reproductive age, i.e., 15-49 years. About 15,317 women of these women were identified to be eligible for interview and 15,014 were surveyed. For this study, the sample was limited to women who were in a union at the time of the survey including women who were co-habiting with their partners (n=8,753). Women who were divorced, widowed, separated and never married were excluded from the analysis (n=6,261). The final analytical sample for the study included 8,136 women (weighted sample) who were in married

or cohabiting with a partner at the time of the survey. Out of this number, 6,932 were the only wife in the union while 1,204 were in polygamous unions and were the first, second or higher rank wife in the union.

2.5 Variables

The dependent variable for this study is number of children ever born measured as the total number of children born alive to a woman at the time of the survey. The main independent variable in this study is wife rank. It is operationalized as a polychotomous variable with categories that include women in monogamous marriages as the one and only wife in the union, women in polygamous marriages as the first (1st) wife, and second or higher (2nd+) order wife depending on when the women (wife) joined the union (including women who were cohabiting). The wife rank variable was constructed based on responses to three sequential questions. The first question was "does your husband/partner have other wives or does he live with any other woman as if married?" The responses to this question were "Yes", "No" and "Don't know". Those who reported "don't know" were excluded from the analysis. The second question was "including yourself, in total, how many wives or live-in partners does he have?" The third question following the second question asked the women whether they were the first, second or higher order wife. Based on the responses to these three questions, respondents who answered "no" to the first question were considered as the one and only wife and categorised as the only wife and having "no co-wife". Respondents who had co-wives from the second question were further categorised as the first (1st) wife or the second or higher order (2nd+) wife based on their answer to the third question.
Other factors that influence fertility, particularly proximate determinants of fertility, were considered as intermediate variables. These include age at first marriage measured as a categorical variable and ever terminated a pregnancy (i.e., ever had an abortion) which was measured as a dichotomous variable with "yes" and "no" response categories. The study also controls for the socio-demographic characteristics of women including their current age, religious affiliation, ethnicity, level of educational attainment, type of occupation, place of residence, wealth quintile and the characteristics of their partners including their current age, level of educational attainment, and type of occupation.

2.6 Data Analysis

The data were analysed using quantitative analytical techniques. The characteristics of the study sample and the fertility of the various groups were described using percentages and means. Poisson regression analysis was used to examine the relationship between wife rank and fertility. Two sets of models were specified, unadjusted models examined the separate independent effect of the independent and control variables on fertility in the absence of other variables while an adjusted model examined the effect of the main independent variable on the dependent variable controlling for other factors.

3. Results

3.1 Characteristics of study sample and fertility

The results presented in Table 1 show the characteristics of the women in the study (and their partners) and the mean number of children ever born to the women by the various socio-demographic characteristics. Overall, the average number of children born to the women in the study was approximately 3.23 (+2.13) children. Women who had no co-wives were in the majority, constituting about 84 percent while women who were the first order wife were in the minority, constituting about 6 percent of the total sample. Women who were the only wife had the lowest average number of children ever born (3.09) while first rank wives had the highest number of children ever born (4.56). About 47 percent of the women were less than 20 years old when they first cohabited with a man and this group of women also had the highest average number of children ever born (3.70). Women who first cohabited after age 30 constituted the smallest proportion of the sample and they also had the lowest average number of children ever born (2.41). About 68% of the women have never had an abortion at the time of the survey and the average number of children ever born was observed to be slightly higher among those who have ever had an abortion (3.29) than those who have never had an abortion (3.21). The results in terms of current age show that the youngest age group constituted the lowest proportion (2.36%), and they also had the lowest fertility, and fertility generally increased with age. With respect to education, fertility was highest among women who have not received any formal education and lowest among those who have senior secondary education. The distribution for the various religious groups shows those with Pentecostal/Charismatic affiliation constituting nearly two-fifths of the entire sample and fertility being highest among women with traditional/spiritualist affiliation. With regards to ethnicity, Akan women constituted nearly half of the total sample and fertility did not differ widely among the various ethnic groups (Table 1). The distribution in terms of type of occupation was as expected, women in professional/technical/managerial roles had the lowest fertility. The distribution by place of residence shows a higher proportion of women living in urban areas (51.8%) but fertility among women in rural areas was almost one

child higher compared to their urban counterparts. The distribution of the sample in terms of their wealth status shows slightly more than 1 in 5 of the women belonging to the richer and richest categories and a little less than 1 in 5 belonging to the poorest, poorer and middle categories. The results also showed a decline in fertility with increasing wealth. In terms of the characteristics of the partners of the women, nearly 4 in 5 of the women lived with their partners at the time of the survey and those who lived with their partners had about 3.40 children on average while those who were not living with their partners had 2.72 children on average. About one-third of the partners of the women were 30-39 (35.35%) or 40-49 (32.97%) years old. The fertility of the women was observed to increase with increasing age of the women's partners. Also, the fertility of the women generally declined with increasing level of education of their partners and fertility was highest among women whose partners worked in the agriculture sector (Table 1).

Table 1: Characteristics of study sample and mean number of children characteristics of respondents

Variable	Mean number of children ever born (±SD)	Percentage (%)	Number (n)
Wife rank			
No-co wife	3.09 (±2.06)	85.21	6,932
1st wife	4.56 (±2.21)	5.91	481
2nd+ wife	3.75 (±2.33)	8.88	722
Age at first cohabitation			
< 20	3.70 (±2.26)	47.04	3,827
20-24	3.02 (±2.02)	32.48	2,643
25-29	2.57 (±1.71)	14.43	1,174
30+	2.41 (±1.66)	6.04	492
Abortion			
No	3.21 (±2.15)	68.13	5,543
Yes	3.29 (±2.08)	31.87	2,593
Age of women			
15-19	0.72 (±0.69)	2.33	190
20-24	1.27 (±0.93)	12.34	1,004
25-29	2.03 (±1.26)	17.77	1,446
30-34	3.06 (±1.63)	20.98	1,707
35-39	3.97 (±1.85)	20.02	1,629
40-44	4.68 (±2.08)	15.03	1,222
45-49	4.90 (±2.34)	11.53	938
Education			
No education	4.50 (±2.30)	24.66	2,006
Primary	3.62 (±2.13)	15.04	1,224
Junior secondary/Middle School	3.04 (±1.88)	36.00	2,929
Senior secondary	1.97 (±1.47)	14.81	1,205
Higher	2.09 (±1.35)	9.48	772
Religion			
Catholic	2.91 (±1.93)	8.72	709
Anglican/Presbyterian/Methodist	3.10 (±1.99)	9.65	785
Pentecostal/Charismatic	3.08 (±2.03)	39.21	3,190
Other Christians	3.34 (±2.15)	13.90	1,131

Islam	3.41 (±2.22)	23.60	1,920
Traditionalist/Spiritualist	4.69 (±2.58)	2.69	219
No religion	3.73 (±2.50)	2.23	182
Ethnicity			
Akan	3.11 (±2.03)	40.53	3,297
Ga/Dangme	3.15 (±2.17)	6.25	508
Ewe	3.04 (±1.91)	10.73	873
Mole/Dagbani	3.29 (±2.19)	22.39	1,822
Other	3.56 (±2.32)	20.10	1,636
Occupation			
Not working	2.44 (±1.91)	12.36	1,006
Prof/Tech/Clerical/Managerial	2.10 (±1.46)	8.13	662
Sales/Services	3.64 (±2.15)	63.89	5,198
Agriculture	3.80 (±2.36)	4.24	345
Manual labour	2.42 (±1.73)	11.38	926
Residence			
Urban	2.89 (±1.89)	51.65	4,202
Rural	3.61 (±2.31)	48.35	3,934
Wealth			
Poorest	3.98 (±2.46)	20.37	1,657
Poorer	3.72 (±2.27)	18.54	1,508
Middle	3.33 (±2.06)	18.86	1,535
Richer	2.72 (±1.78)	21.06	1,714
Richest	2.54 (±1.63)	21.17	1,744
Currently residing with husband			
Lives with partner	3.40 (±2.16)	75.00	6,183
Lives elsewhere	2.72 (±1.96)	24.00	1,952
Husband's age			
<20	1.62 (±1.82)	0.13	11
20-29	1.27 (±1.03)	13.52	1,100
30-39	2.55 (±1.65)	35.36	2,877
40-49	3.88 (±2.92)	32.93	2,679
50-59	4.80 (±2.18)	13.30	1,082
60+	5.12 (±2.36)	4.76	387
Husband's educational level			
No education	4.33 (±2.33)	22.61	1,840
Primary	3.70 (±2.24)	8.79	715
JHS/Middle/Secondary	2.98 (±2.96)	53.15	4,324
Higher	2.28 (±1.55)	15.45	1,257
Husband's occupation			
Not working	2.94 (±2.13)	3.80	309

Prof/Tech/Clerical/Managerial	2.42 (±1.69)	13.86	1,128
Sales/Services	3.81 (±2.26)	41.34	3,363
Agriculture	3.71 (±2.40)	7.73	629
Manual labour	2.79 (±1.83)	33.27	2,707
Total	**3.23 (±2.13)**	**100**	**8,136**

3.2. *Wife's rank as a predictor of fertility controlling for socio-demographic characteristics and partners characteristics*

Table 2 present the results of a Poisson regression analysis with wife's rank as a predictor of fertility (Model 1) and controlling for reproductive behaviours and the socio-demographic characteristics of women and their partners (Model 2). The results of the unadjusted model (Model 1) suggest that compared to a woman who is the only wife in the union, first rank and second and higher order wives have higher fertility with fertility being highest among first wives. After controlling for other factors, the fertility of first rank wives was still higher compared to women who were the only wife in the union, but the effect size reduced substantially (Model 2). The estimate for second and higher order wives also declined in the adjusted model compared to the unadjusted model. The results of the adjusted model indicate that fertility is lowest for second and higher order wives (β = -0.049) compared to women who were the only wife in the union (Table 2, Model 2).

Among the control variables, age at first cohabitation showed the expected pattern of influence on fertility in both the unadjusted and adjusted models. The age of a woman and the level of education attained by the woman also showed the expected pattern of influence in the both the unadjusted and adjusted models. For occupation, women who worked in professional, technical, managerial or clerical occupations consistently had lower fertility compared to women who were not working in both models. Also, women who reside in rural areas exhibited higher fertility in both the unadjusted and adjusted models. Women whose partners were living elsewhere had lower fertility compared to their counterparts who were living with their partners and this effect was consistent in both the unadjusted and adjusted models. In the unadjusted models, the age of the partner of the women as well as their level of education and the type of occupation the partners were engaged in showed the expected pattern of results with the fertility of their wives, independent of other factors but these effects were no longer statistically significant after other factors were controlled for (Table 2).

Table 2: Results of Poisson regression analysis of the relationship between wife rank and fertility

Variable	**Model 1 Unadjusted Model**	**Model 2 Adjusted Model**
	β-estimate [95% CI]$^{p\text{-value}}$	β-estimate [95% CI]$^{p\text{-value}}$
Wife rank [No co-wife]		
1st wife	0.389 [0.338, 0.440]***	0.041 [0.003, 0.079]**
2nd+ wife	0.194 [0.134, 0.253]***	- 0.047 [- 0.084, - 0.010]**
Age at first cohabitation [<20]		
20-24	- 0.202 [- 0.237, - 0.167]***	- 0.157 [- 0.184, - 0130]***
25-29	- 0.365 [- 0.425, - 0.305]***	- 0.337 [- 0.381, - 0.292]***
30+	- 0.430 [- 0.059, - 0.349]***	- 0.550 [- 0.620, - 0.480]***
Abortion [No]		
Yes	0.024 [- 0.018, 0.066]	- 0.041 [-0.069, -0.013]***
Age of woman [15-19]		
20-24	0.565 [0.409, 0.746]***	0.611 [0.442, 0.780]***
25-29	1.029 [0.887, 1.198]***	1.058 [0.897, 1.219]***
30-34	1.439 [1.293, 1.607]***	1.421 [1.256, 1.586]***

35-39	1.700 [1.558, 1.864]***	1.666 [1.5497, 1.835]***
40-44	1.865 [1.716, 2.041]***	1.759 [1.582, 1.935]***
45-49	1.911 [1.767, 2.084]***	1.783 [1.610, 1.956]***
Highest level of education [No education]		
Primary	- 0.219 [- 0.271, - 0.167]***	- 0.028 [- 0.065, 0.008]
JHS/JSS/Middle	- 0.394 [- 0.441, - 0.347]***	- 0.061 [- 0.100, - 0.022]***
SSS/SHS	- 0.824 [- 0.891, - 0.757]***	- 0.221 [- 0.282, - 0.161]***
Higher	- 0.769 [- 0.836, - 0.701]***	- 0.205 [- 0.305, - 0.105]***
Ethnicity [Akan]		
Ga/Dangme	0.013 [- 0.088, 0.116]	- 0.008 [- 0.084, 0.092]
Ewe	- 0.025 [- 0.089, 0.040]	- 0.050 [- 0.005, 0.094]
Mole/Dagbani	0.057 [0.004, 0.110]**	- 0.023 [- 0.035, - 0.080***
Other	0.134 [0.087, 0.187]***	- 0.770 [- 0.135, - 0.018]
Religion [Catholic]		
Anglican/Presbyterian/Methodist	0.065 [- 0.015, 0.146]	0.032 [-0.209, 0.084]
Pentecostal/Charismatic	0.057 [- 0.0117, 0.126]	0.054 [0.011, 0.096] ***
Other Christians	0.139 [0.060, 0.217]***	0.101 [0.530, 0.150] ***
Islam	0.158 [0.088, 0.228]**	0.077 [0.33, 0.120]***
Traditionalist/Spiritualist	0.479 [0.353, 0.604]***	0.153 [0.089, 0.217]***
No religion	0.250 [0.113, 0.386]***	0.047 [- 0.038, 0.132]
Occupation [Not working]		
Prof/Tech/Clerical/Managerial	- 0.146 [- 0.234, - 0.058]***	0.004 [- 0.083, 0.092]
Sales/services	0.401 [0.337, 0.466]***	0.051 [- 0.054, 0.04]**
Agriculture	0.443 [0.347, 0.538]***	0.023 [- 0.035, 0.081]
Manual labour	- 0.007 [- 0.090, 0.076]	- 0.077[- 0.135, - 0.018]**
Type of place of residence [Urban]		
Rural	0.220 [0.178, 0.263]***	0.040 [0.007, 0.071]***
Wealth status [Richest]		
Poorest	0.449 [0.390, 0.509]***	0.217 [0.159, 0.276]***
Poorer	0.382 [0.3194, 0.444]***	0.170 [0.114, 0.226]***
Middle	0.270 [0.207, 0.332]***	0.145 [0.096 0.194]***
Richer	0.067 [0.007, 0.126]***	0.003 [- 0.044, 0.050]
Currently residing with husband [Lives with husband]		
Lives elsewhere	- 0.222 [- 0.272, - 0.171]***	- 0.110 [- 0.143, - 0.077]***
Husband's age [<20]		
20-29	- 0.242 [- 0.852, 0.368]	- 0.324 [- 0.585, - 0.062]**
30-39	0.455 [- 0.151, 1.106]	- 0.061 [- 0.320, 0.198]
40-49	0.878 [0.271, 1.484]***	- 0.014 [- 0.272, 0.245]
50-59	1.089 [0.483, 1.695]***	0.025 [- 0.236, 0.287]
60+	1.152 [0.545, 1.759]***	0.036 [- 0227, 0.299]
Husband's level of educational [No education]		

Primary	- 0.157 [- 0.212, - 0.101]***	0.016 [- 0.021, 0.054]
JHS/Middle/Secondary	- 0.374 [- 0.416, - 0.332]***	- 0.058 [- 0.093, - 0.021] ***
Higher	- 0.641 [- 0.702, - 0.580]***	- 0.087 [- 0.157, 0.016] **
Husband's occupation [Not working]		
Prof/Tech/Clerical/Managerial	- 0.197 [- 0.315, - 0.079]***	0.004 [- 0.070, 0.077]
Sales/services	0.289 [0.150, 0.366]***	0.032 [- 0.034, 0.098]
Agriculture	0.232 [0.102, 0.363]***	0.053 [- 0.021, 0.127]
Manual labour	- 0.052 [- 0.163, 0.060]	0.037 [- 0.028, 0.101]

***p < 0.001 **p < 0.01 *p < 0.05 [ ] Reference Category CI: Confidence Interval

4. Discussion

This study sought to investigate variations in fertility based on wife rank among women of reproductive age in Ghana. The results of the unadjusted model show fertility being highest for first rank wives compared to women who did not have co-wives. After controlling for other socio-demographic characteristics in the adjusted model, the beta co-efficient for first rank wives still showed higher fertility although the effect size had substantially reduced. Again, in the adjusted model, the fertility of second and higher order wives was found to be significantly lower compared to the fertility of women who did not have co-wives. There are some plausible reasons for these findings. Some scholars argue that higher order wives have less children because of sexual competition among co-wives who have to divide their partner's time among themselves (14). Similar arguments have been made by other scholars who hypothesised that as only wives do not share their husbands, they would have higher coital frequencies with their husbands than women who are co-wives and should therefore have more children than their counterparts in the polygamous union [15]. Additionally, wives of higher order may have lower fertility because they may enter the union when there is already a large number of children from an earlier wife or wives and hence will not be pressured to bear many children while others may also be as a result of a large age difference between the spouses as suggested by previous studies [16].

Among the other socio-demographic characteristics controlled for, age at first cohabitation of the women had an inverse relationship with fertility and this finding is consistent with findings from other similar studies [17]. Some studies found that wives in the higher ranks in a union might marry at older ages and that could lead to fewer reproductive years in the marriage which may reduce their fertility. This is also because older women tend to have reduced fecundity [18]. Also, societal expectations about women proving their fertility in marriage influence young wives to reproduce as soon as they get into union thereby increasing their chances of having high fertility [19].

In this study, history of previous abortion was also found to be a significant predictor of the number of children ever born as has been found in other studies. In a previous study, Don Lauro found that abortion was often used as a method of limiting and child spacing in sub-Saharan Africa especially in areas where there is a high unmet need for contraception and unavailability of modern contraceptives [21]. This probably explains the relationship between history of abortion and fertility as found in the current study. The current age of the women was found to have a positive relationship as has been found in previous studies among Ghanaian women [22]. Women who are 45-49 years are also expected to have completed fertility and have had their desired preference which may account for the higher fertility [18]. Also, studies have shown that first wives in polygamous unions are usually older than the other wives and first and second wives in polygamous unions continue to give birth to about 40 years. It is therefore plausible to record high fertility among older wives [14] as was found in the current study. The level of education of a wife in the present study also had a negative relationship with the fertility of the women of the various ranks. Women who had attained higher levels of education had lesser number of children irrespective of their ranks in the union. This trend has been found in previous studies. Bongaarts concluded that education affects fertility negatively through other characteristics such as increased contraceptive use and delay in marriage [23]. This mechanisms of influence could also be at play in the current study.

The variations in fertility show that women in agriculture had higher fertility regardless of their rank and women in the richest wealth quintile had fewer children compared to women in the poorest wealth quintile. This finding is consistent with findings by Basu (2002) who argues that women who are financially sound take part in fertility decisions and childrearing and therefore prefer to have less children to give quality care [24]. Also, Caldwell in his theory of wealth flow pointed out the fact that women in the richest quintile educate and invest in their children and so have few children while the poor do not invest in their children's education but rather earn from them through labour [25]. These arguments explain the relationship between education, wealth and fertility as was found in the current study. The results of

the current study also indicate that co-wives who do not stay in the same house with their husbands have less children than their counterparts who are in the same house with their husbands. This result was expected and is in line with previous findings [15]. According to Bean and Mineau (1986) [15], living elsewhere reduces the frequency of sexual intercourse for the wife who is more distant and could lead to reduced fertility. Thus, for those women who were not living with their husband/partner, lower fertility could be because of lower coital frequency. In terms of ethnicity, Akans had more children than the other ethnic groups after controlling for other sociodemographic factors. This could be attributed to the pronatalist cultural practice that rewards a woman who gives birth to ten (10) children and higher autonomy in matters of reproduction among Akan women [26].

5. Conclusions

The findings of this study indicate that there is a significant difference in the fertility of wives based on their rank in a union. The findings suggest that being a second or higher order wife is associated with lower fertility among Ghanaian women aged 15 to 49 years. This finding holds true after controlling for proximate determinants of fertility as well as the socio-demographic characteristics of wives and their partners. Again, this finding indicates that fertility varies by the rank of a wife in the union. It is thus important for future research to disaggregate fertility by rank for women who are in polygamous unions to better understand the unique needs in terms of fertility for different women based on their rank in the same polygamous union. In conclusion, the findings of this study make valuable contributions to fertility research in Ghana and other African countries with similar socio-cultural context with respect to wife rank and fertility. Firstly, this study goes beyond the conventional monogamy versus polygamy divide used in previous study. Secondly, the study makes use of nationally representative data and the application of sampling weights in the analysis makes the findings generalisable to women of reproductive age in Ghana. The study is, however, not without some limitations. For instance, in measuring fertility, the total number of children ever born represented all children born alive to the women and is not limited to children from the current union at the time of survey. It was thus not possible to disaggregate fertility by the rank of the women in the union, particularly for those in polygamous unions. The findings of the current study thus need to be interpreted bearing in mind these limitations.

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