“Cementing” Marriages through Childbearing in Subsequent Unions: Insights into fertility differentials among first-time married and remarried women in Ghana

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Abstract

There is a growing body of research on the factors the account for the stall of fertility in some sub-Saharan African countries but research on the contribution of type of union is limited. This study examined fertility differentials by type of union among 6,285 ever married Ghanaian women aged 15-49 years. In the unadjusted model, fertility among remarried women was observed to be higher by about 0.3 children compared to women who were in a first-time marriage but in the fully adjusted model, there were no significant differences in the fertility of first-time married and remarried women. However, fertility of women who were in union in a second or higher order union was significantly higher (β=0.135, $p<0.001$) than their counterparts who have been married more than once but were not currently in union. The findings indicate that fertility among remarried women is uniquely different and thus requires specific policy interventions.

Introduction

Marriage and childbearing are integral components of cultural and social processes in Africa and because of the inter-relationship between marriage and reproduction, marriage is considered an integral part of demographic processes as well (1). Furthermore, the social and legal arrangement of marriage in the sub-Saharan African region gives a couple the right to form a family as marriage is recognised as the beginning of sexual exposure, leading to childbearing (2–5). Additionally, even though marriage and its basic function has evolved, it is still recognized as vital, because in most societies, childbearing in marriage is acceptable and a high number of births still occur within marriage (6,7). Changes in marriage and fertility patterns have been observed in the sub-Saharan Africa region over the last five decades (8–11). In recent years, some sub-Saharan African countries have experienced a stall rather than a decline in fertility.

Some researchers argue that, high levels of divorce and remarriage are unidentified barriers to fertility decline in the sub-Saharan African region (12). High rates of divorce and remarriage have previously been reported among women in some African countries. Divorce is reported to be relatively common in Malawi (13), and in Ghana the risk of divorce is reported to be about 90% higher for women of matrilineal descent (14). Similarly, divorce and widowhood is common in Senegal and women who are divorced or widowed often remarry and quickly, with a median duration of remarriage of one year and two years for widowed and divorced women respectively (15).

In Ghana, a slight increase in total fertility rate was observed between 2008 and 2014 following a decline between 2003 and 2008. Specifically, total fertility rate declined from 4.3 children per woman in 2003 to 4.0 in 2008 but increased to 4.2 in 2013 and declined again to 3.9 in 2017. While there is ongoing research into possible explanations for the observed pattern of fertility in Ghana, there has been very limited research on the potential influence of type of marriage/union particularly among women. Previous research has focused on the dichotomy of marital versus non-marital fertility or fertility differentials in polygamous versus monogamous types of unions but not much on first-time marriage versus remarriage (16). But in a socio-cultural context where societal expectations about childbearing when a woman marries are high (17), such research is necessary and important as the type of union; whether first-time marriage or remarriage has implications for fertility, given that children are expected in every marital union (18,19).

Bearing a child or children in a new union is of a unique value, more so in sub-Saharan Africa where the importance of children in a new union is expected because childbearing is considered a part of the traditional marriage process and also because of the contribution of children to the family lineage (12). Such expectations are so pervasive that soon after marriage, society expects evidence of fertility and this legitimises the marriage and until that is fulfilled, the marriage is not considered “concrete” or “cemented” (2,3,20). In such a social milieu where a woman is expected to validate her marriage by proving her fertility in all the unions she may be involved in, gives rise to fertility differentials among women who are in a first-time marriage and those who have remarried. Additionally, the need to have children in subsequent unions influences certain reproductive behaviours. For example, an older woman who enters a second

or higher order union irrespective of the number of children she already has may not use contraception because of the desire of having children in the new union.

Against the foregoing, this study examines differentials in fertility among women in the reproductive age (15 to 49 years) from the perspective of the type of union these women are in or have been in. Specifically, the study aims to examine fertility behaviours that are peculiar to women in first-time marriage and those in remarriage and how their fertility is further impacted by their demographic and socio-economic characteristics.

Materials and Methods

Source of data

This study uses secondary data from the 2014 Ghana Demographic and Health Survey (2014 GDHS). The Demographic and Health Surveys (DHS) are nationally representative surveys that provide key demographic and health measures on a number of development indicators including fertility and under-five mortality, breastfeeding practices, maternal and child health (anaemia status and anthropometric measures among women and children), domestic violence, female autonomy, and awareness and use of family planning methods among others for the purposes of policy formulation, monitoring and evaluation and national comparability. This study used data from the women's data file as this contains information on the variables of interest including the number of children ever born, marital status and similar information relating to marriage, contraception, and other social-demographic characteristics on women aged 15-49 years.

Sample design and selection

The sampling frame for the 2014 GDHS was obtained from the complete list of census enumeration areas (EAs) created for the 2010 Ghana Population and Housing Census. The sampling frame provided information on the location of the EA, type of place of residence (rural/urban) and an estimated number of residential households. Respondents for the survey were selected through a two-stage stratified sampling procedure which made provision for all the ten regions in Ghana to be stratified by urban and rural areas using probability proportional to size of the EA. At the first stage of sampling, a total of 216 and 211 EAs were selected from the urban and rural strata respectively, making a total of 427 EAs. In the second stage of sampling, 30 households per EA were systematically selected resulting in a total of 12,831 selected households. Females aged 15-49 years in the selected households were eligible to be interviewed for the survey.

Study Subjects

A total of 9,396 women were successfully interviewed for the 2014 GDHS. For the purpose of this study, all women between the ages 15-49 years who have ever been married or lived with a man as if married (cohabited) were included in the analyses while those who have never been married were excluded. The sample of ever-married women also includes women who were either currently married or those who were separated, divorced or widowed at the time of the survey. The inclusion criterion of ever been married allows for women who were not currently married (or cohabiting) but may have been married (or cohabited) once or more than once in

the past to be included in the analysis. For those women who were currently married (at the time of the survey), they may be in a first or subsequent union. The inclusion criteria of ever been married thus allows these women to be included in the sample as well. Based on the inclusion and exclusion criterion, women who have never been married or cohabited but were within the 15-49 years bracket were excluded from this sample because they do not have the characteristics of interest, that is, being married/in union once or more than once. An analytical sample of 6,285 (weighted) ever married women was realised after applying the inclusion and exclusion criteria and excluding missing cases (n=13) on some variables.

Variables

The dependent variable for this study is the total number of children ever-born which was used as an indicator of fertility and treated as a count variable. The measure comprises of all children born alive to individual women in the study sample. The main independent variable for this study is type of union, which was measured as a dichotomous variable with two categories; 'first-time marriage' or 'remarriage'. The first-time marriage category denotes women who have been married or lived with a man as if married (in union) only once whereas 'remarriage' denotes women who have been in union more than once regardless of the number of subsequent unions they have been in.

The study also controls for other proximate determinants of fertility (fertility behaviours). The proximate determinants of fertility include marital status measured as a dichotomous variable with two broad categories of 'formerly in union' and 'currently in union' and age at first cohabitation as a categorical variable with four categories of <20 years, 20-24 years, 25-29 years and 30+ years. In addition to these variables, a composite variable of type of union and current marital status was created to further distinguish the women by the type of union they were in and their current marital status. The composite variable includes four categories of (1) married only once and currently in union, (2) married only once but not currently in union, (3) married more than once and currently in union and (4) married more than once but not currently in union.

Other socio-demographic variables including age in five year age groups (15-19, 20-24, 25-29, 30-34, 35-39, 40-44 and 45-49 years), level of educational attainment (no formal education, primary, junior high, senior high and higher), religious affiliation (Catholic, Protestants, Charismatics, Other Christian, Islam and Other), lineage (matrilineal or patrilineal), type of occupation (not working, professional/technical/managerial/clerical, sales/services, agricultural and manual), place of residence (rural or urban) and wealth quintile (poorest, poorer, middle, richer and richest) were also controlled for.

Data analysis

The characteristics of the study sample were described using means and percentages. The association between number of children ever born and the women's socio-demographic characteristics were tested using compare means, t-test and one-way analysis of variance. Additionally, multivariate regression analysis was performed to examine the factors that influence fertility. A Poisson regression model was specified as the dependent variable; number of children ever born, was treated as a count variable. The various analyses were performed for

the total sample of ever-married women and separately for women in first-time marriage and those in remarriage. In specifying the models, two sets of models were fitted among the general sample of all women in a forward stepwise sequence. In the first model (Model 1), the main independent variable; type of union was regressed on the dependent variable (number of children ever born) to examine the independent effect of type of union on fertility among the total sample of ever-married women (all women). Model 1 was again specified for the total sample of women using the composite type of union and marital status variable as the independent variable. The second model (Model 2), regressed type of union on children ever born and controlled for the proximate determinants of fertility as well as the socio-demographic characteristics of the women. Model 2 was also repeated for all women using the composite of type of union and marital status as the independent variable while controlling for the proximate determinants of fertility and socio-demographic characteristics of the women. A third set of models (Model 3) were specified separately for women in first-time marriage and remarriage. This third set of models (Model 3) included the proximate determinants of fertility and the socio-demographic characteristics of the women but not type of union. The various analyses were performed in Stata version 14 and statistical significance was set at the 5% alpha level ($p<0.05$).

Results

Characteristics of the study sample

The results in Table 1 show that the average number of children ever born to the total sample of ever married women and women in first-time marriages was about 3.4 and 3.2 respectively while remarried women had about one more child (4.18) than the total sample of ever married women and their counterparts in first-time marriages. Regarding the distribution by union type, about 77% of the sample of ever-married women have been in union only once and in terms of marital status, over 80% of the women were in union at the time of the survey. The composite of type of union and marital status shows that about two-thirds (65.7%) of the women were currently in a first union, while about one fifth (18.8%) were in union in a second or higher order union. Also, a little over one-tenth (11.6%) of the women have been married once but they were not currently in union and about 4% have been married more than once but were not currently in union (Table 1). A high proportion of all the three groups of women first cohabited with a man before attaining 20 years with the highest proportion being among remarried women (69.2%). In terms of current age, about two-fifths of the general sample of all women were aged 30-34 and 35-39 years and about one-fifth (20.6%) of first-time married women were aged 25-29 years, while a little over one-fifth (22.5%) of those who were remarried were aged 35-39 years. Regarding education, about a quarter of the women had no formal education and only a few of them, particularly remarried women had higher than secondary level of education (Table 1). Over 70% of the women, irrespective of the sub-group were of different Christian faiths. In terms of lineage, a little over half of the general sample of women (50.8%) and women in first time marriages (53.0%) were of patrilineal descent while a slightly higher proportion of remarried women (56.6%) were of matrilineal descent. The distribution by type of occupation shows women who were engaged in professional/technical/managerial/clerical types of work being in the minority across all the sub-groups of women. And in terms of place

of residence, a little over half of the general sample of women and women in first-time marriages lived in urban areas (51.1% and 52.6% respectively) while a slightly higher proportion of remarried women (54.1%) lived in rural areas. Regarding wealth status, while about a quarter (24.8%) of women in a first-time marriage belonged to the richest quintile about a similar proportion of their remarried counterparts (26%) belonged to the poorer quintile (Table 1).

Table 1: Background characteristics of women

Variable	All women		First-time marriage		Remarriage	
Children ever born (Mean ± SD)	3.39 ± 2.22		3.15 ± 2.14		4.18 ± 2.31	
	Number	**Percent (%)**	**Number**	**Percent (%)**	**Number**	**Percent (%)**
Type of union						
First-time marriage	4854	77.2				
Remarriage	1431	22.8				
Marital status						
Formerly in union	978	15.6	728	15.0	251	17.5
Currently in union	5307	84.4	4127	85.0	1180	82.5
Composite type of union and marital status						
Married only once and currently in union	4126	65.6				
Married only once but not currently in union	728	11.6				
Married more than once and currently in union	1180	18.8				
Married more than once but not currently in union	251	4.0				
Age at first cohabitation						
< 20	3380	53.8	2389	49.2	990	69.2
20-24	1830	29.1	1521	31.3	310	21.7
25-29	802	12.8	720	14.9	82	5.7
30+	273	4.3	224	4.6	49	3.4
Current Age						
15-19	118	1.9	115	2.4	3	0.2
20-24	677	10.8	609	12.6	68	4.7
25-29	1167	18.6	1000	20.6	167	11.6
30-34	1231	19.6	992	20.4	239	16.7

35-39	1229	19.6	906	18.7	323	22.5
40-44	1016	16.1	700	14.4	316	22.1
45-49	849	13.5	533	11.0	316	22.1
Education Level						
No education	1655	26.3	1299	26.8	356	24.9
Primary	1206	19.2	800	16.5	406	28.3
Junior high	2522	40.1	1939	40.0	582	40.7
Senior high	594	9.4	522	10.8	71	5.0
Higher	310	4.9	294	6.1	16	1.1
Religion						
Catholic	616	9.8	502	10.4	114	7.9
Protestants	800	12.7	596	12.3	204	14.3
Charismatic	2586	41.1	1961	40.4	625	43.7
Other Christian	938	14.9	693	14.3	246	17.2
Islam	977	15.5	832	17.1	144	10.1
Other	369	5.9	271	5.6	98	6.8
Lineage						
Matrilineal	3094	49.2	2284	47.0	810	56.6
Patrilineal	3191	50.8	2570	53.0	621	43.4
Occupation						
Not working	765	12.2	622	12.8	143	10.0
Prof/Tech/clerical	359	5.7	322	6.6	37	2.6
Sales/Services	2796	44.5	2110	43.5	686	47.9
Agricultural	1535	24.4	1139	23.5	396	27.6
Manual Labour	830	13.2	662	13.6	169	11.8

Type of place of residence						
Urban	3210	51.1	2552	52.6	657	45.9
Rural	3075	48.9	2302	47.4	774	54.1
Wealth index						
Poorest	1105	17.6	913	18.8	193	13.5
Poorer	1139	18.1	767	15.8	372	26.0
Middle	1296	20.6	932	19.2	364	25.4
Richer	1337	21.3	1039	21.4	298	20.9
Richest	1408	22.4	1205	24.8	203	14.2
Total	6285	100	4854	100	1431	100

Source: Generated from GDHS, 2014

Variations in number of children ever born

The variations in the number of children ever born to the various groups of women by their socio-demographic characteristics are shown in Table 2. The results indicate that women who are remarried have at least one child more than women who have been married only once (4.18 and 3.15 respectively). Similarly, among the general sample of women, those who were in union at the time of the survey had 0.25 more children than women who were formerly in union. Considering the composite of type of union and marital status, the results reveal that fertility is highest among women who are currently in a remarriage (4.21) and lowest among those who have been married only once but were not currently in a union (2.90).

Regarding the other variables considered, the results generally show that women who first cohabited at younger ages had more children than women who first cohabited at older ages and fertility tends to increase with age, with the oldest age-group having the highest number of children ever born across the three groups of women. Additionally, remarried women were observed to have more children across all the age groups compared to the general sample of women and first-time married women (Table 2). Considering education, each additional level of education attained was accompanied by a further decline in the mean number of children ever born but remarried women recorded the least decline at each educational level. Comparatively, the fertility of Christians was collectively lower than that of Muslims and Other religious groups but the fertility of remarried women was higher across all the various religious groups. It was also observed that, among first-time married women, those of matrilineal descent had fewer children than women of patrilineal descent. The reverse was however true among remarried women where matrilineal women tended to have more children than their patrilineal counterparts (Table 2). In terms of occupation, women in professional/technical/managerial/clerical occupations had less children compared to those who were not working but fertility was higher in each occupational group among remarried women. The results also reveal that women residing in rural areas had higher fertility; about one more child than their counterparts in urban areas but again, remarried women in rural areas had nearly a child more than first-time married women in rural areas. The results with regards to wealth quintiles indicate that fertility declined with increasing wealth status. However, among the three groups of women, remarried women had one child more across the various wealth quintiles than their counterparts in first-time marriages and the general sample of women (Table 2).

Table 2: Mean number of children ever born by background characteristics of women

Variable	All women		First-time marriage		Remarriage	
	Mean (SD)	F (p-value)	Mean (SD)	F-value (p-value)	Mean (SD)	F-value (P-value)
Type of union		**244.72 (0.000)**				
First-time marriage	3.15 (2.14)					
Remarriage	4.18 (2.31)					
Marital status		**10.08 (0.002)**		**12.24 (0.001)**		**1.88 (0.170)**
Formerly in union	3.18 (2.08)		2.90 (1.95)		3.99 (2.23)	
Currently in union	3.43 (2.25)		3.20 (2.17)		4.22 (2.33)	
Composite of type of union and marital status		**86.34 (0.000)**				
Married only once and currently in union	3.20 (2.17)					
Married only once but not currently in union	2.90 (1.95)					
Married more than once and currently in union	4.21 (2.32)					
Married more than once but not currently in union	3.99 (2.23)					
Age at first cohabitation		**161.99 (0.000)**		**143.53 (0.000)**		**6.25 (0.000)**
< 20	3.89 (2.29)		3.69 (2.26)		4.36 (2.30)	
20-24	3.08 (2.03)		2.94 (1.96)		3.78 (2.21)	
25-29	2.40 (1.80)		2.25 (1.66)		3.69 (2.38)	
30+	2.14 (1.89)		1.77 (1.45)		3.86 (2.62)	
Current age		**459.28 (0.000)**		**392.48 (0.000)**		**48.41 (0.000)**
15-19	0.88 (0.68)		0.88 (0.67)		1.03 (1.15)	
20-24	1.49 (1.01)		1.46 (1.01)		1.78 (1.02)	
25-29	2.14 (1.28)		2.08 (1.30)		2.53 (1.11)	
30-34	3.13 (1.73)		2.96 (1.70)		3.81 (1.69)	

35-39	3.88 (1.94)		3.78 (1.90)	4.16 (2.03)	
40-44	4.73 (2.30)		4.60 (2.21)	5.00 (2.47)	
45-49	5.02 (2.51)		4.99 (2.47)	5.06 (2.57)	
Educational level		**269.95 (0.000)**	**244.10 (0.000)**		**26.98 (0.000)**
No education	4.47 (2.41)		4.35 (2.39)	4.88 (2.45)	
Primary	3.78 (2.32)		3.38 (2.19)	4.56 (2.38)	
Junior High	3.04 (1.86)		2.83 (1.75)	3.72 (2.04)	
Senior High	1.94 (1.40)		1.85 (1.33)	2.62 (1.73)	
Higher	1.71 (1.41)		1.65 (1.39)	2.58 (1.53)	
Religion		**30.90 (0.000)**	**35.04 (0.000)**		**4.15 (0.001)**
Catholic	3.37 (2.18)		3.23 (2.19)	3.97 (2.06)	
Protestant	3.07 (2.14)		2.74 (1.91)	4.05 (2.44)	
Charismatic	3.21 (2.08)		2.97 (1.96)	3.99 (2.27)	
Other Christian	3.35 (2.27)		2.97 (2.16)	4.42 (2.22)	
Islam	3.72 (2.34)		3.61 (2.32)	4.35 (2.40)	
Other	4.52 (2.54)		4.34 (2.54)	5.01 (2.48)	
Lineage		**3.36 (0.067)**	**24.40 (0.00)**		**4.43 (0.036)**
Matrilineal	3.34 (2.20)		3.00 (2.05)	4.29 (2.31)	
Patrilineal	3.44 (2.25)		3.30 (2.21)	4.03 (2.31)	
Occupation		**215.91 (0.000)**	**193.93 (0.000)**		**25.93 (0.000)**
Not working	2.74 (2.00)		2.49 (1.89)	3.82 (2.12)	
Pro/tech/clerical	1.96 (1.52)		1.84 (1.46)	2.96 (1.68)	
Sales/servicing	3.14 (2.00)		2.94 (1.91)	3.77 (2.13)	
Agricultural	4.65 (2.41)		4.48 (2.40)	5.13 (2.41)	

Manual labour	3.11 (2.02)		2.83 (1.81)		4.18 (2.41)	
Type of place of residence		**320.72 (0.000)**		**256.78 (0.000)**		**49.07 (0.000)**
Urban	2.91 (2.00)		2.70 (1.89)		3.71 (2.19)	
Rural	3.89 (2.34)		3.65 (2.29)		4.58 (2.34)	
Wealth index		**218.91 (0.000)**		**166.56 (0.000)**		**44.01 (0.000)**
Poorest	4.38 (2.52)		4.18 (2.48)		5.33 (2.52)	
Poorer	4.24 (2.33)		3.96 (2.28)		4.82 (2.33)	
Middle	3.44 (2.11)		3.16 (2.03)		4.17 (2.13)	
Richer	2.87 (1.84)		2.68 (1.73)		3.53 (2.05)	
Richest	2.36 (1.65)		2.27 (1.61)		2.87 (1.76)	
Total Mean	**3.39 (2.22)**		**3.15 (2.14)**		**4.18 (2.31)**	

SD = Standard Deviation

Source: Generated from GDHS, 2014

Predictors of children ever born

The results of the unadjusted model among the all women sample with type of union as the main predictor variable (Model 1, Table 3) indicates that women in remarriage have higher fertility (β=0.281) than their counterparts in first-time marriages. The situation however changed when other factors were included in the model; type of union was no longer statistically significant in predicting children ever born (Model 2). In the fully adjusted model with type of union as the main independent variable (Models 2), women who were in union had about 0.2 more births than their counterparts who were not in union. Furthermore, the models with the composite type of union and marital status variable as the main predictor variable show that independent of other factors, fertility appears to be higher among remarried who are currently in union although statistical significance was not achieved but when other factors are accounted for, fertility among remarried women who are in union is significantly higher (β=0.135) than among remarried women who are not currently in union. Also, the results of the type of union specific models show that being in a current union is associated with higher fertility compared to being formerly in union and this is true for all the groups of women regardless of the type of union (Models 3, Table 3). Additionally, for all the three groups of women, first cohabitation at older ages was associated with declines in fertility but the effect sizes are relatively smaller among remarried women. Also, fertility generally increased with increasing age but declined with higher levels of educational attainment and increasing wealth quintiles among all the groups of women. And among all the three groups of women, being of matrilineal descent was associated with higher fertility compared to being of patrilineal descent (Table 3).

Table 3: Predictors of fertility by type of union

Variable (RC)	**All Women**				**First-time marriage**	**Remarriage**
	Model 1 β (s.e.)	**Model 2** β (s.e.)	**Model 1** β (s.e.)	**Model 2** β (s.e.)	**Model 3** β (s.e.)	**Model 3** β (s.e.)
Type of union (First-time marriage)						
Remarriage	0.281 (0.021)***	0.002 (0.017)				
Marital status (Formerly in union)						
Currently in union		0.194 (0.021)***			0.231 (0.024)***	0.127 (0.040)**
Composite of type of union and marital status (Married more than once but not currently in union)						
Married only once and currently in union			-0.221 (0.043)***	0.121 (0.039)**		
Married only once but not currently in union			-0.319 (0.052)***	-0.091 (0.043)*		
Married more than once and currently in union			0.055 (0.046)	0.135 (0.037)***		
Age at first cohabitation (< 20)						
20-24		-0.212 (0.016)***		-0.212 (0.016)***	-0.217 (0.017)***	-0.216 (0.040)***
25-29		-0.376 (0.029)***		-0.377 (0.029)***	-0.425 (0.032)***	-0.216 (0.074)**
30+		-0.651 (0.058)***		-0.651 (0.058)***	-0.819 (0.070)***	-0.245 (0.086)**
Current age (15-19)						
20-24		0.620 (0.079)***		0.620 (0.079)***	0.597 (0.082)**	0.557 (0.407)
25-29		1.103 (0.077)***		1.104 (0.077)***	1.094 (0.079)***	0.939 (0.403)*
30-34		1.521 (0.077)***		1.521 (0.077)***	1.501 (0.079)***	1.380 (0.402)**
35-39		1.739 (0.077)***		1.739 (0.077)***	1.742 (0.079)***	1.526 (0.402)***
40-44		1.876 (0.077)***		1.879 (0.077)***	1.891 (0.079)***	1.654 (0.402)***
45-49		1.918 (0.077)***		1.919 (0.077)***	1.938 (0.079)***	1.690 (0.403)***
Educational level (No education)						
Primary		-0.026 (0.020)		-0.027 (0.020)	-0.042 (0.022)	0.001 (0.040)
Junior High		-0.104 (0.020)***		-0.103 (0.020)***	-0108 (0.022)***	-0.086 (0.041)*
Senior High		-0.280 (0.037)***		-0.279 (0.037)***	-0.285 (0.040)***	-0.236 (0.087)**
Higher		-0.336 (0.070)***		-0.336 (0.070)***	-0.361 (0.075)***	-0.142 (0.141)
Religion (Catholic)						
Protestants		0.002 (0.030)		0.004 (0.030)	-0.026 (0.036)	0.065 (0.059)
Charismatic		0.016 (0.022)		0.017 (0.022)	0.021 (0.024)	0.025 (0.049)
Other Christian		0.031 (0.026)		0.031 (0.026)	0.006 (0.030)	0.087 (0.054)
Islam		0.060 (0.023)*		0.059 (0.023)*	0.056 (0.025)*	0.069 (0.056)
Other		0.080 (0.030)**		0.081 (0.030)**	0.094 (0.034)**	0.051 (0.063)
Lineage (Patrilineal)						
Matrilineal		0.097 (0.016)***		0.097 (0.016)***	0.083 (0.018)***	0.129 (0.031)***

Occupation (Not working)						
Prof/Tech/Clerical		-0.132 (0.054)*		-0.131 (0.054)*	-0.116 (0.064)	-0205 (0.091)*
Sales/Services		-0.084 (0.026)**		-0.083 (0.026)**	-0.078 (0.028)**	-0109 (0.054)*
Agricultural		0.004 (0.027)		0.005 (0.027)	0.019 (0.029)	-0.042 (0.057)
Manual		-0.102 (0.030)***		-0.102 (0.030)***	-0.108 (0.033)***	-0.078 (0.062)
Type of place of residence (Urban)						
Rural		-0.007 (0.019)		-0.008 (0.019)	-0.006 (0.021)	-0.009 (0.037)
Wealth Index (Poorest)						
Poorer		-0.056 (0.019)**		-0.057 (0.019)**	-0.036 (0.020)	-0124 (0.041)**
Middle		-0.161 (0.023)***		-0.162 (0.023)***	-0.127 (0.025)***	-0.233 (0.045)***
Richer		-0.260 (0.028)***		-0.259 (0.028)***	-0.212 (0.032)***	-0.349 (0.059)***
Richest		-0.361 (0.034)***		-0.362 (0.034)***	-0.275 (0.038)***	-0.576 (0.074)***
Constant	1.149 (0.012)*	-0.153 (0.082)	1.384 (0.042)***	-0.091 (0.089)	-0.201 (0.085)*	0.136 (0.410)
Wald chi^2	(1) 178.43	(30) 5438.42	(3) 188.02	(31) 5490.02	(29) 4861.10	(29) 792.43
Prob > chi^2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Pseudo R^2	0.0118	0.1856	0.0125	0.1858	0.1999	0.1120
Log pseudolikelihood	-13593.931	-11203.018	-13583.784	-11199.858	-8316.190	-2841.3128

RC = Reference Category s.e. = standard error *p < 0.05 **p < 0.01 *** p < 0.001

Source: Computed from GDHS, 2014

Discussion

This study sought to examine differentials in fertility based on type of union (whether first-time or subsequent union) among women in the reproductive age in Ghana. The results portray variations in fertility for women who are in first-time marriages and those who are remarried. The findings indicate that women who are remarried have nearly one more children than women who have been married only once. Similar findings have also been reported in Malawi (16). The findings further indicate that the number of unions a woman has been in is significantly associated with fertility independent of other factors but this effect diminished significantly and was no longer statistically significant when other factors were controlled for. However, the findings from modelling the composite type of union and marital status variable and controlling for other factors show that fertility among women who have been married more than once and are in union is significantly higher than the fertility of women who have also been married more than once but were not in union.

These findings are plausible because of the socio-cultural expectation of female reproduction that structures the life course of an African woman around marriage, child bearing and raising children (17,21). As such, if a woman experiences any marital disruption as a result of widowhood, separation or divorce, she is often expected to quickly remarry in order to get back on her life's course (3,17,21) and resume the role of reproduction. Additionally, the societal expectation of women proving their fertility evidenced by the manifestation of a birth and the use of children as a means of stabilising unions (17,22–25) makes having children in remarriages all the more important. It is the expectation that the seal of a long-lasting partnership between married couples which is children should be present in each subsequent union regardless of the number of children couples may have had before forming a new union and this is because of the unique position children hold in unions (12). Additionally, the findings of the composite type of union and marital status further emphasize the need to have children not only because of being remarried but also because of being in a subsequent union. Against the foregoing, it is expected of a woman who has been in several unions to have more children compared to a woman who apart from the first marriage has not been in any other union. For these reasons, it is not surprising that in the current study, women in remarriages were found to have higher fertility than first-time married women as has been found in other studies (26,27).

Considering other factors that potentially account for the differentials in fertility among the different groups of women, it was found that age at first cohabitation, current age, level of educational attainment, lineage and wealth status significantly predict fertility. The inverse relationship between education and fertility as was found in the current study is consistent with findings from other similar studies (28–35). Another finding in the current study that is worth mentioning is the fertility differentials by location of residence. While several studies have found higher levels of fertility in rural compared to urban areas (19,32,36–40), in the current study, among all the three groups of women, those in rural areas were found to have fewer children than their counterparts in urban areas, although this was not statistically significant.

Summing up, the findings of this study make useful contributions to fertility research in Ghana and other African countries with similar socio-cultural context where marriage and fertility form an integral part of the social structure of society and institutions. The findings indicate

that there is the need to understand the fertility needs of couples, particularly women in the context of different types of union be it a first-time or subsequent union. The study findings are generalizable to Ghanaian women between the ages of 15 to 49 years as the study uses nationally representative data from the recent round of the demographic and health survey and makes the necessary analytical adjustments using the appropriate sample weighting procedures. However, as the study uses secondary data, the findings are not without some limitations which are worth mentioning. Firstly, the number of children ever born includes the total number of children born to a woman and this was not disaggregated into those children she had in either a first-time marriage or higher order marriage or in each union. It was thus not possible to disaggregate the number of children born to a woman by the number of unions she has been in. For instance, a woman who has been in more than one union and had all her children in the first union, would be classified under remarriage with the children who should have been classified under the first-time marriage but because this disaggregation was not available, this distinction could not be made. Consequently, although remarried women have higher fertility compared to first-time married women, it is not possible to investigate the fertility of remarried women in higher order unions specifically. Secondly, the time lapse between unions especially among remarried women is not accounted for in the data. Controlling for the time lapse between unions could have impacted the results differently but this could not be investigated in the current study because there is no measure of this in in the data. Thirdly, the data does not give explicit information on lineage. Therefore using ethnicity as a proxy for lineage and categorising the various ethnic groups as Akan (matrilineal) and non-Akan (patrilineal) as was done in the current study may not give a correct measure of lineage as some Akans are bilateral rather than belonging to one distinct lineage, be it matrilineal or patrilineal. These limitations notwithstanding, the findings of this study are valid but should be interpreted taking into consideration the possible effects of the limitations cited.

Conclusion

The findings of this study indicate that independent of other factors, Ghanaian women between the ages of 15 to 49 years who are remarried or in subsequent unions have higher fertility than their counterparts who are in a first-time marriage/union but when other factors are considered this relationship no longer holds. However, considering the composite of type of union and marital status, women who are remarried and are in union have higher fertility than those who are remarried but are not in union. Thus being in union in a subsequent or higher order union is associated with higher fertility. The need for remarried women to have more children in subsequent unions even if they already have children may be driving this finding and this has implications for reducing fertility. There is the need therefore for further research to understand the dynamics of fertility among women who are remarried or in subsequent unions and how a reduction in their fertility if at all can be achieved.

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