

# **The Influence of Changes in Religious Preference on Contraceptive Use and Fertility: A Longitudinal Study of the Kassena-Nankana of Northern Ghana**

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# **The Influence of Changes in Religious Preference on Contraceptive Use and Fertility: A Longitudinal Study of the Kassena-Nankana of Northern Ghana**

## **Abstract**

*Religious preference is undergoing major changes in rural Sahelian Africa, with profound consequences for customs that are grounded in traditional belief systems. This study examines the influence of religious preference on contraceptive use and fertility among the Kassena-Nankana of Northern Ghana. Analysis of longitudinal data for women in 1995 and 2003 shows that 61 percent of women switched their religion with shifts from traditional religion to Christianity being dominant. Further, more women switched their religion than men. Regression results show that compared to non-switchers, switching from traditional religion to Christianity or Islam is associated with increased contraceptive use and decreased fertility. The fact that religious preferences are changing more rapidly among women than men may have social consequences for the status of women, signalling a trend toward greater autonomy in the family and new aspirations, values, and behaviour as evidenced by the proportion of people adopting contraceptives.*

## Introduction

A number of studies have established the influence of religion on demographic behavior of individuals particularly in developed countries such as the United States (e.g., Lehrer 2004). Studies have focused on the effects of religion on the choice of a marriage partner, entry into and exit from marital unions, educational attainment, labour force participation, and reproductive preferences and behavior (see for example, Heaton 1986; Caldwell and Caldwell 1987; Caldwell et al. 1992; Takyi 2003; Garenne 2004; McQuilan 2004; Gillum 2005; Jaffe et al 2005; and Odimegwu 2005). In this study, we build on this literature to assess the extent to which changes in religious affiliation among women is associated with concomitant changes in contraceptive use and parity. Changes in religious affiliation in a traditional African societal setting may reflect changes in the ideational context for reproductive behavior with possible consequences for the adoption of contraception and change in parity over time. This study marshals data from Kassena-Nankana District (KND) of northern Ghana, a rural and impoverished area where social traditions govern all aspects of village life.

Religious switching in this study encompasses multiple dimensions: A move from traditional religion to Christianity or Islam; from Christianity to traditional religion or Islam; and from Islam to traditional religion or Christianity. Our hypothesis is that women who switch from traditional religion to Christianity or Islam are more likely to use contraceptives than those who do not switch their religion. Further, religious shifts among these women are expected to have diminishing effects on their parity.

### *Religious Affiliation among the Kassena-Nankana*

Among the Kassena-Nankana of northern Ghana, every village has soothsayers who guide ancestral worship and every compound has a shrine for making sacrifices to ancestral spirits (Adongo et al. 1998). Critical events among the individuals are accompanied by rites involving soothsayer ancestral

consultation. Nonetheless, survey research shows that the number of people professing Christianity among the Kassena-Nankana is increasing with Islam also making strides in the society.

Christianity in Ghana was introduced in two broad phases: The arrival of the Portuguese missionaries in 1471 near Sekondi (now Sekondi-Takoradi) in the coastal part of Ghana. Before the Portuguese explorers and traders left, they put up a large wooden cross on the beach, the first cross ever to stand on the West African soil. In 1482, the Portuguese returned to establish fortifications at the southern coastal village of Elmina where they established the first permanent parish in Ghana (Kazaresam 1975). There was no serious evangelization between the 15th and 19th centuries, constraining the spread of Christian influence owing to the preoccupation of colonialists with the gold and slave trades. Moreover, until 1874, when the British took control of Ghana (then Gold Coast), continuous clashes among the British, Portuguese, Dutch, and the Danish colonialists had a negative impact on evangelization. However, when the British claimed full responsibility for unifying the various ethnic groups within Ghana and consolidating their control of the country, it was possible for missionaries to engage in proselytization (Kazaresam 1975).

The second phase began with missionary evangelization at the end of the 19th century fostered by the arrival of both Catholic and Protestant missionaries who developed parishes and religious affiliated educational institutions. Based initially in coastal Elmina in 1880, Catholic parishes engaged in steady and uninterrupted growth—in particular, the Catholic missionaries who first arrived on 23 April 1906 in Navrongo, the capital of KND. While further expansion of Catholicism was slowed by a strong wave of anti-clericalism that hit France and spread out of the then French Empire by the turn of the 20th century, the cultural conditions of the locality also affected missionary work owing to engrained traditional belief systems and conservatism about exchanges with 'strangers.' Christianity challenged polygynous marital customs and other beliefs that organized family life. Nonetheless, missionary presence was sustained and the church that was established in

1906 continued to operate (Kazaresam 1975). But, missionaries were more than priests, as they functioned as agents of social change developing schools where youth learned the Christian religion in the context of learning about science, European history, politics, and technology. This approach to education detached the transition to adulthood from traditional institutions, socialize youth for marriage, family building, and economic pursuits. Also, missionaries introduced Western medical centres which contributed to the credibility of Western religion, social institutions, and colonial governance (Kazaresam 1975).

In recent decades, the spread of Christianity has been accelerated by the emergence of Pentecostal and charismatic churches. In particular, membership in charismatic churches is increasingly common among young, educated, and upwardly mobile people in the urban areas (De Witte 2003). Even in rural areas, however, women and youth are particularly inspired by the themes of Pentecostal and charismatic churches (Gifford 1994). African Pentecostal and charismatic churches offer a breakthrough for salvation, divine healing, deliverance, and prosperity. For example, membership in Pentecostal churches is believed by many to yield a personal experience of the acts of the Holy Spirit of which speaking in tongues is the first outward manifestation with the Bible viewed as the foundation of the Christian faith, justifying the ultimate elimination of traditional beliefs.

In 2000, Ghana's population was estimated at 20 million of which 69 percent were Christians, 16 percent Muslim, and 9 percent adhering to traditional or indigenous and other religions (United States State Department 2002). Since the 1980s, an increasing number of Ghanaians view themselves as Christians. La Verle (1995) reported that the percentage of Ghanaians claiming to be Christians rose sharply from 42 percent prior to the 1980s to 62 percent in the mid-1980s. Gallup International (2000) reported that out of 50,000 people in 60 countries, the majority

(98 percent) of Ghanaians interviewed professed belonging to a religious denomination with 82 percent reporting regular church attendance.

Recent literature (e.g., Yirenkyi 2000) documents that not only are Ghanaians becoming more religious but the more faith healing organizations, charismatic, evangelical, as well as Pentecostal churches have emerged. These novel churches are popular because of their “healing,” “salvation,” and “prosperity” approach—something which seems to fit the needs of many impoverished populations dissatisfied with their current living standards.

De Witte (2003) has pointed out that the upsurge of these charismatic churches may be associated with the fact that religion has emerged as a potent social force in private and public life. It is reasonable to think that such an increase in the proportion of people professing religious affiliation should be associated with their knowledge of issues that have a direct impact on their life such as AIDS, infectious diseases, and also knowledge of their reproductive behavior.

What is the effect of religious switching on current use of contraceptives and parity? Are women who switch from traditional religion to Christianity or Islam more likely to use contraceptives? Furthermore, are these shifts in religious affiliation associated with a diminishing impact on their parity? Employing longitudinal data permits description, not only of the rate of religion switching, but also estimating the impact of this phenomenon on contraceptive use and parity. We use unique data sets, collected by the Navrongo Health Research Centre (NHRC), containing linked records across two surveys conducted in KND in 1995 and 2003 by comparing religious affiliation in 2003 against prior religious affiliation and show whether this has got an influence on current use of contraceptives and parity.

The present study is a component of a more general investigation of social and demographic change in KND. The major limitation of this study is that individuals may switch religions several times between interviews. However, we assume that such rates of multiple switching are negligible

limiting bias that could arise mindful of the fact that religious changes are not a here-and-now matter, but take time to unfold. In addition, our data have no information on the different Christian denominations (e.g., Catholic, Protestant, Pentecostal or charismatic). However, we know from the literature reviewed earlier on Catholic missionaries that majority of Christians in the district are Catholics and a sizeable proportion are Protestants. Thus, we only examine three religious categories: Christians, Traditionalists, and Islam and exclude rare cases in which individuals professed 'other' religions in the course of panel survey interviews. Previous research has demonstrated that contraceptive use is under-reported in Navrongo owing to prevalent of 'denial' (Debpuur, et al. 2002). The prevalence rates of contraceptive use that are cited in panel survey results almost certainly under-report the actual trend in contraceptive use. Religious beliefs may therefore explain transitions in reporting rather than changes in actual contraceptive behavior.<sup>1</sup>

### ***Research Setting***

The KND is located in the Upper East Region of Ghana on the border with Burkina Faso. The district population is about 143,000. Two main seasons exist: a short wet season with an average annual rainfall of 950mm to 1,100mm from June to August, and a dry season from October to May when little or no rainfall occurs in the district. The people are comprised of the Kassena and Nankana, although a small Buili speaking people share homogeneous socio-cultural lifestyles. Literacy rates are generally low and the population is primarily rural, agrarian, and living in dispersed settlements. Subsistence farming is the backbone of the economy. The KND is a site of the Tono dam, where dry season farming is promoted to reduce migration of young men and women to the southern parts of the country. The main crops grown are millet, groundnuts, beans, maize, and rice. The KND is also the leading producer of tomatoes in Ghana. Livestock rearing includes fowls, goats, sheep, and cattle. Poverty is also rampant (Akazili et al. 2003).

## Methods

Because the questions on religious affiliation in the panel survey were repeated annually over the 1995 to 2003 period, religious affiliation as reported in the baseline survey (1995) can be compared with religious affiliation stated by women who were also in 2003. Although the panel surveys are conducted annually, we examine the 1995 and 2003 panels in order to assess shifts in religious affiliation over a reasonable long period of time. This is important because we observe a cohort of individuals in the baseline surveys and follow them in 2003. The sample includes women aged 15–41 years in 1995 who move into the age group 23–49 in 2003. Observing individuals in annual surveys, for the purposes of this study, has got the disadvantage of censoring. We want to follow individuals for a period we think is substantial to influence changes in religion and assess its effect on contraceptive use and total change in parity over time. We want to take all parity progressions that have occurred as a set and see how religious shifts have influenced these shifts.

For women in 1995–2003 group, the baseline survey yielded a sample of 5,288 women aged 15–49 years and 5,842 women were interviewed in 2003. The 2003 sample is greater than the 1995 sample because urban Navrongo which was not part of the 1995 sample was included beginning from the 1996 round. However, our sample for the present study is restricted to 3,911 currently married and ever-married women of reproductive age (i.e., 15–41 years) from the 1995 survey of whom we are most confident that linkages for only 2,033 women in 2003 have been done correctly—about 38 percent of the original sample.

## Results

### *Demographic Characteristics*

Table 1 presents a comparison of basic characteristics of women interviewed in 1995 and 2003 with



those interviewed both in 1995 and 2003. About nine percent of women were using contraceptives in 1995 whereas in 2003 12 percent of women were using contraceptives. Among those who were interviewed in both surveys, this percentage increased to 16 percent among women interviewed in both surveys. Results further show a dramatic and rapid shift in stated religious preference: Whereas 61 percent practiced traditional religion in 1995, only 29 percent did so in 2003. And for women interviewed in both surveys, 36 percent of them were practicing traditional religion. Other characteristics of the study population are also changing. About 74 percent were married/living together in 1995 and this percentage declined to 59 percent in 2003. About three out of every four women interviewed in both surveys were married/living together. The percentage of the never married women doubled from 14 percent in 1995 to 28 percent in 2003 and to a low of six percent among those who were interviewed in both surveys. These trends may be related to the aging of the cohort.

With respect to education, the results show that 69 percent of women were uneducated in 1995 whereas this declined to 50 percent in 2003. For women interviewed in both surveys, 61 percent were illiterate. Comparing 1995 and 2003, we observe an increase in the percentage of women with at least a primary education: From about 31 percent in 1995 to about 50 percent in 2003. For women interviewed in both surveys, about 32 percent had at least primary education. Kassena and Nankana are dominant ethnic groups across the three groups of women accounting for at least 90 percent of women in each group. The prevalence of polygyny declined from 45 percent in 1995 to 36 percent in 2003 and on average women were younger (30 years) in 2003 than in 1995 (32 years). However, women who were interviewed in both surveys were much older at 36 years than the other two groups of women. Again, women interviewed in both surveys had more children ever born on average (at 3.8) compared with those interviewed only in 1995 (at 3.5) and 2003 (at 2.8).

*Table 1 about here*

### *Switching of Religions*

The general trend in religious affiliation annually between 1995 and 2003 for all women shows that the percentage of traditionalists has declined. This information is summarized by Figure 1. Analysis of the longitudinal data for men (results not presented here) shows that the decline in the percent of traditionalists is more apparent among women than men. Among women, most of the change represents a shift to Christianity while the proportion of all individuals practicing Islam remained fairly stable.

*Figure 1 about here*

Turning to the percent of women (1995–2003) switching religions (see Table 2) by the major religions shows that among Christians, 52 percent did not switch to other religions whereas 38 percent switched to traditional religion and 9 percent switched to Islam. Among traditionalists, 34 percent did not switch, 53 percent became Christians, and 13 percent became Muslims. Among the Muslims, 11 percent did not switch whereas 42 percent and 48 percent switched to Christianity and traditional religion. These results demonstrate that within each religious group, the highest switching rates are observed among Muslims followed by traditionalists and Christians in that order. When we pooled responses from women from all the religious groups to identify which switching patterns emerge, the highest percentage of switchers is observed among traditionalists (to Christianity) at 31 percent followed by Christians (to traditional) at 14 percent and traditionalists (to Islam) at 8 percent. Other smaller percentages of switchers are observed among Christians (to Islam) at 3 percent and roughly similar percentages for Muslims switching to traditional and Christianity. Thirty-nine percent of all women did not change their religion<sup>2</sup> (see Figure 2). In brief, two patterns seem to evolve among traditionalists and Christians: the former are switching to Christianity more than the latter moving to the former.

*Figure 2 and Table 2 about here*

## *Multivariate Analysis*

Two dependent variables are examined in our analysis: Current use of contraceptives in 2003 (yes, no) and change in parity over time (measured by a differential approach between parity in 2003 and parity in 1995). The key independent variable in this analysis is shift in religious affiliation. We use logit regression models to test whether religious switching has an influence on current use of contraceptives before and after controlling for baseline socio-demographic characteristics. For the change in parity, we use ordinary least squares (OLS) regression to predict the change in parity as a consequence of shifts in religion. In our logit model, we control for the following selected baseline characteristics: contraceptive use at baseline, whether husband and respondent has some schooling and type of marital union (i.e., polygamous or not). Other control variables include ethnicity and age. The only variable excluded in the OLS regression model is the contraceptive use at baseline. Results of the logit and OLS regression models are presented in Table 3.

*Table 3 about here*

Column 1 of Table 3 presents odds ratios (ORs) for the impact of shifts in religious affiliation on current contraceptive use. For shift in religious affiliation, we observe that the odds of using contraceptives among traditionalists who switched to Christianity are 1.68 relative to women who did not switch. Women switching from traditional religion to Islam were associated with odds that more than double relative to non-switchers (2.41). For ethnicity, we find that the 'Bulsa and other' group is associated with odds that are 2.08 times more than the Kassenas in using contraceptives. The effect of baseline contraceptive use, husband's and respondent's schooling, age group, and type of marital union is insignificant.

In column 2, we find that the shift in religious affiliation has an impact on change in parity over time. As the intercept shows, women are expected to add 2.75 children once baseline parity is

controlled. Results show that compared to non-switchers, Christian women who switch to traditional religion are associated with an increase in parity by 0.72 more than the expected 2.75. Women who shift from traditional to Christianity and Islam decrease their parity by 0.53 and 0.56 respectively relative to 2.75. Switching from Islam to traditional religion increases parity by 0.94. Controlling for age group in the model shows that women aged 25 years and older are associated with diminishing impact on fertility.<sup>3</sup> These results confirm our hypothesis that traditionalists are less likely to practice fertility-limiting behavior and that shifts from traditional religion enhance prospects for contraceptive use and fertility decline.<sup>4</sup>

## **Conclusions**

Much has been written about the role of African social and economic institutions in constraining contraceptive adoption (see, for example, Caldwell and Caldwell, 1987; Caldwell et al. 1992). Rural northern Ghana has witnessed major changes in recent decades. This study has marshaled longitudinal data to test the proposition that transitions in traditional religious beliefs are associated with corresponding evidence of transitions in reproductive behavior. Stated changes in religious affiliation undoubtedly signify many other concomitant social changes. In recent decades, mounting poverty and declining agricultural productivity have led to high rates of migration to cities and towns, particularly among youth. This has exposed once isolated communities to new ideas and new economic opportunities. In KND, exposure to southern Ghanaian cities, ideas, languages, and educational norms has been stimulated by the construction of a road that transects the district and by the consequent development of Navrongo town as a market for agricultural goods. Changes that have opened the locality to commerce have also enhanced the accessibility of communities to Pentecostal and other missionaries from southern Ghana. Radio use and other communications have opened the locality to new ideas and activities. Generalized social change associated with these

economic changes undoubtedly explains much of the increased contraceptive use and reduction in the total number of children born in the district and may also contribute to the transformation of religious practices. Thus, the role of religion as a determinant of changing reproductive behavior is difficult to disentangle from other underlying influences.

Nonetheless, the strong association of contraceptive use and change parity with the shift in religious practice from traditional to the practice of Christianity and Islam suggests that the practice of traditional religion and related social institutional changes may have had a diminishing role in constraining contraceptive adoption and use. African traditions subordinate individual agency to the corporate family and kindred norms and customs. Religions that are growing in the locality stress the importance of individual agency in ways that may diminish the role of traditional institutional determinants of reproduction. Religion represents an indicator of the erosion of the behavioral effects of traditional social institutions. These social changes, as demonstrated in this paper by the effect of shifts in religion, are associated with concomitant changes in reproductive behavior.

## Notes

- 1 The Demographic and Health Survey and other surveys are based on self-reported use, and are subject to the kinds of bias that are operating when such questions are asked in rural traditional settings where contraceptive use is the exception rather than the norm (Biddlecom and Fapohunda 1998).
- 2 Among women who did not change their religion, about 19 percent each were Christians and traditionalists and about 0.6 percent were Muslims.
- 3 The current contraceptive use logit model has fewer cases than the parity regression model because 260 women from the sample (representing about 7 percent of women interviewed in

both surveys) were pregnant at the time of the survey and this explains the difference between the sample sizes.

- 4 In order to assess the effect of sample loss between the surveys on our results, we run the Table 3 regressions for all women interviewed in 2003 and dropping controls that concern links to the baseline. We were interested in assessing whether the results change if we look at the cross-section only. Our results (not presented here) show that the impact of the shift in religion does not change: Shifts from traditional religion to Christianity or Islam are associated with diminishing impact on parity and odds that almost double for current contraceptive use.

## References

Adongo, Philip B., James F. Phillips, and Fred N. Binka. 1998. "The influence of traditional religion on fertility regulation among the Kassena-Nankana of Northern Ghana." *Studies in Family Planning* 29(1): 23–40.

Akazili, James, Isaac Akumah, Ernest Kanyomse, Rofina Asuru, Cornelius Debpuur, and Abraham Hodgson. 2003. *2002 Panel Survey Report: Key Findings*. Community Health and Family Planning Project Documentation Note 48. Navrongo, Ghana: Navrongo Health Research Centre.

Biddlecom, Ann E. and Bolaji M. Fapohunda. 1998. "Covert contraceptive use: Prevalence, motivations, and consequences." *Studies in Family Planning* 29(4): 360–372.

Binka, Fred, Pierre Ngom, James F. Phillips, Kubaje Adazu, and Bruce MacLeod. 1999. "Assessing population dynamics in a rural African society: The Navrongo Demographic Surveillance System."

*Journal of Biosocial Science* 31(3): 375–391.

Binka, Fred, Alex Nazzar, and James F. Phillips. 1995. "The Navrongo Community Health and Family Planning Project." *Studies in Family Planning* 26(3): 121–139.

Caldwell, John C., I.O. Orubuloye, and Pat Caldwell. 1992. "Fertility decline in Africa: A New Type of Transition?" *Population Development Review* 18 (2): 211–242.

Caldwell, John C. and Pat Caldwell. 1987. "The cultural context of high fertility in sub-Saharan Africa." *Population Development Review* 13: 409–437.

Debuur, Cornelius, James F. Phillips, Elizabeth F. Jackson, Alex Nazzar, Pierre Ngom, and Fred N. Binka. 2002. "The impact of the Navrongo Project on contraceptive knowledge and use, reproductive preferences, and fertility." *Studies in Family Planning* 33(2): 141–164.

De Witte, Marleen. 2003. "Altar media's *Living Word*: Televised charismatic Christianity in Ghana." *Journal of Religion in Africa* 33(2): 172–202.

Gallup International. 2000. "Religion in the world at the end of the Millenium." Gallup International. <http://www.gallup-international.com>; last accessed May 20, 2007.

Garenne, Michel. 2004. "Age at marriage and modernization in Sub-Saharan Africa." *Southern African Journal of Demography* 9(2): 59–79.

Gifford, Paul. 1994. "Ghana's charismatic churches." *Journal of Religion in Africa* 24(3): 241–265.

Gillum, R.F. 2005. "Frequency of attendance at religious services and cigarette smoking in American women and men: The Third National Health and Nutrition Examination Survey." *Preventive Medicine* 41(2): 607–613.

Heaton, Tim B. 1986. "How does religion influence fertility?: The case of Mormons." *Journal for the Scientific Study of Religion* 25(2): 248–258.

Jaffe, Dina H, Zvi Eisenbach, Yehuda D. Neumark, and Orly Manor. 2005. "Does living in a religiously affiliated neighborhood lower mortality?" *Annals of Epidemiology* 15(10):804–810.

Kazaresum, Augustine E. 1975. *The Kasena of Ghana and Pastoral Approach*. Licence en Catéchèse et Pastorale. Bruxelles: Lumen Vitae International Institute of Catechetics and Pastoral.

La Verle, Berry. 1995. *Ghana: A Country Study*. Federal Research Division, Washington, DC: Library of Congress.

Lehrer, Evelyn L. 2004. "Religion as a determinant of economic and demographic behavior in the United States." *Population and Development Review* 30(4):707–726.

McQuilan, Kevin. 2004. "When does religion influence fertility?" *Population and Development Review* 30(1):25-56.



Odimegwu, Clifford. 2005. "Influence of religion on adolescent sexual attitudes and behaviour among Nigerian University students: Affiliation or commitment?" *African Journal of Reproductive Health* 9(2): 125–140.

Takyi, Baffour K. 2003. "Religion and women's health in Ghana: Insights into HIV/AIDS preventive and protective behavior." *Social Science and Medicine* 56: 1221–1234.

United States State Department. 2002. "Ghana: Religious freedom report."

[http://atheism.about.com/library/irf/irf02/blirf\\_ghana.htm](http://atheism.about.com/library/irf/irf02/blirf_ghana.htm); last accessed May 20, 2007.

Yirenkyi, Kwasi. 2000. "The role of Christian churches in national politics: Reflections from laity and clergy in Ghana." *Sociology of Religion* 61: 325–338.

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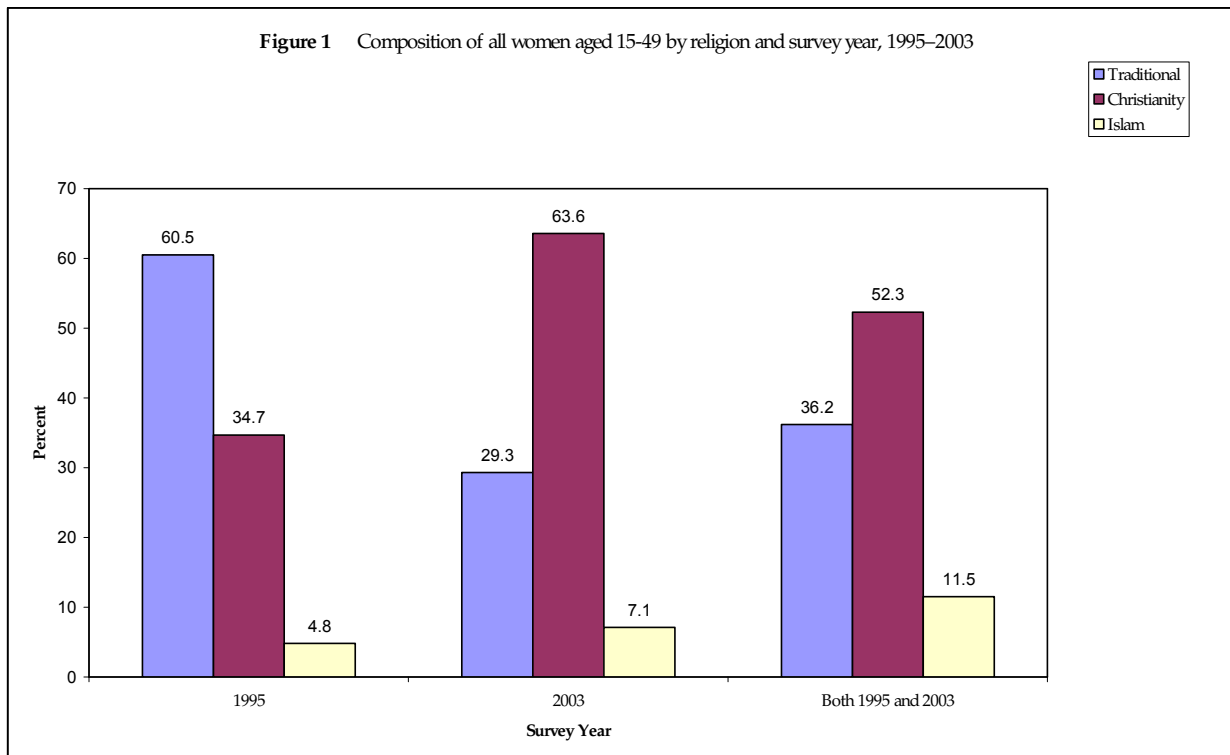
Demographic Surveillance System. Finally, the authors are grateful to the NHRC for supplying the data.

**Table 1** Percentage distribution of women interviewed between 1995 and 2003 by selected characteristics, KND, northern Ghana

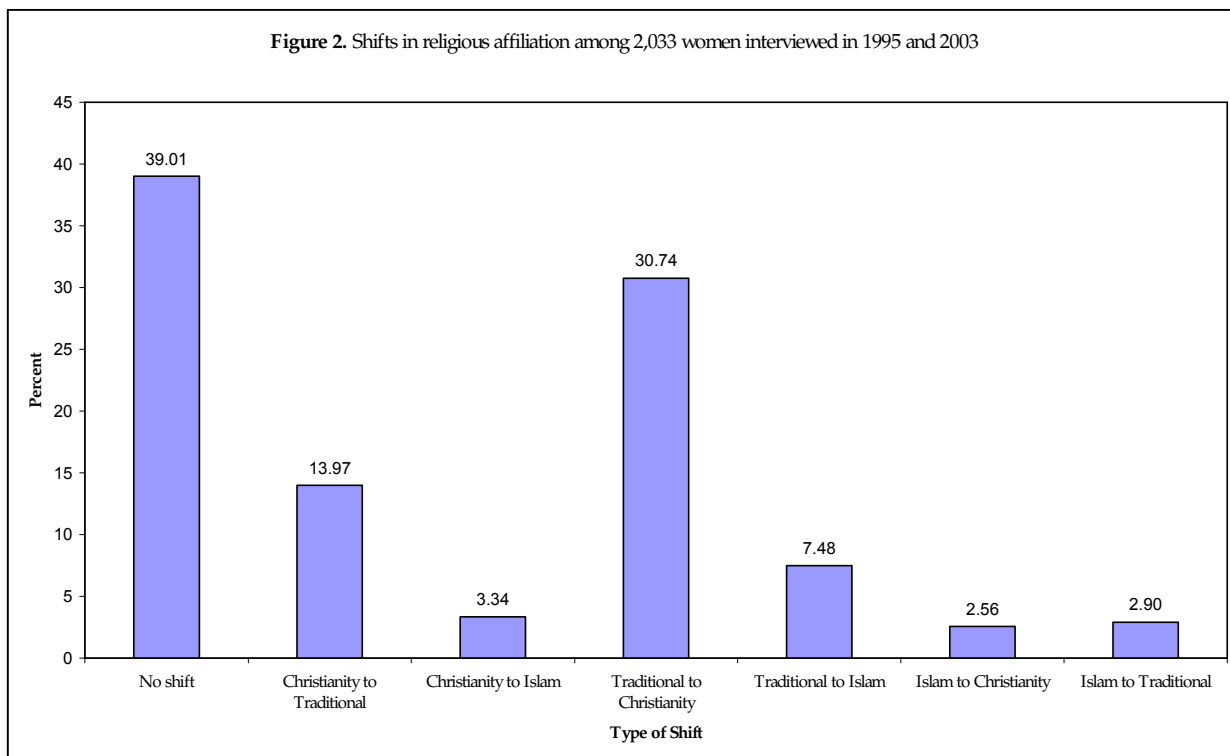
Covariates	Total sample		Sample interviewed in both surveys (1995 and 2003)
	1995	2003	
Currently using contraceptives <sup>†</sup>			
Yes	8.8	12.3	15.6
No	91.2	87.7	84.4
Religion			
Traditional	60.5	29.3	36.2
Christian	34.7	63.6	52.3
Islam	4.8	7.1	11.5
Marital status			
Never married	13.8	28.0	6.2
Married*	74.2	58.9	74.7
Divorced/separated	4.1	4.7	6.9
Widowed	7.9	8.5	12.3
Education			
None	69.4	49.9	61.4
Primary	19.1	25.1	20.1
Secondary+	11.5	25.0	18.5
Ethnicity			
Kassena	52.2	51.3	56.9
Nankana	41.5	41.7	38.9
Bulsa	4.4	4.6	0.9
Other	1.8	2.4	3.4
In polygamous union			
Yes	44.6	35.3	36.3
No	55.4	64.7	63.7
Mean age	31.5	30.1	35.5
Mean parity	3.5	2.8	3.8
<b>N</b>	<b>5,288</b>	<b>5,842</b>	<b>2,033</b>

\*Includes those living together; Some percentages may not add up to 100 due to rounding or responses restricted to specific categories; <sup>†</sup>Excludes pregnant women.

**Figure 1** Composition of all women aged 15-49 by religion and survey year, 1995-2003



**Figure 2** Shifts in religious affiliation among 2,033 women interviewed in 1995 and 2003



**Table 2** Percentage of women switching religion between 1995 and 2003 among 2,033 women interviewed in both surveys.

<b>Religion in 1995</b>	<b>Religion in 2003</b>			<b>Total</b>
	<b>Traditional</b>	<b>Christianity</b>	<b>Islam</b>	
Traditional	33.6 (0.0)	53.4 (30.7)	13.0 (7.5)	100.0
Christianity	38.4 (14.0)	52.4 (0.0)	9.2 (3.3)	100.0
Islam	47.6 (2.9)	41.9 (2.6)	10.5 (0.0)	100.0
<b>N</b>	<b>736</b>	<b>1,064</b>	<b>233</b>	<b>2,033</b>

The numbers in parentheses are the percentage changes from one religion to the other from the baseline (i.e., 1995); "Other religion" dropped from the analysis.

**Table 3** Logistic regression results (odds ratios) of family planning current use and ordinary least-squares regression of change in parity on shift in respondent's religious affiliation and other baseline characteristics

Covariates	Logistic regression odds ratios for covariates of current use (1)	Ordinary least square regression parameters for change in parity coefficient (t-statistic) (2)
Shift in religion		
No shift (r)	1.000	–
Christianity to traditional	0.572	0.722 (3.02)**
Christianity to Islam	0.879	-0.733 (-1.74)
Traditional to Christianity	1.677**	-0.530 (-3.14)**
Traditional to Islam	2.406***	-0.561 (-2.07)**
Islam to Christianity	0.674	0.407 (0.89)
Islam to traditional	1.122	0.943 (2.37)**
Using contraceptive use at baseline?		
No (r)	1.000	–
Yes	1.156	–
Ethnicity		
Kassena (r)	1.000	–
Nankana	1.343	0.156 (1.01)
Bulsa and Other	2.076*	0.152 (0.45)
Husband has some schooling?		
No (r)	1.000	–
Yes	1.111	0.024 (0.15)
Respondent has some schooling?		
No (r)	1.000	–
Yes	1.009	0.026 (0.16)
Age group		
15–24 (r)	1.000	–
25–34	0.829	-2.161 (-13.42)***
35–41	0.750	-4.224 (-21.95)***
In polygamous union		
No (r)	1.000	–
Yes	0.991	-0.021 (-0.14)
<i>Number of women</i>	1,334	1,568
<i>Log-likelihood</i>	-538.927	–
<i>LR chi<sup>2</sup> (degrees of freedom)</i>	35.61	–
<i>Prob &gt; chi<sup>2</sup></i>	0.0012	–
<i>F-test statistic</i>	–	44.94
<i>Constant</i>	-2.034 (0.131)***	2.75 (14.79)***
<i>R<sup>2</sup></i>	–	0.251
<i>Prob &gt; F</i>		0.0000

\*p≤0.05; \*\*p≤0.01\*\*\*p≤0.001; “r” – reference category; “–” not applicable; Women who did not shift their religion comprise of 39% (n=793) of the sample (see Figure 2).