Can religion kill? The association between membership of the Apostolic faith and child mortality in Zimbabwe

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Abstract

Existing literature has been equivocal about the effect of religion on utilization of health service and health outcomes. While followers of particularized theology hypothesis believe that doctrinal teachings, beliefs and values of religious groups directly influence health access and outcomes, the advocates of the selectivity hypothesis claim that the observed disparities between religious groups mainly reflect differential access to social and human capital which in turn determines health access and outcome rather than religion per se. Using household data from the Zimbabwe Multiple Indicator Monitoring Survey 2009, we find that household heads’ affiliation with apostolic faith put children under five years old at greater risk of death compared to other religious groups. This effect remains strong even after controlling for a wide range of socio-economic and demographics characteristics of the households in multivariate logit regressions.

Introduction

Africa is poised to be among the most religious continent and the role of religion on health seeking and health outcomes has been given increasing attention in the literature.1-4 Results from the previous studies have been equivocal: followers of particularized theology hypothesis who consider doctrinal teachings, beliefs and values of religious groups directly influence health outcomes while the followers of the selectivity hypothesis claim that disparities in observed behaviour between religious groups mainly reflect differential access to social and human capital which in turn determines health access and outcome rather than religion per se.5-8

Zimbabwe provides an interesting case to examine the relationship between religion and health. During the first decade’s its independence (1980-1990), Zimbabwe built one of the best basic social service systems in Africa. However, the next ten years saw these achievements gradually eroded by the structural adjustment programs with associated austerity measures and the onset of the HIV epidemic. In the new century, the dramatic economic implosion and political instability have resulted in a total collapse of the social service systems in 2007/2008.

In the meantime, Zimbabwe’s religious landscape were redrawn. The Apostolic Churches which sought independence from missionary churches on doctrinal grounds such as spiritual healing and Jordan baptism9-11 has become a formidable religious force in Zimbabwe especially during the crisis years. Available Demographic and Health Surveys and the Multiple Indicator Cluster Survey (MICS) show that a rather rapid growth of the group from 20% of the population in 1994 and 21.5% in 1999 to 27% in 2009 and 32.8% in 2014. Apostolic churches in Zimbabwe has been known to affect adherents’ health access and health outcomes in several ways. Firstly, the churches provide necessary social support to their members in times of great change or adversity which can positively support improved physical and mental health.12

Secondly, their strict doctrine and moral codes on sexual behaviour may offer perceived protection from HIV infection. Lastly, but most pertinent to our focus on child mortality, Apostolic churches emphasize prophet-healing through prayers and the action of the Holy Spirit. Any use of western and modern medicine is seen as exhibiting little faith in God and is strongly prohibited. Despite recent changes in ideology aimed at improving access to health services for members of the Apostolic faith and spearheaded by the Union for the Development of Apostolic Churches in Zimbabwe (UDA-CIZA), traditional beliefs still prevail especially among the ultra-conservative Marange and Madhidha Apostolic groups.13 These deleterious impacts on access to health and health outcomes can be exacerbated by the asymmetric power that the churches bestow to men and husbands, which constrains women’s decision-making in relation to health.

This research contribute to the literature on the relationship between the Apostolic faith and under five mortality in Zimbabwe in two important ways: first, unlike earlier studies in Zimbabwe context,14,15 we control for a large set of mediating factors that simultaneously influence religion and child mortality to isolate the effects of apostolic faith on child mortality. Second, we use nationally representative household survey data from Zimbabwe to ensure the external validity of our results.

Materials and Methods

Data

This study utilises data from the Multiple Indicator Monitoring Survey (MICS) of 2009. MICS 2009 is a customised version of the Multiple Indicator Cluster Survey (MICS), a worldwide survey programme. MICS is designed to collect statistically sound data to assess the situation of children and women in the areas of education, health, gender equality, rights and protection. MICS is a nationally representative survey implemented by the Zimbabwe National Statistics Agency (ZIMSTAT). The survey interviewed 11,469 households, from these households 11,339 women aged 15-49 years. We constructed the analytical sample of 6366 births for the study from the women’s birth histories on children born five years prior to the survey.

The MICS asked women aged 15-49 years to give a record of all births whether still alive or not in their lifetime. A follow up question is asked on whether the births are still alive or not. This analysis considered all births within five years prior to the
A binary outcome variable was constructed for under-five mortality cases or otherwise at the time for the survey. In accordance with the survey only deaths from live births were counted as mortality cases.

**Analysis**

A logit model was applied on the dichotomous outcome variable. The key independent variable to the study is the religious affiliation of the household head following Ha et al. Religious affiliation as recorded in MIMS 2009 was reclassified into four categories; i) Other Christians which combines Roman Catholic, Protestants, Pentecostal and Other Christians; ii) Apostolic grouped was retained as is; iii) the Traditional religion; iv) other religions including Muslim and those with no religion were grouped together as Other religions and no religion.

Guided by Millard we limit the analysis to ultimate tier factors as we do not intend to explore the interaction of various factors but more on the context. According to Millard ultimate factors consists of the broad economic social, and cultural processes and structures that shape the context in which the proximate and intermediate tiers factors operate. Proximate and intermediate tier factors are the more direct influencers of child mortality.

We further categorise the ultimate tier factors in the language of Andersen as pre-disposing and enabling factors. **Predisposing factors** include demographic (age, sex, marital status, *etc.*), social structural (education, ethnicity, occupation, religion *etc.*) and health related attitudinal factors (*e.g.* medical knowledge and other maternal factors). **Enabling factors** include factors, which promote or hinder use of services such as income, health insurance and family support as well as community resources (*e.g.* available health care providers).

In this study, **predisposing factors** include mothers’ age at birth of child, marital status, education level and occupation, sex of the child, whether child is first birth, presence of siblings under five years in the sample. Five year age categories are defined for mother’s age at birth of child with those 35 years and above in one group. Marital status of mother was reclassified into a binary variable: 0) married and living with partner, 1) single/never married and formerly married *i.e.* separated, divorced or widowed. Mother’s occupations were defined as: paid employees (both casual and permanent employees plus employers); own account workers; unpaid family workers and the unemployed (students, retirees and homemakers). Mother’s education was recorded into two groups; without education and primary educated as one group, and secondary and higher educated as one group. A binary variable was created from the birth history data to capture siblings in the data set; those with no siblings under the age of five was coded zero otherwise coded one. A variable, first birth, was also created to capture the order of births. First birth was coded one for first birth otherwise coded zero.

**Enabling factors** include household urban residence, wealth quintile, province, household dependency ratio and value of medical assistance received. Urban residency was based on the location of each household interviewed (1=urban, 0=rural). The wealth quintile is a composite index derived from a set of household characteristics available among MIMS data using Principal Component Analysis (PCA) tech-

| Variable | Obs | Mean | Std. Dev. | Min | Max |
|----------|-----|------|-----------|-----|-----|
| Under five mortality | 6366 | 0.062 | 0.241 | 0 | 1 |

Table 1. Summary statistics.

### Independent variables

| Predisposing factors | Obs | Mean | Std. Dev. | Min | Max |
|----------------------|-----|------|-----------|-----|-----|
| Religion of Household Head | 6366 | 0.393 | 0.489 | 0 | 1 |
| Other Christians | 6366 | 0.330 | 0.470 | 0 | 1 |
| Apostolic region | 6366 | 0.081 | 0.273 | 0 | 1 |
| Traditional | 6366 | 0.196 | 0.397 | 0 | 1 |
| Other religions and no religion | 6366 | 0.506 | 0.506 | 0 | 1 |
| Child sex (1=boy) | 6366 | 0.307 | 0.307 | 0 | 1 |

| Mother’s occupation | Obs | Mean | Std. Dev. | Min | Max |
|---------------------|-----|------|-----------|-----|-----|
| Paid employee | 6366 | 0.171 | 0.377 | 0 | 1 |
| Own account worker (agriculture related) | 6366 | 0.544 | 0.498 | 0 | 1 |
| Own account worker (other) | 6366 | 0.160 | 0.367 | 0 | 1 |
| Unpaid family worker | 6366 | 0.029 | 0.166 | 0 | 1 |
| Unemployed | 6366 | 0.097 | 0.295 | 0 | 1 |

|Mother’s education | Obs | Mean | Std. Dev. | Min | Max |
|--------------------|-----|------|-----------|-----|-----|
| No/primary | 6366 | 0.369 | 0.482 | 0 | 1 |
| Secondary/higher | 6366 | 0.631 | 0.482 | 0 | 1 |
| Siblings under five (1=yes) | 6366 | 0.534 | 0.496 | 0 | 1 |
| First birth (1=yes) | 6366 | 0.722 | 0.420 | 0 | 1 |

| Enabling factors | Obs | Mean | Std. Dev. | Min | Max |
|------------------|-----|------|-----------|-----|-----|
| Urban residence | 6366 | 0.276 | 0.447 | 0 | 1 |

| Wealth Quintile | Obs | Mean | Std. Dev. | Min | Max |
|-----------------|-----|------|-----------|-----|-----|
| Poorest | 6366 | 0.258 | 0.437 | 0 | 1 |
| Second | 6366 | 0.217 | 0.413 | 0 | 1 |
| Middle | 6366 | 0.171 | 0.376 | 0 | 1 |
| Fourth | 6366 | 0.201 | 0.401 | 0 | 1 |
| Highest | 6366 | 0.153 | 0.360 | 0 | 1 |

| Province | Obs | Mean | Std. Dev. | Min | Max |
|----------|-----|------|-----------|-----|-----|
| Bulawayo | 6366 | 0.033 | 0.179 | 0 | 1 |
| Manicaland | 6366 | 0.148 | 0.355 | 0 | 1 |
| Mashonaland central | 6366 | 0.117 | 0.322 | 0 | 1 |
| Mashonaland east | 6366 | 0.093 | 0.291 | 0 | 1 |
| Mashonaland west | 6366 | 0.108 | 0.310 | 0 | 1 |
| Matebeleland north | 6366 | 0.063 | 0.245 | 0 | 1 |
| Matebeleland south | 6366 | 0.056 | 0.231 | 0 | 1 |
| Midlands | 6366 | 0.121 | 0.329 | 0 | 1 |
| Masvingo | 6366 | 0.121 | 0.327 | 0 | 1 |
| Harare | 6366 | 0.140 | 0.347 | 0 | 1 |
| Household dependency ratio | 6366 | 1.314 | 0.928 | 0 | 9 |
| Medical assistance received in 100 US dollars | 6366 | 0.015 | 0.149 | 0 | 8.571 |

*Variables are dummy variables representing the absence or presence of each of the variables of interest. Medical assistance was measured in 100 United States dollars.*
Table 2. Effects of religion on under-five mortality.

| Independent variables reference group in parenthesis | Specification 1 | Specification 2 | Specification 3 |
|------------------------------------------------------|-----------------|-----------------|-----------------|
| **Predisposing factors**                             |                 |                 |                 |
| Religion of household head (other Christian groups)   |                 |                 |                 |
| Apostolic sect                                       | 0.030***        | 0.025***        | 0.025***        |
| (0.008)                                              | (0.008)         | (0.007)         |
| Traditional                                          | -0.002          | -0.007          | -0.007          |
| (0.013)                                              | (0.013)         | (0.013)         |
| Other religions and no religion                      | 0.010           | 0.003           | -0.001          |
| (0.009)                                              | (0.009)         | (0.009)         |
| Child sex (Boy=1)                                    |                 |                 |                 |
| Mothers age at birth (<20)                           |                 |                 |                 |
| Mothers age at birth 25-29                           | 0.039***        |                 |                 |
| (0.011)                                              |                 |                 |
| Mothers age at birth 30-34                           | 0.048***        |                 |                 |
| (0.011)                                              |                 |                 |
| Mothers age at birth >35                             | 0.040***        |                 |                 |
| (0.013)                                              |                 |                 |
| Marital status (1=single)                            | 0.033***        |                 |                 |
| (0.011)                                              |                 |                 |
| Mother’s education (1=secondary/higher)              | (0.006)         | -0.011*         |                 |
| First birth (1=yes)                                  | (0.007)         | 0.035***        |                 |
| Siblings under5 (1=yes)                              | (0.007)         | 0.100***        |                 |
| Enabling factors                                     |                 |                 |                 |
| Wealth quintile (lowest quintile)                    |                 |                 |                 |
| Second                                               | -0.025***       | -0.023**        | -0.023**        |
| (0.009)                                              | (0.009)         | (0.009)         |
| Middle                                               | -0.026***       | -0.020**        | -0.020**        |
| (0.009)                                              | (0.009)         | (0.009)         |
| Fourth                                               | -0.019          | -0.018          |                 |
| (0.012)                                              | (0.013)         |                 |
| Highest                                              | -0.035***       | -0.030***       | -0.030***       |
| (0.016)                                              | (0.016)         | (0.016)         |
| Medical assistance received in 100 US$               | 0.021**         | 0.026***        |                 |
| (0.009)                                              | (0.009)         |                 |
| Household dependency ratio                           | -0.026***       |                 |                 |
| (0.004)                                              |                 |                 |
| Mother’s occupation (paid employee)                  |                 |                 |                 |
| Agriculture own account worker                       |                 | -0.017*         |                 |
| (0.009)                                              |                 | (0.009)         |
| Other own account worker                             |                 | -0.005          |                 |
| (0.009)                                              |                 | (0.009)         |
| Unpaid family worker                                 |                 | -0.024          |                 |
| (0.019)                                              |                 | (0.019)         |
| Unemployed                                           |                 | -0.004          |                 |
| (0.011)                                              |                 | (0.011)         |
| Urban residence                                      |                 |                 |                 |
| Other own account worker                             | -0.000          | -0.001          |                 |
| (0.015)                                              | (0.014)         |

Specifications: Specification 1 shows marginal effects from logit regression with religion only. Specification 2 includes religion and enabling variables only. Specification 3 includes the full model with all predisposing and enabling factors. Categorical variables start with a variable heading. Reference levels for categorical variables are given in parenthesis next to the variable heading. Standard errors, clustered by district, are given in parentheses. Significance levels are as follows: ***P<0.01, **P<0.05, *P<0.1.
**Table 3. Correlation matrix of key variables.**

|                       | Other Christian groups | Apostolic sect | Traditional | Other and no religion | Child sex (1=male) | Marital status single | First birth (1=yes) | Siblings under 5 (1=yes) | Primary or higher | Dependence ratio | Urban residence | Lowest | Second | Fourth | Highest |
|-----------------------|------------------------|----------------|-------------|-----------------------|-------------------|----------------------|---------------------|------------------------|------------------|---------------|----------------|--------|--------|--------|---------|
| Apostolic sect        | -0.565*                | 1              |             |                       |                   |                      |                     |                        |                  |               |               |        |        |        |         |
| Traditional           | -0.397*                | -0.209*        | 1           |                       |                   |                      |                     |                        |                  |               |               |        |        |        |         |
| Other and no religion | -0.240*                |              | -0.147*    | 1                     |                   |                      |                     |                        |                  |               |               |        |        |        |         |
| Child sex (1=male)    | -0.017                 | -0.009        | -0.002      | 0.032*                |                   |                      |                     |                        |                  |               |               |        |        |        |         |
| Marital Status Single | 0.038*                 | 0.012         | -0.054*     | -0.022                |                   |                      |                     |                        |                  |               |               |        |        |        |         |
| First birth (1=yes)   | 0.047*                 | -0.006        | 0.005       | -0.034*               | 0.025*            |                      |                     |                        |                  |               |               |        |        |        |         |
| Siblings under 5      | -0.071*                | 0.065*        | 0.016       | 0.002                 | -0.042*           | -0.619*              |                     |                        |                  |               |               |        |        |        |         |
| Primary higher        | 0.233*                 | -0.063*       | -0.167*     | -0.099*               | -0.023            | -0.049*              | 0.055*              | -0.091*                | 1                |               |               |        |        |        |         |
| Dependence ratio      | -0.070*                | 0.102*        | 0.041*      | -0.072*               | -0.017            | 0.127*               | -0.141*             | 0.218*                 | -0.169*          | 1             |               |        |        |        |         |
| Urban residence       | 0.239*                 | -0.117*       | -0.153*     | -0.039*               | 0.090             | 0.067*               | 0.085*              | -0.136*                | 0.352*           | -0.225*       | 1             |        |        |        |         |
| Lowest                | -0.175*                | 0.065*        | 0.147*      | 0.042*                | 0.011             | 0.017                | -0.098*             | 0.147*                 | -0.306*          | 0.176*        | -0.358*       | 1      |        |        |         |
| Second                | -0.080*                | 0.074*        | 0.026*      | -0.007                | -0.015            | -0.002               | -0.025*             | 0.050*                 | -0.088*          | 0.052*        | -0.321*       | -0.311* | 1      |        |         |
| Fourth                | 0.107*                 | -0.055*       | -0.064*     | -0.009                | 0.023             | -0.013               | 0.038*              | -0.061*                | 0.177*           | -0.146*       | 0.393*        | -0.295* | -0.264* | 1      |         |
| Highest               | 0.210*                 | -0.111*       | -0.114*     | -0.049*               | -0.014            | -0.071*              | 0.078*              | -0.122*                | 0.284*           | -0.172*       | 0.623*        | -0.251* | -0.225* | -0.213* | 1       |
| Medical assistance (in 100US$) | -0.007               | 0.001         | -0.023      | 0.014                 | 0.001             | 0.019                | -0.031*             | 0.023                  | -0.026*          | 0.069*        | -0.010        | -0.036* | 0.005* | 0.016  |         |

*Significant at 1%
siblings below the age of five years were about 10 percentage points more likely to die by their fifth birthday.

Marital status of the mother also emerged as a significant factor to the likelihood of a child dying between birth and their fifth birthday. Children born to single mothers (never married, divorced, separated or widowed) were about four percentage points more likely to die before their fifth birthday compared to children born to married women. Looking at the correlation matrix in Table 3, single marital status is positively correlated (0.127, P<0.05) with dependency ratio.

### Enabling factors

For enabling factors, wealth quintile, dependency ratio and medical assistance received were the significant predictors. Wealth quintile was the most significant predictor in explaining likelihood of child death before their fifth birthday. In general, family wealth is a significant factor, which tend to cushion children from dying before turning five years. Children from richer families are less likely to die compared to children from poor families by between two to three percentage points. To put the estimates into context of the paper, the gradient between the lowest wealth quintile and the second wealth quintile on the probability of dying between the lowest wealth quintile and the second wealth quintile is comparable to the gradient between other Christian groups and the Apostolic faith on the probability of dying between birth and the fifth birthday.

The household dependency ratio had a negative impact on the likelihood of children dying before their fifth birthday. A unit increase in the household dependency ratio results in up to about three-percentage points reduction in the probability of a child dying. Financial assistance received by a household for medical expenses is associated with significantly higher chances of dying, the effect size is about two percentage points.

### Causal mechanism between apostolic faith and child mortality

While results so far suggest that apostolic faith group are more likely to experience child death, they do not say anything on the causal linkage between apostolic faith and child mortality. Ha et al.21 provides evidence that apostolic faith families are less likely to take up prenatal and maternal health services even when they are largely free of charge. Unfortunately, we cannot directly establish associational pathways from the lack of utilization of maternal and child health services by the apostolic faith and the heightened risk of child death because the MIMS Survey 2009 only asked the health utilization questions for children who are born two years before the survey and were still alive. Here we exploit information gathered on the healthcare seeking behaviour of household members when they had an illness or injury in the past 2 weeks in the MIMS 2009 Survey. Table 4 shows that mothers from apostolic households have a higher chance of visiting spiritual and faith healers or traditional practitioners for advice or treatment compared to mothers from other religious groups. We further explored a subsample (3200) of women who gave birth within two years of the Survey who were asked questions on person seen for antenatal care. Table 5 shows that women from the apostolic faith are more likely to see a traditional birth attendant or a friend than they are likely to see a doctor, nurse or midwife. This provides indirect evidence that the association between apostolic faith and under five mortality could go through the channel of healthcare seeking.

### Discussion and Conclusions

Employing the household survey data from MIMS 2009 and following the established conceptual framework on child mortality,22 we find that membership of the Apostolic faith in Zimbabwe was associated with significantly higher odds of under-five mortality. This association remained valid even after adequately controlling for other mediating factors using multivariate logit regressions. We also report that mothers from apostolic households have a higher chance of visiting spiritual and faith healers or traditional practitioners for advice or treatment compared to mothers from other religious groups when they fall ill. These findings build on Ha et al.23 which shows that an affiliation with the Apostolic faith is a substantial and significant risk factor in reducing the utilization of both maternal and child health services. Together they lend strong support to the particularized theology hypothesis and suggest that the Apostolic community, which accounts for more than one quarter of the population, is an important constituency if Zimbabwe were to reverse its decline in child health outcomes. To our best knowledge, this is the first paper showing the effects of religion on health outcomes using nationally representative data and sound empirical method in the context of Sub-Saharan Africa (SSA). These findings break new grounds in the literature as existing studies examining relationships between religion and health outcome largely substantiate the selectivity hypothesis.24,25

There are a couple of caveats in understanding these interesting findings. The results reported in this study are association rather than causal because we only have cross-section data and no plausible experimental or quasi-experimental research design is used. We do observe self-selection into the Apostolic faith. Table 3 shows the pair-wise correlation of selected independent variables and covariates used in this paper. Household heads holding the Apostolic faith tended to be associated with

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**Table 4. Where mother went for advice or treatment.**

| Household head religion | Spiritual/traditional health provider services sought (%) | Chi²(3) |
|-------------------------|---------------------------------------------------------|---------|
| Other Christians        | 3.23                                                    | 87.38*  |
| Apostolic faith         | 33.69                                                   |         |
| Traditional             | 11.11                                                   |         |
| Other and no religion   | 15.71                                                   |         |
| Total                   | 17.84                                                   |         |

*Significant at 1%.

**Table 5. Person seen for ANC among women who gave birth within two years of the survey.**

| Person seen               | Apostolic Religion | Other Christian religion | Traditional religion | Other and no religion | Total |
|---------------------------|--------------------|--------------------------|----------------------|----------------------|-------|
| Friend (%)                | 58.94              | 25.35                    | 1.93                 | 13.79                | 100   |
| Untrained traditional birth attendant (%) | 45.70 | 38.33 | 3.75 | 12.22 | 100     |
| Trained traditional birth attendant (%)   | 74.90 | 19.52 | 1.82 | 3.77 | 100 |
| Doctor (%)                | 22.71              | 55.56                    | 7.66                 | 14.07                | 100   |
| Nurse/midwife (%)        | 30.81              | 39.29                    | 9.04                 | 20.98                | 100   |
a disadvantageous socio-economic background. They were poorer, less well educated, more likely to reside in rural areas and had a higher dependency ratio than the other Christians. Yet the effects of the Apostolic faith on under-five mortality were only reduced slightly after controlling for these observed self-selection. Self-selection (on observables at least) does not explain away the higher mortality among apostolic children. Second, the Apostolic faith does not comprise one homogenous group as captured by the Zimbabwe MIMS survey data. Maguranyanga (2011) points to at least three groups: the ultraconservative, the semi-conservative and the liberal Apostolic groups which place varying emphasis on faith healing and the strict adherence to church beliefs against the use of modern medicine. In addition, our results may be interpreted as presenting the average situation for the Apostolic faith.

Further studies should use other rounds of Demographic and Health Surveys and MICS 2014 survey to examine whether this relationship between apostolic faith and higher child mortality remain robust over time. The MIMS 2009 was conducted right after the peak of the economic and political crisis. Therefore the relationship may not hold before the crisis or after the recovery. This could also enable us to have a better grasp of the causal relationship between apostolic faith and child mortality because Under-5 mortality rate seems to be stabilizing and even decline post-recovery while membership in apostolic groups continues to grow in Zimbabwe. If Under-5 mortality rate is going down disproportionately in non-apostolic groups, we can be more certain that apostolic faith has an independent and direct effect on child mortality.

References

1. Ha W, Salama P, Gwavuya S, Kanjala C. Is religion the forgotten variable in maternal and child health? Evidence from Zimbabwe. Social Sci Med 2014;118:80-8.
2. PEW Research Center. Tolerance and Tension: Islam and Christianity in Sub-Saharan Africa; 2010.
3. Ensor T, Cooper S. Overcoming barriers to health service access: influencing the demand side. Health Policy Plan 2004;19:69-79.
4. Ellison CG, Levin JS. The Religion-Health connection: Evidence, theory, & future directions. Health Educ Behav 1998;25:700-20.
5. Antai D, Ghilagaber G, Wedrén S, et al. Inequities in Under-Five Mortality in Nigeria: Differentials by Religious Affiliation of the Mother. J Relig Health 2009;48:290-304.
6. Gyimah SO, Takyi BK, Addai I. Challenges to the reproductive-health needs of African women: On religion & maternal health utilisation in Ghana. Social Sci Med 2006;62:2930-44.
7. Addai I. Does religion matter in contraceptive use among Ghanaian women? Rev Relig Res 1999;40:259-77.
8. Ha W, Salama P, Gwavuya S, Kanjala C. Is religion the forgotten variable in maternal and child health? Evidence from Zimbabwe. Social Sci Med 2014;118:80-8.
9. Hayes S. The African independent churches: Judgement through terminology. Mission 1992;62(2):139-46.
10. Andersen RM. Revisiting the Behavioural Model & access to medical: Does it matter? J Health Social Behav 1995;36:1-10.
11. Imunde L, Padwick TJ. Advancing legal empowerment of the poor: The role and perspective of the African Independent Churches. Paper prepared for the World Conference of the Religions for Peace, January 2008, Nairobi, Kenya.
12. Mpofu E, Dune TM, Halfors DD, et al. Apostolic faith church organization contexts for health and wellbeing in women and children, Ethnic Health 2011;16:551-66.
13. Maguranyanga B. Apostolic religion, health and utilisation of maternal and child health services in Zimbabwe. Unpublished research report. Collaborating Centre for Operational Research and Evaluation, UNICEF and M consulting group; 2011.
14. Gregson S, Zhuwau T, Andersen RM, Chandiwana SK. Apostles and Zionists: The influence of religion on demographic change in rural Zimbabwe. Popul Stud 1999;53:179-93.
15. Hove I, Siziya S, Katito C, Tshimanga M. Prevalence and associated factors for non-utilisation of postnatal care services: Population-based in Kuvadzananepi-urban area, Zvimba district of Mashonaland West Province, Zimbabwe. Afr J Reprod Health 1999;3:25-32.
16. Ha W, Salama P, Gwavuya S, Kanjala C. Is religion the forgotten variable in maternal and child health? Evidence from Zimbabwe. Social Sci Med 2014;118:80-8.
17. Millard AV. A causal model of high rates of child mortality. Social Sci Med 1994;38:253-68.
18. Millard AV. A causal model of high rates of child mortality. Social Sci Med 1994;38:253-68.
19. Andersen RM. National health surveys and the behavioral model of health services use. Medical Care 2008;46:647-53.
20. ZIMSTAT. Multiple Indicator Monitoring Survey (MIMS) 2009. Harare: National Statistics Agency (ZIMSTAT) and UNICEF; 2010.
21. Ha W, Salama P, Gwavuya S, Kanjala C. Is religion the forgotten variable in maternal and child health? Evidence from Zimbabwe. Social Sci Med 2014;118:80-8.
22. Millard AV. A causal model of high rates of child mortality. Social Sci Med 1994;38:253-68.
23. Ha W, Salama P, Gwavuya S, Kanjala C. Is religion the forgotten variable in maternal and child health? Evidence from Zimbabwe. Social Sci Med 2014;118:80-8.
24. Gyimah SO, Takyi BK, Addai I. Challenges to the reproductive-health needs of African women: On religion & maternal health utilisation in Ghana. Social Sci Med 2006;62:2930-44.
25. Antai D, Ghilagaber G, Wedrén S, et al. Inequities in Under-Five Mortality in Nigeria: Differentials by Religious Affiliation of the Mother. J Relig Health 2009;48:290-304.
26. Maguranyanga B. Apostolic religion, health and utilisation of maternal and child health services in Zimbabwe. Unpublished research report. Collaborating Centre for Operational Research and Evaluation, UNICEF and M consulting group; 2011.

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