Religion, child mortality and health in Mozambique

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Abstract

In contrast to the growing number of studies on religion and adult health in Western settings, the literature that examines the effects of religion on child survival and health remains scarce, especially in sub-Saharan Africa, the region of worst child health outcomes. In this study we examine the relationship between mother's religious affiliation and child survival and selected child health measures in southern Mozambique, a predominantly Christian area with great denominational diversity. Preliminary results suggest that mother's church membership decreases the likelihood of child death and leads to better child health outcomes, relative to not belonging to a church. However, the analyses also detect instructive variations across denominations. These results are interpreted in light of the role of religion in general and of specific religious denominations in providing social support and facilitating access to formal health care resources.

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    Introduction

    Numerous studies have found religious involvement to be beneficial to health of individuals and populations (Chatter, 2000; Elifson et al., 2003; Ellison and Levin, 1998; Powell et al., 2003). However, the effect of religion on health differs by type of religion and religious denomination (Ellison and Levin, 1998; Idler and Kasl, 1992; Troyer, 1988). In fact, religious denominations vary in the extent to which they create groups of support to assist members in case of need; promote religiosity and faith among their members as well as in the way that members gain feelings of guidance in life from their faith and religious involvement (Jarvis and Northcott, 1987). Although at the individual level belonging to certain denomination may not reveal much in terms of the individual's involvement with the denomination (Dublin, 1963), at the population level, belonging to a certain denomination may suggest an alignment with that denomination's doctrine. The pathways through which religion may affect health include discouraging health-seeking behavior, promoting salutary lifestyles, enhancing social support and enabling individuals to have a positive opinion about life (Ellison and Levin, 1998; Idler and Kasl, 1992; Jarvis and Northcott, 1987).

    However, religion may have a negative effect on health and the risk of mortality by prescribing health-damaging behaviors and proscribing those aspects and behaviors that may prevent illness and enhance treatment (Jarvis and Northcott, 1987). For example, when religious involvement discourages professional help-seeking behavior for health care, promotes inappropriate use of health care services, and encourages exclusive treatment by clergy and prophets may have detrimental effect on physical and mental health (Chatter, 2000, Gregson et al., 1999). However, the relationship between religion and health appears not to be clear-cut. Levin (1994), have questioned whether the observed association between religion and health outcomes is valid one and whether a causal link between religion and health outcomes may be established. In another context, Levin and colleagues also raised concerns about the significance of the relationship between religious attendance (a measure of religious involvement often used) and health (Levin and Markides, 1987; Levin and Vanderpool, 1987). More recently, studies

have found weak empirical support to the relationship between religious involvement and health (Sloan et al., 1999; Sloan and Bagiella, 2002).

In sub-Saharan Africa, religious involvement is a growing phenomenon in urban and rural areas of most countries in the region (Agadjanian and Menjivar, 2008; Ellis and Haar, 1998; Gifford, 1994; Pfeiffer, 2002, Takyi, 2003). And increasingly, religion is considered one of the most influential factors in people's lives in sub-Saharan Africa (Agadjanian, 2005; Ellis and Haar, 1998; Gifford, 1994; Gyimah, 2007; Pfeiffer, 2004). At the same time, sub-Saharan Africa is the region on earth with highest levels of child mortality and child-related health problems (Black, Morris & Bryce, 2003; Delaunay et al., 2001). Yet, there is a dearth of studies assessing the effect of religion on child mortality and health in sub-Saharan Africa. Few studies that have examined the effects of religion on health outcomes in sub-Saharan Africa have suggested an association between religious affiliation and mortality and health (Antai, 2008; Gregson et al., 1999). For example, Gregson and colleagues seeking explanation for the differential in mortality between members of Spirit-type churches (predominantly Zionists and Apostolic) and members of Mission churches in Zimbabwe, suggested that the avoidance of professional medicine by members of Spirit-type churches in Zimbabwe could explain higher death rates among members of these churches when compared to members of Mission churches in the past. In the era of HIV/AIDS however, the more restrictive sexual behavior within Spirit-type denominations may have limited the spread of HIV infection, leading to small increase in contemporary mortality (Gregson et al., 1999). In a study of the relationship between mother's religious affiliation and children's immunization status in Nigeria, Antai (2008) found that Islamic religion was significantly associated with reduced risk of full immunization and not associated with the risk of partial immunization in Nigeria. Our study will contribute to the literature on the effects of religion on child health outcomes through examining the relationship between mother's religious affiliation and child mortality and health in southern Mozambique.

Conceptual framework and background

Child mortality and health are outcomes of social and biological processes influenced by an array of factors (Mosley and Chen, 1984; Hummer, 1993). Religious involvement may affect child mortality and health indirectly through its influence on proximate determinants of child

mortality and health. On the one hand, our analytical approach is guided by the understanding that religious denominations differ in terms of their religious teachings, and that some religious teachings may lead to negative and others to beneficial child health outcomes. On the other hand, our analysis is also informed by the idea that religious denominations differ in terms of social cohesiveness and social support provided to members, and that religious denominations that provide more social support to their members may buffer adverse factors that harm child health.

In southern Mozambique, Mainline (also known as Mission churches) and Pentecostal-type churches are the most predominant denominations (Agadjanian, 2001, 2005; Agadjanian and Sen, 2007; Agadjanian and Menjivar, 2008). Mainline churches may generally be regarded as denominations brought to Africa through missionary work (e.g. Anglican, Baptists, Catholic, Methodists, and Presbyterian) in the long past (Tanner, 1967). In contrast, Pentecostal-type churches (also called Independent African Churches) (e.g. Zionist, Apostolic and Assemblies of God) are typically denominations originated by separation from Mainline churches or founded by charismatic religious leaders or prophets. They frequently emphasize faith-healing and beliefs about revelation from the Spirit through prophets (Tanner, 1967).

Differences are found in terms of religious teachings, social cohesiveness and social support provided to members between Mainline churches and Pentecostal-type churches. In Mainline churches membership is generally not demanding and attendance not frequent (Garner, 2000). The avoidance of sin in Mainline churches is something left to the conscience of individual members and forgiveness may be gained through confession and prayers (Gregson et al., 1999). While Mainline churches may support the use of professional healthcare services by their members and provide information about healthcare services (Gregson et al., 1999), members in these congregations tend to have weak social cohesiveness (Agadjanian and Menjivar, 2008).

In Petencostal-type denominations there is restricted membership (especially among Apostolic churches), high frequency of attendance and intrusion of religious leaders over members' private lives (Garner, 2000; Gregson et al., 1999). Cohesiveness (Agadjanian and Menjivar, 2008), high adherence to leaders' teachings (Agadjanian and Menivar, 2008; Garner,

2000; Gregson et al., 1999) and provision of informal social support (Agadjanian and Menjivar, 2008; Pfeiffer, 2002) often are high among Pentecostal-type denominations. In respect to healthcare-seeking behavior, Pentecostal-type churches are restrictive in the use of professional health care services (Gregson et al., 1999), favoring miraculous and faith-healing of sickness (Agadjanian 2001; Agadjanian and Menjivar, 2008; Gregson et al., 1999). In Pentecostal-type churches, it is believed that sin can lead to illness (Gregson et al., 1999). However, there are some doctrinal differences within Pentecostal-type churches (Agadjanian and Menjivar, 2008). For example, compared to Apostolic churches, Zionists are more tolerant of the use of medical services by their members (Gregson et al., 1999).

Considering the diversity of denominations varying in religious teachings, in cohesiveness among co-religionists and social support provided to church members, child mortality and health can be expected to be different among people affiliated to denominations distinct doctrinally and/or in the amount of provided social support. Thus, we have two alternative hypotheses. On the one hand it is posited that mother's affiliated to Mainline denominations (Catholic and Protestant churches) will experience lower child mortality than mothers that are not affiliated with any religion, due to the favorable attitude of Mainline churches towards the use of professional health care and information about medical services provided to church members. On the other hand, it is also expected that mothers affiliated with Pentecostal-type denominations will experience lower child mortality than mothers that are not affiliated to any religion, owing to strong cohesiveness and informal social support provided to church members in Pentecostal-type churches. If we find a negative association between affiliation with Mainline churches and child mortality, we will consider the first hypothesis supported. However, finding a negative association between Pentecostal-type denominations and child mortality will support the second hypothesis. For child health outcomes, our study is guided by similar hypotheses as presented above.

It has been suggested that disparities in health outcomes between denominations may arise not necessarily due to dissimilarities in health-related religious teachings and beliefs per se, but rather to the average socioeconomic differences of the members across denominations (Goldscheider and Mosher, 1988). Taking in account this consideration, in our study we will control for relevant socio-demographic characteristics. The effect of religion will be supported if

after controlling for socio-demographic differences between denominations our results continue to be statistically significant.

Data and Methods

This study uses data collected in Chibuto district of Gaza province in southern Mozambique in 2008. The religious landscape of Chibuto district is dominated by Catholics, Mainline Protestants and a growing number of small Pentecostal-type churches – mainly Zionist churches, Apostolic churches and Assemblies of God (Agadjanian, 2005; Agadjanian and Menjivar, 2008). The number of Muslims in Chibuto district is very small (Agadjanian and Sen, 2007). The survey sample included 2015 women, aged 18-50 years, both affiliated and non-affiliated with a religious denomination. Data include retrospective histories of women's religious involvement, fertility and child mortality. Detailed information on respondent's socio-demographic characteristics and household composition and characteristics are also included.

Statistical analyzes and measures

Discrete time logit models are used to study child mortality. Woman-year data is created for all parous women starting from age 15, recording an event of child death in a given year if any. The cases with 0 parity in the woman-year data were excluded from the analysis, since those women were not at risk of experiencing child death. For each year we also record religious affiliation, age and parity of the woman. For religious affiliation a series of dummy variables are created, recording whether woman belonged to a Mainline (Catholic or Protestant) church or not, whether she belonged to Zionist church or not, whether she belonged to some other Apostolic or other small churches or not, and whether she didn't belong to any religion. The data also captures women's church-mobility by reasons for changing to or joining a particular church.

For the analysis of the effect of religion on selected child health-related outcomes we employ logistic regression for binary outcomes and linear regression. We use three outcomes as proxies of child health: whether or not the youngest child in the household was delivered in a health care establishment, whether or not the youngest child slept under a mosquito net the night preceding the interview and the number of pre-natal consultations that the mother attended before the birth of the youngest child. Whether or not the youngest child in the household was

delivered in a health care establishment and whether or not the youngest child slept under a mosquito net the night preceding the survey interview were coded as 1 if yes and 0 otherwise. Linear regression was used to predict the number of prenatal consultations that the mother attendant before the birth of the youngest child.

As control variables we use time-varying socio-demographic variables including mother's age, marital history and parity. Children of younger and older mothers appear to be at high risk of mortality (Knodel and Hermalin, 1984). In sub-Saharan Africa, children born to mothers in their twenties and thirties are less likely to die (McDevitt et al., 1996). Despite some doubts about the causal association between maternal education and child survival (Adetunji, 1995; Desai and Alva, 1998; Hobcraft, 1993), maternal education has been found to be a relevant factor in studies of child mortality and health (Basu and Stephenson, 2005; Caldwell, 1979; Ware, 1984).

Preliminary Results

Descriptive results

Table 1 displays socio-demographic profile of respondents in Chibuto district by religious affiliation. Mainline Protestants are the largest religious denomination in the city of Chibuto (with 34.0% of believers). In rural areas, Catholics are the major religious denomination. Zionists and small Pentecostal-type denominations have significant percent of affiliates in both urban and rural areas. The table also shows that Catholics are the most educated followed by Mainline Protestants. Average number of live births and live children is the highest among women that belong to no religion or other religion, and lowest among Catholics. Mean number of child deaths is the highest among Zionist women, followed by women without religion (with 0.59 and 0.56, respectively) and lowest among Protestants (0.44).

[Table 1 and Figure 1 about here]

Figure 1 shows lifetime probabilities of child death for parous women by denomination. It can be observed that women without religion have the highest probability of having experienced a child death (46.40), followed by Zionists (43.11) and Catholics (40.55), while protestants have the lowest probability.

Mother's religious affiliation and child mortality

Table 2 displays the findings of discrete-time logit models showing the relationship between mother's religious affiliation and the probability of a child death in a given year. In Model 1 we test the effect of religious affiliation on the probability of having experienced a child death in a given year, without controls. The results in Model 1 suggest that affiliation to any denomination significantly decreases the odds of a woman experiencing child death in a given year, compared to women with no religion. When we add socio-biological characteristics to the model (Model 2), we find that the effects of mother's religious affiliation to any denomination on child death are not affected by age and parity of women. In Model 3 we add education to the model (a proxy for socio-economic status) to test whether the observed effect of mother's religious affiliation is mediated by socio-economic characteristics of the woman. We find that belonging to Mainline churches (Catholics and Mainline Protestants) and other small Pentecostal-type churches is significantly decreasing the odds of experiencing child death in a given year, net of other factors, relative to not being affiliated with any church. However, belonging to Zionist church is not a significant predictor after woman's education is controlled for.

[Table 2 about here]

Given differences in religious teachings and social support provided to members between Mainline churches and Pentecostal-type small churches distinct mechanisms might be operating to reduce the risk of child mortality. The general tendency in Mainline churches towards encouraging the use of professional health care services might be important. In Pentecostal-type churches it could be that the availability of more personally-directed informal social support that help to buffer social risk factors to child mortality is critical for child survival.

Mother's religious affiliation and child health

Table 3 presents linear regression results assessing the relationship between mother's religious affiliation and the number of prenatal consultations attended before the birth of the youngest child, controlling for various factors. Our results show that mothers affiliated to Mainline denominations, Zionist and other small Pentecostal-type churches significantly have

high number of prenatal consultations than non-religious mothers, net of other factors. Considering the relevance of prenatal care consultations for child health, the role of religion in this respect appears to deserve more attention.
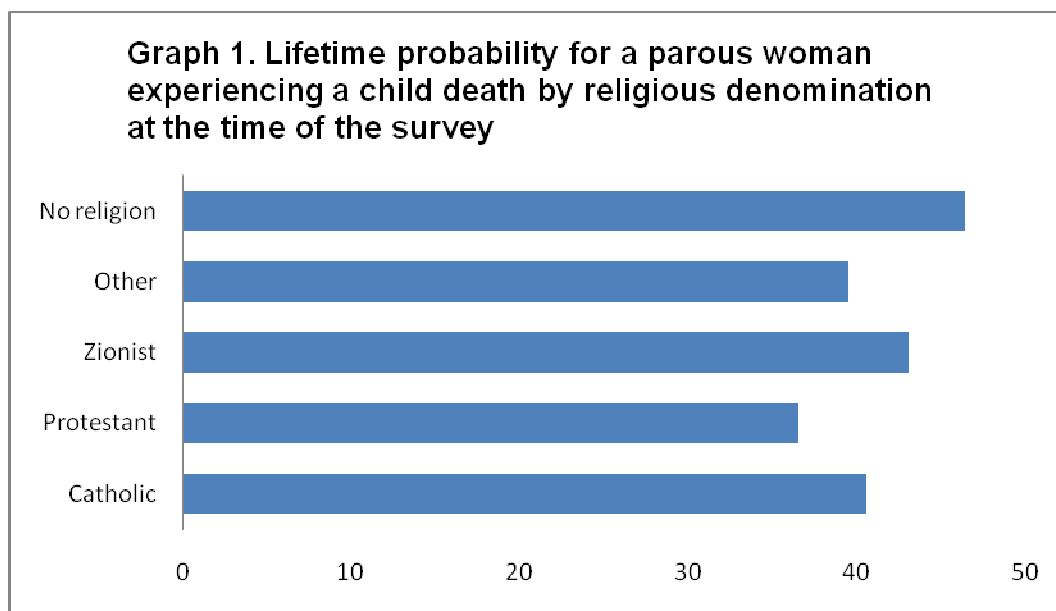
[Table 3 about here]

In Model 4 we explore the probability of the youngest child having been delivered in a health care establishment, with mother's religious affiliation as the main predictor. We find that mothers affiliated to Mainline denominations are significantly different of non-religious mothers. The odds of the youngest child having been delivered in a health care establishment are 1.9 times high in Mainline churches, net of other factors. We also observe that residing in urban areas increases the odds of the youngest child having been delivered in a health care establishment, controlling for other factors. These results appear to support the idea that Mainline denominations are more favorable to the use of professional health care services.

[Table 4 and 5 about here]

Now we look at the outcome whether the youngest child slept under mosquito net the night before the survey. We observe that non-religious mothers are not significantly different of religious mothers in respects to the odds of the youngest child having slept under mosquito net the previous night. However, all religious denominations show a positive direction.

Next Steps

In preparation of this paper for the conference presentation we will undertake the following steps. We will examine the relationship between religious affiliation and child mortality using event-history analysis in which child is the unit of analysis. We will also add to the analysis of religious mobility including reasons for joining and switching churches. In relation to mother's religious affiliation and child health outcomes we will add more control variables to expand our analysis.

Graph 1. Lifetime probability for a parous woman experiencing a child death by religious denomination at the time of the survey

Table 1. Descriptive statistics

Variables	Religious denominations				
	Catholic	Protestant	Zionist	Other religion	No religion
Urban (%)	16.27	34.03	24.56	29.68	20.68
Mother's education (%)					
None	14.68	19.44	38.37	26.69	56.12
1 to 4 years	35.32	38.89	39.08	38.05	32.07
5 or more years	50	41.67	22.55	35.26	11.81
Mother's age (mean)	29.77	31.53	31.18	31.18	32.41
Number of live births (mean)	3.23	3.32	3.46	3.47	3.70
Number of living children (mean)	2.66	2.80	2.75	2.89	2.89
Number of deaths (mean)	0.50	0.44	0.59	0.51	0.56

Table 2. **Discrete time logit model predicting the probability of a woman experiencing a child death with woman's religion as the main predictor (odds ratios)**

Variable	Model 1	Model 2	Model 3
Mother's religious affiliation			
No religion (reference)	1	1	1
Mainline churches	0.693**	0.719**	0.762*
Zionist	0.787*	0.858†	0.873
Other Pentecostal-type	0.715**	0.749**	0.781*
Mother's age		0.901**	0.901**
Marital status			
Never married (reference)		1	1
Ever married		1.042	1.048
Parity		1.339**	1.325**
Mother's education			
Less than 1 (reference)			1
1-4 Years education			1.121
5+ Years education			0.726**
Intercept	0.045**	0.324**	0.330**
LL	-3845.064	-3686.569	-3677.866
Number of cases	22361	20817	20817

Notes: significance †- p<.1; *- p≤ .05; **- p≤ .01.

Model 3. OLS regression predicting the number of prenatal consultations that a woman had before the birth of the youngest child

Variable	Coeff.	
Mother's religious affiliation		
No religion (reference)	1	
Mainline churches (one year lagged)	0.385	*
Zionist (one year lagged)	0.267	*
Other Pentecostal-type (one year lagged)	0.339	*
Mother's age	0.009	
Mother's education		
Less than 1 (reference)	1	
1-4 Years education	0.190	
5+ Years education	0.285	*
Mother's marital status		
Not married (reference)	1	
Married	-0.255	
Number of living children		
Place of residence		
Rural area (reference)	1	
Urban area	0.068	
Intercept	3.657	
Number of cases	1385	

Notes: *- $p \leq .05$; **- $p \leq .01$.

Model 4. Logistic regression predicting youngest child delivery in a health care establishment with mother's religious affiliation as the main predictor

Variable	Odds ratio	
Mother's religious affiliation		
No religion (reference)	1	
Mainline churches	1.925	**
Zionist	1.072	
Other Pentecostal-type	1.195	
Mother's age	1.011	
Mother's education		
Less than 1 (reference)	1	
1-4 Years education	1.477	**
5+ Years education	2.686	**
Mother's marital status		
Not married (reference)	1	
Married	1.612	
Number of living children	0.848	
Place of residence		
Rural area (reference)	1	
Urban area	1.413	**
Intercept	0.670	
Number of cases	1545	

Notes: *- $p \leq .05$; **- $p \leq .01$.

Model 5. Logistic regression predicting child sleeping under a mosquito net the last month with mother's religious affiliation as the main predictor

Variable	Odds ratio	
Mother's religious affiliation		
No religion (reference)	1	
Mainline churches (year 2008)	1.181	
Zionist (year 2008)	1.128	
Other Pentecostal-type (year 2008)	1.024	
Mother's age	0.961	**
Mother's education		
Less than 1 (reference)	1	
1-4 Years education	1.133	
5+ Years education	1.330	
Mother's marital status		
Not married (reference)	1	
Married	1.098	
Number of living children	1.128	*
Place of residence		
Rural area (reference)	1	
Urban area	1.059	
Intercept	0.664	
Number of cases	1379	

Notes: *- p≤ .05; **- p≤ .01.

References

Adentunji, J.A. (1995). Infant mortality and mother's education in Ondo State, Nigeria. *Social Science & Medicine*, 40 (2): 253-263.

Agadjanian, V. (2001). Religion, social milieu, and the contraceptive revolution. *Population Studies,* 55(2):135–48.

Agadjanian, V. & Menjivar, C. (2008). Talking about the "Epidemic of the Millennium": religion, informal communication, and HIV/AIDS in sub-Saharan Africa. *Social Problems,* 55(3): 301–321**.**

Agadjanian, V. & Sen, S. (2007). Promises and challenges of faith-based care and support in sub-Saharan Africa. *American Journal of Public Health*, 97(2):262–66.

Agadjanian, V. (2005). Gender, religious involvement, and HIV/AIDS prevention in Mozambique. *Social Science & Medicine*, 61(7):1529–39.

Allison, P.D. (2005). Survival analysis using SAS: a practical guide. Cary, NC: SAS Institute Inc.

Antai, D. (2008). Faith and child survival: the role of religion in childhood immunization in Nigeria. *Journal of Biosocial Sciences*, 41: 57–76.

Basu, A.M. & Stephenson, R. (2005). Low levels of maternal education and the proximate determinants of childhood mortality: a little learning is not a dangerous thing. *Social Science & Medicine*, 60: 2011-2023.

Black, R.E.; Morris, S.S. &and Bryce, J. 2003. Where and Why Are 10 Million Children Dying Every Year? *The Lancet*, 361:2226-2234.

Caldwell, J.C. (1979). Education as a factor in mortality decline an examination of Nagerian data. *Population Studies*, 33 (3): 395-413.

Chatter, L.M. (2000). Religion and health: public health research and practice. *Annu. Rev. Public Health*, 21: 335–67

Delaunay, V.; Etard, J.; Preziosi, M.; Marra, A. & Simondon, F. (2001). Decline of infant and child mortality rates in rural Senegal over 37-year period (1963-1999). *International Journal of Epidemiology*, 30: 1286-1293.

Desai, S. & Alva, S. (1998). Maternal education and child health: is there a strong causal relationship? *Demography*, 35 (1): 71-81.

Dublin L. I. (1963). Suicide: a social and statistical study. The Ronald Press, New York.

Elifson, K.W.; Klein, H. & Sterk, C.E. (2003). Religiosity and HIV risk behavior involvement among "at risk" women. *Journal of Religion and Health*, 42 (1): 47-66.

Ellis, S. & Haar, G. (1998). Religion and politics in sub-Saharan Africa. *The Journal of Modern African Studies*, 36 (2): 175 -201.

Ellison, C.G. & Levin, J.S. (1998). The religion-health connection: evidence, theory, and future directions. *Health Education & Behavior*, 25 (6): 700-720.

Gifford, P. (1994). Some recent developments in African Christianity. African Affairs, 93 (373): 5 13-534.

Garner, Robert C. 2000. "Safe Sects? Dynamic Religion and AIDS in South Africa." *The Journal of Modern African Studies,* 38:41–69.

Goldscheider, C. & Mosher, W.D. (1988). Religious Affiliation and Contraceptive Usage: Changing American Patterns, 1955-82. *Studies in Family Planning*, 19 (1): 48-57

Gregson, S.; Zhuwau, T.; Anderson, R.M. & Chandiwana, S.K. (1999). Apostles and Zionists: The influence of religion on demographic change in rural Zimbabwe. *Population Studies*, 53: 179-193.

Gyimah, S.O. (2007). What has faith got to do with it? Religion and child survival in Ghana. *Journal of Biosocial Sciences,* 39: 923-937.

Hobcraft, J. (1993). Women's education, child welfare and child survival: a review of the evidence. *Health Transition Review*, 3 (2): 159-173.

Hummer, R.A. (1993). Racial Differentials in Infant Mortality in the U.S.: An Examination of Social and Health Determinants. *Social Forces,* 72 (2):529-554.

Idler, E.L. & Kasl, S.V. (1992). Religion, disability, depression, and the timing of death. The *American Journal of Sociology*, 97 (4): 1052-1079.

Jarvis, G.K. & Northcott, H.C. (1987). Religion and differences in morbidity and mortality. *Social Science & Medicine*, 25(7):813-824.

Knobel, J. & Hermalin, A.I. (1984). Effects of birth rank, maternal age, birth interval, and sibship size on infant and child mortality: evidence from 18th and 19th Century reproductive histories. *American Journal of Public Health*, 74(10): 1098-1106.

Levin, J.S. (1994). Religion and health: is there an association, is it valid, and is it causal? *Social Science & Medicine*, 38: 1475-1482.

Levin, J.S. & Markides, K.S. (1986). Religious attendance and subjective health. *Journal for the Scientific Study of Religion*, 25 (1): 31-40.

Levin, J.S. & Vanderpool, H. Y. (1987). Is frequent religious attendance really conducive to better health?: toward an epidemiology of religion. *Social Science & Medicine*, 24 (7):589-600.

Mc Devitt, T.M.; Adlakha, A.; Fowler, T.B. & Harris-Bourne, V. (1996). Trends in adolescent fertility and contraceptive use in the developing World. US Department of Commerce.

Mosley, H. & Chen, L.C. (1984). An analytical framework for the study of child survival in developing countries. *Population and Development Review*, 10: 25-45.

Pfeiffer, J. (2002). African Independent Churches in Mozambique: healing the afflictions of inequality. *Medical Anthropology Quarterly,* 16(2): 176-199.

Pfeiffer, J. (2004). Condom social marketing, pentecostalism, and structural adjustment in Mozambique: a clash of AIDS prevention messages. *Medical Anthropology Quarterly,* 18(1): 77–103.

Powell, L.H.; Shahabi, L. & Thoresen, C.E. (2003). Religion and Spirituality: Linkages to Physical Health. *American Psychological Association*, 58(1): 36-52.

Sloan, R.P. & Bagiella, E. (2002). Claims About Religious Involvement and Health Outcomes. *Annals of Behavioral Medicine, 24*(1):14–21.

Sloan, R.P.; Bagiella, E. & Powell, T. (1999). Religion, spirituality, and medicine. *Lancet,* 353: 664–67.

Takyi, B.K. (2003). Religion and women's health in Ghana: insights into HIV/AIDs preventive and protective behavior. *Social Science & Medicine*, 56: 1221–1234.

Turner, H.W. A typology for African religious movements. *Journal of Religion in Africa*, 1(1): 1-34.

Troyer, H. (1988). Review of cancer among 4 religious sects: evidence that life-styles are distinctive sects of risk factors. Social Science & Medicine, 26(10): 1007-1017.

Ware, H. (1984). Effects of maternal education, women's roles, and child care on child mortality. *Population and Development Review*, 10 (Suppl.): 191-214.