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Voodoo, vaccines and bed nets. Magicoreligious beliefs affect health behavior in Benin

There is ample ethnographic evidence that magicoreligious beliefs affect the demand for conventional healthcare in Sub-Saharan Africa.

But, because of severe empirical limitations (see box 1), this relationship was not documented in a quantitative way. Thanks to the unique status and well-documented history of Voodoo (see box 2) – Benin’s main African Traditional Religion (ATR) – we managed to document this relationship for Benin.

In [our recent article](#), we find quantitative evidence that Voodoo adherence is associated with lower uptake of preventive healthcare measures. Instead, Voodoo adherents rely more on traditional healers, but this leads to worse child health outcomes.

Results

We find that children whose mother is a Voodoo adherent are 3 percentage points less likely to be fully immunized, 6 percentage points less likely to live in a household which owns a bed net and 6 percentage points less likely to sleep under a bed net. Even when comparing households with similar socio-economic characteristics, who live in the same survey cluster *and who own a bed net*, we find that children whose mother is a Voodoo adherent are 3 percentage points less likely to sleep under the bed net. Overall, these estimated effects are larger than the effect of an additional six years of schooling for the mother or a change from the first to the second household wealth quintile.

The effects on preventive health care behavior translate into different health outcomes. As such, mothers’ Voodoo adherence is associated with a 6 percentage point increase in children’s likelihood of testing positive for malaria, and an under-five mortality rate which is higher with 9 deaths per 1,000 live births.

We find that the Voodoo effects are driven by the mother, who is the primary child care taker in Benin. The fact that father’s Voodoo adherence is not important for the uptake of preventive healthcare measures or child health

outcomes further increases confidence that our results are not driven by unobserved household factors that are related to Voodoo and influence the demand for preventive healthcare or child health outcomes.

Nevertheless, the Voodoo-health relationship may be spurious, as mothers could self-select into Voodoo. We therefore formally study to what extent the results are driven by selection on unobservable variables. In addition, we turn to an instrumental variables approach in which we take advantage of the fact that present-day Voodoo-adherence is not merely an individual choice but is shaped by history and tradition. The combined results suggest that self-selection does not entirely drive our results.

BOX 1. Empirical challenges

There are three main empirical challenges to studying the ATR-health relation.

First, there is widespread under-reporting of ATR adherence which can be traced back to colonial, post-colonial and missionary efforts in SSA to promote monotheistic religions as the only socially acceptable choice. Self-reported ATR adherence therefore tends to be a poor measure of actual ATR beliefs and practices.

Second, ATR beliefs are often clustered in space and correlate with several community-, household- and individual-level characteristics, reflecting the location- or ethnicity-specific (historic) spread of religions, creating difficulties in filtering out the specific role of religion from among other factors.

Finally, although people often grow up with religion and are thus influenced by parents and their neighborhood (Iannaccone, 1998), religious adherence is to some extent an individual choice because conversion remains possible. Therefore, any analysis of the impact of religious adherence needs to deal with significant endogeneity issues.

Policy implications

Even if the ATR-health relationship is partly spurious, our results are important from a policy perspective as they establish a highly robust correlation. This suggests that the uptake of preventive healthcare, and ultimately child health outcomes, may be improved by targeting ATR mothers.

Traditional healers provide ATR adherents with off-the-shelf answers on what (not) to do in terms of healthcare. This does not mean that the caretakers' minds are immune to new information. It does mean that it will take more than just information to persuade them. Acknowledging this means directing efforts at building trust in conventional healthcare providers and the health system, as well as working closely with traditional healers to persuade people.

Building partnerships between public health providers and traditional healers is easier said than done. [A pilot-program](#) doing exactly that was initiated in the South-West of Benin in 2009. It created a platform where modern and traditional health providers could interact and exchange information; traditional healers also received medical training allowing them to quickly recognize severe cases of illness that needed referral to health centers. The project's [evaluation report](#) mentions that, as a result, referrals from traditional healers to health centers increased. But, it also mentions that the referral system reduced the perceived contributions made by traditional healers, thereby demotivating them to continue their collaboration with health centers.

This account resonates the one made by French colonial administrators

in 1906, who explained the opposition of Voodoo priests against smallpox vaccinations as resulting from a conflict of interest: “their benefits are reduced when they have few patients to treat, smallpox being their assured commission money”. In combination with our results, these accounts suggest that any collaboration with traditional healers should be cleverly designed, duly taking into account the incentives on their part.

*For more details, please refer to our full analysis which is forthcoming in *Economic Development and Cultural Change* (<https://doi.org/10.1086/698308>).*

BOX 2. Voodoo in Benin

Three features of Benin provide us with a unique case to study the relation between ATR and health behavior.

First, Benin’s main ATR – Voodoo – is awarded the same status as monotheistic religions. Voodoo is mentioned explicitly in the constitution as an official religion, there is a yearly national Voodoo holiday, and the country is patched with Voodoo convents where Voodoo priests receive training. Because Voodoo is not marginalized socially or politically, people freely report adherence, at a rate of about 20% of respondents. Self-reported ATR adherence is thus a uniquely credible indicator for actual beliefs.

Second, Benin is among the countries with the highest religious diversity and the lowest government restrictions on religion. This freedom translates into considerable within-village and within-household variation in religious adherence. There are 3 to 4 different religious affiliations for an average village sample size of only 24 mothers; and 27% of couples in Benin do not share the same religious affiliation.

Third, the history of Voodoo in Benin is well-documented, among others by missionaries who faced fierce resistance to evangelization by the kingdom of Dahomey and its initial founders, the Adja. Relying on this recorded history, one can predict the spatial and inter-ethnic group variation in Voodoo that is inherited rather than a result of individual choice.

Armed with these unique empirical advantages and four waves of nationally representative DHS surveys, we quantify the relation between a mother’s ATR adherence and two preventive healthcare measures that are known to have a strong impact on child morbidity and mortality: child immunization and the use of bed nets. We also look at two health outcomes: child mortality and malaria incidence.