



Mapping Humanity

# **Multilevel Analysis: Religious Influences on Gender Norms & Young Women's Reproductive Health Outcomes**

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# Outline

- I. Rationale & Framework
- II. Methods
- III. Results
- IV. Discussion

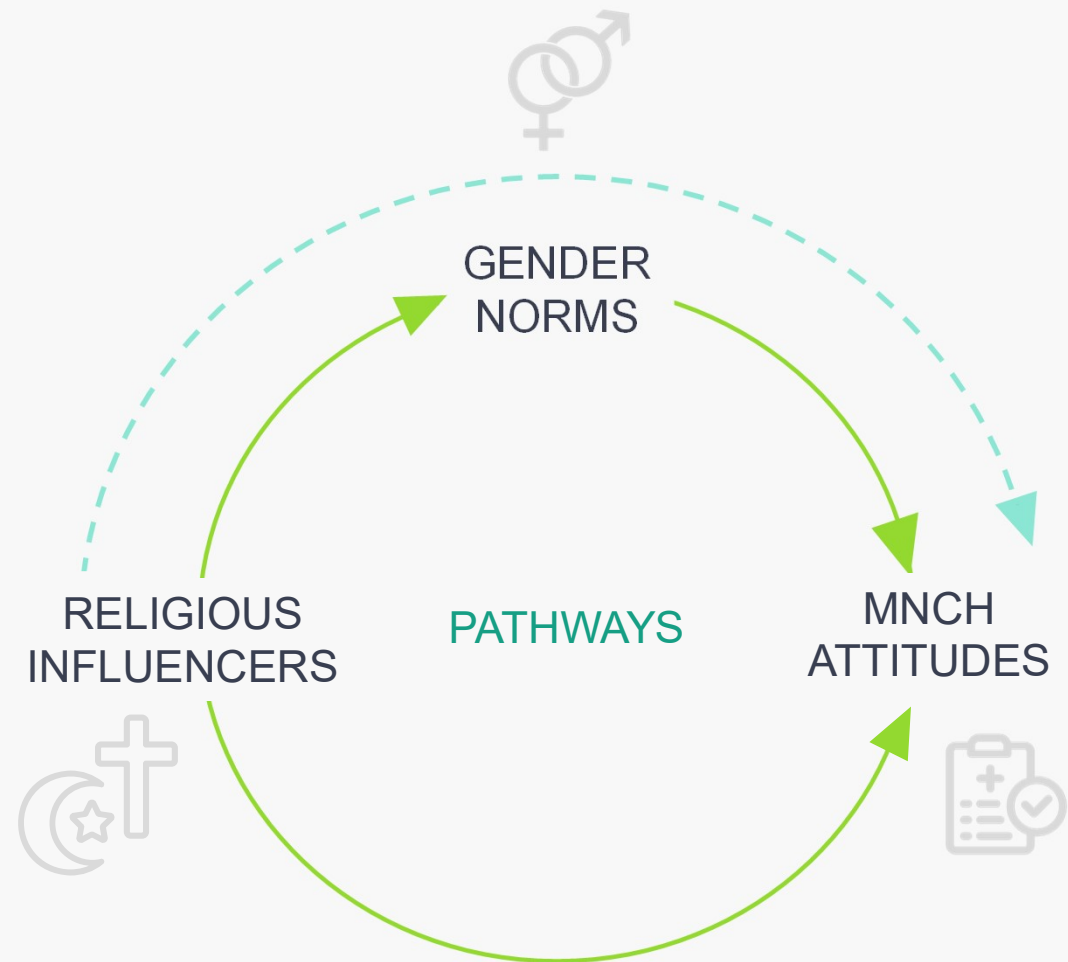
## RATIONALE & CONCEPTUAL FRAMEWORK

**Faith and gender norms are powerful, intersecting forces shaping health outcomes.**

This **framework** outlines a broader research agenda to understand how faith and gender systems together influence women's health and autonomy.

- **Normative pathway:** Gender norms directly shape agency and MNCH-related behaviors.
- **Religious pathway:** Faith actors and religiosity influence both norms and behaviors, sometimes reinforcing, sometimes transforming them.

**Understanding these dynamics** helps identify where partnerships with faith actors can be most effective to advance equitable norms and **healthier outcomes for young women.**



## RESEARCH QUESTIONS

**We examine how religion and gender norms intersect to shape AGYW's (female, ages 15-24) MNCH attitudes, perceptions, knowledge, and behaviors:**



### RELIGIOUS INFLUENCE

Do Nigerian communities value, respect, and **trust their religious leaders**, and how is this **changing over time**?

How do Nigerian communities **perceive religious leaders as influencing gender roles**, and how is this **changing over time**?



### RELIGION & GENDER NORMS

Do Nigerians in **more religious communities** adhere to **less gender-equitable norms**?



### RELIGION & MNCH

How does **religious endorsement**, either **individually or at the community level**, improve **knowledge & MNCH care practices** among AGYW?

## METHODS – DATA AND SAMPLE

Data for this analysis come from the Faith & Cultural Champions Study, powered by the Fraym Data Engine — a high-frequency platform that integrates nationally representative CATI survey data with spatial inputs to produce one-square-kilometer estimates through machine learning. Two rounds of data production were conducted, and the analysis draws on both primary survey data and spatially modeled estimates aggregated to the ward level in Nigeria.



### SURVEY MODE

Fraym conducted nationally representative CATI surveys across distinct time periods.

Surveys were administered in September – November 2024 (Round 1) and April – May 2025 (Round 2), enabling us to consider stability over time.



### TARGET POPULATION

Samples 15-69, with a focus on AGYW (females ages 15-24).



### SAMPLE DESIGN

Random digit dialing to ensure equal probability sampling of all phone subscribers. Dialing occurs at different days and times of day to ensure that all population sub-groups are reached.

Additional steps to ensure representativeness: (i) nested ADM1 quotas for age group and gender, and (ii) nested ADM1 quotas for education; (iii) nested ADM1 quotas for socioeconomic status; and (iv) rural targeting.



### COLLECTION SAFEGUARDS

Extensive survey scripting and training for all CATI enumerators.

Use of female enumerators to reduce enumerator-gender biases.

Phone handoffs to reach young and older women, and other harder-to-reach population groups who do not personally own or control a phone.



### SAMPLE SIZE

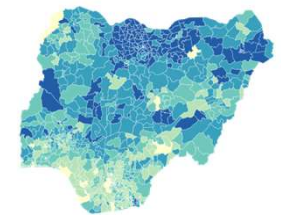
**Round 1:**  
Total: 13,652  
AGYW: 4,646  
Wards: 9,308

**Round 2:**  
Total: 12,167  
AGYW: 4,711  
Wards: 9,308



### SPATIAL DATA MODELING

Fraym's technology transforms this scientifically sampled training data (survey microdata) into community level data outputs.



**Trusts Their Religious Leaders**  
(% of Full Population)  
National Mean: 73%



## METHODS – ANALYTICAL FRAMEWORK AND MEASURES

# Analytical Framework: Key Measures and Model Structure

### OUTCOMES OF INTEREST

*Dependent Variables*

#### MNCH Outcomes

- Supports Postnatal Checkup
- Knowledge of Timely Postnatal Care
- Knowledge of Breastfeeding
- Perceived Prevalence of Antenatal Care
- Perceived Prevalence of Skilled Birthing Attendant at Delivery
- Age at First Birth

### SOCIAL & NORMATIVE ENVIRONMENT

*Independent Variables*

#### Microdata (Individual Level)

##### Religious Endorsements:

- Heard religious leader speak in favor of antenatal care

##### Gender Norms:

- Descriptive & injunctive norms around young women's health access & SRH education
- Self-perceived G-NORM score

#### Spatial Estimates (Community Level (ADM3))

##### Religious Endorsements & Support:

- Trust religious leaders
- Religious leaders influence gender norms
- Heard religious leader speak in favor of antenatal care (Community Proportion)

##### Gender Norms:

- G-NORM score (all community)
- G-NORM score (AGYW)

### SOCIO-DEMOGRAPHICS

*Covariates*

- Age
- Socio-Economic Status
- Education
- Urbanicity
- Religion
- Regional Zone
- Partnership Status
- Parental Status

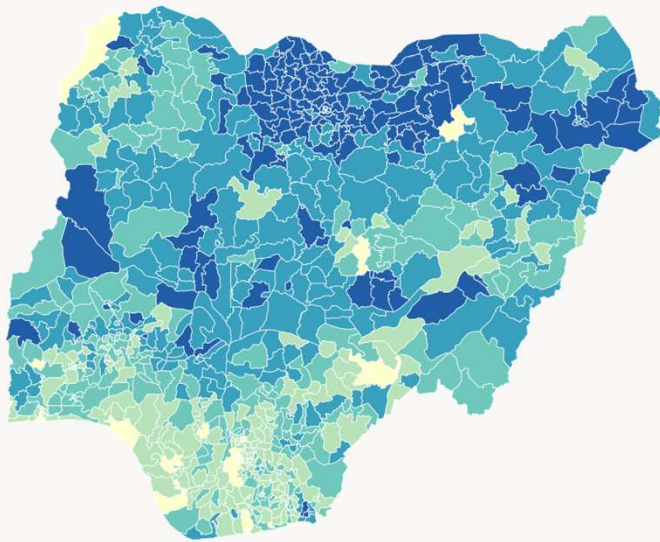
**NOTE 1:** Spatial estimates were generated and aggregated at the ward level to map respondents to ward-level predicted scores.

**NOTE 2:** All analyses utilize survey weights to ensure representativeness and account for the complex survey design to provide robust and reliable estimates.

## LONGITUDINAL DESCRIPTIVE STATISTICS – RELIGIOUS INFLUENCE (TRUST)

Nearly three-quarters of Nigerians report trusting their religious leaders, with overall levels largely unchanged since the previous round. Regional differences are sharpening, with trust strengthening in northern and central areas but weakening in parts of the South. Catholic AGYW show the clearest increases, while trust among other AGYW, particularly Muslims, has edged downward.

Trust Religious Leaders: Round 2  
LGAs, Nigeria



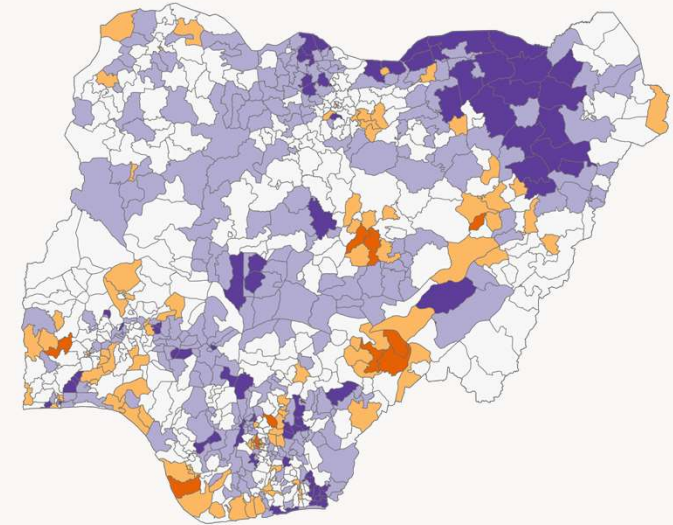
Trusts Their Religious Leaders  
(% of Full Population)  
National Mean: 73%



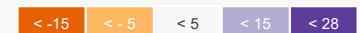
Trust Religious Leaders by Religion Latest Figures and Change			
Sub-Population	Muslim	Catholic	Protestant <sup>1</sup>
Full Population	77.9% -1.3 pp	70.7% +4.4 pp	68.9% +2.9 pp
AGYW	78.9% -3.7 pp	74.1% +6.9 pp	66.4% -0.8 pp
Adults	76.5% -1.9 pp	69.6% +2.5 pp	69.5% +3.9 pp

Trust Religious Leaders: Change Over Time  
(R2-R1)

LGAs, Nigeria



Percentage Point Change in Trusting  
Religious Leaders  
National Mean: +4

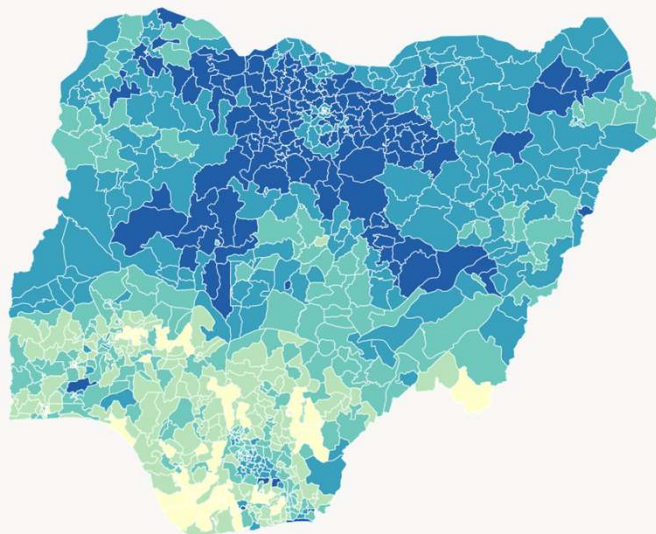


Note 1: Includes other Christian denominations.  
SOURCE: Fraym, FCC Round 2

## LONGITUDINAL DESCRIPTIVE STATISTICS – RELIGIOUS INFLUENCE ON GENDER ROLES

Religious influence on gender roles remains high in Nigeria (64%) and is stable overall, but it is weakening in the South and strengthening in northern and central regions. Catholic adults report growing influence of religious leaders, while levels among other denominations remain largely unchanged.

Religious Leaders as Influencers: Round 2  
LGAs, Nigeria

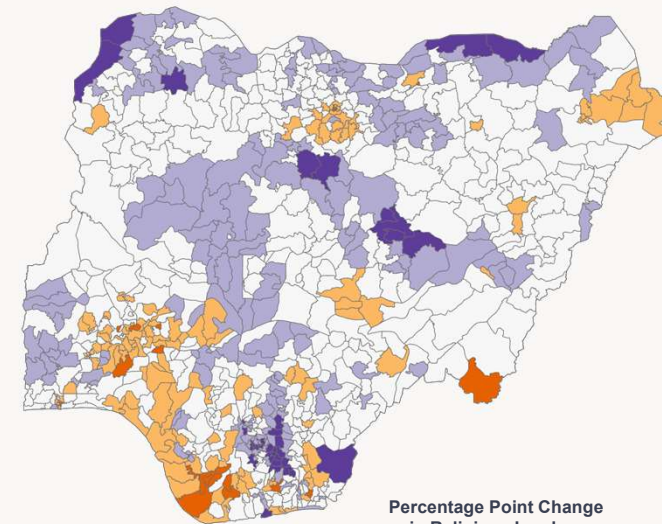


Considers Religious Leaders  
as Influencers of Gender Roles  
(% of Full Population)  
National Mean: 64%



Religious Leaders as Influencers by Religion Latest Figures and Change			
Sub-Population	Muslim	Catholic	Protestant <sup>1</sup>
Full Population	71.0% -1.3 pp	60.2% +6.5 pp	58.3% -0.5 pp
AGYW	72.5% -0.8 pp	56.6% +1.5 pp	61.0% +2.6 pp
Adults	69.2% -3.0 pp	62.5% +10.4 pp	57.0% -2.6 pp

Religious Leaders as Influencers: Change  
Over Time (R2-R1)  
LGAs, Nigeria



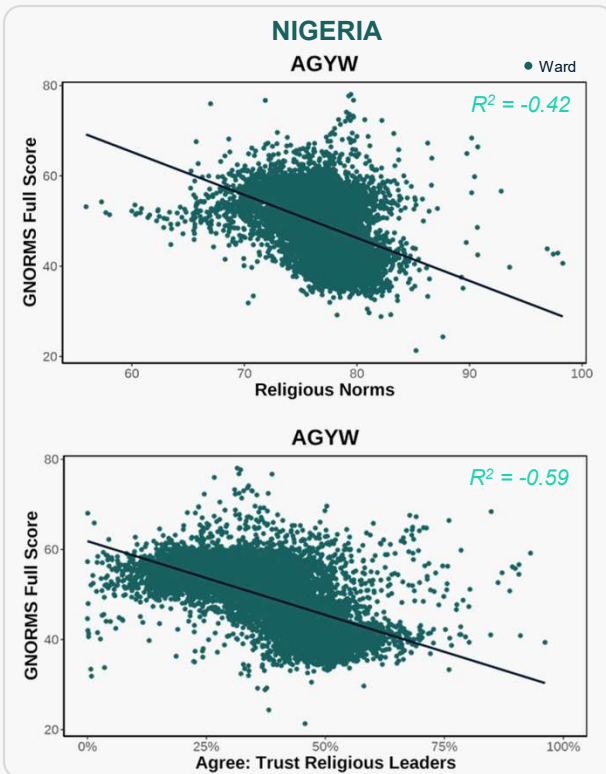
Percentage Point Change  
in Religious Leaders  
Influencing Gender Roles  
National Mean: -1



Note 1: Includes other Christian denominations.  
SOURCE: Fraym, FCC Round 2

## CORRELATION ANALYSIS – RELIGION AND GENDER NORMS

Gender norms tend to be more inequitable in Nigerian communities with stronger religious norms and more frequent religious activity and trust. Differences between wards of varying religious majorities are as significant as, if not more than, differences within wards of the same religious majority.



Nigeria: Religiosity and Gender Norm (G-NORM) Ward-Level Analysis

Religious Indicators	All Wards	Muslim-Majority Wards	Christian-Majority Wards
<b>AGYW</b>			
	Coefficient ( $R^2$ )		
Religious norms	-0.42	-0.36	
Consumes religious content	-0.60	-0.20	-0.33
Religious influencers	-0.40		
Ask religious leaders for advice on everyday issues	-0.45		-0.25
Trust religious leaders	-0.59	-0.36	
<b>Full Population</b>			
Religious norms	-0.45		
Consume religious content	-0.61	-0.21	-0.29
Religious influencers	-0.48		
Ask religious leaders for advice	-0.47		-0.32
Trust religious leaders	-0.64		-0.35
<b>Adults</b>			
Religious influencers	-0.45	-0.27	-0.23
Trust religious leaders	-0.53		-0.36

SOURCE: Fraym, FCC Round 1

## MULTIVARIATE REGRESSIONS – GENDER NORMS, RELIGIOUS ENDORSEMENT, AND AGYW MNCH OUTCOMES

**Both broader gender-equitable norms and SRH-specific norms are positively associated with most MNCH outcomes among Nigerian AGYW. Religious endorsement of antenatal care has a favorable and, on average, stronger relationship with all measured MNCH outcomes, from attitudes and knowledge to direct behaviors.**

Nigerian AGYW (ages 15-24)			
Outcomes	Equitable Gender Norm (G-NORM)	Progressive SRH Norms	Religious Leaders Speak in Favor of MNCH Care
Support Postnatal Checkup	Protective Medium	Protective Medium	Protective High
Knowledge of Timely Postnatal Care	Protective Medium	Protective Medium	Protective Medium
Knowledge of Breastfeeding	Protective Medium	Protective Medium	Protective Low
Perceived Prevalence of Antenatal Care	Protective Medium	No Association	Protective Medium
Perceived Prevalence of Skilled Delivery	No Association	Protective Medium	Protective Medium
Age at First Birth <sup>1</sup>	Protective Medium	No Association	Protective Low

1. Cells represent associations from multivariate logistic regression model of each outcome (rows) on each binary exposure (columns), adjusted for socio-demographic covariates except *Age at First Birth*, which is modeled using linear regression. Shading reflects the direction and relative strength of association (higher values = later first birth).  
 2. Two gender norm measures were tested: (a) the G-NORM scale, a validated 0–100 continuous metric of overall gender equitable norms (higher scores = more equitable norms), and (b) HPV-specific norms, reported when G-NORM was not significant.

### Strength of Association (Odds Ratios)

Protective Low: OR 1.01 to 1.25
Protective Medium: OR 1.26 to 2
Protective High: OR > 2
No Association

## KEY LEARNINGS AND INSIGHTS

In Nigeria, religious influences remain a powerful force in AGYW'S lives, especially in the north, shaping gender norms as well as attitudes, knowledge, and behaviors in maternal, newborn, and child health. Faith leaders are thus an untapped resource that could improve the normative environment as well as sexual and reproductive health outcomes.



### Key Insights

- 1 Trust is high and expanding over the examined period:** At 73% overall, with signs of growth across some groups, there is evidence that trust in religious leaders is an enduring social asset. Trust remains highest in northern Nigeria.
- 2 Influence on gender roles remains strong and expanding over the examined period, particularly in northern Nigeria.** This is true across all religious denominations, from Christians to Muslims.
- 3 More religious communities typically have less gender equitable norms.** Across subpopulations and denominations, higher trust and stricter religious norms is inversely correlated to progressive gender norms.
- 4 Progressive gender norms and religious endorsement are positively associated with MNCH attitudes and knowledge.** Religious support and progressive gender environments empower AGYW with the knowledge and attitudes to seek adequate medical care for their own pregnancies or encourage their peers to.

## DISCUSSION AND NEXT STEPS

Several methodological caveats must be made with this research. Nevertheless, this analysis offers a novel, population-based, and spatially disaggregated analysis that integrates measures of progressive gender norms and religious endorsement to provide a comprehensive understanding of how religious support influences the normative environment and MNCH outcomes.

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### LIMITATIONS

1. **Cross-sectional Analysis:** Associations, not causal relationships
2. **Measurement Constraints:** Mostly attitudinal, knowledge-based, perceived prevalence outcomes rather than direct behaviors (due to target populations)
3. **Sampling and Coverage Limitations:** Potential underrepresentation of non-phone users
4. **Modeling and Spatial Estimation Noise:** Potential for variance in geospatial modeling, mitigated by QA/QC checks and improvements



### LOOKING AHEAD

Despite these limits, this analysis offers one of the most comprehensive population-level views of gender norms, religious endorsement, and MNCH outcomes for AGYW in Africa.

Possible next steps include *time-series and longitudinal analyses with expanded maternal samples* to:

1. **Refine our understanding of direct and indirect causal pathways** by which religious endorsement influences MNCH and other health outcomes
2. **Assess how religious endorsement and normative environments** evolve and shape MNCH & other outcomes over time
3. **Evaluate relationships between religious endorsement, gender norms, and direct MNCH behaviors** by introducing more direct measures among mothers and over time



## CONTACT

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