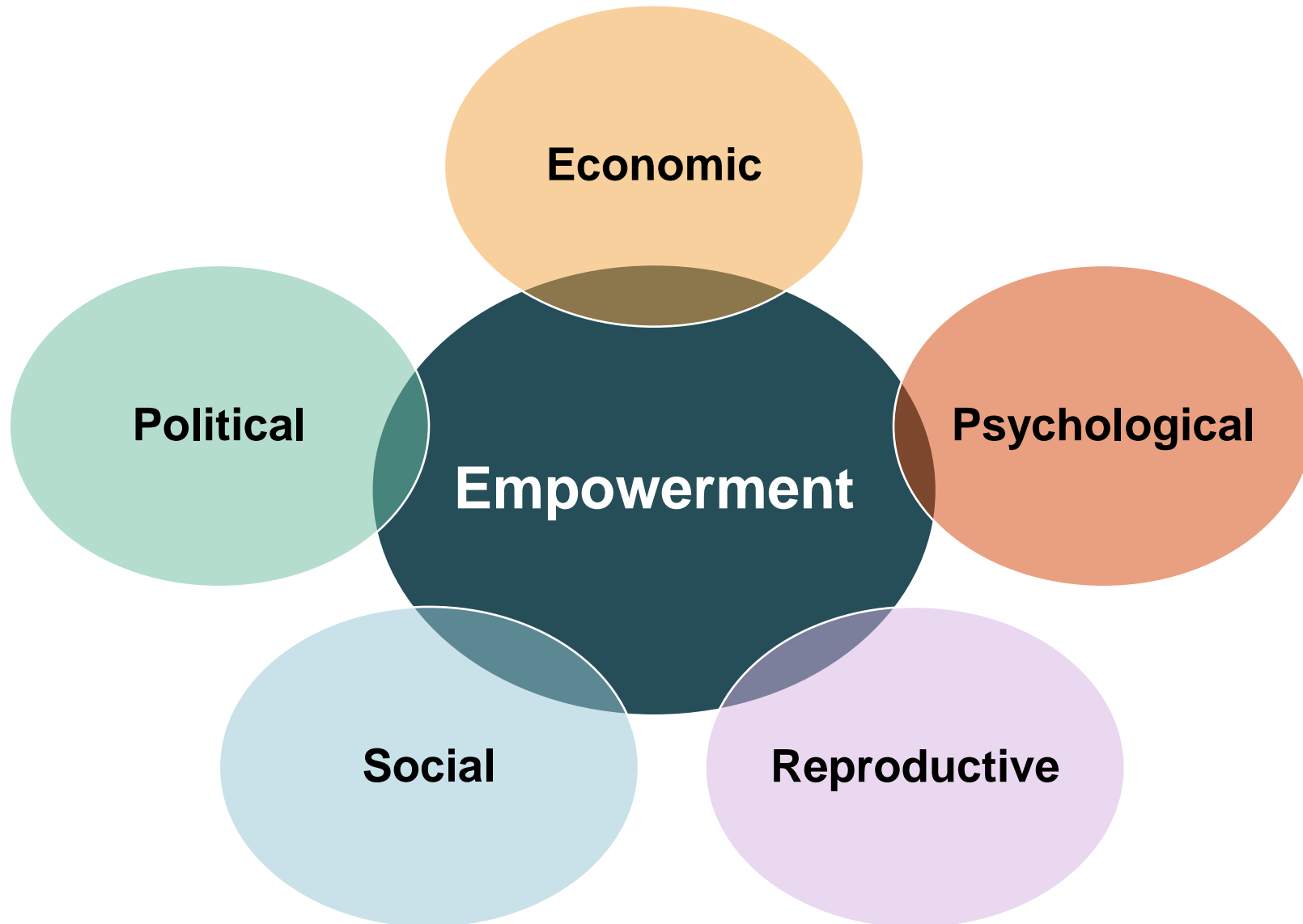


# Validation of a Reproductive Empowerment Scale Using Longitudinal Data

Mahua Mandal, PhD, MPH; Lauren Gilliss, MPH  
Data for Impact (D4I)



# Domains of Empowerment



# Definition of Reproductive Empowerment

Both a transformative process and an outcome, whereby individuals expand their capacity to make informed decisions about their reproductive lives; amplify their ability to participate meaningfully in public and private discussions related to sexuality, reproductive health and fertility; and act on their preferences to achieve desired reproductive outcomes, free of violence, retribution, or fear.



A woman in Senegal waiting for clinical services from a mobile sexual and reproductive health and family planning outreach team  
Photo credit: Images of Empowerment

# What measures do we have?

- Gender-Equitable men scale
- Sexual Relationship scale
- Sexual Assertiveness scale
- Reproductive Coercion scale
- Reproductive Autonomy scale
- Women's Empowerment – Multidimensional Evaluation of Agency Social Capital & Relations Scale (WE-MEASR)
- Sexual and Reproductive Empowerment Scale for Adolescents and Young Adults
- Reproductive Agency Scale 17 (RAS-17)
- Women's and Girls' Empowerment in Sexual and Reproductive Health (WGE-SRH) Index

# What do we need?

- Better measures of **reproductive empowerment** given the complexity of the concept
- Scale designed for and validated in **sub-Saharan Africa (SSA)**



# Overall Aim

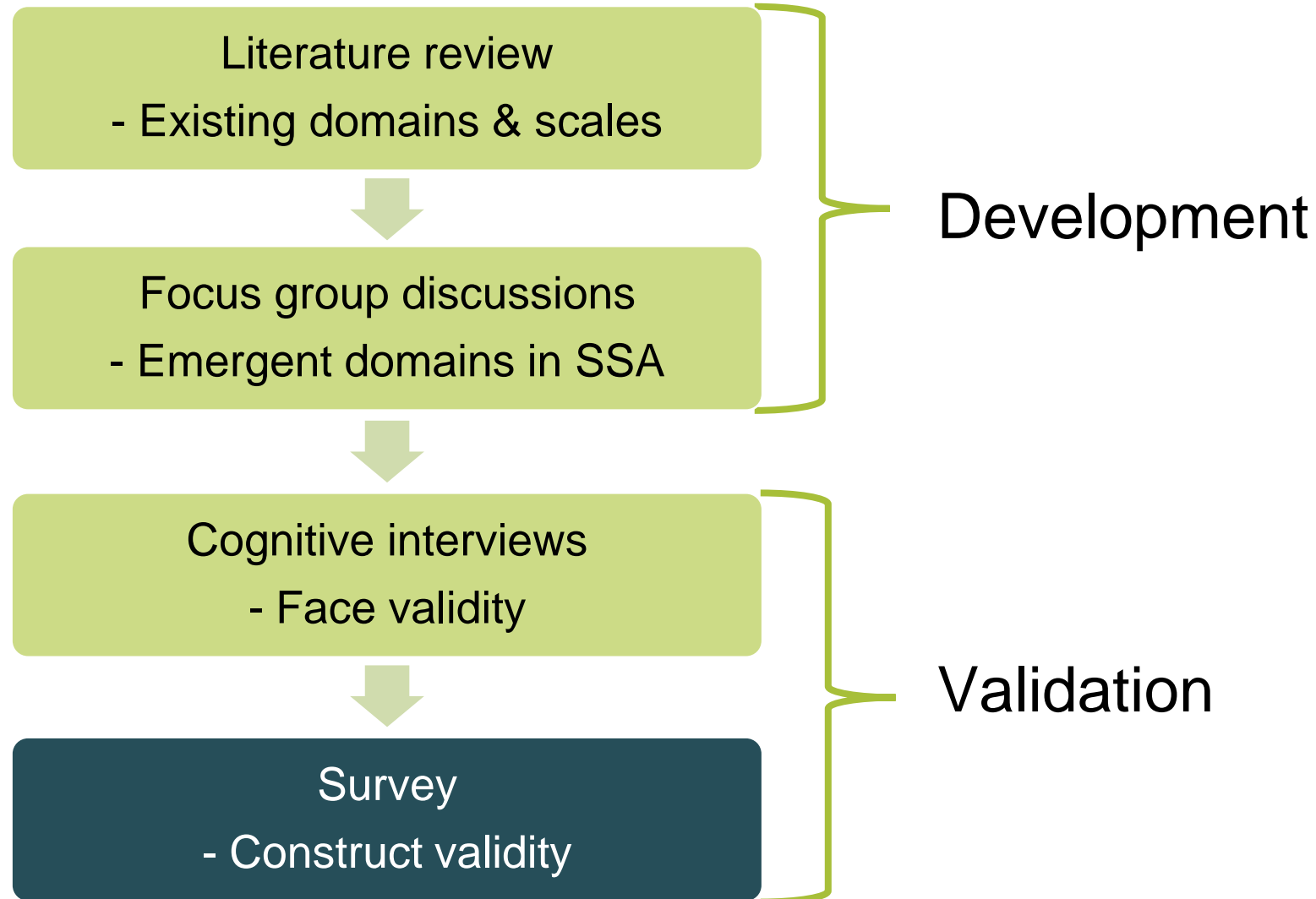
To develop and validate a scale for reproductive empowerment that can be used in program evaluations and surveys in sub-Saharan Africa.



A couple receiving family planning services in Rwanda  
Photo credit: Images of Empowerment



# Steps in Scale Development and Validation





# Reproductive Empowerment Scale – 20 items

Scale domain	Example item
<b>Healthcare Provider Communication</b> (5 items)	You can initiate conversations with your healthcare provider about using contraception
<b>Partner Communication</b> (5 items)	You can tell your partner that you don't feel like having sex without him getting angry, violent, or threatening to leave
<b>Decision Making</b> (4 items)	You can use contraception even if your partner does not want you to use it
<b>Social Support</b> (3 items)	If your partner did not want you to use contraception, you have friends or family who would support you getting contraception anyway
<b>Social Norms</b> (3 items)	Friends or family you are close to think you should be able to decide when to use contraception

## 4-Level Likert Scale Response Options

- 1 Strongly disagree
- 2 Disagree
- 3 Agree
- 4 Strongly agree



# Quantitative Validation

- Assess construct validity of the reproductive empowerment scale over time
  - Examine the consistency from baseline to endline of the psychometric properties (via confirmatory factor analysis)
  - Examine how well the scale predicts outcomes that it is theorized to predict







# Methods: Study Design of Longitudinal Evaluation



- Embedded the Reproductive Empowerment Scale into the evaluation of the Masculinity, Faith, and Peace (MFP) Intervention in Plateau State, Nigeria
- Quasi-experimental longitudinal study



**Baseline:**

May 2019-Jun 2019

**Endline:**

Nov 2020–Feb 2021



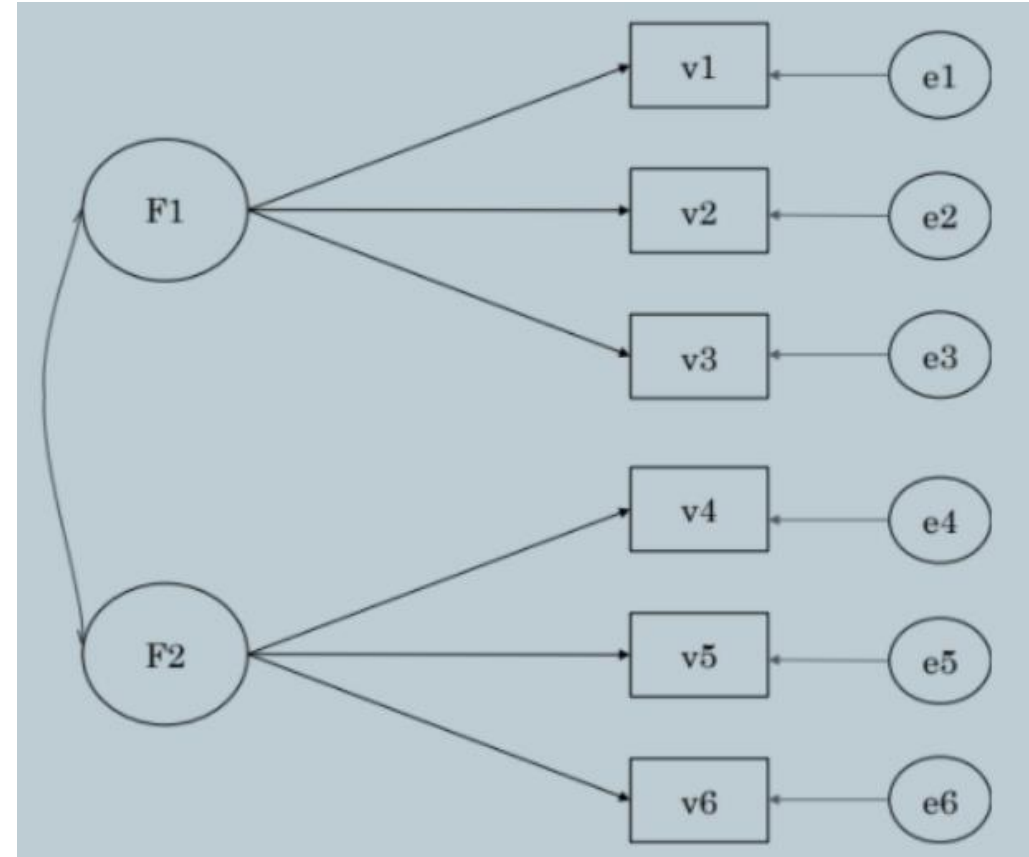
# Data Analysis

- Confirmatory factor analysis (CFA)
- Cronbach's alpha
- Descriptive statistics
- Logistic regressions with random effects



# How well does the data fit the model?

Confirmatory factor analysis (CFA) to examine whether the way we conceptualized reproductive empowerment *in theory* was supported by the data.



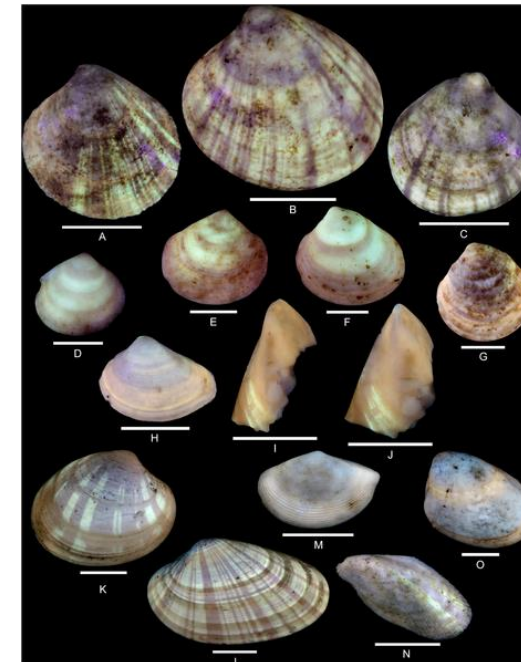
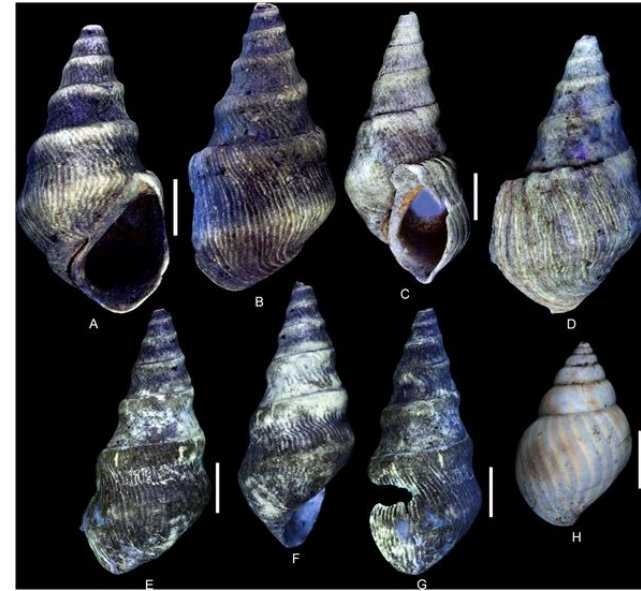
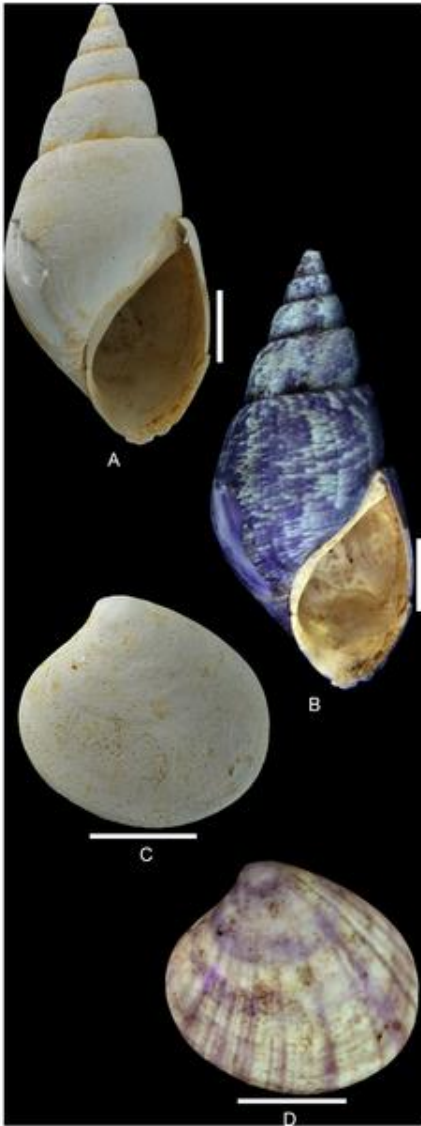


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# Reproductive Empowerment Scale Fit Statistics

Fit statistics	Cut-off for good fit <sup>1</sup>	Baseline	End line
Model Chi-Square, p-value	>.05 <sup>2</sup>	<.0001	<.0001
Root Mean Square Error of Approximation (RMSEA)	<.08	.0608	.0790
Bentler Comparative Fit Index	≥.90	.9014	.9180
Standardized Root Mean Square Residual (SRMR)	<.09	.0816	.0920

<sup>1</sup> Source: Cornell University Statistical Consulting Unit

<sup>2</sup> This fit statistic is sensitive to sample size



# Reliability of Reproductive Empowerment Scale at Endline

Scale domain	Cronbach's Alpha at baseline	Cronbach's Alpha at end line
<b>FULL SCALE</b>	<b>.87</b>	<b>.87</b>
Healthcare Provider Communication (5 items)	.92	.95
Partner Communication (5 items)	.74	.84
Decision Making (4 items)	.51	.53
Social Support (3 items)	.77	.79
Social Norms (3 items)	.65	.75

# How well does the scale predict future outcomes?

**Are changes in women's level of reproductive empowerment associated with family planning behaviors and intentions?**

Family planning outcomes

1. **Currently doing something to prevent pregnancy**, among those who are not pregnant and do not want a/nother child (yes, no)
2. **Currently using a method of modern contraception**, among those who are not pregnant and do not want a/nother child (yes, no)
3. **Likely to use a modern method of contraception in the future**, among those not currently using (likely/extremely likely, unlikely/extremely unlikely)





# Description of Sample

	Baseline (n=470)	Endline (n=350)
Age (mean [SD])	25.4 [5.15]	24.2 [3.9]
Education (%)		
None or incomplete primary	15.8	8.3
Completed primary	16.8	19.4
Incomplete secondary	32.6	30.3
Completed secondary	23.6	28.0
Higher than secondary	11.3	14.0
Parity (%)		
Nulliparous	16.4	5.7
1+ child(ren)	83.6	94.3
Partner had other wives (%)	13.0	17.4
Hunger experienced in the household in past 12 months (%)	43.4	49.4
Identified as Muslim (%)	64.5	64.3





# Reproductive Empowerment Score

Sample	Mean Reproductive Empowerment Score	
	Baseline (n=470)	Endline (n=350)
All women	2.85	2.92
Women who were not pregnant and did not want a/nother child at time of survey (sub-sample for models 1 & 2)	2.88	3.08
Women who were not using modern contraception at time of survey (sub-sample for model 3)	2.85	2.96



# Family Planning Outcomes

	<b>Baseline (n=470)</b>	<b>Endline (n=350)</b>
Currently doing something to prevent pregnancy <sup>¥</sup> (%)	60.69	71.89
Currently using a method of modern contraception <sup>¥</sup> (%)	54.14	67.87
Likely to use a modern method of contraception in the future <sup>€</sup> (%)	52.72	91.8

<sup>¥</sup> Among women who were not pregnant and did not want a/nother child

<sup>€</sup> Among women who were not using a modern method of contraception at time of survey



# Effect of Reproductive Empowerment on Family Planning Over Time

Multivariable logistic regression models with random effects

Family planning outcome	Adjusted odds ratio
Currently doing something to prevent pregnancy <sup>¥</sup>	5.60***
Currently using a method of modern contraception <sup>¥</sup>	7.18***
Likely to use a modern method of contraception in the future <sup>€</sup>	3.17***

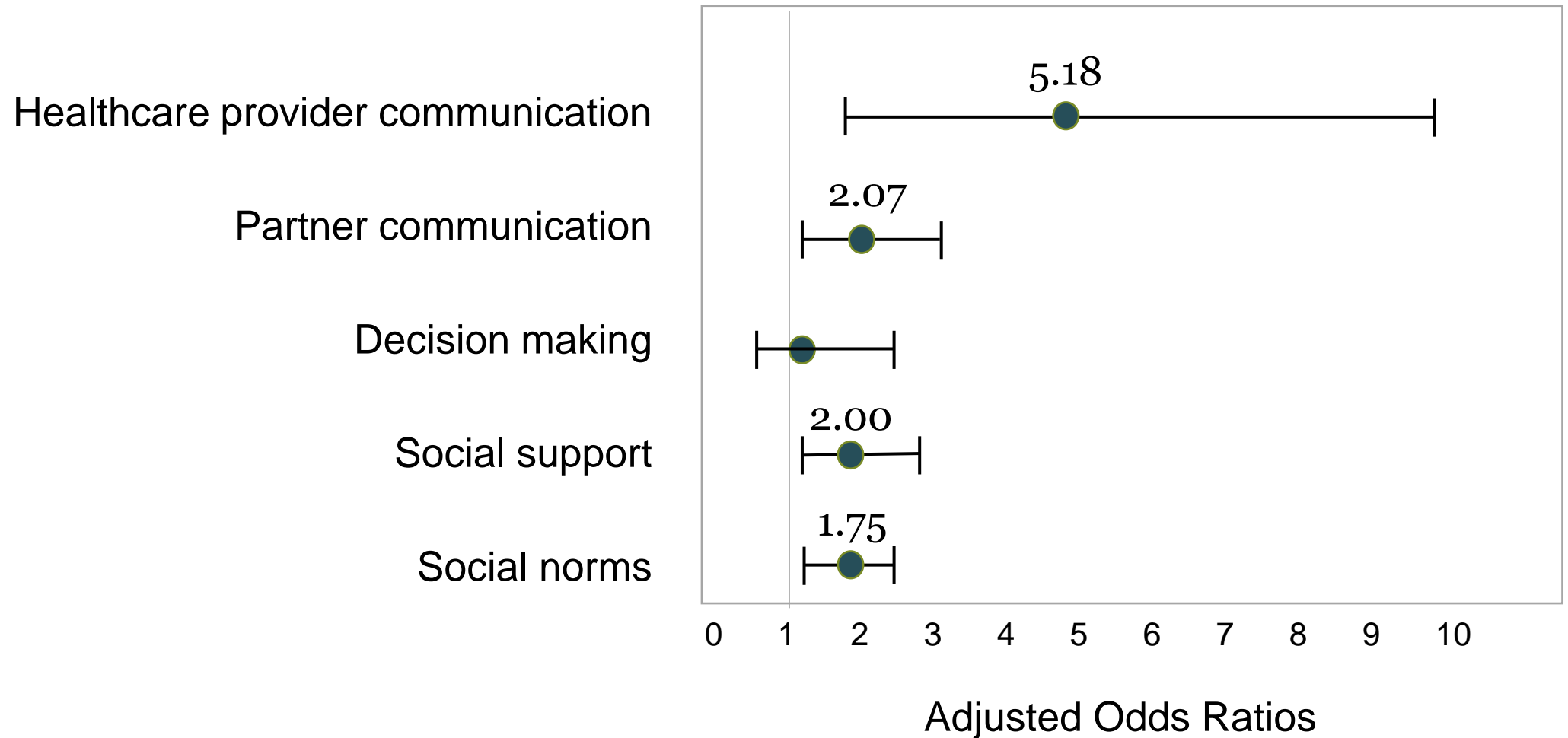
<sup>¥</sup> Among women who were not pregnant and did not want a/nother child

<sup>€</sup> Among women who were not using a modern method of contraception at time of survey

\*\*\*p<.001



# Model 1: Doing or using something to prevent pregnancy among those who are not pregnant and do not want a child





## Model 2: Using a method of modern method of contraception among those who are not pregnant and do not want a child

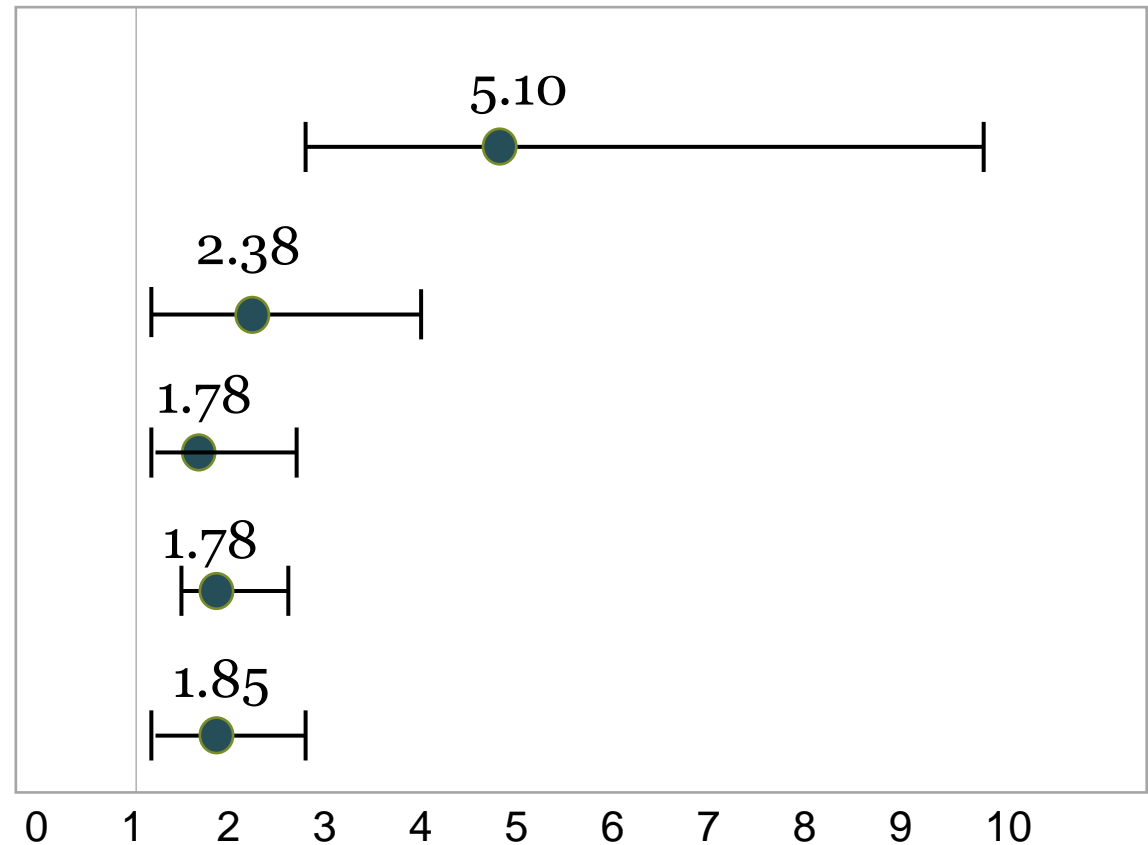
Healthcare provider communication

Partner communication

Decision making

Social support

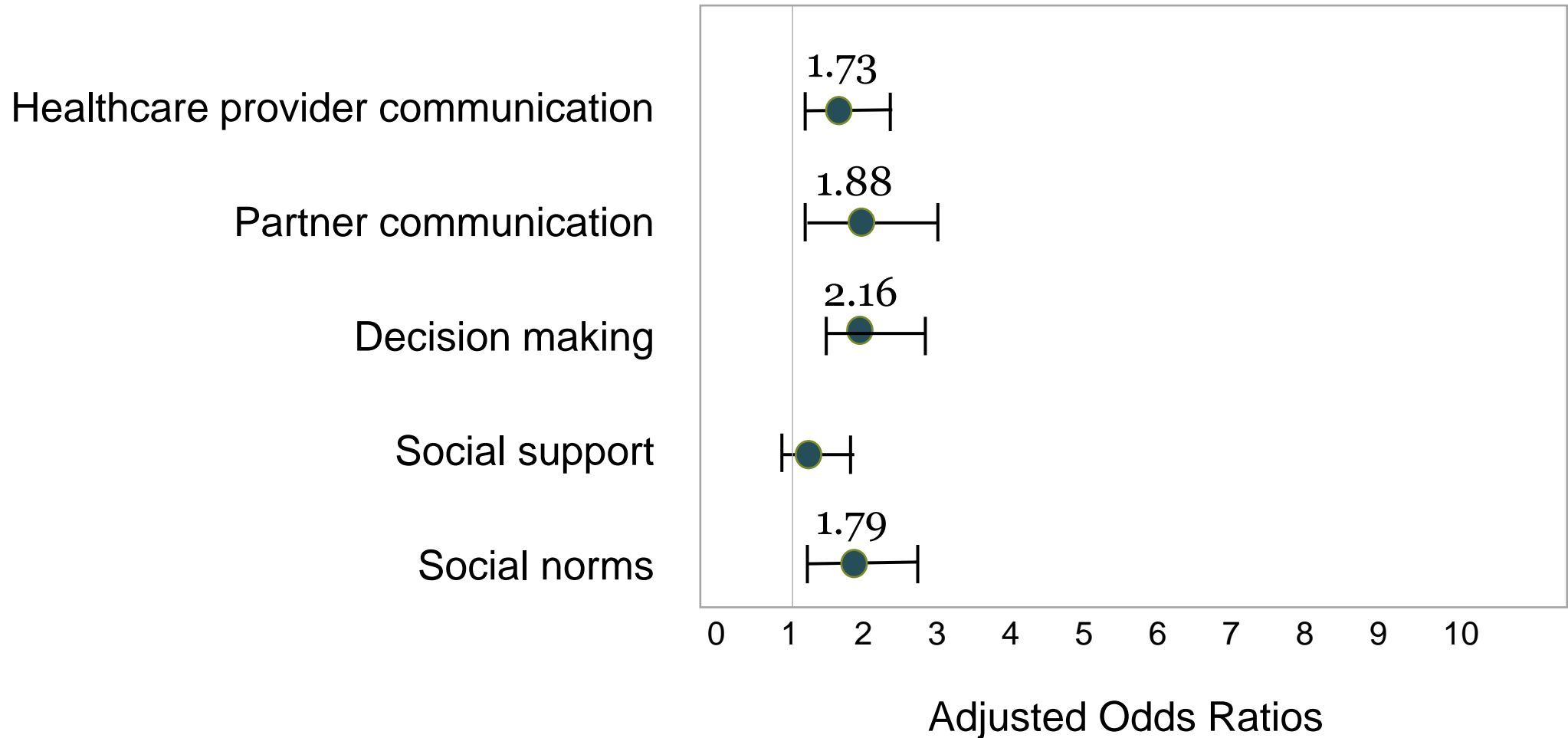
Social norms



Adjusted Odds Ratios



## Model 3: Likely to use a modern method in the future among those who are not currently using modern contraception





# What do the results mean?

- CFA demonstrates that the reproductive empowerment scale remained a valid measure among young women in Plateau State, Nigeria, at endline
- The observed associations between changes in reproductive empowerment over time and family planning outcomes at endline also support the predictive value of the scale
  - The full scale—and most subscales—predicted all three family planning outcomes
  - The decision making subscale did not predict women doing or using something to prevent pregnancy
  - The social norms subscale did not predict women reporting that they would use a modern method of contraception in the future





# Limitations and Considerations

- Sample is limited to members of religious congregations
- Loss to follow-up from baseline to endline survey
- Potential social desirability bias
- Potential shift in the measuring stick women use to report their level of empowerment
- Additional validation may be needed in contexts with different levels of fertility, contraceptive use, etc.
- Lack of nuance in quantitative measures of gender norms, roles, and dynamics







# Use of the Reproductive Empowerment Scale

- The scale will be used in Nigeria and Uganda by Population Service International to evaluate a family planning intervention that includes DMPA.
- Preliminary participatory workshop in each country found that the Reproductive Empowerment Scale was the best fit for women's expressed understanding and perspectives on power
- Women's conceptualization of decision making was an exception



# Examples of Resource Libraries and Databases that include the Reproductive Empowerment Scale

FP 2030

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## Reproductive Empowerment Scale

MEASURE Evaluation

To strengthen and standardize a measurement of reproductive empowerment among women in sub-Saharan Africa, MEASURE Evaluation—a project funded by the United States Agency for International Development—recently developed and validated a multidimensional scale that can be incorporated in survey instruments. The Reproductive Empowerment Scale consists of five short subscales that measure women's communication with healthcare providers: communication with partners; decision-making; social support; and social norms on issues related to women's reproductive health and fertility.

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### Reproductive Empowerment Scale

The Reproductive Empowerment Scale is a 20-item tool designed to measure the status of and changes in reproductive empowerment in sub-Saharan African countries. Items assess 5 constructs: reproductive healthcare provider communication, partner communication, decision-making, social support and social norms.

High Psychometric Score Multi-Country

Categories

Geographies Tested: Kenya, Nigeria, Zambia

Populations Included: Female

Age Range: Adolescents, Adults

Items:

Reproductive Health (RH) Care Provider Communication

- You and your health care provider talk about using contraception.
- You can initiate conversations about using contraception with your health care providers.
- You can ask your health care provider questions about using contraception.
- You can share your opinions about using contraception with your health care providers.
- When discussing contraception with your health care provider, she pays attention to what you have to say.

RH Partner Communication

- You can initiate conversations about using contraception with your partner.
- You can share your opinions about using contraception with your partner.
- You can share your opinions about how many children you want to have with your partner.
- You can tell your partner that you don't feel like having sex without him getting angry, violent, or threatening to leave.
- When having conversations about sex and sexual reproductive health with your partner, he pays attention to what you have to say.

Psychometric Score HIGH

Citation Frequency LOW

Ease of Use Score NO DATA

Formative Research

- Qualitative Research
- Existing Literature/Theoretical Framework
- Field Expert Input
- Cognitive Interviews / Pilot Testing

Reliability

- Internal
- Test-retest
- Interrater

Validity

- Content
- Face
- Criterion (gold-standard)
- Construct

Ease Of Use

- Readability

# D4I Brief on Reproductive Empowerment Scale



January 2023

## Reproductive Empowerment Scale

To strengthen the measurement of reproductive empowerment among women in sub-Saharan Africa, Data for Impact—funded by the United States Agency for International Development—developed and validated a multidimensional scale that can be incorporated into survey instruments. The Reproductive Empowerment Scale consists of five short subscales that measure women’s: (1) communication with healthcare providers, (2) communication with partners, (3) reproductive health (RH) decision making, (4) social support for RH, and (5) social norms related to women’s RH and fertility.

### Development of the Scale

We developed the Reproductive Empowerment Scale through a literature review and focus group discussions. The literature review identified documented domains, subdomains, and related measures of reproductive empowerment, with a focus on family planning and reproductive health outcomes. The review included both standalone measures and subscales or survey items within broader measures. The Scale was also informed by 14 focus group discussions—10 with women and four with men with a total of 109 participants in Zambia. The groups explored the meanings of the identified domains and subdomains and explored new domains that did not emerge from the literature. The findings from the literature review and focus group discussions were used to develop an initial draft Scale that included 44 survey items across five domains: communication and decision making, partner communication, social support, social norms around RH, and critical consciousness.



Photo credit: Images of Empowerment

### Validation of the Scale

#### Cognitive Interviews

We tested and refined the draft Scale through cognitive interviews with 72 women ages 15–49 in two geographic areas—Machakos (rural) and Nairobi (urban)—in Kenya. Respondents were identified through universities, churches, markets, beauty parlors, and other common meeting places. The interviews, which were conducted in English and Swahili, were designed to understand how women interpreted the meaning of each survey item, focusing on both the item as a whole and specific phrases and words used in each item. Based on an iterative process of analyzing the results from the cognitive interviews and revisiting the literature on RH and empowerment measures, we adjusted the draft Scale to include a new domain

# Final Reproductive Empowerment Scale

## **RH Health Care Provider Communication**

*For each statement, please state if you "strongly agree," "agree," "disagree," or "strongly disagree."*

1. You and your health care provider talk about using contraception.
2. You can initiate conversations about using contraception with your health care providers.
3. You can ask your health care provider questions about using contraception.
4. You can share your opinions about using contraception with your health care providers.
5. When discussing contraception with your health care provider, s/he pays attention to what you have to say

## **RH Partner Communication**

*For each statement, please state if you "strongly agree," "agree," "disagree," or "strongly disagree."*

6. You can initiate conversations about using contraception with your partner.
7. You can share your opinions about using contraception with your partner.
8. You can share your opinions about how many children you want to have with your partner
9. You can tell your partner that you don't feel like having sex without him getting angry, violent, or threatening to leave.
10. When having conversations about sex and sexual reproductive health with your partner, he pays attention to what you have to say.

## **RH Decision Making**

*For each statement, please state if you "strongly agree," "agree," "disagree," or "strongly disagree."*

11. You can use contraception even if your partner doesn't want you to.
12. You can refuse sex with your partner if you don't want to have sex.

*Please answer with one of the following options: "Myself," "My partner," "My partner and myself jointly,"*

*"My parents," "My partner's parents," "Another family member," "Healthcare provider," "Other (specify)," or "Don't know"*

13. Who makes the final decision about whether or not you use contraception?
14. Who do you want to make the final decision about whether or not you use contraception?

## **RH Social Support**

*For each statement, please state if you "strongly agree," "agree," "disagree," or "strongly disagree."*

15. If your partner did not want you to use contraception, you have a friend or family member who could help you convince your partner that you should use contraception.
16. If your partner did not want you to use contraception, you could go to people in your community who know about contraception and could help you convince your partner that you should use contraception.
17. If your partner did not want you to use contraception, you have friends or family who would support you getting contraception anyway.

## **RH Social Norms**

*For each statement, please state if you "strongly agree," "agree," "disagree," or "strongly disagree."*

18. Friends or family members you are close to can decide when they want to use contraception.
19. Friends or family members you are close to use contraception even when their partner does not want them to.
20. Friends or family members you are close to think you should be able to decide when to use contraception.



## So what?

The Reproductive Empowerment Scale is a valid measure of the transformational process of empowerment over time and of empowerment as an outcome. It is also one of the the only scales that has been developed and validated specifically for the sub-Saharan African context.

Interventions that aim to increase women and girls' level of empowerment in SSA at both the individual and community levels can use this scale to measure their success and effectiveness.

Women in Ghana selling clothing at a market  
Photo credit: Images of Empowerment



# Acknowledgements

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