

# Family Health Ministries: Contraception Data Analysis

DH5 Consulting

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# Outline

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## Hypothesis

Women who believe traditional family planning (TFP) methods are effective are less likely to currently use or ever use modern family planning (MFP) methods

### Outcomes:

- Currently use MFP? (Y/N)
- Will ever use MFP? (Y/N)

### Primary Predictor:

- Believe in TFP? (Y/N)

**Covariates of Interest:** age, phone, education, work status, live with partner, sexually active, have kids, want more kids, and plan for kids

# Data Manipulation

- Recoded Variables
  - In general, "I Don't Know" recoded to missing
  - Believe in TFP: "I Don't Know" recoded to "No"
- Age Groups
  - Age collapsed into intervals (i.e. 20-29, 30-39, etc)
  - Subjects not in 18-49 year range excluded
- Job
  - Work Status and Occupation combined to get dichotomous variable
  - "Employed" - anyone who gave an occupation
  - "Not Employed" - anyone who said "Not Employed" for work status

# Data Manipulation - Outcomes

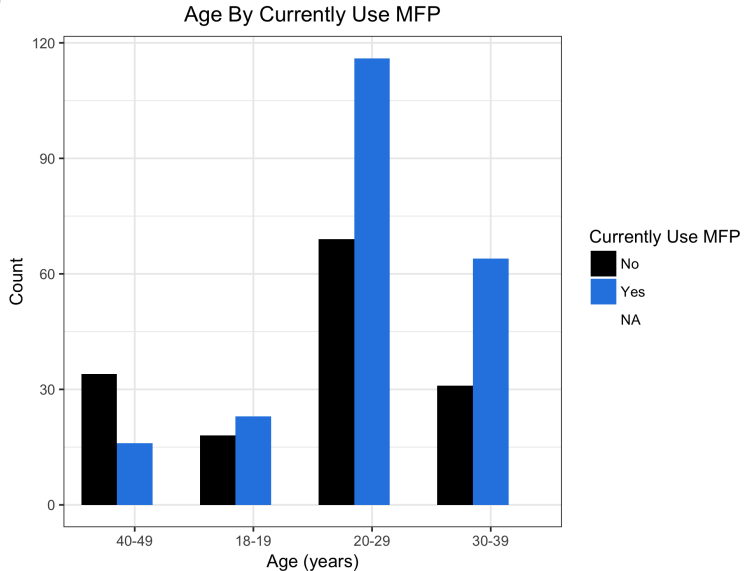
- Use MFP
  - All family planning methods corresponding to MFP were coded as "Yes"
  - Those who use TFP or no method were coded as "No"
- Will Ever Use MFP
  - "Maybe" responses recoded as missing
  - Large proportion of missing supplemented with current MFP users



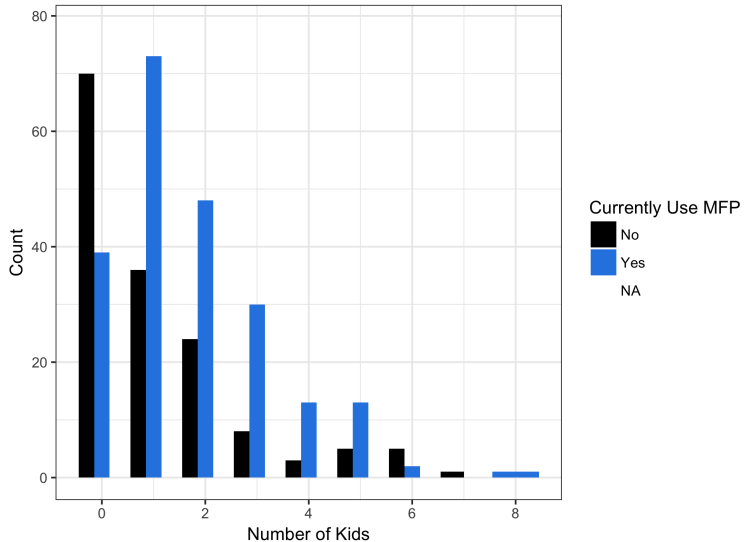
# Demographics

		Use MFP (N=155)	Do Not Use MFP (N=86)
TFP Effective?	Yes	73 (47.10%)	39 (45.35%)
	No	82 (52.90%)	47 (54.65%)
Age (years)	40-49	12 (7.74%)	23 (26.74%)
	30-39	43 (27.74%)	14 (16.28%)
	20-29	83 (53.55%)	37 (43.02%)
	18-19	17 (10.97%)	12 (13.95%)
Phone	Yes	113 (72.90%)	78 (90.70%)
	No	42 (27.10%)	8 (9.30%)
Education	Post-High	6 (3.87%)	5 (5.81%)
	High	73 (47.10%)	41 (47.67%)
	Middle	18 (11.61%)	11 (12.79%)
	Elementary	50 (32.26%)	17 (19.77%)
	No Education	8 (5.16%)	12 (13.95%)
Employed	Yes	60 (38.71%)	32 (37.21%)
	No	95 (61.29%)	54 (62.79%)
Live with Partner	Yes	93 (60.00%)	32 (37.21%)
	No	62 (40.00%)	54 (62.79%)
Sexually Active	Yes	144 (92.90%)	49 (56.98%)
	No	11 (7.10%)	37 (43.02%)
Number of Kids	mean (SD)	1.8 (1.48)	1.2 (1.65)
Want More Kids	Yes	76 (49.03%)	56 (65.12%)
	No	79 (50.97%)	30 (34.88%)
Plan for Kids	Yes	71 (45.81%)	43 (50.00%)
	No	84 (54.19%)	43 (50.00%)

Statistics given as n (%) unless otherwise specified.

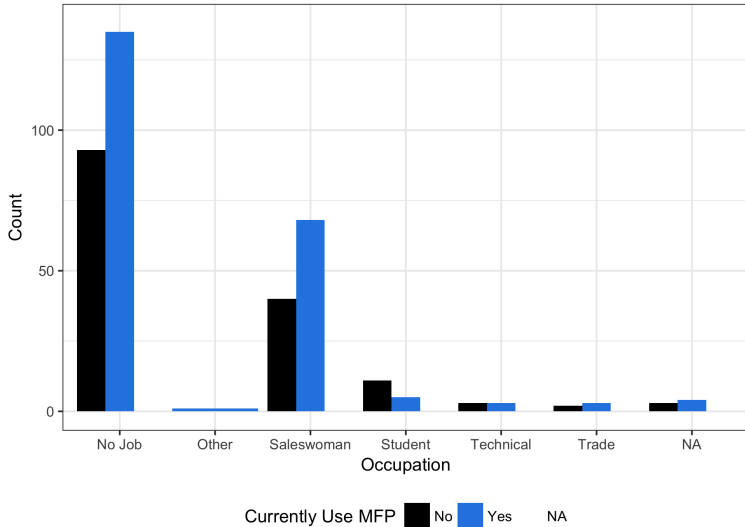


Number of Kids By Currently Use MFP



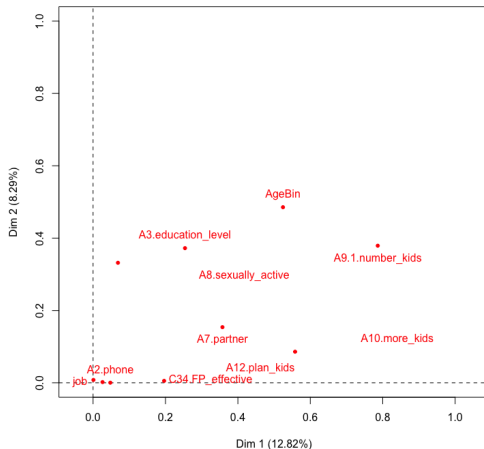


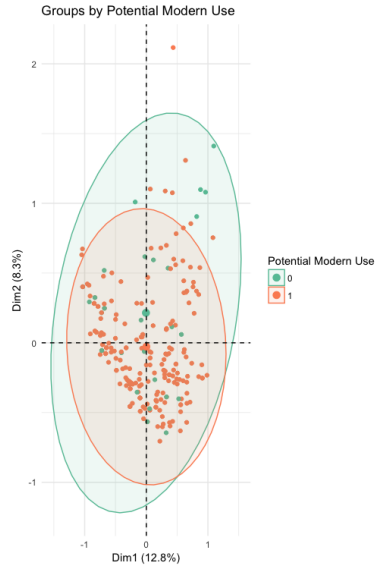
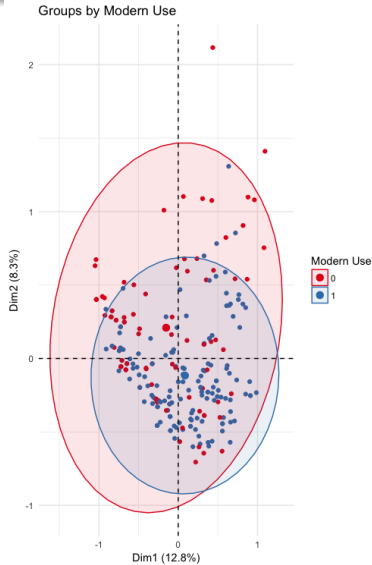
Occupation By Currently Use MFP

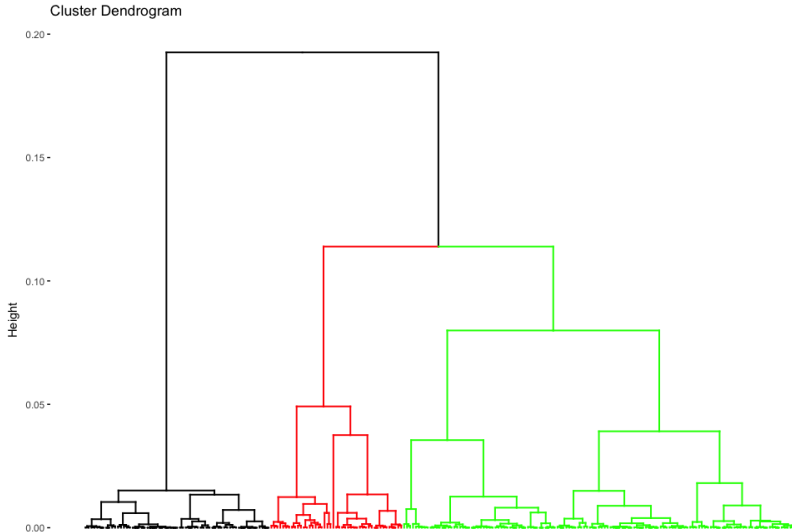


# Clustering

- Clustering was accomplished using dimension reduction
- Wanted to see which factors were of interest to get a better understanding of the population





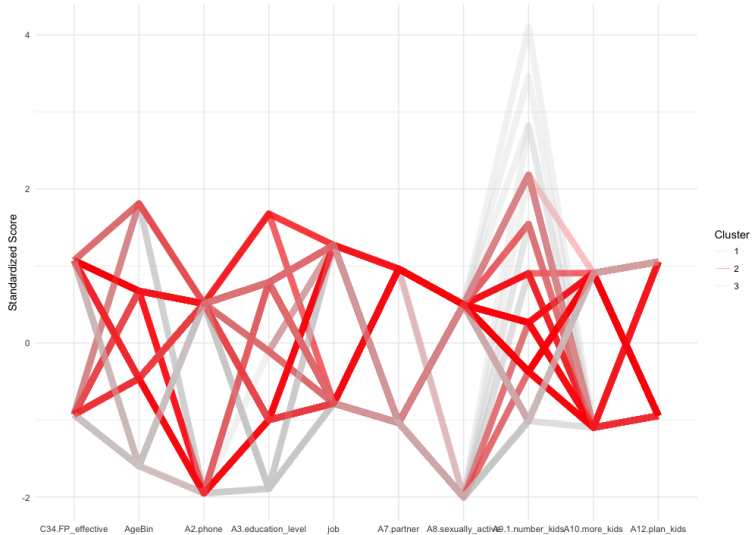




	MFP	EverMFP	TFP	AgeCat	Phone	Edu
1	0.46	0.88	0.45	0.67	0.84	2.59
2	0.78	0.91	0.45	1.45	0.79	2.23
3	0.49	0.79	0.54	2.56	0.72	0.92

	Job	Partner	SexAct	NumKids	MoreKids	PlanKids	n
1	0.30	0.12	0.64	0.12	0.97	0.83	69
2	0.40	0.73	0.95	1.86	0.48	0.33	133
3	0.46	0.51	0.59	3.26	0.03	0.33	39

Parallel Coordinates Plot for Cluster 2



# Logistic Regression Models

- Allows us to model the probability of using MFP given subject demographics
- Summarized with odds ratio estimates
  - i.e. An odds ratio of 2 for smokers vs non-smokers of getting lung cancer would be interpreted as: The odds of getting lung cancer is 2x higher for smokers compared to non-smokers
- P-values are a measure of the likelihood that a predictor is related to the outcome. The smaller the value, the more likely there is a relationship
  - $p < 0.05$  is considered significant
- Stepwise Selection was conducted to reduce the number of variables to those most likely to be related to the outcome



## Use MFP: Full Logistic Model

Parameter	OR (CI)	P-value
TFP Effective	1.3 (0.65, 2.62)	0.4646
*Age		
18-19	23.2 (4.36, 143.81)	0.0004
20-29	19.28 (5.29, 81.85)	0.0000
30-39	12.63 (3.53, 51.71)	0.0002
Cellphone	0.19 (0.05, 0.54)	0.0038
**Education		
Post-High	4.71 (0.68 , 35.81)	0.1213
High	6.79 (1.55 , 34.53)	0.0147
Middle	10.81 (2.05, 66.45)	0.0069
Elementary	7.16 (1.7, 33.64)	0.0091
Employed	0.94 (0.46, 1.93)	0.8627
Live with partner?	0.95 (0.41, 2.15)	0.8949
Sexually active	12.8 (4.78, 38.53)	0.0000
Number of Kids	1.42 (0.99, 2.11)	0.0685
Want More Kids	0.19 (0.06, 0.52)	0.0021
Plan for Kids	1.27 (0.62, 2.63)	0.5218

\*Age: Compared to 40-49 age group; \*\*Education: Compared to No Education group.

## Use MFP: Reduced Logistic Model

Parameter	OR (CI)	P-value
*Age		
18-19	23.37 (4.62, 137.94)	0.0003
20-29	18.44 (5.27, 74.78)	0.0000
30-39	12.01 (3.43, 47.95)	0.0002
Cellphone	0.19 (0.06, 0.55)	0.0039
**Education		
Post-High	4.56 (0.67, 33.72)	0.1257
High	7.16 (1.66, 35.5)	0.0110
Middle	11.4 (2.21, 68.19)	0.0051
Elementary	6.95 (1.68, 31.88)	0.0093
Sexually active	12.15 (5.00, 33.18)	0.0000
Number of Kids	1.39 (0.98, 2.05)	0.0793
Want More Kids	0.19 (0.06, 0.52)	0.0020

\*Age: Compared to 40-49 age group; \*\*Education: Compared to No Education group.

## Will Use MFP: Full Logistic Model

Parameter	OR (CI)	P-value
TFP Effective	1.59 (0.63, 4.19)	0.3367
*Age		
18-19	55.18 (6.42, 804.91)	0.0009
20-29	34.15 (6.38, 306.35)	0.0002
30-39	18.32 (3.81, 147.61)	0.0012
Cellphone	0.14 (0.01, 0.8)	0.0703
**Education		
Post-High	2.41 (0.15, 86.48)	0.5696
High	1.16 (0.17, 6.59)	0.8734
Middle	1.04 (0.15, 6.64)	0.9665
Elementary	1.05 (0.16, 5.81)	0.9579
Employed	1.7 (0.65, 4.83)	0.2965
Live with partner?	0.68 (0.22, 1.98)	0.4798
Sexually active	2.08 (0.64, 6.88)	0.2221
Number of Kids	1.08 (0.76, 1.57)	0.6747
Want More Kids	0.13 (0.02, 0.6)	0.0202
Plan for Kids	1.22 (0.46, 3.3)	0.6905

\*Age: Compared to 40-49 age group; \*\*Education: Compared to No Education group.

## Will Use MFP: Reduced Logistic Model

Parameter	OR (CI)	P-value
*Age		
18-19	41.31 (5.81, 499.29)	0.0008
20-29	28.9 (6.35, 213.95)	0.0001
30-39	16.9 (3.89, 121.84)	0.0008
Cellphone	0.17 (0.01, 0.87)	0.0882
Want More Kids	0.13 (0.02, 0.52)	0.0109

\*Age: Compared to 40-49 age group

# Conclusions

## Logistic Regression

- Women more likely to use MFP:
  - Younger women
  - Women who have children
  - Women who do not want more children
  - Women with higher education
- No relationship seen between belief in TFP and use of MFP
- This could be due to:
  - Other strong relationships in the data
  - Bias since the sampling was not random

Questions?