REPRODUCTIVE LIFE PLANNING IN THE REFUGEE COMMUNITY:
FOCUS ON THE ROLE OF MEN AND RELIGION

A thesis submitted to the University of Arizona College of Medicine – Phoenix
in partial fulfillment of the requirements for the Degree of Doctor of Medicine

Jawad Hussain
Class of 2017

Mentor: Crista Johnson-Agbakwu, MD, MSc

Dedications:

Dr. Matthew D. McEchron, Ph.D.

Acknowledgements

- Jeanne Nizigiyimana, MA, MSW
- Dr. Basel Imam, MD

- Sheila Malekian, RWHC Community Health Program Coordinator

Statistical Support:

- Napatkamon Ayutyanont, PhD
- Bikash Bhattarai, PhD

Funding:

- Dean Coonrod, MD, MPH, Chair Dept OB/GYN, MIHS

Cultural Health Navigators:

- Nahida Abdul Razzaq
- Owliya Abdullahi
- Liliane Ferdinand
- Daisy Taknan

Abstract

Background/Significance: Health literacy is the degree to which individuals have the capacity to understand basic health information and services needed to make appropriate health decisions. Women seen at Maricopa Integrated Health System (MIHS) Refugee Women's Health Clinic (RWHC) are routinely offered education on developing a Reproductive Life Plan (RLP). In order to influence women's reproductive health and medical decision-making, there is a need to tailor RLP counseling to engage their male partners in the refugee community.

Research Question: We aimed to assess increased knowledge on preconception care related to the importance of developing a RLP, perspectives on birth spacing, and the influence of men as well as religion in medical decision-making. We aimed to identify the refugee community's receptivity to culturally and linguistically appropriate audiovisual modalities.

Methods: Study participants comprised 120 refugees (39 men and 81 women) including couples, across the respective target languages with pre- and post-Likert scale surveys assessing perspectives on RLP, birth spacing, the role of religion, and readiness for behavior change. Summary statistics examined changes in pre- and post-Likert scale survey responses with responses dichotomized as Strongly agree/Agree compared against all other responses.

Results: A higher frequency of male respondents agreed about knowing what RLP means in the posttest relative to pretest (71.8% to 89.7%, P = 0.016) as well as 'Not having children…' (41% to 64.1%, P=0.035). Female respondents were more likely to agree to 'Know what RLP means' (76.5% to 86.4%, P =0.039) and 'Having a baby soon after…' (65.4% to 76.5%, P =0.035) after the training. They also were less likely to agree that 'RLP is about birth control' (71.6% to 59.3%, P =0.021). Amongst Muslim participants, we found improvement in knowing what RLP means (65.5% to 87.9%) and that it is important for men to have a RLP (67.2% to 84.5%). Cronbach's alpha was used to measure internal inconsistency, with most values less than 0.5 and deemed unacceptable. Only one value, birth spacing, was > 0.6 and deemed questionable. There was the same degree of concordance, yet there also was discordance in the direction of opinions between women and men pre vs post-test answers. When comparing couples pre and post-test, there was no significant differences observed across genders.

Conclusions: This is the first reported U.S. initiative to provide a culturally and linguistically-appropriate preconception health education. Project had demonstrated ability to mobilize several ethnic communities around the RLP. Respondents among both genders were more likely to agree about knowing what RLP means. The most challenging aspect of our community mobilization efforts was recruiting a larger sample size. Another limitation was the use of the Likert scale in a population with low literacy as there were some discrepancies in responses to negatively-worded questions. Future studies could use a visual analog scale of smiley faces to assist those with limited literacy and incorporate a more global feel.

TABLE OF CONTENTS

Introduction/Significance…………………1

Materials and Methods……………………7

Results……………………………………………12

Discussion……………………………………33

Future Directions………………………36

Conclusions…………………………………37

References…………………………………38

Tables and Figures

Figure 1: Examples of Pre/Post Questionnaire Sample …………………..10
Figure 2: Example Evaluation Questionnaire …………………………………11
Table 1: Demographics……………………………………………………………13
Table 2: Total Respondents Answers……………………………………………..15
Table 3: Male Respondents Answers……………………………………………..17
Table 4: Female Respondents Answers………………………………………….18
Graph 1: Catholics Respondents Answers- Graph Form………………….20
Table 5: Catholic Respondent's Answers………………………………………..21
Graph 2: Other Christians Respondent's Answers- Graph Form………22
Table 6: Other Christians Respondents Answers…………………………….23
Graph 3: Muslims Respondents Answers- Graph Form……………………24
Table 7: Muslims Respondents Answers ………………………………………..25
Table 8: Responses by country of origin: Frequencies of respondents who agreed/strongly agreed………………………………………………………………………………………………27
Table 9: Cronbach alpha Scores of Pre and Post- Assessment Surveys……….29
Table 10: Respondents Perception of Audiovisual Modality………………31

I. Introduction/Significance

I. Background Introduction/Significance

Health literacy is the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions. Most women have insufficient knowledge about reproduction and health-promoting lifestyles prior to conception.[1] Obstetricians are often presented with questions regarding the optimal inter-pregnancy interval (IPI). Short IPI has been associated with adverse perinatal and maternal outcomes, ranging from preterm birth and low birth weight to neonatal and maternal morbidity and mortality. Long IPI has, in turn, been associated with increased risk for preeclampsia and labor dystocia.[2]

Women seen at Maricopa Integrated Health System's (MIHS) Refugee Women's Health Clinic (RWHC) clinic are routinely offered education and counseling on reproductive life planning (RPL). In our day-to-day experience, providing RLP education to these women can be challenging since it may be construed as "education against their culture and beliefs". For those who understand the importance of RLP and are willing, their ability to implement the plan is almost always impacted by their spouse's approval or disapproval, who for most part can be against this idea. UNICEF cited the lifetime risk of maternal death in Somalia to be 1 in 7 women, one of the highest in the world for maternal mortality. This was compared to the 2,100 women dying of childbirth in the U.S. at the time, indicating a 300 times difference. There are few previous studies that had included men or key community leaders. Western medicine notes Somali women's cultural traditions as an issue to solved, whereas Somali women greatly distrust Western medicine. There is a need for cultural education of health care providers that would allow a "middle ground" to meet with the Somali refugees.[3]

Children born at least 2 years apart, allows the avoidance of child deaths as closely spaced children are at a higher risk of disease. In the Somali culture, it is taken as a great pride if one has a large family that improves clan survival. Those who wish to undergo family planning fear the repercussions having going against cultural norms or facing social stigma. One study by the UNHCR in Dadaab had shown that less than 1 percent had applied family planning due to social

and cultural reasons, and that the unequal power relations among men and women were key drivers. Another study by UNHCR and the Women's Refugee Commission had only been able to illustrate a contraceptive prevalence rate of 5.1 and 6.8 in similar studies in Djibouti and Kenya, not much higher than that of Dadaab. Again, religion and marriage status played an essential role in contraceptive use. Women cited both religious and partner opposition as one of the reasons for not applying family planning. The Dadaab UNHCR study was limited by the fact that the reproductive health coordinator in the camp was not Somali and thus had affected the participant recruiting and validity of sample.[3]

Gagnon et al had studied how resettling refugee women were at a greater risk of negative reproductive health outcomes. Despite a systematic review of literature of 41 high quality studies, there have not been statistically enough studies that compared health events of resettling refugee women to their respective reproductive counterparts. There is an urgent need for more studies to be done as this limitation in data prevents policymakers from being able to distribute resources correctly.[4]

Empowering women to implement something that is not entirely in agreement with their culture is taken by the males as "trying to westernize" their wives, creating family constraints and conflict. Women of this socio-cultural background are often very different from western norms of patient autonomy. In order to make an impact in the overall health of these women and their reproductive decision-making, there is a need to tailor our program to involve men, particularly women's spouses. A sole focus on women is inadequate because it fails to take into account the decision-making dynamics in their families. Salisbury et al. was able to indicate through a cross-sectional study of 140 subjects that >90% of women knew about contraceptives for birth spacing and that a greater than half reported using family planning in the past. Confusion was noted for uptake of long acting contraception, not being aware of emergency contraception, and having unrealistic understanding of length of childbearing years. Most females indicated the number "3" as the ideal number of children, but only a few had adopted the use of long acting contraception, painting as increased risk of unwanted pregnancies. The study concluded that husbands' roles and attitudes played a key part, with the attention to focus on male perspectives in future family planning studies.[5] This project strongly proposes

RLP counseling and education to include MEN as a means to a successful program. Involving men and providing them with education will also help to dispel some of the myths regarding men's views of family planning, sexuality and health.[6]

Background info regarding RLP:

According to the Centers for Disease Control and Prevention (CDC), routine health promotion activities for all women and men of reproductive age should begin with screening women and men for their intentions to have or not have a baby in the short and long term and their risk of conceiving (whether intended or not). Providers should encourage patients (women, men, and couples) to consider a reproductive life plan and educate patients about how their reproductive life plan impacts contraceptive and medical decision-making. Every woman and man of reproductive age should receive information and counseling about all forms of contraception that are consistent with their reproductive life plan and risk of pregnancy.[7]

The strategy of Reproductive Life Plan is to the improve preconception health care through the following methods: 1.) Improving knowledge, attitudes, and behaviors about preconception health. 2.) Ensuring all women of childbearing age receive preconception care services. 3.) Reducing risks from prior adverse pregnancy outcomes through interventions during the interconception period that will minimize health problems for the mom and future children. 4.) Reducing disparities in adverse pregnancy outcomes.[8]

Low birth weight and other pre-term and postpartum issues in the Refugee Population

The Institute of Medicine reports that nearly half of the population in the United States (U.S.) has difficulty understanding and using health information. According to the American Medical Association, poor health literacy is “a stronger predictor of a person’s health than age, income, employment status, education level, and race”.[9] Despite this knowledge and unprecedented access to prenatal care, high rates of low birth weight, preterm birth, and consequent infant morbidity and mortality persist. According to the Bureau of Public Health Statistics, Arizona Department of Health Services, in 2009 there were 547 neonatal and postneonatal deaths and 9,295 infants born before 37 weeks gestation. Although there has been a steady decline in infant morbidity and mortality, the statistics continue to demonstrate the need to provide services before conception or early in pregnancy in order to have a maximal effect on health

outcomes. At MIHS, from February 2008-January 2012, approximately 800 women experienced a second trimester loss or delivered preterm or low birth weight infants and/or infants with extended NICU stays.

Health Literacy in Refugee Population:

Health literacy is an important and potentially ameliorable factor that contributes to the sub-optimal quality of healthcare in the U.S. Individuals with limited literacy skills can have difficulty navigating complex health systems, understanding medical instructions and their provider's treatment recommendations, etc.[10] Refugees typically do not grasp the concept of preventative medicine. In some patriarchal settings, women are not permitted by their husbands or fathers to leave home to obtain care unless accompanied by male family members and unless attended by female health providers. For lack of information, men may perpetuate harmful local myths about good health practices for women during pregnancy. For example, refugee youths from an Oru Refugee Camp in Nigeria had misperceptions of the safety of contraceptives. They had little correct understanding of the topic, but incorrectly believed contraceptives to be chemically unsafe and potentially damaging to the reproductive system. This bias would result in unwanted pregnancies and force the females to become early dropouts from schools.[11] Women's nutritional status, especially during pregnancy, may depend heavily on partners and male relatives, as men mediate women's access to economic resources for most refugee women.

Most programs on RLP have been developed with the focus on empowering women and disregarding the power relations and gender roles that influence decision-making related to reproductive health.[10] The surveys most relied upon for reproductive health (RLP) programs usually ask questions only of women; assuming that they are the only ones who make the decisions regarding reproduction and that the men are either not involved or marginally involved. Verbal miscommunication and cultural misunderstanding further contribute to suboptimal health outcomes. It is important to consider the role of men and one's faith/spiritual beliefs in medical decision-making about preconception health. Preconception health education is critical for both women and men, especially those with limited health literacy and low English proficiency.

Previous Studies:

A community-based participatory needs assessment on the "use of audio-visual media to promote refugee women's health literacy" was completed in February 2010 at MIHS. This project included the survey responses of 114 refugee women to "evaluate the utility of audio-visual modalities to convey health messages within refugee communities and establish the groundwork to develop future community-based interventional programs that will improve refugee women's health literacy." The results of the study demonstrated a limited educational level among the refugee population with 53% of participants never having attended school and only 1% with some college/advanced degree. Of note, 96.5% of participants possess a form of health insurance, of which a third of those participants use emergency services as their usual place of care (25.7% use the ER and 9.9% urgent care centers). In addition, respondents describe language barriers in the medical office, picking up prescriptions, making appointments, etc. Individuals often speak different dialects than interpreters. These individuals would frequently prefer a family member to interpret as they feel they can trust them more.

Significance:

Because little is known about health service utilization patterns among newly arrived refugee populations, MIHS' Refugee Women's Health Clinic (RWHC) examined patients' prenatal care utilization patterns and found that 53% of women had inadequate utilization and 59% initiated care beyond the 1st trimester.[12] Many refugees do not understand the U.S. healthcare system and, having endured human rights violations, they justifiably lack trust. This extends to the Western health care system where verbal miscommunication and cultural misunderstanding may be contributing factors to their suboptimal health outcomes.

An approach that addresses men as partners reflects the view that men can improve – and impede – women's contraceptive use and reproductive health. [13] These programs view men as allies and resources in efforts to improve contraceptive prevalence rates and other dimensions of reproductive health.[14] Past experiments have shown that educating men has made them more likely to have gained a better understanding of STI's and infections. Additionally, it has also promoted more condom use.[15] The objective is to increase this favorability to more advanced contraceptive methods. Men can affect women's access to prenatal care and

women's obstetric outcomes in their roles as partners, neighbors, community leaders, and health providers.

Rationale

The aim of this proposal was to improve the reproductive health of both refugee women and men, and develop concrete strategies to understand, address and incorporate the male perspective. A brief assessment of each patient's health literacy regarding RLP will help clinicians at MIHS to:

1. Identify baseline RLP knowledge among men.
2. Identify barriers for change in men
3. Identify ways to provide information and knowledge to men
4. Develop targeted health education and counseling strategies for men
5. Encourage and support couples in their RLP decisions.

Research Question

The aim of this study is to see the effectiveness of the "Reproductive Life Plan for You" in regards to involvement of the male partners in the refugee community. The male refugees who are exposed the video and survey questions will have a better understanding of proper birth control and will be more likely to follow through with responsible birth control protocols. We expect that educating the male partners will allow for greater and more responsible use of birth control methods than when they were not educated on these matters. In order to influence women's reproductive health and medical decision-making, there is a need to tailor RLP counseling to engage their male partners and men in the refugee community while concomitantly considering the impact of religion on medical decision-making regarding RLPs.

II. Materials and Methods

Study Design:

Study participants comprised 120 refugees (39 men and 81 women) including couples, across the respective target languages with pre- and post-Likert scale surveys assessing perspectives on RLP, birth spacing, the role of religion, and readiness for behavior change. Summary statistics examined changes in pre- and post-Likert scale survey responses.

Recruiting Subjects:

Patients and spouses/significant others of refugee women of childbearing age 18 to 35 who sought out women's healthcare reproductive services at the MIHS refugee clinic. Refugee men were comprised from focus groups from four cultural backgrounds: Arabic, Burmese, Kirundi and Somali. Twenty-five refugee men were selected from each background and placed together in focus groups of 8 individuals. Therefore, there were 2-3 focus groups per cultural background. At the Refugee Women's Health Committee Advisory Coalition Meeting, there was a 15-minute presentation to spread the word out for potential subjects.

Inclusion Criteria:

Spouses/significant others of childbearing women (18 to 35 year olds) seeking women's health services at MIHS refugee clinic. Spouses/significant others of childbearing women (18 to 35 year olds) seeking women's health who were not receiving services at MIHS refugee clinic. Men belonging to Refugee population or same cultural background interested in learning about RLP across the following languages: Arabic, Burmese, Kirundi, and Somali. Verbal consent detailing rights and other information regarding participation in experiment translated to their specific languages.

Exclusion Criteria: Men not related to refugee women.

A husband-wife team were identified and trained to provide RLP information to other couples. MIHS showed an animated video with voice overs, which was created by funding by the March of Dimes (MOD), which included a discussion guide with pre/post questions to men whose wives are enrolled in the RWHC. A pre and post-test regarding RLP was administered for men

and women in their local language. This was administered before and after provision of RLP education via presentations which will specifically include the MOD video. The culturally and linguistically appropriate video will:

1. educate men about reproductive life plans and birth spacing and how they are related to preconception care
2. assess readiness for behavior change

Women and men viewed the video in any of the following locations:

- MIHS family Learning Center
- In the community through outreach with refugee women and men
- In the exam rooms of 5 MIHS women's clinics.
- A trailer will be shown in the women's clinic waiting rooms
- Community locations: Community leadership homes

The narrative videos contained diverse group of three women speaking in a coffee shop and two men speaking with each other on a soccer field. Arizona eight-PBS created animated avatars with voice-overs recorded by local community members in the following languages:

Information was collected via a survey (pre and post questionnaire)

1. The survey evaluated the following concerns:
    a. Has the individual's knowledge concerning birth control increased, or has it remained the same?
    b. How likely is the individual to conform to the methods depicted in the video?
    c. How has their interest in the subject matter changed?
    d. Are they more likely to get help and guidance regarding this matter after seeing the video?
        i. Additionally, it will capture demographic information:
            1. Age, length of stay in US, country of origin, family planning, education, number of children, and occupation.
2. Data collected from Men and women were analyzed and comparisons were noted.

Data was analyzed quantitatively via the pre-and post-assessment surveys. Specific answer choices were categorized to particular numerical values. Each numerical value graded the subject on their increase in understanding of family planning and contraceptive methods.

Examples of Pre/Post Questionnaire Sample.

Pre and Post Questions

1: I know what it means when one talks about having a reproductive life plan.

2: The reproductive life plan is only about birth control.

3: Having a baby soon after another baby affects the next pregnancy.

4: It is good to wait 2 years before having the next baby.

5: Not having children is part of the reproductive life plan.

6: Taking care of medical conditions is important to do before getting pregnant.

7: It is important to men to have a reproductive life plan.

8: I am able to freely discuss having a reproductive life plan with my partner.

9: My partner is able to have his/her own opinion regarding reproductive life planning.

Figure 1

Example Evaluation Questionnaire

REPLAY Evaluation

1: I received the right **amount** of information in the video I watched.

2: The information presented in the video was **clear.**

3: The video I watched contained **helpful** information.

4: The video is **appropriate** for women from my ethnic/cultural background.

4.5: The video is **appropriate** for ***men*** from my ethnic/cultural background.

5: I would **recommend** this video to other women from my ethnic/cultural background.

5.5: I would **recommend** this video to other *men* from my ethnic/cultural background.

6: I would like to receive other health information in the same video format.

7: What language do you prefer to receive your health information?

8: I am likely to incorporate what I've learned into my future decisions about reproductive life plans.

9: I am likely to discuss with a healthcare provider about the topics today.

10: I am likely to discuss with my spouse about the topics today.

Figure 2

III. Results

Descriptive demographic features of the respondents were presented for gender, faith, country of origin, age, marital status, level of education, number of years in the US, and number of children. The RLP knowledge was assessed before and after the videos using the pre- and post-test questionnaires. Five category Likert-scale responses were presented as percentages of respondents, and then dichotomized based on the levels of agreement for clearer interpretation. Strongly agree and agree responses were grouped and compared against all other responses (neutral, disagree, strongly disagree). Tables were also presented with agree/strongly agree data only (for the same reason as above). Any change in knowledge after the exposure to the videos were compared with McNemar's test for marginal homogeneity using the pre- and post-video response pairs.

Demographics

Descriptor								
Gender	Male: 32.5%	Female: 67.5%						
Marital Status	Single, Never Married: 12.5%	Married: 85.8%	Divorced: 0%	Widowed: 1.7%	Separated: 0%			
Age Group	18-24 yo: 19.2%	25-31 yo: 29.2%	32-38 yo: 27.5%	39-45 yo: 7.5%	>45 yo: 15.8%			
Years in US	<1 year: 18.3%	1-5 years: 52.5%	5-10 years: 25.0%	>10 years: 2.5%				
Education	None: 18.3%	Primary: 22.5%	High School: 27.5%	High School Graduate: 15%	College: 9.2%	Advanced Degree: 5%		
Occupation	Employed: 34.2%	Unemployed: 60.0%	Student: 2.5%					
Children	No children: 6.7%	1-2 children: 36.7%	3-4 children: 21.7%	5-6 children: 10%	7-8 children: 8.3%	>8 children: 6.7%		
Religion	Catholic: 8.3%	Baptist, Methodist, Pentecostal: 37.5%	Muslim: 48.3%	Buddhist: 2.5%	Other: 0%	None: 0%		
Country	Burma: 22.5%	Ethiopia or Sudan: 4.2%	Burundi, DR Congo, Rwanda, Tanzania: 26.7%	Iraq: 30%	Somalia: 16.7%			
Primary Language	Arabic: 22.5%	Kirundi: 14.2%	Somali: 10.8%	Burmese: 15%	Chin: 2.5%	Kinyarwanda: 2.5%	Maay-maay: 5.8%	Multilingual: 26.7%
Language used for education	Burmese: 22.5%	Kirundi: 26.7%	Arabic: 33.3%	Somali: 17.5%				
Questionnaire in primary language, excluding multilinguals	Different language: 15.0%	In Mother-Tongue: 62.5%						

Table 1

All of the following are displayed in Table 1. There was no comparison of male and females within pre-test questionnaires nor was there any similar comparison in the posttest questionnaires. While comparisons like male versus female is possible, primary objective was to evaluate whether there was desirable change after the education. We compared demographic data, gender, and faith. There were 39 males and 81 females out of 120 individuals total. 23 participants were 18-24 years old age group, 35 were 25-31 years old, 33 were 32-38 years old, 9 were 39-45 years old, and 19 were > 45 years old. Regarding length of stay in United States, 22 participants had stayed for < 1 year, 63 for 1-5 years, 30 for 5-10 years, and 3 for > 10 years. 40 out of the 120 participants spoke Arabic, 13 spoke English, 27 spoke Burmese, 32 spoke Kirundi, and 21 spoke Somali. Regarding Marital Status, 15 were single or never married, 103 were married, and 2 were widowed. Regarding highest level of education, 22 had no formal schooling, 27 had primary school, 33 had up to high school. However, 18 were high school graduates, 11 had went to some college, and 6 had advanced degrees. 12 participants had no children, 44 had 1-2 children, 26 had 3-4, 12 had 5-6, 10 had 7-8, and 8 participants had > 8 children. Amongst our subjects, 10 were Catholics, 45 were of other Christian faith (Baptist, Methodist, Pentecostal), 58 were Muslims, and 3 were Buddhists.

Total Respondents Answers

	For all respondents	Number of respondents who strongly agreed or agreed			
Q#	Questions	Pairs*	Pre	Post	McNemar P
1	Know what RLP means	113	90	105	0.001
2	RLP is about birth control	115	79	71	0.215
3	Having a baby soon after…	113	80	93	0.024
4	Good to wait 2 years	115	102	106	0.388
5	Not having children…	110	56	67	0.061
6	Taking care of medical conditions…	115	107	111	0.289
7	Important to men	115	90	96	0.263
8	Freely discuss having a RLP	115	106	109	Not estimable
9	Partner able to have own opinion	117	102	105	0.629
10	Religion important for health	116	86	84	0.804
11	Faith important for making decisions	116	84	87	0.648
12	Decisions influenced by others in faith	116	59	51	0.229
13	Health negatively affected	115	55	56	>0.999
14	Health positively affected	117	69	65	0.618

*Table 2- Actual number of response pairs (pre-post, not M-F) may be less than 120 due to missing responses

Table 2 above displays only the “strongly agree” & “agree” responses since there were too few of the other responses. There was general improvement noted in knowledge for all the questions evaluated. Comparison of respondents with favorable responses increased in posttest. Significant improvement was noted in Question 1 (75% to 87.5%) and Question 3 (66.6% to 77.5%).

After the educational intervention, respondents were more likely to agree about knowing what RLP means (P = 0.001) and 'Having a baby soon after…' (P =0.024) in the post-survey.

Male Respondents Answers

		Number of Male respondents who strongly agreed or agreed			
Q#	Questions	Pairs*	Pre	Post	McNemar P
1	Know what RLP means	37	28	35	0.016
2	RLP is about birth control	38	21	23	0.804
3	Having a baby soon after...	37	27	31	0.424
4	Good to wait 2 years	37	30	34	0.289
5	Not having children...	36	16	25	0.035
6	Taking care of medical conditions...	38	35	38	Not estimable
7	Important to men	38	30	32	0.625
8	Freely discuss having a RLP	38	34	35	>0.999
9	Partner able to have own opinion	39	38	37	>0.999
10	Religion important for health	39	31	27	0.125
11	Faith important for making decisions	39	26	27	>0.999
12	Decisions influenced by others in faith	39	23	15	0.077
13	Health negatively affected	39	22	17	0.302
14	Health positively affected	39	27	21	0.238

* Table 3: Actual number of response pairs may be less than 39 due to missing responses

Female Respondents Answers

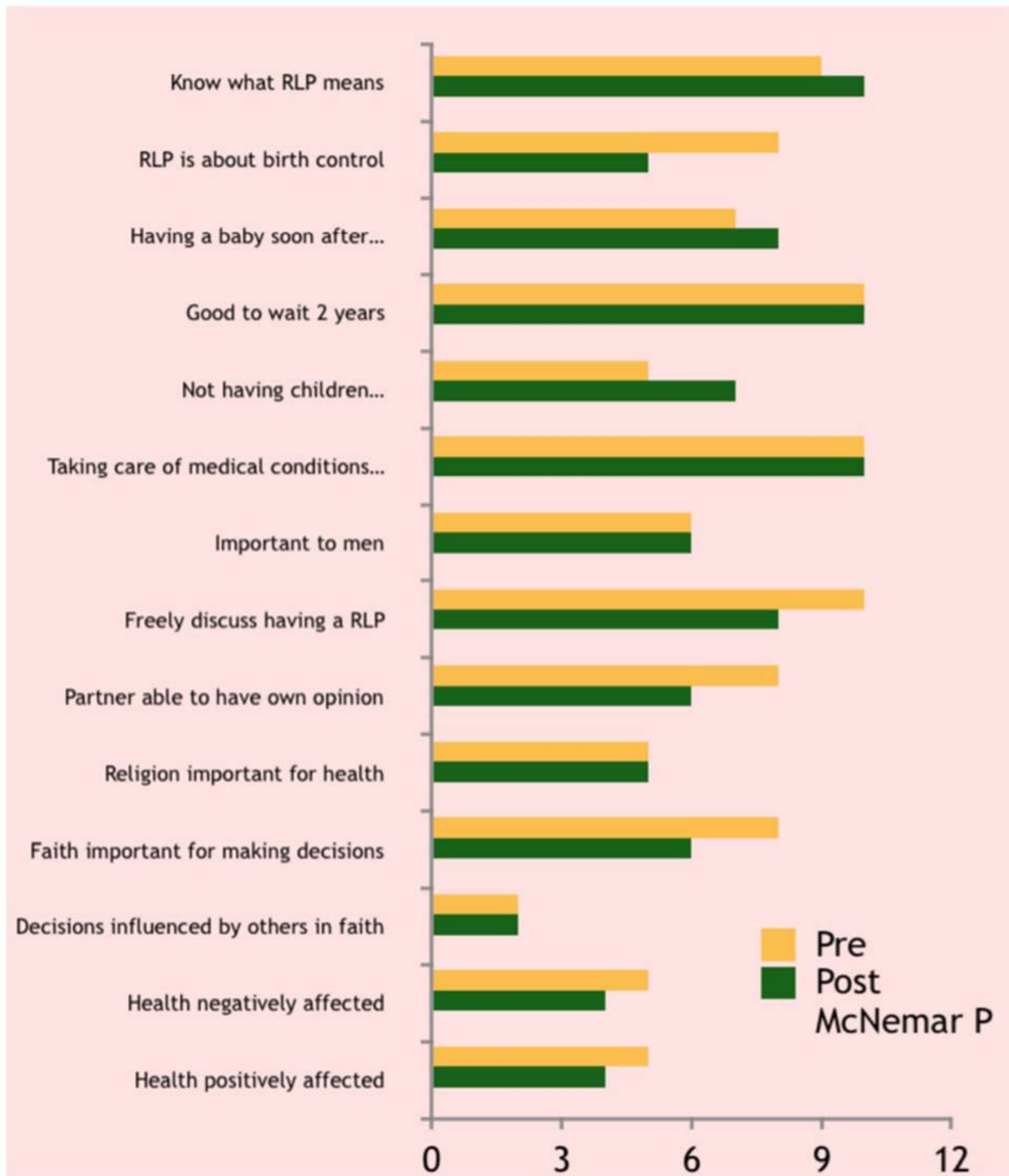
		Number of Female respondents who strongly agreed or agreed			
Q#	Questions	Pairs*	Pre	Post	McNemar P
1	Know what RLP means	76	62	70	0.039
2	RLP is about birth control	77	58	48	0.021
3	Having a baby soon after…	76	53	62	0.035
4	Good to wait 2 years	78	72	72	>0.999
5	Not having children…	74	40	42	0.791
6	Taking care of medical conditions…	77	72	73	>0.999
7	Important to men	77	60	64	0.454
8	Freely discuss having a RLP	77	72	74	Not estimable
9	Partner able to have own opinion	78	64	68	0.454
10	Religion important for health	77	55	57	0.774
11	Faith important for making decisions	77	58	17	0.774
12	Decisions influenced by others in faith	77	36	36	>0.999
13	Health negatively affected	76	33	39	0.286
14	Health positively affected	78	42	34	0.815

* Table 4: Actual number of response pairs may be less than 81 due to missing responses

Table 3 and Table 4 above displayed male and female respondent's answers to the questions. The analysis was conducted to examine all males from all ethnicities as one group and all females from all ethnicities as another group. There were some major differences in responses between the male and female respondents, which could be extrapolated via qualitative interviews.

In males, relative to pre-test, there was a significant increase in frequency of favorable responses in question 1 from (71.8% to 89.7%) and question 5 (41% to 64.1%). A higher frequency of male respondents agreed about knowing what RLP means in the posttest relative to pre-test (P = 0.016) as well as 'Not having children…' (P=0.035). Whereas in females, there was significant increase in favorable responses for question 1 (76.5% to 86.4%), question 2 (71.6% to 59.3%), and question 3 (65.4% to 76.5%.) Note that Question 2, regarding birth control, was reversely worded. Female respondents were more likely to agree to 'Know what RLP means' (P =0.039) and 'Having a baby soon after…' (P =0.035) after the training. They also were less likely to agree that 'RLP is about birth control' (P =0.021). Note that the frequency axis does not start at 0. There was the same degree of concordance, yet there also was discordance in the direction of opinions between women and men pre vs post-test answers. However, when comparing couples pre and post-test, there was no significant differences observed across genders.

Catholics Respondents Answers- Graph Form



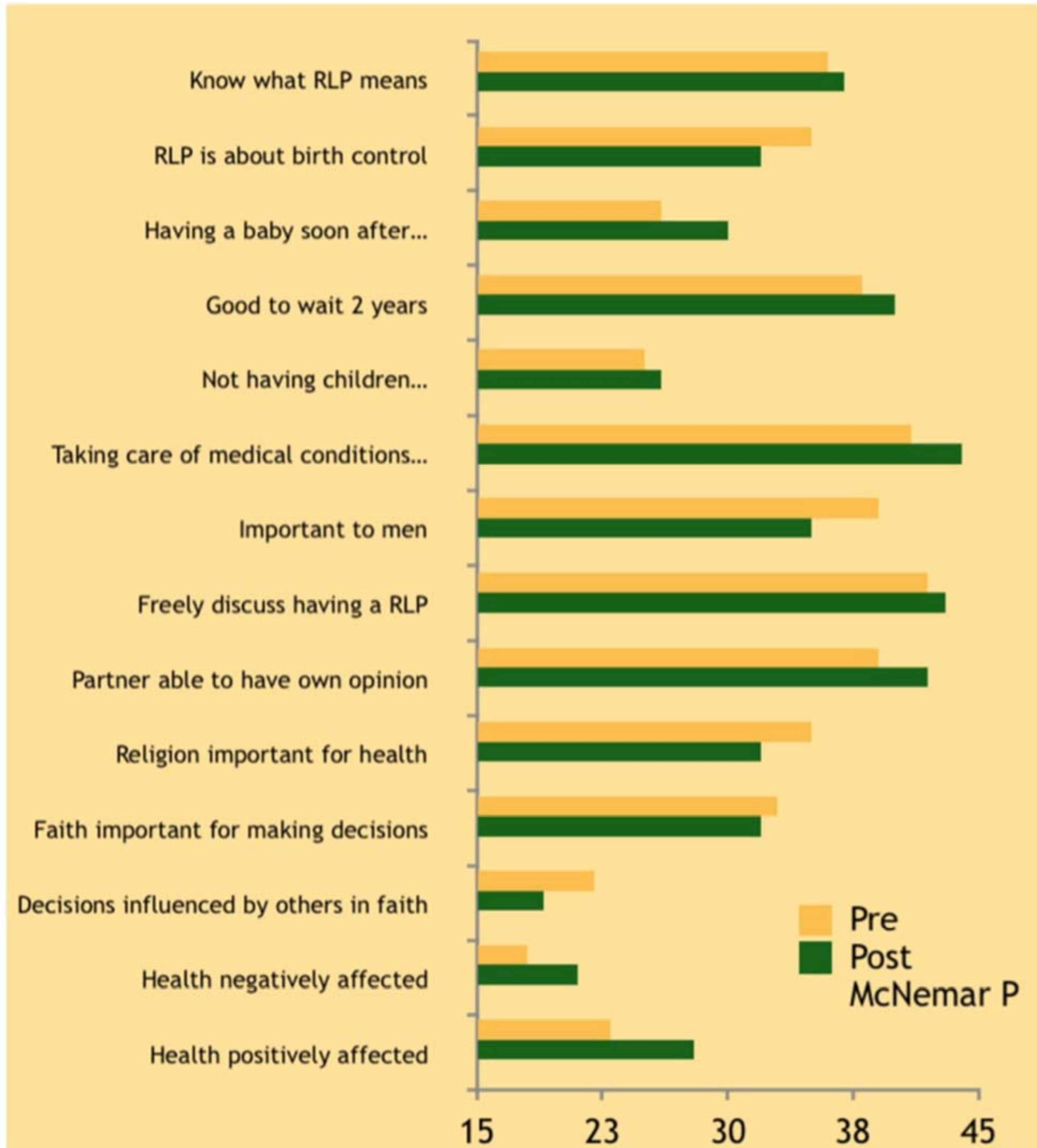
Graph 1

Catholic Respondent's Answers

	All Catholics Male and Female (N=10)	Number of Catholic respondents who strongly agreed or agreed			
Q#	Questions	Pairs*	Pre	Post	McNemar P
1	Know what RLP means	10	9	10	Not estimable
2	RLP is about birth control	10	8	5	0.250
3	Having a baby soon after...	10	7	8	>0.999
4	Good to wait 2 years	10	10	10	Not estimable
5	Not having children...	10	5	7	0.500
6	Taking care of medical conditions...	10	10	10	Not estimable
7	Important to men	10	6	6	Not estimable
8	Freely discuss having a RLP	10	10	8	Not estimable
9	Partner able to have own opinion	10	8	6	0.500
10	Religion important for health	10	5	5	>0.999
11	Faith important for making decisions	10	8	6	0.500
12	Decisions influenced by others in faith	10	2	2	>0.999
13	Health negatively affected	10	5	4	>0.999
14	Health positively affected	10	5	4	>0.999

* Table 5: Actual number of response pairs may be less than 10 Catholics due to missing responses

Other Christians Respondent's Answers- Graph Form



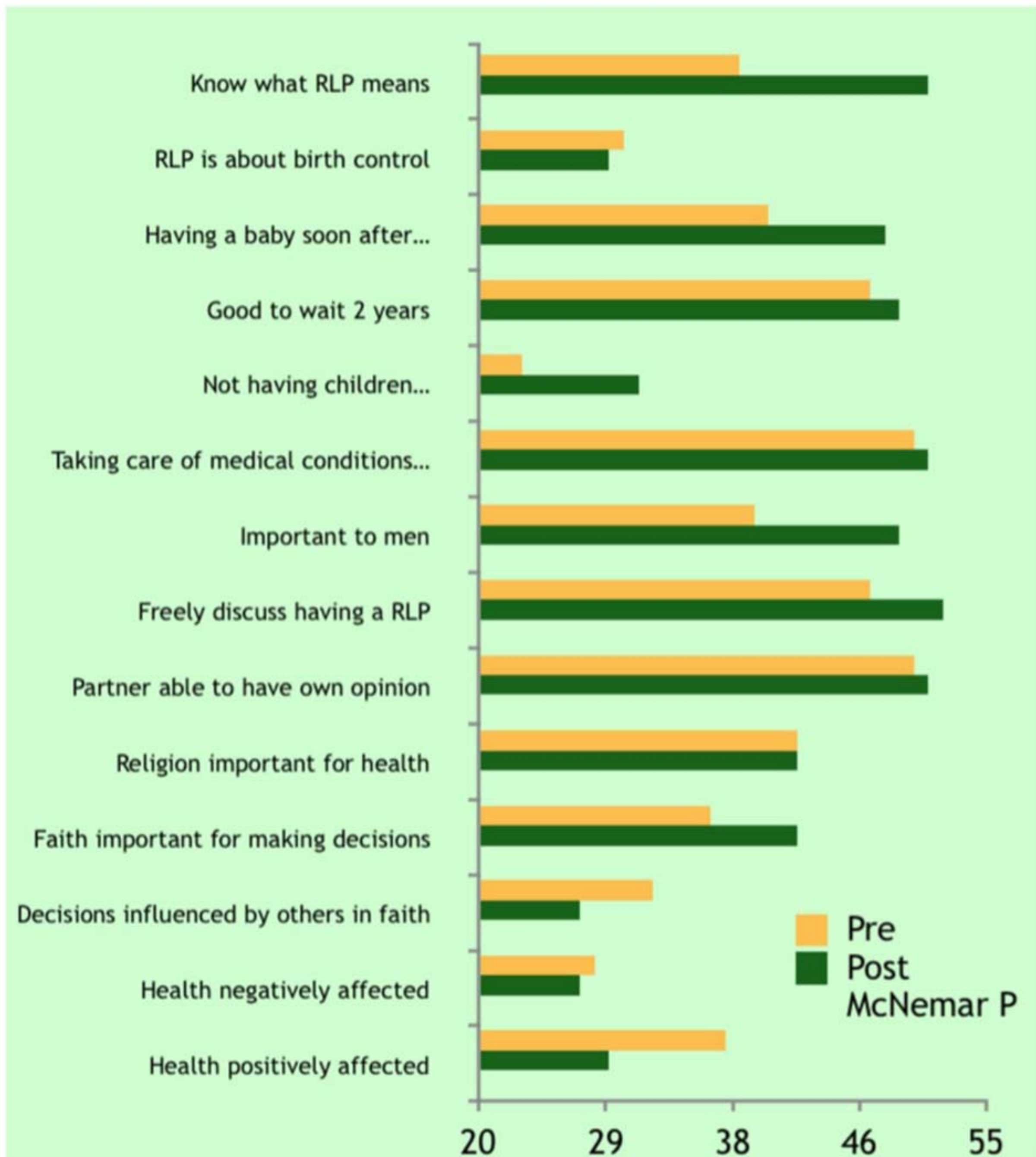
Graph 2

Other Christians Respondents Answers

		Number of ' Baptists, Methodists, pent' respondents who strongly agreed or agreed			
Q#	Questions	Pairs*	Pre	Post	McNemar P
1	Know what RLP means	44	36	37	>0.999
2	RLP is about birth control	44	35	32	0.508
3	Having a baby soon after...	43	26	30	0.344
4	Good to wait 2 years	44	38	40	0.500
5	Not having children...	42	25	26	>0.999
6	Taking care of medical conditions...	45	41	44	0.375
7	Important to men	45	39	35	0.219
8	Freely discuss having a RLP	45	42	43	>0.999
9	Partner able to have own opinion	45	39	42	0.375
10	Religion important for health	45	35	32	0.250
11	Faith important for making decisions	44	33	32	>0.999
12	Decisions influenced by others in faith	45	22	19	0.549
13	Health negatively affected	45	18	21	0.508
14	Health positively affected	45	23	28	0.227

*Table 6: Actual number of response pairs may be less than 45 Baptists, Methodists, due to missing responses

Muslims Respondents Answers- Graph Form



Graph 3

Muslims Respondents Answers

		Number of Muslim respondents who strongly agreed or agreed			
Q#	Questions	Pairs*	Pre	Post	McNemar P
1	Know what RLP means	52	38	51	<0.001
2	RLP is about birth control	54	30	29	>0.999
3	Having a baby soon after...	53	40	48	0.077
4	Good to wait 2 years	54	47	49	0.754
5	Not having children...	53	23	31	0.096
6	Taking care of medical conditions...	53	50	51	>0.999
7	Important to men	53	39	49	0.013
8	Freely discuss having a RLP	53	47	52	Not estimable
9	Partner able to have own opinion	55	50	51	>0.999
10	Religion important for health	54	42	42	>0.999
11	Faith important for making decisions	55	36	42	0.146
12	Decisions influenced by others in faith	54	32	27	0.383
13	Health negatively affected	53	28	27	>0.999
14	Health positively affected	55	37	29	0.115

*Table 7: Actual number of response pairs may be less than 58 Muslims due to missing responses

Amongst Muslim participants (Graph 3 and Table 7), we found improvement in question 1 (from 65.5% to 87.9%) and question 7 (from 67.2% to 84.5%). Muslims with low baseline scores demonstrated the greatest improvement in the post-survey. Their frequencies were higher, which led to more statistical significant changes. There were no differences when comparing couples. The graphs only examine each faith group individually. There were low frequencies in Catholics and general Christian groups (Graphs 1 and 2, Tables 5 and 6), which led to no statistical significance. Only 4 men were Catholics, therefore, analysis within those 4 observations for gender-faith sub-classification was not done. There were only 3 Buddhists, so no analysis was done, either. Overall, within the Catholics and other Christians (Baptist, Methodist, and Pentecostal), the differences were not statistically significant, but Muslims reported knowing what RLP means (P =<0.001) and 'Important to men' (P =0.013) more frequently in post-survey. Similar comparisons within countries and languages is possible, but frequencies are too low for some categories.

Responses by country of origin: Frequencies of respondents who agreed/strongly agreed

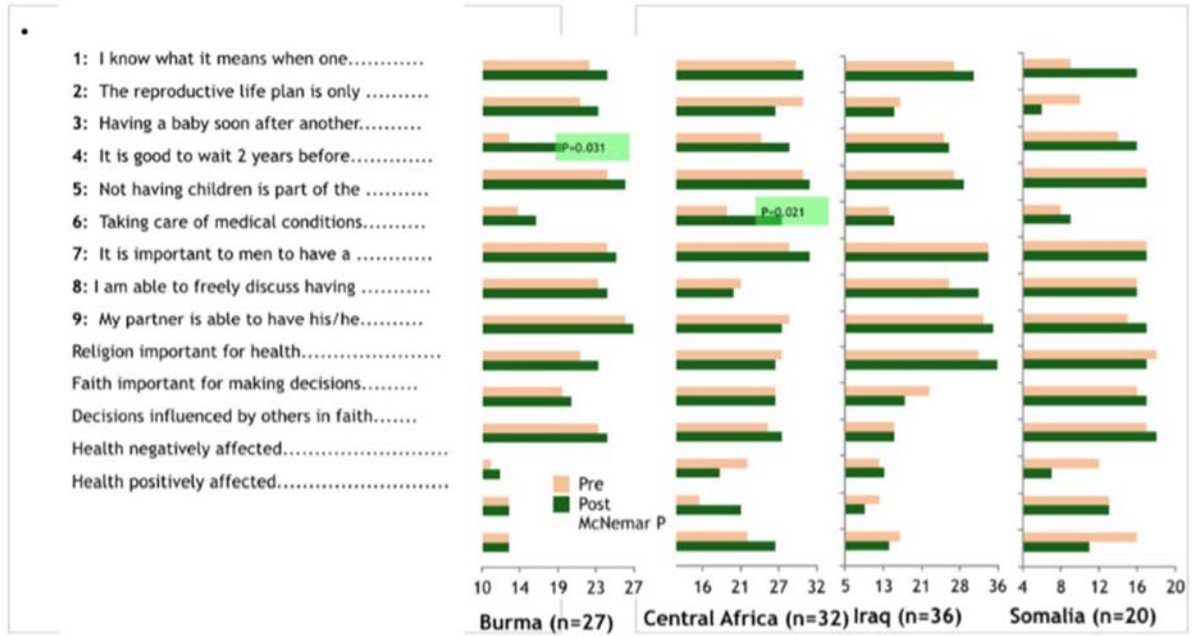


*Table 8

In participants from Burma (Table 8), we noted improvement in question 3 (from 48.1% to 70.4%) and improvement in question 5 (from 59.4% to 84.4%) in participants from Central Africa. Albeit not statistically significant, but we must take note of the changes in frequency observed in our study participants.

Due to inconsistent responses in our surveys, Cronbach's alpha was used to measure internal consistency of the questions measuring similar domains. The limitations could be imposed on this study due to possible incorrect grouping of the questions in a particular domain. The underlying assumption for grouping is dependent on the favorable response to question "x, y, and z" for example. A favorable response to question "x" should lead to a favorable response to question "y." If the questions are not comparable to measure the same basic principle, then it means that Cronbach's alpha measures are not applicable. Cronbach's alpha relies on measuring the "same" underlying knowledge.

We grouped questions into 5 different domains and evaluated consistency in responses. Note, that one question can be in more than one domain. The domains are listed below:

a. Knowledge/understanding of RLP: Questions 1, 2 & 5

b. Birth spacing: Questions 3 & 4

c. role of Partner: questions 7, 8 & 9

d. Effects on health: Questions 3, 4 & 6

e. Religion & faith: Questions 2 & 4

Cronbach alpha Scores of Pre and Post- Assessment Surveys

Domains	Questions	Pre
Knowledge/understanding of RLP	1, 2reversed & 5	-0.407
	1 and 5 only	0.049
	1,2 (not reversed), 5	0.296
Birth spacing	3 & 4	0.586
role of Partner	7, 8 & 9	0.599
Effects on health	3, 4 & 6	0.541
Religion & faith	2reversed & 4	-0.935

Domains	Questions	Post
Knowledge/understanding of RLP	1, 2reversed & 5	-0.327
	1 and 5 only	0.203
	1,2 (not reversed), 5	0.320
Birth spacing	3 & 4	0.666
role of Partner	7, 8 & 9	0.257
Effects on health	3, 4 & 6	0.400
Religion & faith	2reversed & 4	-0.674

Table 9

Alpha values from 0.7 to 0.6 are questionable, 0.6 to 0.5 are poor, and < 0.5 are unacceptable. Most of the alpha values were less than 0.5 and were deemed unacceptable (Table 9). In pretest answers, birth spacing, role of partner, and effects on health were > 0.5. In posttest answers, there was not the predicted improvement and most alpha values were < 0.5. Only one value, birth spacing, was > 0.6 and was deemed questionable.

Respondents Perception of Audiovisual Modality

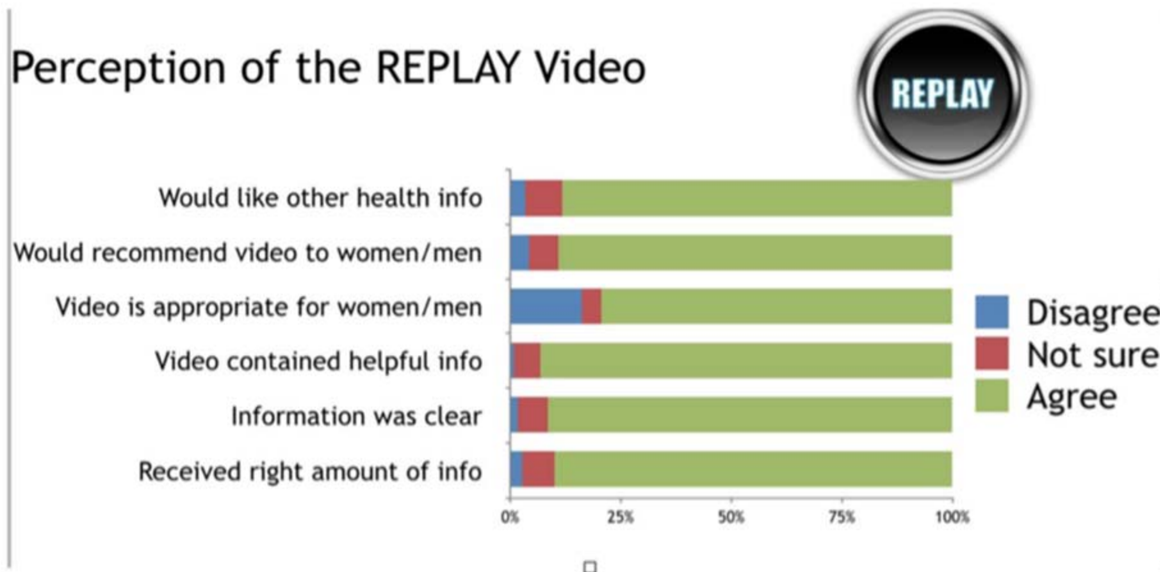


Table 10

Educational intervention was positively received by the target communities (Table 10). 75/120 (62.5%) participants agreed the videos were presented in their native language, while no primary language was identified in 27/120 (22.5%). Overall, the results demonstrated improved health literacy using a novel approach of incorporating culturally and linguistically appropriate audiovisual modalities.

IV. Discussion

We had demonstrated our ability to mobilize several ethnic communities around the RLP. Respondents among both genders were more likely to agree about knowing what RLP means. The most challenging aspect of our community mobilization efforts was recruiting a larger sample size to participate in the study. There were difficulties in mobilizing the men due to their busy work schedules/other obligations. Attempts to engage community leaders to help recruit more men proved unsuccessful. Strategies could include providing flyers or video demonstrations at religious organizations or among the leasing office where the refugees reside. The most powerful recruitment aid would consist of the assistance of a trusted leader in the community. Using strong word-of-mouth dissemination by trusted community leaders and strong community ownership of the project would lead to stronger motivation to ensure strong support and turn-out at events. Another possible suggestion is increasing the amount of incentives, like gift cards or providing additional resources like diapers or other baby supplies as another strategy.

Another limitation was the use of the Likert scale in a population with low literacy as we had noticed some discrepancies in responses to negatively-worded questions, which was more profound in men than women. Perhaps, future studies could use a visual analog scale of smiley faces to assist those with limited literacy and help incorporate a more global feel. Visual analog scales have been successfully applied in other studies. In a recent study by Dr. Johnson-Agbakwu et al, due to the low literacy in the study population (Somali refugees), visual analog scale was found to be more applicable than the typical 5-point Likert scale. [16]

We did seek cultural equivalence during the translation process of the original tool, and the limited understanding may be due to the extremely low health literacy of the refugee population given that many women may not have had formal education, and the RLP may be an entirely new concept for them. Adult literacy programs have been used as a means to improve women's reproductive health and empowerment. A study of Sierra Leonean and Liberian refugees, in which literacy classes were held twice a week for 6 months with the focus on safe motherhood and family planning. Through a written test of literacy skills, the project

determined that participants had an increased gain of literacy skills and health knowledge. Contraceptive use had increased to 48%, with a dramatic increase in boldness. However, it was noted that schooled women had a better progress with reproductive life planning than did their non-schooled counterparts, 53% versus 42% respectively, and were more likely to be using a contraceptive, (54% versus 45%). Yet, both had maintained good knowledge retention and positive behavior skills. In contrast, communication with partners about reproductive health topics increased significantly for both overall despite the educational level of the female, up to 84% and 90% significantly for both non-schooled and schooled females respectively. This project had hoped to accomplish this increase in conversation amongst the couples as well.[10]

Multicultural studies like this have not been performed with refugee couples in regards to reproductive life planning, but previous studies did highlight gender-specific issues. A study of Guinea refugees displayed that women refugees knew more about family planning than male refugees. Male refugee's interest in family planning was determined by their educational level, where this factor was not a huge determinant in female refugees. Approval for family planning was higher, up to 90% in females, compared to 70% in men. This study was able to illustrate that more than 40% reported not having discussed the concept of family planning with their partner. More men seemed inclined to obtain information from non-health resources, such as friends and media. The study concluded that family planning communication strategies should consider gender-specific messages and channels. This study did dwell deeper into this topic, but a higher power and male participation would have been more helpful.[17]

One project focused on Somali refugees in the US and the use of key influencers like men and the Imam, religious leaders in Islam. Interviews were conducted by a Somali immigrant with a public health degree. In this study, 25 Somali women, 12 Somali men, 3 Imams, and 7 Western health care providers were interviewed. With the Imams, questions were focused on religious interpretations of childbirth, family size, and acceptable child spacing practices. To avoid the possibility that the Somali men and Imams would provide different answers to a Westerner, especially in regards to these sensitive topics and religious questions, a well-respected and trusted physician of Somali descent had asked these questions and handled the discussions in

the Somali language. This project had followed with that principle by using the influential leaders, or at least well-respected community members, to participate as leaders of the focus group sessions. The author had urged similar studies to be performed across other Somali communities in the US.

Imams needed education on natural child spacing methods and Western versions of birth control. They would benefit from a detailed overview of a full range of spacing options, from breast-feeding methods to contraceptives, that illustrated chances of getting pregnant when using them. One method of performing this feat is through community lectures for Imams by Somali physicians with a pamphlet written in the Somali language. Other methods include incorporating this information on Somali TV and radio stations. In addition, the Somali refugees in the U.S. could benefit from gender equality training and discussion workshops that are held by respected male community leaders who embrace the gender equality concept. This peer-to-peer training would promote women's rights and create a new image of manhood as it is related to managing the household and participating in family decision-making. This project could also apply this principle to the community leaders leading the focus group sessions.[18]

Improvement in knowledge was clearly displayed in the simpler, straight forward questions, which makes this internal inconsistency of the response of secondary importance. If the project was adapted correctly, possibly factor analysis could possibly have been possible though it is an abstract concept. Albeit not statistically significant, but we must take note of the changes in frequency observed in our study participants. Lastly, Catholics were compared against other Christian denominations because the Catholic Church has a strong stance on any use of contraceptives.

V. Future Directions

Study will serve as stepping stone to future studies to delve further into understanding refugee communities and help improve their health outcomes. For future studies, the ultimate goal would be to reduce rates of low birth weight and preterm deliveries by encouraging the women to achieve optimal health before entering into pregnancy. The plan is to recruit more men by asking aid of the influential leaders in each of the refugee communities and incorporating other methods (gift cards or baby essentials like diapers) to assimilate the RPL concepts and thus promote the audio-visual modality.

VI. Conclusions

This is the first reported U.S. initiative to provide a culturally and linguistically-appropriate preconception health education. We are among the first to apply a multilingual audio-visual modality, across a multi-ethnic sample of newly-arrived refugee women and men with limited health literacy. We explored the role of faith/spirituality in medical decision-making regarding Reproductive Life Plans. In general, participants demonstrated increased knowledge on preconception care, focusing on developing a Reproductive Life Plan and the importance of birth spacing. The project had demonstrated ability to mobilize several ethnic communities around the RLP.

A sole focus on women is inadequate because it fails to take into account the decision-making dynamics in their families. Men as partners reflects the view that men can improve, or impede, the woman's contraceptive use and reproductive health. The audiovisual modalities will help dispel some of the myths regarding men's views of family planning, sexuality, and health. Further, despite using facilitators speaking the same language as the subjects, the understanding of the refugee population of the questions might be limited. There could be cultural differences, reservations about discussing sensitive and personal issues, inexperience with such surveys, and other factors that influenced what the questionnaires were trying to measure.

Future expansions will include mixed-methods, larger sample size, and in-depth qualitative interviews. There will be further exploration of the utility of Visual Analog (Likert) Scales for low literate populations. Additionally, there will be examinations of geographic differences among and between other ethno-cultural sub-groups in other regions of the United States.

VII. References.

1. Stern J, Larsson M, Kristiansson P, Tyden T. Introducing reproductive life plan-based information in contraceptive counselling: An RCT. Human Reproduction. 2013;28(9):2450–2461. doi:10.1093/humrep/det279.
2. Shachar BZ, Lyell DJ. Interpregnancy interval and Obstetrical complications. Obstetrical & Gynecological Survey. 2012;67(9):584–596. doi:10.1097/ogx.0b013e31826b2c3e.
3. UNICEF STATISTICS. http://www.childinfo.org/maternal_mortality.html. Accessed February 27, 2017.
4. Gagnon A, Merry L, Robinson C. A Systematic Review of Refugee Women's Reproductive Health. Canada's Journal on Refugees. 2002; 21 (1): 2. http://refuge.journals.yorku.ca/index.php/refuge/article/view/21279
5. Salisbury P, Hall L, Kulkus S, et al. Family planning knowledge, attitudes and practices in refugee and migrant pregnant and post-partum women on the Thailand-Myanmar border – a mixed methods study. Reproductive Health. 2016;13(1). doi:10.1186/s12978-016-0212-2.
6. Johnson, C. E. (2011). Sexual health during pregnancy and the Postpartum (CME). The Journal of Sexual Medicine, 8(5), 1267–1284. doi:10.1111/j.1743-6109.2011.02223.x
7. Hynes M. Reproductive health indicators and outcomes among refugee and internally displaced persons in Postemergency phase camps. JAMA. 2002;288(5):595. doi:10.1001/jama.288.5.595.
8. Integrating a Reproductive Life Plan & PreConception Counseling into Patient Education Web Site. www.in.gov/isdh/files/GaylaSteve_IFHC_Reproductive_Life_Planning_100711.pptx Published 2016. Accessed February 27, 2017.
9. Health Literacy and Patient Safety: Help Patients Understand. http://med.fsu.edu/userFiles/file/ahec_health_clinicians_manual.pdf. Published May 2007. Accessed February 27, 2017.

10. McGinn T, Allen K. Improving refugees' reproductive health through literacy in guinea. Global Public Health. 2006;1(3):229–248. doi:10.1080/17441690600680002.

11. Okanlawon K1, Reeves M, Agbaje OF. "Contraceptive use: knowledge, perceptions and attitudes of refugee youths in Oru Refugee Camp, Nigeria." Afr J Reprod Health. 2010 Dec;14(4 Spec no.):16-25. https://www.ncbi.nlm.nih.gov/pubmed/21812194

12. Semere L, Angeles CL, Medicine, et al. 264804 prenatal care utilization in a dedicated refugee clinic. https://apha.confex.com/apha/140am/webprogram/Paper264804.html. Accessed March 6, 2017.

13. Cates, W. "The dual goals of reproductive health."Netw Res Triangle Park N C. 1996 Spring;16(3):3 p. https://www.ncbi.nlm.nih.gov/pubmed/12293921

14. Piotrow, P. T., Kincaid, D. L., Hindin, M. J., Lettenmaier, C. L., Kuseka, I., Silberman, T., … Kim, Y.-M. (1992). Changing men's attitudes and behavior: The Zimbabwe male motivation project. Studies in Family Planning, 23(6), 365. doi:10.2307/1966894
15. Drummond, P. D., Mizan, A., Brocx, K., & Wright, B. (2011). Using peer education to increase sexual health knowledge among west African refugees in western Australia. Health Care for Women International. doi:10.1080/07399332.2010.529215
16. Johnson-Agbakwu CE, Flynn P, Asiedu GB, Hedberg E, Breitkopf CR. Adaptation of an acculturation scale for African refugee women. Journal of Immigrant and Minority Health. 2014;18(1):252–262. doi:10.1007/s10903-014-9998-6.
17. Howard N, Kollie S, Souare Y, et al. Reproductive health services for refugees by refugees in guinea I: Family planning. Conflict and Health. 2008;2(1):12. doi:10.1186/1752-1505-2-12.
18. Deyo, Nancy S. Cultural Traditions and the Reproductive Health of Somali Refugees and Immigrants. San Francisco, CA: Gleeson Library; 2012.