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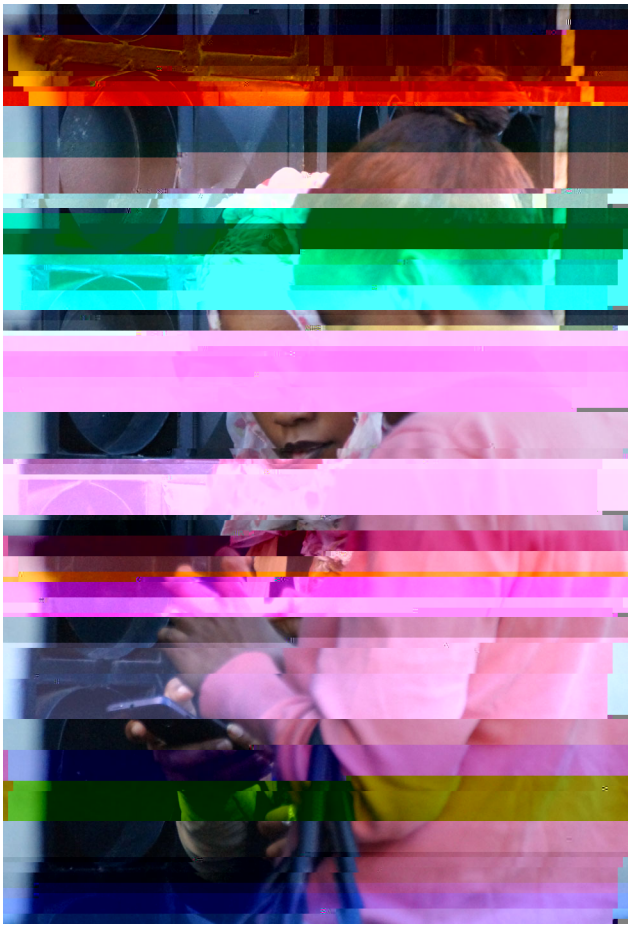

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CONTRIBUTORS TO THE TECHNICAL REPORT

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EXECUTIVE SUMMARY

The Women's and Girls' Empowerment in Sexual and Reproductive Health (WGE-SRH) project is the product of a collaborative study involving research teams from Addis Ababa University in Ethiopia; Bayero University Kano and the Center for Research, Evaluation and Resource Development in Nigeria; Makerere University in Uganda; and the Bill & Melinda Gates Institute for Population and Reproductive Health at Johns Hopkins University in the United States. The project aimed to 1) develop a comprehensive WGE-SRH framework, building on existing literature and grounding our process in the voices of women from different geographies and cultural settings in sub-Saharan Africa, and 2) develop a quantitative WGE-SRH index reflecting the proposed framework. The resulting multidimensional WGE-SRH index captures a process including women's sexual and reproductive autonomy (existence of choice) and women's sexual and reproductive self-efficacy, decision-making, and negotiation (exercise of choice). The WGE-SRH index was developed and tested across three sub-Saharan African country settings (Ethiopia, Nigeria, and Uganda).

The study results contribute to existing literature in three ways. First, the multidimensional empowerment construct encompasses different aspects of women's sexual and reproductive lives, particularly their experiences with sex, contraception, and pregnancy. This strengthens the current body of research on sexual and reproductive health (SRH) empowerment, which has been limited by lack of emphasis on sex and pregnancy, by empirically and qualitatively assessing the constructs' relationships with these three SRH outcomes. Second, it distinguishes between concepts of autonomy and self-efficacy that are independently related to SRH behaviors. Contrary to the previous literature, this distinction between *existence of choice* and *exercise of choice* is important, as we find that the concepts relate to SRH outcomes in unique ways and must be examined as such. Third, sub-scale results and the overall index have been validated for measurement of empowerment related to volitional sex and contraceptive use across four diverse geo-cultural contexts (two in Nigeria), providing comparative value. By including women from urban and rural communities, polygamous and non-polygamous unions, and different sociocultural backgrounds, we aimed to capture the diverse contexts in which women make SRH decisions.

Drawing on the qualitative results, we developed and pilot-tested items reflecting the proposed WGE-SRH conceptual framework. Through this process, we uncovered common internal and external motivations and pressures influencing women's decisions to engage in sexual activity, use contraception, and have children. In all settings, stigma related to female sexuality, perceptions of male sexual entitlement, and fear of relational sanctions strongly influenced women's sexual motivations. These findings are reflective of broader gender inequalities at the societal and couple levels. Social expectations regarding childbearing and widespread fear of infertility also constrained women's childbearing and contraceptive autonomy. These constraints, captured in our cross-site autonomy sub-scales, were significantly associated with volitional sex and use of contraception in most sites.

This study builds on existing measures by elucidating social pressures that extend beyond dyadic power relations to include internal motivations, such as health

Women and Girls Sexual and Reproductive Health Empowerment Index and Sub-scale Items for Sex, Contraception and Pregnancy

Existence of choice (autonomy) sub-scales
Sexual autonomy (4 items)—Cross-site Cronbach's alpha=0.76

INTRODUCTION TO THE WOMEN'S AND GIRLS' SEXUAL AND REPRODUCTIVE EMPOWERMENT MODULE

Over the past two decades, there has been growing international interest in the concept of empowerment for understanding the mechanisms that drive development outcomes. A particular locus of attention has been on women's empowerment, including sexual and reproductive empowerment, as a means of accelerating progress towards millennium and sustainable development goals (MDG; SDG).[1,2] Specifically, SDG-5 aims to achieve gender equality and empowerment of all women and girls through the elimination of violence and harmful practices, recognition of women's work, participation of women in decision-making, and guarantee of women's access to sexual and reproductive health (SRH) services.[3]

A growing body of literature exists on the relationship between women's empowerment and SRH outcomes to enhance these goals. Specifically, linkages between empowerment and SRH outcomes have focused on building collective empowerment at the societal level as the foundation to women's empowerment. This recognition of empowerment as a product and process of society is imperative to advocacy efforts that support changes within the social environment. Equally important, is the elucidation of cognitive and psycho-social processes occurring at the individual level, which foster empowerment and may inform individual SRH b

LITERATURE REVIEW

This section identifies existing definitions of empowerment, explores the overlap of empowerment and SRH, describes existing frameworks and measures related to empowerment, and highlights gaps in this literature.

Existing Definitions of Empowerment

In 2000, the United Nations identified the promotion of gender

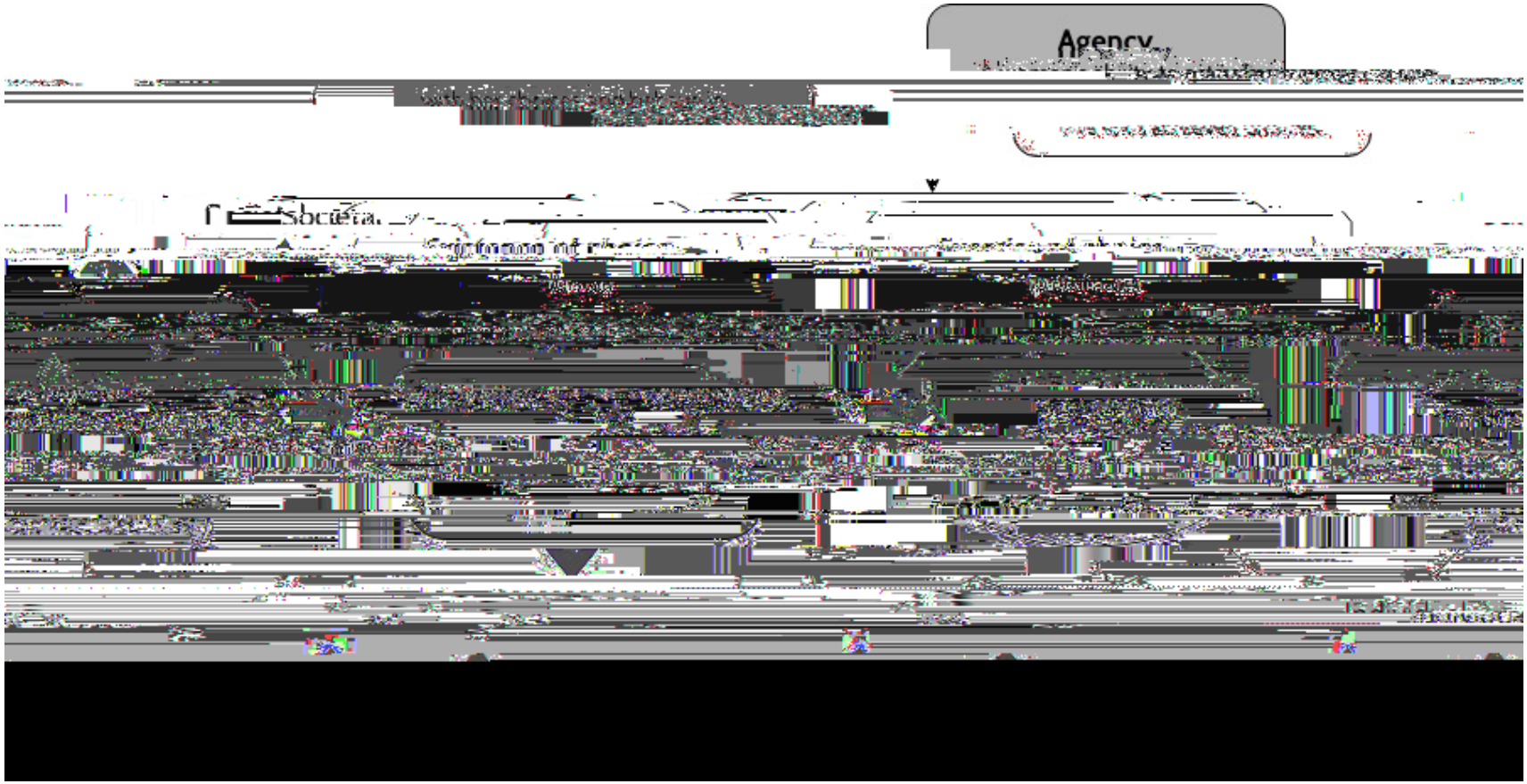
interests).[7,8] Additional work has focused specifically on social norms change and incorporated individual empowerment as part of the process, but their frameworks and measurement were not specific to empowerment.

While models differ, they all recognize choice and decision-making as pivotal to women's SRH empowerment and identify power relations as a key obstacle to women's achievement of their goals. The World Bank's distinctive contribution involves the internalization of these power structures at the individual level in an effort to describe how they contribute to individual goal-setting and actions. Conversely, the unique contributions of the KIT/BMGF and ICRW models are to highlight gender inequality as an institutional obstacle to women's SRH wellbeing. In that respect, we suggest the World Bank's framework is better suited to demonstrate the predictive effect of women's empowerment on individual behaviors, while the KIT/BMGF and ICRW models are better equipped to assess the role of *collective efficacy*, through voice, and representation to address the structural barriers to women's SRH wellbeing.

Gaps in Current SRH Empowerment Measures

definitions recognize its dynamic nature and diverse manifestations across a woman's reproductive life course, however, as both a process and outcome in itself, this dynamic process is poorly captured in the current research literature. A thorough understanding of the factors that influence and result from women's SRH empowerment will require longitudinal data.

Figure 1. Women's and Girls' Empowerment for Sexual and Reproductive Health (WGE-SRH)

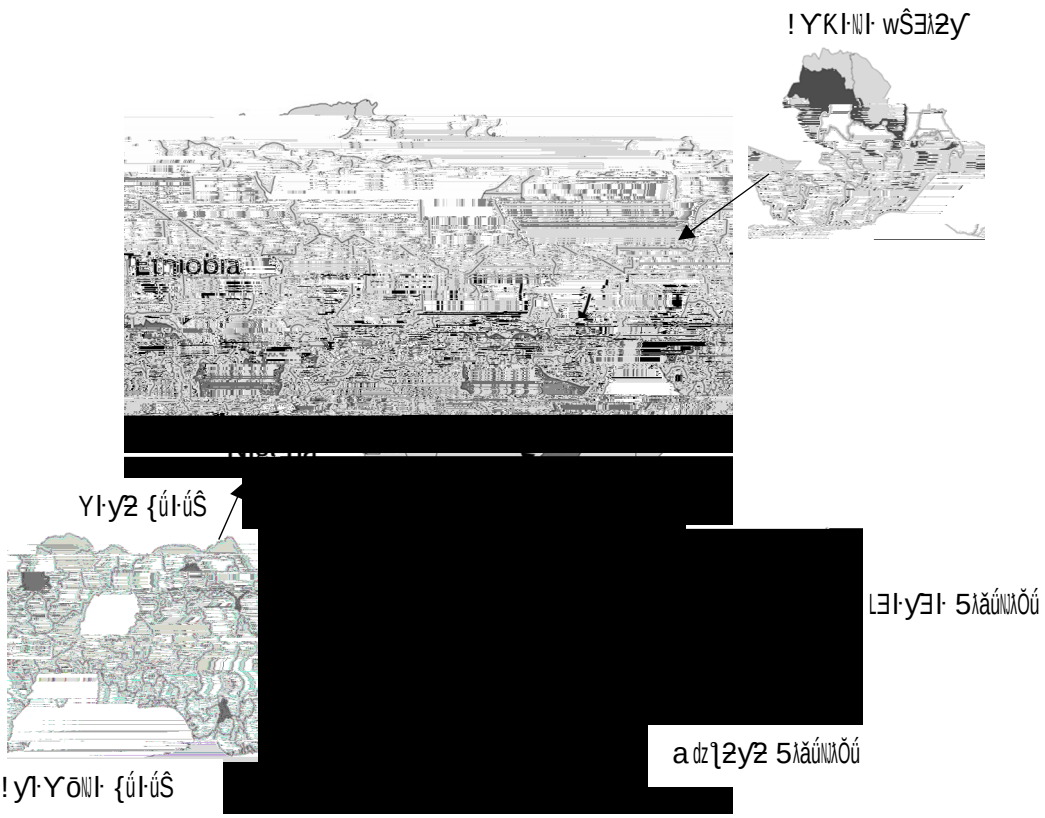


framework, our outcomes focus on the individual's actions: sex by choice, preferred contraceptive use by choice, and pregnancy by choice.

In the realm of the WGE-SRH study, empowerment is viewed as a continuous process that γ l Į M ʿ r M ra mʿ

each treated as independent sites for this study. Within each of the four sites, we included urban and rural areas to account for the internal diversity of contexts informing WGE-SRH processes.

Figure 3. Map of Geographies for the WGE-SRH Project



FORMATIVE PHASE: QUALITATIVE METHODS

The qualitative phase was implemented from March to November 2017. A total of 440 women aged 15-49 and men aged 18 and older across four sites in Ethiopia, Nigeria, and Uganda were

status, and area of residence) within each site to recruit women and men for both FGDs and IDIs. Once households were identified, gatekeepers within the communities provided initial information to participants to introduce women to the study objectives and sensitive interview topics. Potential participants were then given the opportunity to contact the in-country study team with any questions or concerns. Once interest was expressed, the trained interviewers conducted eligibility screening and consent with each woman privately. Eligibility criteria included women aged 15-49 (or men whose wife was 15-49) who resided within the study region. All consent procedures were consistent with in-country IRB guidelines (verbal/oral); head of household consent and/or child assent was sought for women age 15-17 per ž š ľ ļ y !

In-Depth Interviews

IDIs were conducted with individual partners from twelve couples (men and women), as well as six additional single women per site (n=30 per site for a total of n=120 IDIs across four sites). Given the potentially sensitive nature of interviewing couple dyads, IDI consent to participate was first obtained from the female partner and then allowing her to decide after her interview whether or not she wanted to permit her husband to be approached for an

the WGE-SRH Qualitative Workshop, which served as the first opportunity for analysis of cross-site themes related to WGE-SRH empowerment. Coding discrepancies within and across sites were discussed at this workshop; codebook revisions were made prior to final coding revisions of all transcripts and cross-site analyses by code and WGE-SRH framework dimension.

The primary analysis of qualitative data focused on the transferability of qualitative results to the

FORMATIVE PHASE: FINDINGS

Key Findings

- Women's sexual autonomy is constrained by gender norms promoting male sexual entitlement.
- Few women discussed sexual pleasure as a reason for engaging in sexual activity; rather, it was thought of as a marital obligation
- Women preferred to exercise their preferences to have or abstain from sex non-verbally
- Women faced pressure to conceive soon after marriage and to have children to preserve their marriages
- Women's contraceptive decisions were informed by the necessity to preserve their reproductive capacity
- Despite limited conversation and sometimes high opposition from partners surrounding contraceptive use, some women exercised their reproductive

Empowerment in Sexual Decisions

Across all sites, sex was primarily thought of as a marital obligation and for procreation purposes. Both men and women described being taught marital responsibility prior to marriage, including how to be a good spouse and fulfill sexual obligations. Conjugal rights, sexual fulfilment, and responsibility were commonly discussed from both a religious and cultural perspective and held for both men and women within the confines of marriage:

> *None of us has the right to deny the other sex. Why are we man and wife and what is the binding factor in a marriage, is it not sex? So why will you have a choice? You are asking for trouble if you deny your partner sex. So, for me, I don't have choice to do that neither does my wife have a choice. You are an Igbo man so use your tongue to count your teeth and tell me how many they are? It is not possible.*
>
> *-Anambran Urban Male, Age 41, Married, IDI*

Although sexual responsibility as discussed for both partners was seen as a means to strengthen the union, male sexual entitlement prevailed across sites, leading women to "accept" sex for fear of partnership dissolution or in order to "keep the peace." Entitlement was further reinforced by community norms and religion, with participants citing both Christian and Muslim religious teachings as justification for women "accepting sex:"

> *God gave this as a commandment in marriage. And it is a sin for a man to desire his wife and she refuses him. Till the break of dawn, angels will put curses on her. If she is well mannered, whether she wants to or not, she will have to endure like that. In order to obey God. Even just to please God she has to do it. Even if she desires the man and he refuses her, she has to endure. Just for peace to reign*
>
> *-Kano Rural Female, Age 18+, Married, FGD*

She can't even refuse him because the bible says sex is the man's right. As long as she is physically fit, there's no need to say no. Even if the woman doesn't have the strength, she should try and do it. So that there will be peace. In my community refusal of sex by a married woman is seen as a bad thing. She should try and do it. No matter what.

I will tell him that I am sick. I will try to explain my health condition to him. I will also tell him stories that could withdraw his attention from sex and I will not sleep in the same room with him.

-Anambran Urban Female, Age 43, Married, IDI

I would tell him that it was a fasting day and also some days where it is a holiday. I did not want to have sex during those periods. God has permitted us to live and it is because of him that we are alive so we shouldn't disappoint God by violating his rules. He accepted me when I told him this.

-Ethiopian Urban Female, Age 25-29, Married, IDI

Empowerment in Pregnancy Decisions

in the context of the couple's economic capacity. Generally, both men and women recognized the restraint on childbearing imposed by economic circumstances.

> *Main reason for deciding to have only two children is economic situation, if you have better income, you may make it three, but not too much, making too much is not good.*
>
> *-Ethiopian Urban Male, Age 29, Married, IDI*

In line with changing economic capacity, respondents discussed

My friends view is that of they want to take it if they can, and if they do not it is up to them, but they have to get the consent of their husband before they can do such thing. Because a friend cannot advice you to take it, isn't it? A friend cannot advice you to take it, if you want to have peace in your home, because it is not the friend the husband is married to... if she will like to take it, she will have to tell her husband about it.

-Kano Rural Female, Age 18-24, Married, FGD

Women considered factors at multiple levels to assess contraceptive acceptability and restraints on contraceptive choice. Providers were mentioned as influencers of contraceptive decisions, and coercive contraceptive experiences at both the provider- and couple-level were frequent.

I told the doctor to make me stop producing and he told me that he was going to get me a family planning that was not permanent though for me I wanted a permanent method. I had told the doctor to do a tuba-ligation on me though he refused that I am still a young woman. He told me that he would do something to me to stop producing.

-Ugandan Urban Female, Age 26, Married, IDI

Discussions surrounding modern method side effects, particularly fear of infertility, and fear of relationship dissolution were discussed prominently as reasons for non-use. Misconceptions and perceptions of peers' side effects often drove these fears, rather than actual experience of side effects.

Furthermore, in Ugandan, women discussed higher-level fears surrounding the purpose of contraception. These fears included coercion by both white and rich people to limit births.

Most of them don't support it they know that its God who plans the family – what they say is that the whites introduce systems to destroy should I say Africans. They think those whites put something in Africans so that they get to a point when they cannot some have any children because of these family planning methods. That's why most people have one child, ten years have passed and someone was using family planning which she stopped after four years then after six years when the child has failed to come. So they got to learn that these whites have some chemicals they add in these contraceptives, because they are the manufacturers.

-Ugandan Urban Female, Age 18-24, Married, IDI

I think the rich have upper hand. So, we the poor we fear to talk about it because all the time we are dependent on the man but this one who has the money will not fear talking about it because she has the money. She will not get worried because she can look after children, but we the poor you just give in to whatever the man says.

-Ugandan Urban Female, Age 30-49, Married, FGD

To exercise choice, across sites, women relied on non-verbal communication to exercise their contraceptive preferences; covert use of contraception was pervasive in participants' discourse. Some women used contraception covertly due to known opposition of the partner, whereas others preferred to exercise contraceptive decisions on their own without any previous discussion:

I will not say no to him to avoid his sadness and quarrel. But I will use the family planning method without him. I will delay like that. (Laughter)

-Ethiopian Female, demographics unspecified, IDI

Conversely, male interviews and focus groups highlighted men's knowledge that wives were using contraception covertly. In these discussions, men highlighted the benefits of joint decision-making, while often acknowledging their restriction of women's choice if disagreement arose. Additionally, some women were able to garner partner support after sharing their experience using covertly.

If they have both decided to use the contraception together, it has a big benefit. But if the woman decided on it on her own, she is the one who is benefited because he doesn't know anything. If one day he wants a child and if she is using without his knowledge, he may not like it when he finds out later. But if the two decided together to do that, I think it's

-Ethiopian Rural Male, Age 18+, FGD

Direct communication about contraception generally involved classmates, friends, or family members (particularly sister and aunties). When conversations did occur with partners, women emphasized economic constraints to justify their choices:

WGE-SRH QUANTITATIVE INSTRUMENT DEVELOPMENT

The quantitative phase of the WGE-SRH study aimed to develop, pilot, and test the psychometric properties of a multidimensional measure of WGE-SRH. As described below, the formulation of final quantitative items was an iterative process that took place over the course of several months (October 2017-May 2018).

Translation of Qualitative Results to Quantitative Items

Results from the qualitative phase were used to develop items for the quantitative module and revise the WGE-SRH framework through a series of activities, which involved direct engagement with stakeholders from ministries of health and gender and study teams in the participating sites.

WGE-SRH framework revisions centered specifically around the *exercise of choice* domain. Prior to analysis of the qualitative phase, this domain focused exclusively on self-efficacy. Qualitative

more overt traditional self-efficacy measures, such as standard “confidence in one’s ability to” statements. Therefore, the teams collectively decided to incorporate decision-making and negotiation into the framework to further describe ways that women may exercise their choices without confidence in voicing their desires. The *existence of choice* domain remained the same within the framework, though findings affirmed the external pressures and internal motivations driving women’s *existence of choice.* The *achievement of choice* domain also remained the same. We only present the final framework in this report, but want to highlight the iterative process surrounding its revisions based on the qualitative findings.

A central activity to launch the translation of framework li

Original Items

Following the summary session, the WGE-SRH team incorporated the expert input, clarifying the concept of autonomy as a reflection of external and internal motivations for future presentations and written dissemination. Suggested items for each domain and outcome were circulated to all sites. The in-country PIs then selected the items that they thought were most applicable to their context. The 51 items which were selected most frequently across sites were then tested in each site during the face validity stage (see below). An additional five items (indicated by ET in item wording), thought to be more appropriate for the Ethiopian context were added for a total of 56 items. Table 1 shows the original items used for the face validity test. Items were organized in a random order across the three domains (sex, contraception, and pregnancy).

Table 1. Original Items for Face Validity Testing

Item	Description
AUT001	My children will have a good future no matter how many children I have
AUT002	If I refuse sex with my husband/partner, he may seek another wife or find a girlfriend
AUT003	I would be considered infertile If I did not get pregnant soon after marriage
AUT004	I have sex with my husband/partner because I enjoy it
AUT005	I want /wanted to complete my education before I have/had a child
AUT006	I will remain healthy even if I do not rest between pregnancies
AUT007	I will be healthier if I avoid using modern family planning (contraception)
AUT008	If I ever refuse sex with my husband/partner, he may beat me
AUT009	I would feel pressured if it took a long time for me to get pregnant after marriage
AUT010	I can choose what to do about family planning regardless of what my husband/partner tells me to do
AUT011	I would be forced to stop using family planning if my husband/partner found out I was using it
AUT012	My husband understands when I don't feel like having sex.
EFF_SE002	I am confident I can tell husband/partner when I want to have sex
EFF_SE003	I do not feel confident discussing with my husband/partner when to have another child
EFF_DM004	I can decide when to have another child
EFF_DM005	I can/could decide when I want/wanted to start having children
EFF_NEG006	I can/could negotiate with my husband/partner when to start a family.
EFF_SE008	I feel confident telling my husband/partner if I want to stop using family planning
AUT013	If I use family planning, my husband/partner may seek another wife or find a girlfriend
AUT014	I have sex with my husband/partner for the sake of our marriage or family
AUT015	If I use family planning, I may have trouble getting pregnant the next time I want to
AUT016	I am more willing to have sex with my husband/partner when he treats me well
AUT017	If I use family planning, my children will have better opportunities for education.
AUT018	If I use family planning, my husband/partner will be happier
AUT019	Having sex is important for me to feel loved.
AUT020	I will have no one to take care of me when I am old if I do not produce enough children
AUT021	If I have sex with a partner who is not my husband, I will be shamed
AUT022	I do not need to use family planning because it does not matter if I get pregnant
AUT023	If I refuse sex with my husband/partner, he may force me to have sex
AUT024	If I have few children, people will think I have done well in life

questions about sex if they had never had sex themselves; therefore, a skip pattern was added to ensure that these questions were only asked to women with sexual experience. Relevancy statements were also added for pregnancy items to alter item wording for nulliparous versus parous women. These relevancy statements allowed further differentiation between empowerment surrounding first pregnancy (nulliparous women) and subsequent pregnancies (parous women).

Several items were deemed similar to respondents. As such, redundant items were eliminated through group consensus at the training session. Undergoing item revision and cutting redundant items through a consensus process provided assurance that the remaining items were applicable across sites. Though a subset of items was intended to be more applicable to the Ethiopian context, at this meeting, the other teams voted in favor of replacing some of their items with three of the Ethiopian items. After the final vote, five items were eliminated for a total of 51 items to be piloted in Uganda (March 2018) and Ethiopia (April 2018).

Table 2. Items Piloted in Uganda and Ethiopia by Outcome

Pregnancy	
AUT001	My children will have a good future no matter how many children I have
AUT003	I will be/would have been considered infertile If I do not/did not get pregnant soon after marriage
AUT005	I want /wanted to complete my education before I have/had a child
AUT009	I would feel/have felt pressured if it took/had taken a long time for me to get pregnant after marriage
ET-Au5	If I space or limit my pregnancies, I will improve my relationship with my husband.
AUT020	I will have no one to take care of me when I am old if I do not produce enough children
AUT025	If I get/had gotten pregnant before marrying, I will bring/would have brought shame to my family
AUT026	If I rest between pregnancies, I can take better care of my family
AUT031	I will have as many children as I am meant to have
AUT033	If I had gotten/get pregnant before marrying, it would not have harmed/will not harm my future
AUT035	My economic situation prevents me from having all of the children I want
EFF_DM005	I can decide when I want/wanted to start having children
EFF_SE015	I feel confident discussing with my husband/partner when to start having children
EFF_NEG006	I can/could negotiate with my husband/partner when to start a family
EFF_DM004	I can decide when to have another child
EFF_SE003	I feel confident discussing with my husband/partner when to have another child
EFF_NEG014	I will be able to/can negotiate with my husband/partner when to stop having children
Contraception	
AUT010	I will be able to/can choose what to do about family planning regardless of what my husband/partner tells me to do
AUT011	If my husband/partner found out that I was using family planning, he would force me to stop using it
AUT013	If I use family planning, my husband/partner may seek another sexual partner
AUT015	If I use family planning, I may have trouble getting pregnant the next time I want to
AUT022	I do not need to use a family planning method because it does not matter if I get pregnant
AUT027	There could be/will be conflict in my relationship/marriage if I use family planning
AUT028	My choice of a family planning method will depend on what the provider tells me to do
AUT032	If I use family planning, my children may not be born normal
AUT036	If I use family planning, my body may experience side effects that will disrupt my relations with my husband/partner
ET-Au1	If I use family planning, I will regain strength before I get pregnant again
ET-Au2	If I use family planning, people will think I am promiscuous
ET-Au4	If I use family planning, people will think I am managing my life wisely
EFF_DM009	I am only able to decide about using family planning if I have my husband/partner's approval

EFF_SE010 I would feel/feel confident discussing family planning with my husband/partner

Table 3. Items Refined Prior to Pilot Testing in Nigeria

Original Wording	Revised Wording	Rationale for Revision
My children will have a good future no matter how many children I have.	I cannot have all of the children I want because if I did, they would not have all of the opportunities I want them to have.	While ensuring a prominent future for children was an aspect of

PILOT PHASE: QUANTITATIVE MEASURES

Table 4. Spearman Correlation Coefficients between Autonomy (Existence of Choice) and Self-Efficacy/Decision-making (Exercise of Choice) Subscales

	Site		
Outcome	Ethiopia	Uganda	Nigeria:

QUANTITATIVE SCALE: RESULTS

Demographics

The characteristics of the women participating in each site are displayed in Table 5. The mean age of respondents ranged from 27 years in Kano to 30 years in Anambra. Between two-thirds and three-quarters of women were in union and 54% to 77% had ever been pregnant. Mean number of children ranged from 2.6 in Ethiopia to 4 in Kano. Educational attainment of women varied substantially by site, with 44% of women who had never attended school in Kano as compared to less than 1% in Anambra. Polygamy ranged from 1% in Ethiopia to 47% in Kano.

Table 5. Percent Distribution of Sample Composition Characteristics Across Pilot Sites

	N (%)			
Characteristic	Ethiopia (n=334)	Uganda (n=257)	Nigeria/Anambra (n=318)	Nigeria/Kano (n=320)
Age				
15-19	24.2	16.7	14.5	30.0
20-24	18.3	19.8	19.2	18.8
25-34	30.8	37.7	33.0	25.3
35-49	2.7	25.7	33.3	25.9
Schooling level				
None	32.3	4.3	0.9	44.4
Primary	34.4	43.2	61.3	44.7
Secondary or higher	33.2	52.5	37.7	10.9
Marital status				
Never married	32.6	24.9	42.1	33.8
Currently in partnership, not married	1.2	34.6	1.6	0.0
Currently married	53.9	18.3	46.2	58.1
Widowed or divorced	12.3	22.1	10.1	8.1
Union is polygamous	1.1	37.4	6.6	46.8
Residence				
Urban	55.4	51.0	51.6	50.9
Rural	44.6	49.0	48.4	49.01
Ever pregnant	55.1	77.0	54.4	59.4

Sexual and Reproductive Autonomy (Existence of Choice)

In each site, a sexual autonomy scale emerged illustrative of the social pressures that women faced from husbands and society related to sexual decisions. Si6 T ώa

Table 6b. Retained Items and Factor Loadings for Sexual Autonomy

	Ethiopia	Uganda	Nigeria: Anambra	Nigeria: Kano	All Sites
Items	Factor Loadings				
If I refuse sex with my husband/partner, he may physically hurt me					

nal Items)

eria: mbra	Nigeria: Kano	All Sites
loadings		
--	--	
58		
--	0.73	0.44
--	0.75	0.57
58	--	

Table 8b. Site-specific Item Loadings for Pregnancy Autonomy (With New Items)

	Nigeria: Anambra	Nigeria: Kano
items	factor loadings	

Sexual and Reproductive Self-Efficacy (Exercise of Choice)

The WGE-SRH questionnaire included 14 items exploring women's confidence in their ability to decide on and negotiate sexual, contraceptive, and pregnancy matters. Four items related to sexual self-efficacy, loaded on a single factor in all sites, but yielded low Cronbach alphas, with the exception of Anambra (alpha=0.72) (Table 9a, 9b). A four-item contraceptive self-efficacy measure also emerged in all sites, with Cronbach alphas ranging from 0.41 to 0.86 (Table 10a, 10b). Finally, a three-item pregnancy self-efficacy measure was identified with Cronbach alphas ranging from 0.48 to 0.66 (Table 11a, 11b).

Table 9a. Site specific *Sexual* Self-efficacy *(Among Women Who Ever Had Sex)*

	Ethiopia	**Uganda**	**Nigeria: Anambra**	**Nigeria: Kano**	**All Sites**
Items	Factor Loading				
I am confident I can tell my husband/partner when I want to have sex	0.66	0.33	0.54	0.73	0.62
I am able to decide when to have sex	0.61	0.59	0.61	0.54	0.68
If I do not want to have sex, I can tell my husband	0.48	0.35	0.68	0.93	0.63
If I do not want to have sex, I am capable of avoiding it with my husband	--	0.42	0.40	--	
Eigenvalue	***1.04***	***0.76***	***1.29***	***1.69***	***1.24***
Cronbach Alpha	***0.61***	***0.46***	***0.63***	***0.77***	***0.67***

Table 9b. Cross-site *Sexual* Self-efficacy *(Among Women Who Ever Had Sex)*

	Ethiopia	**Uganda**	**Nigeria: Anambra**	**Nigeria: Kano**	**All Sites**
Items	Factor Loading				
I am confident I can tell my husband/partner when I want to have sex	0.63	0.33	0.54	0.72	0.58
I am able to decide when to have sex	0.54	0.59	0.61	0.50	0.64
If I do not want to have sex, I can tell my husband	0.57	0.35	0.68	0.98	0.71
If I do not want to have sex, I am capable of avoiding it with my husband	0.37	0.42	0.40	0.37	0.36
Eigenvalue	***1.16***	***0.76***	***1.29***	***1.86***	***1.40***
Cronbach Alpha	***0.60***	***0.46***	***0.63***	***0.72***	***0.65***

Table 11a. Site-specific Pregnancy Self-efficacy

	Ethiopia	Uganda	Nigeria: Anambra	Nigeria: Kano	All Sites

Concurrent Validity of the WGE-SRH Index

To examine the concurrent validity of the WGE-SRH subscales, we modelled volitional sex outcome (binary) as a function of the sexual autonomy and self-efficacy subscales, as well as of a sexual empowerment sub-scale that combined both. The same approach was used to examine concurrent validity of contraceptive autonomy, self-efficacy and empowerment subscales in relation to volitional contraceptive use (binary). The sub-scales were classified into tertiles (low, medium, high) with the lowest serving as the reference category.

Multivariate logistic regression analyses, adjusting for area of residence (rural/urban) demonstrated that an increase in sexual autonomy was associated with increased odds of reported volitional sex at last intercourse in Ethiopia and Anambra (Table 12). Sexual self-efficacy was also related to increased odds of volitional sex at last intercourse in Ethiopia and Anambra, but was inversely associated with volitional sex in Kano. Combining sexual autonomy and sexual self-efficacy into a single index of *sexual empowerment* resulted in a stronger association of sexual empowerment being positively associated with the odds of increased volitional sex in Anambra. However, this was unrelated to volitional sex in Uganda and not significantly associated with volitional sex in Kano, where autonomy and self-efficacy had opposite effects than in other sites.

Table 12 also provides the marginal effect (ME) values for the tertiles showing the predicted probabilities of volitional sex by subscale tertile in each site, adjusting for area of residence. As an example, the predicted probabilities of volitional sex ranged from 0.27 to 0.65 from the lowest to highest tertiles on sexual autonomy in Ethiopia, while those for sexual self-efficacy's tertiles were 0.41, 0.46 and 0.53, showing a smaller spread. The ME values for the combined sexual empowerment subscale ranged from 0.21 to 0.61, while use of the overall SRH index showed a slightly lower spread ranging from 0.23 to 0.56. In Anambra, probabilities of volitional sex were equally spread over sexual autonomy tertiles (0.48 to 0.77) and self-efficacy tertiles (0.45 to 0.77), with probabilities of volitional sex ranging from 0.45 to 0.80 using the combined sexual empowerment measure. In the two other sites, Uganda and Kano, analysis indicated low differentiation (which was also nonlinear. Furthermore, lower probabilities of volitional sex were found among women in the two highest self-efficacy tertiles relative to women in the lowest sexual self-efficacy tertile in Kano.

Results from multivariate analysis also that contraceptive autonomy increased the odds of current use of contraception in Uganda and Ethiopia, but not in Anambra (Table 13). Associations were not evaluated in Kano as the prevalence of contraceptive use (5%) was too low to carry out the analysis. Contraceptive self-efficacy was not related to current contraceptive use in any of our sites. A single combined measure of contraceptive empowerment increased the odds of current contraceptive use in Ethiopia and Anambra.

Table 13 also shows the predicted probabilities of contraceptive use by sub-scale tertile in each site, adjusting for area of residence. The predicted probabilities of contraceptive use ranged from 0.48 to 0.72 from the lowest to highest tertiles on contraceptive autonomy in Ethiopia, while those for contraceptive self-efficacy's tertiles were 0.58, 0.46 and 0.70, showing a smaller spread. The same was true in Uganda while little differentiation in probabilities of contraceptive use by autonomy or self-efficacy were noted in Anambra. The ME values for the combined contraceptive empowerment sub-scale indicated low differentiation in Anambra (which is also nonlinear), with

SUMMARY OF THE WGE-SRH MODULE

Key Findings

This cross-cultural study identifies and measures constructs of women's *existence of choice* (autonomy) and *exercise of choice* (self-efficacy, decision-making, and negotiation) in three sub

negotiation, and decision-making) proposed by the World Bank Empowerment Framework. As stated previously, these results were not consistent across sites. In Kano, which has a strong

exercise of choice and low internal reliability of SRH *exercise of choice* sub-scales. Although our pilot study initially included thirteen pregnancy autonomy items, extended to 16 items in Nigeria, we were unable to identify a cross-site pregnancy *existence of choice* subscale. However, these items covered a range of internal and external motivations for engaging or avoiding childbearing at different stages of the reproductive life course, including decisions to start or delay a family, decisions to space, and decisions to limit childbearing. Our number of items and sample sizes

REFERENCES

1. Gates MF. Putting Women and Girls at the Center of Development. *Science (80-)*. 2014;345(6202):1273-1275. doi:10.1126/science.1258882.

2. Bill & Melinda Gates Foundation. *A Conceptual Model of Women and Girls' Empowerment*. Seattle, Washington; 2017. doi:10.1126/science.1258882.2.

3. UN Women. *Spotlight on Sustainable Development Goal 5: Achieve Gender Equality and Empower All Women and Girls*.; 2017.

4. Alsop R, Bertelsen M, Holland J. *Empowerment in Practice: From Analysis to Implementation*. Washington, DC: The World Bank; 2005. doi:10.1596/978-0-8213-6450-5.

5. Kabeer N. Reflections on the Measurement of Women's Empowerment. In: AB NG, ed. *Discussing Women's Empowerment--Theory and Practice*. No.3. Stockholm: Sida Studies; 2001.

6. Malhotra A, Schuler SR, Boender C. *Measuring Women's Empowerment as a Variable in International Development*.; 2002.

7. Eerdewijk A Van, Wong F, Vaast C, et al. *WHITE PAPERï: A Conceptual Model of Women and Girls' Empowerment*

15. Bandura A. Perceived Self-Efficacy in the Exercise of Control over AIDS Infection. *Eval Program Plann*. 1990;13:9-17.

16. Longmore MA, Manning WD, Giordano PC, Rudolph JL. Contraceptive Self-Efficacy :Does It Influence Adolescents' Contraceptive Use?