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**Risk, Power, and Knowledge: Exploring Adolescent Girls' Sexual
and Reproductive Health in Kenya**

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ABSTRACT

Helping adolescent girls grow up to be healthy, resilient women is an ongoing mission around the world. The transition from adolescence to adulthood for girls is more complex in resource-poor settings where health, education, and social services may contribute less than needed. Limited access to health and educational services marks the beginning of a trajectory of risks and health outcomes. Adolescence is a period marked by rapid physical, emotional, and social changes. Research shows that when young receive proper support and access to education and health services, it can be a time of immense opportunity during this life phase. In my dissertation, I discuss factors that shape adolescent girls' transition to adulthood and those that might predispose them to risky behaviors or lifestyles. I shed light on these influences by looking at a wide range of factors operating at multiple levels--individual, peer, family, school, community, and society. For example, at the individual level, adolescent girls' self-efficacy can help their successful transition to adulthood. At the society level, access to mobile phones can also have a bearing on adolescents' well-being. The aim of this dissertation is to apply sociological perspectives to individual-level, longitudinal data to highlight the associations between behavioral patterns and experiences and sexual health outcomes. To accomplish this, I will highlight three papers that describe the link between social and behavioral risk and reproductive health outcomes among adolescent girls living in low-income areas.

The first paper is *The Determinants of Sexual Risk Factors among Adolescent Girls in Kenya Using a Social-Ecological Model*. In this paper, I focus on predicting cumulative risk using each social dimension (i.e., individual, peer, family, community, and society) to show how these social factors surrounding adolescent girls can lead to higher risk for contracting HIV or unplanned pregnancy. I use a multi-level, social-ecological model developed by Bronfenbrenner (1979) to evaluate the association between each level and cumulative risk. I propose a new level for measuring the influence and opportunities created by virtual networks or connections established by technology. In this paper, I define virtual networks as owning or having access to a mobile phone. In Kibera and Huruma, the two low-income areas used in this analysis, I show that the probability of a girl being defined as at-risk for adverse health outcomes is (i) negatively associated with factors at the family level and (ii) positively associated with a girl's physical and virtual network.

The second paper is *The Determinants of and Associations with Power in the Sexual Relationships of Adolescent Girls in an Urban and Informal Settlement in Nairobi, Kenya*. I investigate economic empowerment as a mechanism for increasing sexual relationship power among adolescent girls. I show that a higher sexual relationship power score is associated with (i) fewer reports of intimate partner violence, (ii) greater financial knowledge and savings behavior, and (iii) increased self-efficacy. The evidence suggests that building economic empowerment is an effective approach for increasing sexual relationship power.

The third paper is *Game Changer? Phones and Sexual and Reproductive Health Knowledge among Adolescent Girls in Kenya*. Mobile phone ownership among adolescent girls is growing rapidly in Kenya, yet, documentation or evidence about their virtual life is largely undocumented. The United Nation's suggests that mobile phones could be a game-changer for adolescent girls in low-to-middle income countries, allowing them to become more independent in their choices and control of information. I explore some of the benefits to adolescent girls who

own a mobile phone. I show that mobile phone ownership is associated with (i) higher levels of sexual and reproductive health knowledge measured by contraceptive and HIV knowledge scores and (ii) a higher probability of testing for HIV.

My research aims to understand the risks and vulnerabilities that impact adolescent girls growing up in Kibera and Huruma, Kenya. All three papers use data from the Population Council's Adolescent Girls' Initiative in Kenya, a 2-year intervention focused on empowering girls and reducing the rate of irreversible events related to sex, such as HIV infection and unplanned pregnancy. A cohort of 3,052 adolescent girls was enrolled and interviewed in 2015 and followed up in 2017 and 2019. Participants completed a survey that included questions about their sexual behaviors and reproductive health knowledge at each time point. I added questions about mobile phone access and ownership and social media experience to the AGI-K survey in 2019 for my dissertation. In my dissertation, I provide perspective on the impact of knowledge, power, and risk on sexual and reproductive health outcomes among adolescent girls in Kibera and Huruma, Kenya.

Dedication

This dissertation is dedicated to my grandmother, Blanchie Moorehead Gardner. She delivered and raised seven children when doctors predicted that she would never conceive. I am one product of her miracle to this world, and her memory lives in everything I do and love. Thank you for teaching me to always give my best and never give up.

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At the time of this writing, the coronavirus pandemic continues to rage across every continent, with more than 45 million cases reported globally. Thousands have stormed the streets across the world in protest of racial violence and injustice following the deaths of Breonna Taylor, Ahmaud Arbery, George Floyd, and many others whose names would go on for pages if I listed them all. There has never been a time when the whole world is fighting towards the same goals: racial and social justice and getting to zero cases of COVID-19. We have miles to go on both fronts. These challenges have revealed to a captive world the importance of research and science. I am humbled by the opportunity to make my own contribution to social science and research. I hope that what I have learned and shared here has impacts far beyond these pages.

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This dissertation is very close to my heart. My journey into PhD life started in Nairobi, Kenya in 2014 with a research project focused on cervical cancer. I remember sending photos back home captioned as “Nakupenda Kenya,” which translates to “I love Kenya” in Swahili. I truly fell in love with research and the opportunity to see and work with communities and not just numbers in a report. I felt connected to my calling and that same drive keeps me going today. In 2018, I leaped when an opportunity opened for a PhD student to work with the Population Council in Nairobi. I joined a team working on the Adolescent Girls’ Initiative, a longitudinal study involving nearly 3,000 girls living in low-income communities in Kenya. I am grateful to Karen Austrian, the Principal Investigator, for literally opening the door for this dissertation topic. Without her support and the funding from Population Council to cover my living expenses, this research project would not be possible. I am especially grateful to Faith Mbushi who seamlessly managed every logistical component involved in the data collection, and for the kindness and patience she shared during my time in the office and in the field. A special thanks to all of the research assistants who patiently adjusted to my American accent, who brought me mandazis (Kenyan donuts) during field visits, offered free lessons in Swahili, and made me truly feel at home. Without their dedication to physically locating and interviewing every adolescent girl in this study, these pages would be blank. To the Population Council staff in Kenya, thank you for welcoming me into your family for 13 months. Special thanks are owed to John Anzali, Janet Munyasia, Eva Muluve, Arnold Asava, and Caroline Apiyo.

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To every girl who participated in this study, thank you for generously sharing your time and stories. Many of the statistics shared in this study represent misfortune that no one should ever experience. My heart breaks every time I tally the number of unfortunate events or unplanned outcomes. These experiences are more than numbers and their voices matter. I hope this dissertation can be one small contribution to making life better for adolescent girls living in disadvantaged parts of the world. This dissertation is for them, too.

Finally, I offer the highest gratitude and praise to God who is my strength. God, just as you have lifted me up to do good, I pray that you will lift this work up to do good.

Overview of the Dissertation

This dissertation includes three papers: 1) *The Determinants of Sexual Risk Factors among Adolescent Girls in Kenya Using a Social-Ecological Model*; 2) *The Determinants of and Associations with Power in the Sexual Relationships of Adolescent Girls in an Urban and Informal Settlement in Nairobi, Kenya*; 3) *Game Changer? Phones and Sexual and Reproductive Health Knowledge among Adolescent Girls in Kenya*.

In the first paper, *The Determinants of Sexual Risk Factors among Adolescent Girls in Kenya Using a Social-Ecological Model*, I propose an extension to a highly cited ecological model developed by Bronfenbrenner (1979) for describing human development using the quality and context of an individual's environment using five levels of external influence (individual, micro-, meso-, exo-, and macrosystems). Since this time, no scholar has offered a new dimension that reflects how youth spend their discretionary time, particularly on mobile phones and social media. Much research has incorporated ecological systems theory to understand how activities and media engagement foster positive, healthy development of youth (Blum, Astone, Decker, & Mouli, 2014). Most recently, Blum et al. (2014), proposed an update to include economic forces, historical events, national priorities, laws, policies or norms, national events, and political realities as macro level factors. However, this update falls short on recommending or instituting a consideration for virtual or online communities that influence development and decision-making during adolescence.

In the second paper, *The Determinants of and Associations with Power in the Sexual Relationships of Adolescent Girls in an Urban and Informal Settlement in Nairobi, Kenya*, I look at the association between sexual relationship power and economic empowerment. The role of economic empowerment in adolescent sexual relationships is an area that merits attention and

future research. This study includes an examination of the association between sexual relationship power, economic factors, sexual risk behaviors, and intimate partner violence among adolescent girls in two urban sites in Nairobi, Kenya. Results from this study can be used to help inform future initiatives that emphasize economic empowerment as a pathway to reducing HIV risk among adolescent girls.

Lastly, in the third paper, *Game Changer? Phones and Sexual and Reproductive Health Knowledge among Adolescent Girls in Kenya*, I explore the association between mobile phones and knowledge of HIV and contraception and HIV testing behaviors. Evidence from other studies have suggested that owning a mobile phone was associated with higher contraceptive uptake (Rotondi, Kashyap, Pesando, Spinelli, & Billari, 2020) helped eliminate poverty (Porter, 2012), improved access and use of reproductive health services (World Bank, n.d), and increased health information seeking (Corker, 2010). To my knowledge, no empirical study has investigated the relationship between mobile phones and HIV knowledge, contraceptive knowledge, and probability of HIV testing behaviors among adolescent girls aged 15-19 in Kenya. The findings of this study can be used to expand current strategies to incorporate digital communication to teach adolescent girls about HIV and contraception.

1 Background and Significance

In Kenya, a steady trend in HIV new cases has not gone unnoticed. At 4.9%, Kenya has the fourth highest prevalence of HIV alongside Mozambique and Uganda (UNAIDS, 2019). In 2018, nearly 50% of all new HIV infections in Kenya came from young people aged 15-24, with half coming from young women ages 15-24 years (UNAIDS, 2019)—a rapid rise from 29% in 2013 (National AIDS Control Council, 2018). This is a high concern because a substantial

proportion of HIV-positive adolescents are unaware of their status; in 2015, only 23.5% of adolescents surveyed nationally reported knowing their status and adolescent girls were twice as likely to acquire HIV as their male counterparts (Kenya National Bureau of Statistics [KNBS], 2015). The KNBS (2015) identified a number of factors related to the increasing rate of HIV infection among young people including incorrect perception of HIV risk; having unprotected sexual intercourse under the influence of alcohol or drugs; forced sex and sexual violence; and poor contraceptive uptake. For these reasons, Dellar and colleagues (2015) have emphasized that young women in Sub-Saharan Africa (SSA) are a key population that will continue to require attention and appropriate mitigation to prevent HIV.

Roughly 20% of girls in Kenya become sexually active before their 15th birthday making pre-teen and early teenage years a crucial time for informing young people of their risks and ways to prevent sexually transmitted infection (STIs) (UNICEF, 2019). Nearly 25% of adolescent girls are already mothers or pregnant with their first child by age 18 (KNBS, 2015). One in three adolescent girls have an unmet need for family planning. Only 34% of adolescent males reported using a condom during their first sexual experience (KNBS, 2015). This means that adolescent males and females having unprotected sex are highly likely to join parenthood very young in life, which in turn might jeopardise their chances of completing school. In 2015, school attendance declined by 33% among girls who became pregnant between their transition from primary school to secondary (KNBS, 2015). Access to contraceptives could prevent these pregnancies, and greater promotion and uptake could also help mitigate other unintended outcomes.

Prevention of both unintended pregnancy and HIV is critical among adolescent girls. Associations between contraceptive use and sexual relationship power shows that relationship

power shapes young people's decisions to use contraception, and often unmarried females lack the power to decide if a condom is used (Teitelman, Tennille, Bohinski, Jemmott, & Jemmott, 2011). A study conducted in Kilifi, Kenya examined partner influences and gender-related correlates of condom use among young women and found that only 3% of 15-to-19-year-olds women reported current use of the male condom (Pulerwitz, Mathur & Woznica, 2018). Reasons behind low condom use included a young woman's ability to negotiate condom use, pressure from a partner, or lack of knowledge of its importance. When adolescent girls enter sexual relationships, they are often at a power disadvantage because of the salience of male-controlled condom use as a recommended safer sex strategy. Not having the capacity to negotiate condom use or other safe sex options can create greater risk for adolescent girls in their sexual relationships (Teitelman, Tennille, Bohinski, Jemmott, & Jemmott, 2011).

Moreover, an adolescent girl's ability to use a condom depends on her partner's interest or resistance to safe sex. Villarruel et al. (2004) found that partner approval was a significant correlate of condom use, and young women with lower levels of decision-making power were more likely to not use any form of contraception and more likely to have unplanned pregnancies (Taufkobong et al., 2016). Most HIV behavioral surveillance of adolescent girls in Kenya has focused on early sexual debut and inconsistent condom use as factors that increase HIV risk, despite the fact that national data shows that having the capacity to communicate about and negotiate safer sex contributes to HIV risk (KNBS, 2015). A center line of my research looks at the presence and degree of power in adolescent relationships as a factor for improving adolescent sexual and reproductive health outcomes.

UNICEF (2017) suggested that mobile phones can play a protective role in low-to-middle income countries and could also be better understood for promoting healthy behaviors

and decision-making. Given the challenges of accessing family planning options in Kenya, incorporating mobile technology could provide new opportunities to mitigate adolescent risk behaviors, improve uptake of HIV testing services and contraception, and endow adolescent girls with the agency to seek and access information about reproductive health topics and services.

2 Research Objectives

The overall objective is to analyze data from adolescent girls in Huruma and Kibera, Kenya to describe and understand how knowledge, power, and risk are associated sexual and reproductive health behaviors. This dissertation consists of three research papers that focus on the following specific objectives:

1. To examine multiple individual, environmental, and social factors that affect the trajectory of sexual risk behaviors among adolescent girls in Kenya.
2. To investigate the association between sexual relationship power and sex and intimate partner violence, as well as to explore the role of economic assets in predicting power in adolescent girls' relationships.
3. To explore the relationship between mobile phones and sexual reproductive health knowledge and practices among adolescent girls in Kenya.

3 Research Design and Methods

I used quantitative data from the Adolescent Girls' Initiative in Kenya (AGI-K), a study designed and administered by the Population Council in Kenya (Austrian et al., 2016). AGI-K was implemented in two different marginalized sites in Kenya, Kibera and Huruma. Kibera and Huruma are both densely populated urban informal settlements that are characterized by high

levels of household poverty, crime, and lack of basic services (African Population and Health Research Center, 2014). AGI-K used a randomized sampling method in 2015 where 3,052 adolescent girls between the ages of 10 and 14 were recruited and assigned to 1 of 4 (violence prevention, education, health, and wealth creation) interventions to determine which initiative improves girls' lives most. Data collection for AGI-K involved three phases: Wave 1 ($n=3052$, ages 10 to 14) in 2015, a post-intervention follow-up in 2017 ($n=2753$, ages 12-16) and a final assessment in 2019 ($n=2564$, ages 14-20). A total of 2,560 girls participated in all three waves of data collection.

Each survey collected information on, among other details, socio-demographic and behavioral characteristics, perceived sexual risk, and self-efficacy—using assessment items drawn from existing measurement scales and instruments that have been used and validated in studies conducted in various settings including the National Longitudinal Study of Adolescent to Adult Health (Harris, Halpern, Whitsel, Hussey, Tabor, Entzel, & Udry, 2009), WHO's Global Early Adolescent Study Tool Kit (WHO, n.d.) and the Gender Attitudes Inventory (Ashmore, Boca, & Bilder, 1995). The survey tool was composed of 10 key areas: household characteristics, education, social capital and networks, communication, self-efficacy and gender attitudes, self-reported reproductive health, marriage and sexual behaviors, reproductive health knowledge and contraception, pregnancy and births, and knowledge and attitudes related to HIV/AIDS and other STIs.

I added questions about sexual relationship power, mobile phones, and social media access for the purposes in the 2019 survey of this dissertation. Questions about Facebook provided the first assessment of social media usage trends among AGI-K participants. Papers 1

and 2 use survey data from all AGI-K participants in 2019, and Paper 3 relied on data from all AGI-K participants from all three waves (2015, 2017, and 2019).

All activities related to AGI-K were conducted following a protocol approved by the Population Council Institutional Review Board and the AMREF Ethical and Scientific Review Committee [AMREF-ESRC P143/2014]. The protocol was also reviewed by the Kenyan National Commission for Science, Technology and Innovation to obtain research permits for study investigators.

4 Declaration of Author's Role

I designed the studies described in this dissertation. They were approved by my supervisor, Professor Alessia Melegaro, and the Principal Investigator of the Adolescent Girl's Initiative in Kenya, Karen Austrian. I was involved in the design and data collection activities and spent 13 months living in Nairobi, Kenya supporting survey design and implementation, training research assistants, field operations and data collection, and data cleaning and analysis. Approximately 45 research assistants were trained and responsible for locating participants, conducting interviews, and entering data using a tablet for electronic data capture. Finally, I conducted the data analysis included here and wrote the final dissertation.

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The Determinants of Sexual Risk Factors Among Adolescent Girls in Kibera and Huruma, Kenya Using a Social-Ecological Model

Abstract

Background: In Kenya, adolescent girls are emerging as the next leading edge of the HIV epidemic. Recent data from a national demographic health survey in Kenya shows that risky behavior is rising among youth placing them at a greater risk for adverse sexual and reproductive health outcomes—such as unplanned pregnancy and HIV infections. Many of the risk behaviors initiated in adolescence covary, including unprotected sex and substance use, and they occur across multiple environments, including the home, school, and community. In this study, I investigate individual and social factors that influence sexual risk behaviors among adolescent girls in Kibera and Huruma, Kenya.

Methodology: Using Bronfenbrenner’s Ecological Systems Theory (1979) and a model proposed by Blum et al. (2012), I investigate the relationship between individual and environmental influences and the role they play in the accumulation of sexual risk. A cumulative risk index composed of 11 dichotomized sexual risk behaviors is the outcome variable.

Results: Out of 2,560 respondents, 33% (n=850) reported at least 2 sexual risk behaviors and were defined as at-risk. The probability of being defined as at-risk was higher among older girls. After controlling for age, the probability of being at-risk increased for girls with larger male friend groups, girls who reported being teased by boys in their neighborhood, girls who worked for pay, and girls who owned or had access to a mobile phone or Facebook. Protective factors included attending school, having a mother who completed primary school, and close mother-daughter relationships.

Discussion: Increases in HIV rates among adolescent girls in Nairobi may be related to changes in the social and environmental influences that shape decision-making.

1 Introduction

Adolescents in low-and middle-income countries experience the largest burden of sexual and reproductive health (SRH) of adolescents globally. The vast majority of these young people live in Sub-Saharan Africa (SSA). New HIV cases among adolescent girls and young women ages 15 to 24 rank highest against all other age groups, and infections occur predominately through high-risk sexual encounters (UNAIDS, 2019). In 2018, young women (aged 15-24) in Kenya accounted for 24% of new HIV infections (UNAIDS, 2019). One-third of sexually active female adolescents (age 15-19) reported condom use during their last sexual experience with a non-marital, non-cohabiting sexual partner and 26% reported having unprotected sex with multiple partners (KNBS, 2015). These sexual risk behaviors taken together form a concerning backdrop for young women in Kenya.

Recent studies show that factors that predict an increased likelihood of engaging in sexual risk behaviors are multiple and arise from different areas, including the individual, family, peer groups, and the surroundings or environment where adolescents grow up (Hanebo, Kebede, & Morankar, 2017; Nebbitt and Voisin, 2016; Price, 2009). The classical approach to assessing sexual risk behaviors has been to evaluate behaviors independently, such as evaluating predictors of early sexual debut, which overlooks the health impacts of co-existing risks and the role social environments play. In contrast, a cumulative risk framework can overcome the challenge of treating each risk behavior separately (Price, 2009), and an ecological model helps capture other social influences surrounding the individual (Bronfenbrenner, 1979). This study aims to bring together an ecological framework with a cumulative risk methodology for measuring the social determinants of sexual risk behaviors among adolescent girls.

According to the recent demographic and health survey data from Kenya, 18% of sexually active female adolescents (15-19) reported having sex in exchange for money, gifts, or favors—a significant increase from 11% in 2003 (KNBS, 2015; KNBS 2003). Twenty-seven percent of adolescent girls who had ever had sexual intercourse reported having used any method of contraception (KNBS, 2015). These behaviors are part of a larger subset of sexual risk behaviors defined by the Centers for Disease Control & Prevention (2009). According to the Center for Disease Control and Prevention (CDC), sexual risk behaviors are behaviors that place youth at risk for HIV infection, other STIs, and unintended pregnancy (CDC, n.d.). Sexual risk behaviors include having multiple sex partners, having casual or transactional sex, sexual initiation before the age of 15, inconsistent contraceptive use, substance abuse, and exposure to any form of violence (CDC, 2018). Studies suggest that sexual risk behaviors rarely occur in isolation from others and that the effect is cumulative; this means that the accumulation of risk factors increases the likelihood of unplanned pregnancy, HIV infection, or other STIs (Hanebo, Kebede, & Morankar, 2017; Price & Hyde, 2009; Scott et al., 2011).

Despite a growing presence of initiatives and policies designed to improve adolescent SRH outcomes, progress in this area has been much slower paced. One reason for this may be that intervention strategies have largely focused on individual risk or protective factors for reducing HIV risk. This approach fails to address the broader contexts that surround adolescent risk behaviors (Ali & Dwyer, 2011; Bingenheimer, Asante, & Ahiadeke, 2015; Challa et al., 2018; Fearon et al., 2015). Additionally, the literature representing sexual risk behaviors in African countries has primarily focused on early sexual debut and tended to be primarily qualitative (Marston et al., 2013; Mwangi et al., 2019; Ssewanyana et al., 2017). Consequently, there is little information about other sexual risk behaviors in Africa from a quantitative

perspective. The present study uses a cumulative risk methodology to address more realistic conditions facing adolescents than those addressed under the classic approach, where researchers evaluate one risk factor at a time.

For adolescent girls living in low-income settings, behavioral risks are more sensitive because of certain environmental factors like limited resources, poor economic opportunities, and unstable living environments that continue to threaten the health and well-being of adolescents (Bingenheimer, Asante, & Ahiadeke, 2015; Blum, 2007). Risks reside in the consequences of overcrowding, environmental hazards, infrastructure deficits, resource strains, and limited or no essential services such as drinking water, sanitation, and waste disposal facilities. An estimated 60-70% of the four million residents in Nairobi live in slums or slum-like conditions (UN-Habitat, 2016). Compared to other parts of Nairobi, these settlements experience higher rates of mortality (Zulu et al., 2011), younger age of sexual debut (Marston et al., 2013), low rates of employment in formal sectors, economic shocks, and inadequate security (UN-Habitat, 2016). A critical question is to what extent do the circumstances of daily life, which include individual practices, family and peers, community, and society, affect the likelihood of engaging in sexual risk behaviors during adolescence.

Few studies have examined the cumulative effects of risk, and more evidence is needed to account for the broader socio-cultural milieu, which can influence sexual risk behaviors (Ali & Dwyer, 2011). The present study expands on current literature in two ways. First, the present study addresses the cumulative effects of risk by using eleven known risk factors (CDC, 2019). The cumulative effects of these risk factors are understudied in adolescent populations. Second, this study uses a socio-ecological framework to investigate the effects of individual, familial, and macro-social factors on the prevalence of sexual risk behaviors among adolescent girls in Kenya.

2 Sexual risk behaviors: Identifying Risk and Protective Factors

Over the past decade, experts in the field of sexual risk behaviors have called for applying an ecological framework to assess the risk and protective factors beyond the individual level that place individuals at greater or lesser probability of engaging in risky behaviors and of adverse health outcomes like unplanned pregnancy and HIV infection (Small & Luster, 1994). Based on Bronfenbrenner's (1979) work in human ecology, a social ecological model (SEM) views the individual in the context of the larger environment, including interpersonal relationships, community settings, and larger societal factors. These domains and the interactions among and between them—individual, family and peers, school, community, and society—constitute a dynamic social ecology that helps to shape behaviors and adolescent trajectories. Blum et al. (2012) suggested expanding the macro-level to recognize the effects of rapid urbanization in low and middle-income countries, which has increased access to worldwide information through the internet and social media. The SEM presented in Figure 1 is an adaptation of both models. It depicts five concentric spheres that correspond to factors at each level of social influence: individual, school, family and peers, physical neighborhood, and virtual community. This SEM provides a descriptive framework for describing the environments that influence risk, comparing what factors mediate risk, and uncovering new social influences, like mobile phones and social media, that might also contribute to engaging in sexual risk behaviors.

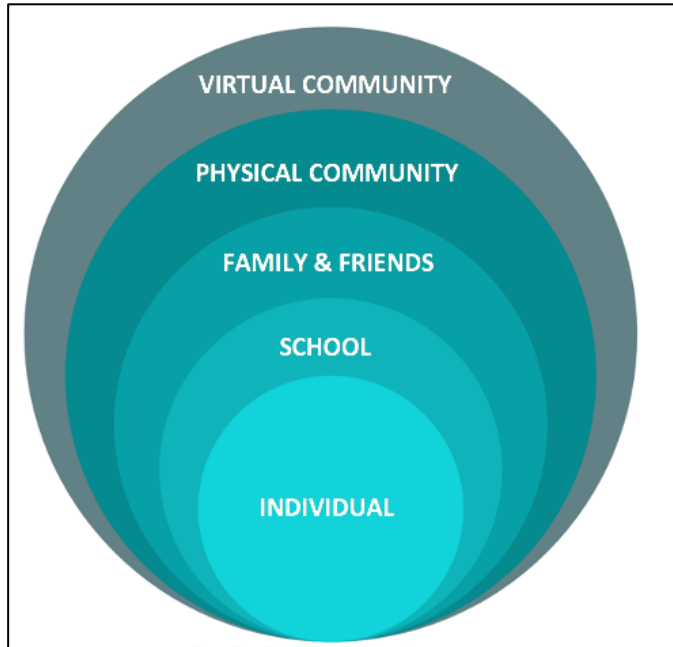


Figure 1. Proposed social ecological model using a dimension for virtual community.

The major domains of influence are identified as individual, family, friends, school, physical neighborhood, and virtual community. By domain, the following lists contains the known protective factors against sexual risk and the risk factors found to be predictors of SRB within the model domains:

1. Individual—age (Price & Hyde, 2009) and wealth (DiClemente, Hansen, & Ponton, 2013; Ssewanyana et al., 2018)
2. Family—parental support and parent-child community about sexual activity and household composition (Markham et al. 2010; Mmari et al. 2016; Sidze & Defo, 2013)
Friends—larger friend groups and a higher proportion of older or opposite-sex friends (Bingenheimer et al., 2015; Cavanagh, 2004; Miller et al., 1997)
3. School—history of attending school (Case & Paxson, 2013)

4. Physical neighborhood—high social vulnerability created by poverty (Elgar et al., 2019; Kosciw, Greytak, & Diaz, 2009)
5. Virtual community—interacting with social media and accessing new information through the internet and mobile phones (Haslam, Jetten, Postmes, & Haslam, 2009; Lee, 2012; Steele, 1999)

In this paper, I argue that many risk factors are related and tend to cluster together. Specifically, I argue that more distal influences will heighten risk-associated behaviors, and proximal factors (i.e., individual, school and family and peers) reduce risk. The hypotheses set forth are: 1) positive mother-daughter relationships, living with both parents, being in school, high cognitive skills, friend groups, and having an educated mother will reduce the probability of engaging in sexual risk behaviors; 2) community-level factors, social media use, and access to a mobile phone will increase the likelihood of engaging in sexual risk behaviors. In this study, I test the aggregation of sexual risk behaviors using a cumulative risk model to show how this approach can be used to define at-risk populations.

3 Sample and Data

Sample

For this study, I used data collected by the Population Council as part of its Adolescent Girls' Initiative in Kenya (AGI-K) that targeted adolescent girls aged 14-20 residing in low-income, informal settlements in two Kenyan communities: Kibera and Huruma. All adolescent girls registered in the AGI-K program since 2015 were invited to participate.

Data Collection

Field teams conducted household visits and administered questionnaires among AGI-K adolescent girls aged 13-20 living in Kibera and Huruma between April and August 2019. The questionnaires included questions on socio-demographic factors, household assets, living arrangements, gender norms, partner violence, sexual experience, mobile phone ownership, and experience with social media. Research assistants described the study to each participant before obtaining their written approval to participate. For participants under age 18, parental consent and minor's assent were both obtained; participants over age 18 provided informed consent for themselves. Participants could opt out at any point during the interview. After obtaining consent and assent, participants were asked a variety of questions during a home visit that took approximately 2-3 hours. Surveys were administered by electronic data capture using a customized tablet programmed for completing computer-assisted personal interviews. Items included those relevant to this study, as well as other questions related to a more extensive longitudinal study. After completing the behavioral survey, research assistants tested participants for HIV and herpes simplex virus type 2 (HSV-2). Consent from parents was sought prior to obtaining consent from the girls. This study used data collected in 2019, and where necessary, demographic data was pulled from the baseline (2015) or midline (2017) surveys to fill any gaps.

The study was reviewed and approved for compliance by the Population Council Institutional Review Board (IRB) and the AMREF Ethics and Scientific Review Committee. In addition, research permits were obtained from the National Council on Science, Technology and Innovation in Kenya.

4 Measures

Dependent variable

Sexual risk behavior. In line with the literature, I consider three categories of risk behaviors that contribute to the leading causes of adverse sexual and reproductive health (SRH) outcomes among adolescents, including: a) unintentional injuries and violence, b) substance abuse, and c) sexual behaviors that contribute to unintended pregnancies and sexually transmitted diseases (CDC, 2019). These factors correspond to eleven items in the survey: 1) ever had sex, 2) age of first coitus (recoded as 1=had sex before age 15, and 0=had sex after age 15), 3) number of sexual partners in the past year (recoded as 1=more than one partner and 0=one partner), 4) ever used drugs, 5) ever used alcohol, 6) used a condom during last sexual encounter, 7) currently using a modern contraceptive method, 8) ever had casual sex, 9) ever had transactional sex, 10) ever tested positive for HSV-2 or HIV, and 11) experienced any form of violence in the last year. I generate a binary variable with 0 meaning not having engaged in the behavior and a 1 meaning that the participant had engaged in the behavior.

Covariates

Individual factors. These include age, wealth, and educational status. Age data comes from a question asked in 2015 (“In what month and year were you born?”) and I adjusted this value to match the current age of respondents. I perform a principal component analysis of the asset variables to create socio-economic groupings for measuring wealth. I use two variables to define school participation from these two questions: “Did you attend school during the current school year?” and “What is the highest grade level you have completed?” The former measures school attendance (coded as yes=1 and no=0), and the latter represents primary school

completion using a binary variable (completed primary school=1 and did not complete primary school=0).

Family. The family factor is designed to measure the interactions between the adolescent girl and her family and the support the girl perceives to receive from her mother. I define three variables for this factor: 1) mother's education level (coded as completed primary school or higher=1 and less than primary school or primary school incomplete=0); 2) household structure (coded as living with two biological parents=1 or not living with both parents=0); and 3) mother-daughter relationship quality. I select four items for measuring mother-daughter relationship quality, which are measured on a four-point Likert Scale, from not at all comfortable to very comfortable. I use the average of the four responses to form a global measure (range: 0 to 4 and $\alpha=0.79$) with higher scores indicating a higher quality mother-daughter relationship.

Peer. The peer factor is designed to measure interactions between participants and their peers. I measure peer influence as the composition of friend groups ("How many good male friends do you have?" and "How many good female friends do you have?"). The responses are coded as 0 = no male friends and 0 = no female friends and 1 = 1 or more male friends and 1 = 1 or more female friends.

Physical community. The physical community factor is designed to measure interactions between the adolescent girl and their neighborhood and their participation in community social clubs. Neighborhood effects are measured using four items where participants could agree or disagree. The measure consists of four items such as "In my neighborhood/community, boys/men tease me as I go about my day" and "I feel safe walking around in my neighborhood/community after dark." I measure participation in income-generating activities using three items: "Aside from your housework, have you done any work or chores or activities

for which you were paid in cash or in-kind during the last one year?" I code responses into dummy variables (1=participation in paid work and 0=no participation). I measure involvement in social clubs including 1) gender club, child rights, human rights, HIV and AIDS, health life skills, guidance, and counseling club; 2) girl guides/scouts; 3) sports club; 4) arts, drama, poetry, music, choir or dancing group; 5) church group; and 6) environmental, science, or math club. Each item measures membership status or participation (1=yes and 0=no). I compose a composite score from the sum of these binary variables. Scores range from 0 to 6, with a higher score demonstrating higher social engagement.

Virtual community. Exposure to online communities and mobile phones are classified as virtual networks. Access to a mobile phone is determined by two items: "In the past month, how often have you used a mobile phone, that you personally own?" and "In the past month, how often have you used a mobile phone owned by someone else?" Responses were rated on a five-point Likert Scale; from (1) several times a day to (5) never. I develop a dummy variable where 0=no phone access if respondents indicated "never" and 1=has access to a mobile phone for other responses. I measure social media exposure from reported user experience with Facebook ("Do you have a Facebook account of your own?"). Thereby, the variable captures social-media exposure.

5 Analysis

To conduct the cumulative risk analysis, I generate a composite score using the sum of each risk variable. Scores range from 0 (lowest risk) to 11 (highest risk), with a higher score meaning greater risk exposure (Cronbach's $\alpha = 0.68$). Based on empirical literature that defines risk, scores falling at or above the 75th percentile are classified as "at-risk," creating a

dichotomous variable with 0 meaning lowest risk and 1 meaning highest risk exposure (Gerard & Butler 2004).

I perform a logistic regression to examine the predictors of cumulative risk. In the regression analysis, the risk variable is the dependent variable. When the dependent variable in a study is dichotomous (i.e., at-risk versus not at-risk), logistic regression, as opposed to either multiple regression or discriminant analysis, is appropriate (Hosmer & Lemeshow, 1989). I measure the probability of being at-risk:

$$E(y_i|x_i) = \Pr (y_i = 1|x_i) \quad [1]$$

Accordingly, at-risk girl i denoted as π_i , where the odds that $y_1 = 1$ is generated by a Bernoulli distribution (π_i) and given by:

$$\hat{\pi}_i = \frac{\exp(\hat{\beta}_1 + \hat{\beta}_j * x_{i,j})}{1 + \exp(\hat{\beta}_1 + \hat{\beta}_j * x_{i,j})} = \text{logit}^{-1}(\hat{\beta}_1 + \hat{\beta}_j * x_{i,j}) \quad [2]$$

where $\hat{\beta}_j * x_{i,j}$ is a vector containing independent variables at each level of the SEM. The measures are obtained using STATA version 14. The regression model is built forward, where blocks of variables for each SEM level were entered in a planned sequence. Odds ratios (OR) with 95% confidence intervals are calculated for each set of variables defining each level of the SEM. Beta coefficients greater than one indicate increased odds; and those values less than one indicate decreased odds or protective factors. Predictors are retained in the model based on the correlation coefficients ($\text{rho} \geq |0.10|$).

6 Results

Descriptive statistics

Research assistants contacted 3,052 AGI-K participants in Kibera and Huruma; approximately 5% refused, 10% could not be located during data collection, and 85% completed an interview. In the sample of 2,560 adolescent girls, the mean age was 16.69 years ($SD=1.28$, Range: 13-20). Table 1 reports the distribution of the sexual risk behaviors across adolescent girls in this sample. Seventeen percent reported having had sex, and of this, 44% ($n=196$) reported initiating sex before age 15. Among the eleven risk behaviors, the highest reported risk factor was among those who reported being victim of any form of violence in the past year [23%]. Fifty-four percent of sexually active adolescent girls reported not using a condom during their last sexual encounter; 7% engaged in transactional sex, and 3% had more than two sexual partners in the previous six months. Rates of alcohol and drug uptake were relatively low in this sample, 2% ever used alcohol and 2% ever used drug. Of those who consented for STI testing, 1% were HIV positive and 14% were positive for HSV-2.

Bivariate correlations were computed for all predictors against cumulative risk. In support of hypothesis two, the risk variable was positively correlated to age, taunting from boys in their neighborhood during the day, having more than one male friend, participating in paid work, having mobile phone access, and having a Facebook account (Table 2). Second-level factors, including maternal education, living with both parents, and having a higher quality mother-daughter relationship, were all associated with reducing risk.

Table 1. Composition of the Sexual Risk Score and Proportions in a Sample of Adolescent Girls in Kenya

Variable	Full Sample, N (n=2560)	% , Ever had sex, (n=446)	
		%	
Ever had sex	446	17%	
Had sex before age 15	196	8%	44%
More than 2 sexual partners in last six months	14	0.5%	3%
Had transactional sex	31	1%	7%
Had casual sex	50	2%	11%
If ever had sex, ever used contraception	322	1%	72%
If ever had sex, ever used contraception (excluding condoms)	128	5%	29%
Used condom during last sexual encounter	241	0.03%	54%
Tested positive for HIV*	20	1%	2%
Tested positive for HSV-2	267	14%	23%
Ever used alcohol	41	2%	6%
Ever used drugs	62	2%	8%
Experienced any form of violence in the last year	578	23%	36%

Mean cumulative risk score	1.51		2.95
At-risk (risk score ≥ 2)	850	33%	96%

Cumulative risk score	N	%
1	1710	66.80%
2	558	21.80%
3	161	6.29%
4	96	3.75%
5	26	1.02%
6	9	0.35%

Variable	1 (n=1710)	2 (n=558)	3 (n=161)	4 (n=96)	5 (n=26)	6 (n=9)
Ever had sex	33	131	151	96	26	9
Sex before 15 years	0	17	83	68	21	7
Number of sex partners (>1)	0	1	5	17	9	4
Had Transactional sex	0	1	2	14	9	5

Had casual sex		3	15	15	10	7
Ever used drugs	15	18	14	12	2	1
Ever used alcohol	0	9	11	13	4	4
Never used modern contraceptive	1677	451	57	38	13	2
No condom at last sex	0	71	91	55	16	8
Violence of any form	0	421	62	66	21	8
HSV-2 positive or HIV positive	156	71	34	13	9	4

*Girls tested for HIV (n=1946) and sexually active girls tested for HIV (n=352); Girls tested for HVS-2 (n=1878) and sexually active girls tested for HSV-2 (n=337)

Table 2. Correlations Among Study Variables

Variables	(1)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1)	1.000										
(2)	0.233*	1.000									
(3)	-0.343*	1.000									
(4)	-0.106*	0.301*	1.000								
(5)	-0.085*	0.151*	0.124*	1.000							
(6)	-0.230*	0.038*	0.047*	0.069*	1.000						
(7)	0.251*	-0.050*	0.072*	0.024*	-0.068*	1.000					
(8)	0.196*	-0.019*	-0.069*	-0.092*	0.023*	-0.004*	1.000				
(9)	0.328*	-0.141*	-0.059*	-0.002*	-0.142*	0.135*	0.276*	1.000			
(10)	0.336*	-0.422*	-0.060*	-0.087*	-0.188*	0.194*	0.106*	0.237*	1.000		
(11)	0.266*	-0.306*	0.022*	-0.039*	-0.120*	0.353*	-0.032*	0.091*	0.313*	1.000	
(12)	0.333*	-0.375*	0.034*	-0.057*	-0.179*	0.396*	-0.029*	0.091*	0.295*	0.578*	1.000

Binary variables (0, 1), * $p < 0.05$

Tetrachoric correlations for all binary variables and Pearson’s correlation for continuous variables (1) At Risk; (2) Age (continuous) (3) Attended school in current year; (4) Mother’s education, completed primary school; (5) Resides with both parents; (6) Above average relationship with mother; (7) Has 1 of more male friend; (8) Fear of being raped; (9) Girl teased by boys in the last year; (10) Girl worked for pay in last year; (11) Mobile phone access; (12) Has a Facebook account

Differences Between the Lowest and Highest Risk Groups

Out of all respondents, 850 [33%] adolescent girls reported 2 or more risk behaviors and were met the criteria for being in the “at-risk” category (Table 3). Older adolescent girls had higher cumulative risk scores compared to girls under 16 (χ^2 (df, n=1)=18.66, $p < 0.05$). School attendance was higher in the no-risk group (87.45%) compared to at-risk group (χ^2 (df, n=1)=106.81, $p > 0.05$). Adolescent girls in the no-risk group were younger; from two-parent households with higher wealth; had higher quality mother-daughter relationships; had fewer reports of being teased by neighborhood boys; less accessibility to mobile phones; and lower Facebook membership rates. There was no support for a difference in the number of male friends by risk groups.

Table 3. Differences Between Adolescent Girls by Risk

Variable	No Risk (n=1710) 67%	At Risk (n=850) 33%	Chi-square	p-value
Age			18.66	0.000
below 16	21.35%	14.24%		
16 and above	78.65%	85.76%		
Wealth			13.51	0.009
Lowest wealth quintile	17.34%	21.37%		
School status			106.81	0.000
Currently attending	87.45%	70.72%		
Living arrangement			7.509	0.009
Both parents	61.22%	54.77%		
Mother completed Grade 8	62.47%	55.81%	9.81	0.002
Above average mother-daughter relationship	85.26%	75.76%	34.87	0.000
Girl has one or more male friends	44.80%	42.51%	1.523	0.217
Teased by boys	19.47%	38.12%	103.45	0.000
Employed or works for pay	10.06%	24.35%	91.90	0.000
Has access to a mobile phone	20.76%	34.94%	60.15	0.000
Has a Facebook account	17.19%	33.18%	83.18	0.000

Cumulative risk analysis

The full model was significant and explained about 12% of the variance in cumulative risk (Table 4). Youth in this survey scored an average of 1.51 out of 6 on the cumulative risk scale, which combined three categories of risk behaviors: unintentional injuries and violence, substance abuse, and risky sexual behaviors. The likelihood of being categorized as at-risk increased with age (OR=1.295, 95% CI [1.199-1.399]). Adolescent girls in the lowest wealth quintile were more likely to be at-risk, and this result was statistically significant (OR=1.392, 95% CI [1.089-1.781] p<0.05). There was a 64% reduction in being classified as at-risk when an adolescent girl attends school (OR=0.362, 95% CI [0.282-0.465]).

Daughters of mothers who completed primary school or grade 8 were less likely to be classified as at-risk. Girls with an above-average relationship with their mother had a reduced

odd of being at-risk (OR=0.514, 95% CI [0.398-0.665], $p<0.01$). Living with both parents decreases the likelihood of being at-risk by 16%.

Several societal factors increased the chances of being at-risk during adolescence. Girls who reported fear of being raped increased the likelihood of being an at-risk youth by nearly 50% (OR=1.487, 95% CI [1.208-1.831], $p<0.01$). Girls who reported being teased daily by boys in their neighborhood had a higher odd of being at-risk— nearly double that of girls without this experience (OR=1.951, 95% CI [1.555-2.450], $p<0.01$). Girls who reported having at least one male friend had an increased odd of nearly twice that of girls without male friends. I explored this aspect more to see if having more female or male friends matter and found no significant influence when the distribution of males and females changes (OR=1.05, $p=0.685$). Lastly, adolescent girls with access to virtual networks via a mobile phone (OR=1.451, 95% CI [1.100-1.812], $p<0.01$) or Facebook (OR=1.734, 95% CI [1.346-2.234], $p<0.01$) demonstrated higher odds of being at-risk.

Table 4. Summary of Hierarchical Regression Analysis for Variables Predicting Cumulative Risk

	OR	[95% CI]		df	LR chi2	pseudo R ²	p-value
Level 1: Individual				2	52.25	0.021	0.000
Age (≥16 years)	1.295*** (0.455)	1.199	1.399				
Lowest wealth quintile	1.392** (0.174)	1.089	1.781				
Level 2: School				3	115.89	0.047	0.000
Attending school in current year	0.362*** (0.046)	0.282	0.465				
Level 3: Family and Friends				7	185.08	0.076	0.000
Mother completed grade 8	0.845 (0.089)	0.687	1.040				
Lives with both parents	0.843 (0.088)	0.687	1.036				
Above average mother-daughter relationship	0.514*** (0.067)	0.398	0.665				
Girl has one or more male friends	1.878*** (6.67)	1.532	2.302				
Level 4: Physical Community				10	263.11	0.108	0.000
Fear of being raped in community	1.487*** (0.158)	1.208	1.831				
Reports of boys teasing	1.951*** (0.226)	1.555	2.450				
Worked for pay in the last year	1.822*** (0.263)	1.373	2.418				
Level 5: Virtual Community				12	294.53	0.120	0.000
Mobile phone access	1.415*** (0.181)	1.100	1.812				
Has a Facebook account	1.734*** (0.224)	1.346	2.234				
Exponentiated coefficients; standard error in parentheses							
* p<0.1, ** p<0.05, ***p<0.01							

7 Discussion

An upward trend in sexual risk behaviors is evident from the results of this study, which suggests that certain social factors play a significant role in aggravating risks. The aim of this study was to explore those factors associated with sexual risk behaviors and how they operate across multiple levels of the social-ecological model—individual, school, family and peers, physical, and virtual community. Three categories of risk were prevalent in this sample of adolescent girls; in addition, the results indicate that many of these girls were at increased risk for sexual morbidities and had reported a history of multiple sex partners, engaging in unprotected sex, were positive for HIV and HSV-2, and were physically, sexually, or verbally assaulted by a male partner within the last year.

Guided by the social-ecological model (Bronfenbrenner, 1979; Blum et al., 2012), I hypothesized that individual-, school-, family-, and peer-level factors would be associated with lower cumulative risk scores (Hypothesis 1). Several of the individual and familial-level factors were associated with lowering cumulative risk (attending school, living with both parents, having a mother who completed primary school, having a close mother-daughter relationship). These findings confirm results from other studies indicating that education protects against deviant behavior (Case and Paxson, 2013; Hanebo, Kebede, & Morankar, 2017) and family structure (Hanebo, Kebede, & Morankar, 2017) and close parent-adolescent relationships help mediate engagement in many sexual behaviors (Hanebo, Kebede, & Morankar, 2017; Mmari et al., 2016).

Peer-level factors measured by the composition of friend groups was negatively associated with risk, and this association was contrary to my prediction. Research in adolescent development has long emphasized the increasing role of friends, although the impact on sexual

risk behaviors has been mixed. Cavanagh (2004) suggested that having larger networks of friends, or a network that includes a high proportion of opposite-sex friends, may facilitate greater sexual risk behavior (Cavanagh, 2004). A similar study conducted in Ethiopia with adolescents found that peer connectedness was correlated with lower sexual risk scores (Hanebo, Kebede, & Morankar, 2017). Thus, the negative association found in this study should be interpreted cautiously. It could be the type of male friend that puts girls at higher risk, not necessarily the presence or number of male friends. Additional research is needed to examine the influence of either male or female friends, and the type of friends that lead to higher levels of risk taking.

I hypothesized that more distal societal factors would be related to greater risks (Hypothesis 2). For adolescent girls in the highest-risk group, a number of risk factors were embedded in their environment or physical community. After controlling for age, wealth, schooling, physical communities played a significant role in defining risk. Adolescent girls reported a high level of insecurity within their community, which was defined by their perception of risk factors for sexual violence, including a fear of being raped in their physical community and being teased or taunted by neighborhood boys. In recent years, since the rise of gender-based violence among adolescent girls in Kenya, researchers have sought to interpret the interaction between vulnerable communities defined by concentrated poverty and adolescent sexual risk behaviors. A study based in Kilifi, Kenya that used a social-ecological approach found that insecurity within the community facilitated the occurrence of various forms of sexual violence, especially against adolescent girls (Ssewanyana et. al., 2018). The associations found here could be strengthened by evaluating the independent impacts of poverty and crime in these

areas to determine if there are thresholds or tipping points that lead to more negative threats to adolescent health and well-being.

Lastly, having access to a virtual community through social media or mobile phones contributed significantly to cumulative risk. Among adolescent girls in this study, mobile phone access and Facebook use were negatively associated with sexual risk behaviors (Hypothesis 2)—the opposite effect of the proximal social dimensions. A similar assessment of the influence of technology on sexual risk behaviors by Ssewanyana et al (2018) found that owning a mobile phone or having access to social media were sexual risk enablers. Adolescent girls with Facebook accounts reported using Facebook to form sexual networks, which could lead to unwanted sexual encounters.

With the rise in mobile phone ownership among youth, there is a growing body of literature focused on the use of mobile phones and social media for improving access to sexual and reproductive health knowledge and services. In India, a cross-sectional survey of adolescent girls found that girls spent an average of 2-4 hours per day using smartphones and 69% preferred text or SMS for awareness about reproductive and sexual health information (Singh and Jain, 2017). Another study, in Ghana, on the mobile phone usage trends for obtaining SRH information, found that using phones for education and prevention of STIs was linked to the type of phone, where those who owned a smartphone were more likely to use their phone for SRH knowledge seeking (Alhassan, Abdul, Adzimah-Yeboah, Nyaledzigbor, Agana, Mwini-Nyaledzigbor, 2019). This study compliments what others have found, and more importantly, the results provide proof of concept for a fifth dimension to the SEM offered by Bronfenbrenner (1979) and Blum et al. (2012) to acknowledge the influence that technology or virtual communities have on adolescent health and development.

These findings are consistent with earlier studies with multi-level approaches (Hanebo, Kebede, & Morankar, 2017; Price, 2009), and emphasize the importance of viewing adolescent girls holistically, inclusive of their environment. When all factors are taken into consideration and weighted equally, researchers can carefully account for the presence of competing risk during adolescence. Including non-sex related factors expands the definition of risk and helps capture risk groups that may be missed by using one variable. Among adolescent girls with 2 or more risks, which is above average for this sample, the most prevalent sexual risk behavior was reported sexual, physical, or emotional violence in the past year. Compared to girls with one risk factor, or a risk score of 1, their risk was explained by early sexual debut, having never used contraception, and being HSV-2 or HIV positive. A single risk factor can increase the risk of engaging in other risky behaviors, but most risk evaluation research has been conducted in the context of early sexual debut or having sex before age 15. Multiple studies have shown that adolescent girls whose first intercourse happened before age 15 are much more likely than those who initiated sex at later ages to have had multiple partners, to have had sex with a risky partner, and to have had a sexually transmitted disease (Marston et al., 2013; Mwangi et al., 2019; Ssewanyana et al., 2018). Although there is evidence for predicting additional sexual risk behaviors using one factor like early sexual debut, the current study adds to the literature by demonstrating the benefits of defining at-risk groups using more than one behavior.

These findings should be interpreted mindful of certain study limitations. The present study focused on two low-income areas and is not representative of the whole country. To generalize the results for adolescent girls living in other low-income areas, a vehement data collection effort should be implemented in order to gain a wider variance of sexual risk behaviors among adolescent girl in these areas. Furthermore, I use cross-sectional data from one

time period, which makes it difficult to pinpoint the exact onset of risk and to infer its causality. It is not possible to know when an adolescent girl had a positive or negative experience that impacted their decision-making around sex. Additionally, the study relies on self-reported data and is subject to recall bias, and answers may have been influenced by the delivery of the questions. Future surveys addressing adolescent risk behaviors might consider allowing girls to answer questions on their own using a tablet or other device that allows them to privately report sensitive information. Future studies might explore these behaviors using a self-administered interview approach to report on sensitive topics. In conclusion, this study underscores the importance of expanding how sexual risk-taking is evaluated in concert with the factors that influence them and suggest that interventions that target multiple risk factors may benefit from adding a fifth dimension to account for virtual communities.

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APPENDIX A: SOCIAL-ECOLOGICAL MODEL

Table 5. Applying the SEM Framework to Understanding Sexual Risk Behaviors Among Adolescent Girls in Kenya

SEM dimension	Variables
Level 1: Individual	a. age b. wealth
Level 2: School	c. attending school in current year
Level 3: Family & Friends	d. mother's education status e. living arrangement f. mother-daughter relationship quality g. composition of friend groups
Level 4: Physical Community	h. fear of being raped in their community or neighborhood i. reports of boys teasing in their neighborhood j. employed/worked for pay in the last 1 year
Level 5: Virtual Community	j. mobile phone access k. Facebook usership

APPENDIX B: DATA AND METHODS

I use a multiple logistic regression model for measuring the odds ratio of an adolescent girl being classified as at-risk versus no-risk with covariates representing each level of the social ecological model (individual, school, family and friends, physical community, and virtual community).

The main model for the logistical regression was:

$$\text{logit} \{ \text{Pr} (y_i = 1 | x_i) \} = \beta_1 + \beta_j \times x_{i,j} \quad [1]$$

Accordingly, at-risk girl i denoted as π_i , where the odds that $y_1 = 1$ is generated by a Bernoulli distribution (π_i) and given by:

$$\hat{\pi}_i = \frac{\exp(\hat{\beta}_1 + \hat{\beta}_j * x_{i,j})}{1 + \exp(\hat{\beta}_1 + \hat{\beta}_j * x_{i,j})} = \text{logit}^{-1}(\hat{\beta}_1 + \hat{\beta}_j * x_{i,j}) \quad [2]$$

where $\hat{\beta}_j * x_{i,j}$ is a vector containing independent variables at each level of the SEM.

I investigated a series of covariates following the SEM's structure. All variables were categorical, and I created a dummy variable to represent group membership on a variable (Jaccard & Turrisi, 2003). For example, in the case of school, attending school in the current year was assigned a 1 and a 0 was assigned to not attending school. Specifically, the following independent variables were evaluated:

Level 1: Individual

- Age (1= ≥ 16 years and 0= ≤ 15 years)
- Wealth (1=lowest wealth quintile and 0=higher wealth quintile)

Level 2: School

- School enrollment in the current year (1=attending school in current year and 0=not attending)

Level 3: Interpersonal (Family and Peers)

- Living arrangement (1=residing with both parents and 0=not residing with both parents)
- Mother-daughter relationship (1=above-average relationship score and 0=below average relationship score)
- Mother completed primary school (1= mother completed grade 8 or higher and 0=mother did not complete grade 8)
- Friend groups (1= girl reported having more than one male friend and 0=girl reported having no male friends)

Level 4: Physical Community

- Fear of being raped in community (1=girl reported fear of being raped in their community and 0=girl reported no fear of being raped in their community)
- Reports of boys teasing (1=girl reported being teased by boys in their community and 0=girl reported not being teased by boys)
- Employment status (1=worked for pay in the last year and 0=did not work for pay in the last year)

Level 5: Virtual Community

- Mobile phone access (1=owns a mobile phone and 0=does not own a mobile phone)
- Has a Facebook account (1=has a Facebook account and 0=does not have a Facebook account)

Multiple logistic regression analysis

The main purpose of this analysis is to know to what extent is risk influenced by each level of a social ecological model. The measures were obtained using STATA version 14. The regression model was built forward, where blocks of variables for each SEM level were entered in a

planned sequence. The “nestreg” command was used for testing and describing different groups of characteristics that impact the dependent variable (Acock, 2014). Odds ratios were calculated for each set of variables defining each level of the SEM (Table 6). Beta coefficients greater than one indicate increased odds; and those values less than one indicate decreased odds or protective factors. All levels are measured independently and collectively. By comparing the values of the F statistic, the results indicate that all regressors were different from zero.

Table 6. Results from Multiple Logistic Regression Analysis Using a Block Model

Block 1					
Variable	OR	SE	p-value	[95% CI]	
Age (≥ 16 years)	1.296	0.051	0.000	1.200	1.399
Lowest wealth quintile	1.393	0.175	0.008	1.089	1.781
Block 2					
Variable	OR	SE	p-value	[95% CI]	
Age (≥ 16 years)	1.219	0.049	0.000	1.126	1.319
Lowest wealth quintile	1.260	0.163	0.073	0.978	1.622
Attending school in current year	0.363	0.046	0.000	0.283	0.465
Block 3					
Variable	OR	SE	p-value	[95% CI]	
Age (≥ 16 years)	1.168	0.048	0.000	1.077	1.267
Lowest wealth quintile	1.268	0.168	0.073	0.978	1.645
Attending school in current year	0.368	0.048	0.000	0.284	0.476
Mother completed grade 8	0.845	0.089	0.112	0.687	1.040
Lives with both parents	0.843	0.088	0.104	0.687	1.036
Above average mother-daughter relationship	0.514	0.067	0.000	0.398	0.665
Girl has one or more male friends	1.878	0.195	0.000	1.532	2.302
Block 4					
Variable	OR	SE	p-value	[95% CI]	
Age (≥ 16 years)	1.149	0.049	0.001	1.057	1.248
Lowest wealth quintile	1.206	0.164	0.169	0.923	1.575
Attending school in current year	0.410	0.056	0.000	0.313	0.536
Mother completed grade 8	0.861	0.093	0.166	0.697	1.064
Lives with both parents	0.856	0.092	0.147	0.694	1.056
Above average mother-daughter relationship	0.549	0.074	0.000	0.422	0.714
Girl has one or more male friends	1.788	0.190	0.000	1.452	2.201
Fear of being raped in community	1.487	0.158	0.000	1.208	1.831
Reports of boys teasing	1.952	0.227	0.000	1.555	2.450
Worked for pay in the last year	1.822	0.263	0.000	1.373	2.418
Block 5					
Variable	OR	SE	p-value	[95% CI]	
Age ($\Rightarrow 16$ years)	1.096	0.048	0.035	1.006	1.194
Lowest wealth quintile	1.217	0.168	0.154	0.929	1.595
Attending school in current year	0.461	0.064	0.000	0.350	0.606
Mother completed grade 8	0.831	0.091	0.091	0.671	1.030
Lives with both parents	0.861	0.093	0.166	0.697	1.064
Above average mother-daughter relationship	0.577	0.078	0.000	0.442	0.753
Girl has one or more male friends	1.558	0.171	0.000	1.257	1.933
Fear of being raped in community	1.523	0.163	0.000	1.234	1.879
Reports of boys teasing	1.974	0.231	0.000	1.569	2.483
Worked for pay in the last year	1.692	0.248	0.000	1.269	2.255
Mobile phone access	1.415	0.182	0.007	1.100	1.820
Has a Facebook account	1.734	0.224	0.000	1.346	2.234

Block	Wald chi2	df	Pr > F
1	50.81	2	0.000
2	63.89	1	0.000
3	67.19	4	0.000
4	76.34	3	0.000
5	31.00	2	0.000

DETERMINANTS OF AND ASSOCIATIONS WITH POWER IN THE SEXUAL RELATIONSHIPS OF ADOLESCENT GIRLS IN AN URBAN INFORMAL SETTLEMENT IN NAIROBI, KENYA

ABSTRACT

Background: Improving gendered power in women, has been a powerful deterrent to HIV risk behaviors. However, gendered power dynamics has received less attention than other risk behaviors directly related to sexual and reproductive health outcomes. In this study, I use the Sexual Relationship Power Scale to evaluate the presence and degree of the sexual relationship power among adolescent girls.

Methods: I use a multivariate regression analysis to test the associations between sexual relationship power and economic factors, sexual risk behaviors, and intimate partner violence among adolescent girls.

Results: In this sample of 1,197 adolescent girls aged 13-20, sexual relationship power was inversely related to transactional sex ($b = -3.767$, 95% CI [-6.720 - -0.820]) and intimate partner violence ($b = -3.172$, 95% CI [-5.409 - -0.935]) and positively correlated with saving money ($b = 2.361$, 95% CI [0.582- 4.140]). Adolescent girls who reported higher levels of relationship power were more likely to have a history of saving money and were knowledgeable of financial concepts.

Discussion: The results suggest a reasonable basis for considering economic empowerment as a mechanism for increasing sexual relationship power among adolescent girls. These findings have implications for interventions, research programs, and policies focused on mitigating intimate partner violence and sexual risk behaviors.

1 Introduction

Adolescent girls living in socially vulnerable communities are one of the fastest growing groups of young people with HIV in Kenya. For a country where 20% of the population is between the ages of 15-24, the disproportionate number new HIV cases among young people appears striking, yet this highlights an even more worrisome statistic. In 2019, HIV prevalence among adolescent girls (15 to 25 years) was double of young male of the same age (UNICEF, 2019). Importantly, adolescent girls, when they enter sexual relations, are often at a power disadvantage because of the salience of male-controlled condom use as a recommended safer sex strategy. One-third of sexually active female adolescents (age 15-19) reported condom use during their last sexual experience with a non-marital, non-cohabiting sexual partner and 26% have had unprotected sex with multiple partners (Kenya National Bureau of Statistics [KNBS], 2015). Despite the extensive evidence indicating the effectiveness of condoms in preventing HIV transmission, a subset of adolescent girls continues to have unprotected sex, often against their will (KNBS, 2015). Thus, multiple factors serve as barriers to safe sex including perceived power within the relationship.

Gendered power inequalities in adolescent sexual relationships have been shown to impact their control over decision-making, condom negotiation ability, and freedom of action within intimate relationships (Teitelman, Tennille, Bohinski, Jemmott, & Jemmott, 2011). Additionally, lower power among women have been linked to higher levels of sexual and physical violence, HIV infection, and inconsistent condom use (Dunkle, Jewkes, Brown, Gray, McIntyre, & Harlow, 2004; Jewkes & Morrell, 2010; Teitelman et al., 2016).

The Sexual Relationship Power Scale (SRPS), introduced by Pulerwitz et al. (2000), is an instrument that assesses the role of relationship power in sexual decision-making and HIV risk.

The SRPS was validated in 2018 in a sample of 15-to 24-year-old females in Kisumu, Kenya, and found to be a good measure of relationship power in this age group. In this sample, lower SRP was associated with increased partner violence and HIV risk (Pulerwitz, Mathur, & Woznica, 2018). Other investigators have reported a significant association between lower SRP and inconsistent condom use among women (Dunkle et al., 2004) and a lower probability of using modern contraceptive methods, including oral contraceptive pills, implants, or injectables, (Taukobong et al., 2016). Increasing sexual relationship power can reduce risk by providing girls with a stronger capacity to negotiate safer sex practices with her partner, particularly ones that she can choose and control. Sexual relationship power among adolescent girls has received less attention, however, than other factors directly related to HIV transmission.

The United Nations recognizes poverty as a factor responsible for the inequalities in the distribution of power, money and resources between men and women (Nieuwenhuis, Munzi, Neugschwender, Omar, & Palmisano, 2019). The most vulnerable adolescent girls in Kenya live in the poorest households (Kenya National Bureau of Statistics [KNBS], 2015). Emanating from these living conditions are health hazards and vulnerabilities to gender-based violence, forced sex, STI acquisition, and unwanted pregnancies (UN-Habitat, 2016). Adolescent girls growing up in these areas are often placed in compromising situations created by limited resources and poor access to necessities. When young women lack power, they can easily be lured into pursuing options that give them more power or more choices to get what they need. Family poverty, overcrowding, and poor housing have been linked to transactional sex among adolescents seeking alternative income-generated activities to pay for necessities and other things they or their parents cannot afford (Ssewanyana et al., 2018).

When gendered power is low, there is leeway for a range of unacceptable behaviors that could lead to more risk. Numerous qualitative studies conducted in Kenya find that young women who exchanged sex for money and favors were five times more likely to contract HIV than those who did not engage in transactional sex (Rositch, Cherutich, Brentlinger, Kiarie, Nduati, Farguhar, 2012) and more likely to become pregnant at a younger age (Wilson, Mysyoki, Avery, Cheuk, Gichangi, & Bhattacharjee, 2020). Poverty exacerbates the need to exchange sex for money or gifts, and transactional sex is not limited to sexually experienced adolescent girls. Becker et al. (2018) found an association between money and first sex where 4 out of 10 adolescent girls reported receipt of gifts and money at first sex. This means that the distribution of power, money, and resources among adolescent girls in low-income settings are an important source of HIV risk.

Gendered power changes from situation to situation. Implications of unequal power and sexual entitlement in romantic relationships where a girl is unable to negotiate her power leaves her vulnerable to sexual, physical, or emotional violence. Intimate partner violence (IPV) is a pattern of controlling behavior used to maintain power in a relationship by one partner over the other (Center for Disease Control and Prevention [CDC], n.d.). Romantic relationships are one area where the amount of power controls the degree of choice that people feel they have. Over 75% of youth in Kenya have experienced at least one type of violence—sexual, physical, or emotional—prior to the age of 18, and 33% of adolescent girls have suffered at least one episode of sexual violence before turning 18 (KNBS, 2015). Unfortunately, the perceived gender norms associated with seeing girls as subservient and males as domineering, still prevails in Kenya (KNBS, 2015). Studies have shown that asymmetries in gendered power led to transaction-dependent relationships (Teitelman, Ratcliffe, Morales-Aleman, & Sullivan, 2008; Zembe,

Townsend, Thorson, Silverschmidt, & Ekstrom, 2015). Poverty coupled with partner dependency exacerbates vulnerability to male dominance and abuse (Zembe et al., 2015). These outcomes can be avoided if adolescent girls have more bargaining power in sexual relationships when negotiating decisions that impact their well-being.

To succeed against the worst situations, girls must be provided with a stronger alternative to transactional behavior. A study conducted in Kenya found that adolescent girls who saved money were better equipped to exercise their decision-making power when choosing a partner or when deciding to leave an abusive relationship (Muthengi, Gitau, & Austrian, 2016). Hallman (2005) noted a link between nonconsensual sex and economic status. Higher rates of forced sex at first sex were reported by girls in lower wealth quintiles. The opposite happens when girls are given economic opportunities (Hallman, 2005). For example, a cluster randomized trial conducted in Malawi found that HIV and HSV-2 rates declined among young women aged 13-22 when participants were given cash transfers to encourage saving money (Baird, Garfein, McIntosh, & Ozler, 2012). A cluster randomized control trial in Zambia aimed at improving girls' transition to adulthood included both financial literacy and savings patterns as economic asset indicators. The study's economic asset-building component had positive effects on girls' self-efficacy, which plays a positive role in girls' decision-making power in their sexual relationships (Austrian, Soler-Hampejsek, Hewett, Jackson, & Hachonda, 2018).

In this study, I use the SRPS, to evaluate the associations between sexual relationship power and intimate partner violence. Sexual relationship power is not fixed. I argue that when power is restricted, adolescent girls engage in activities that increase their vulnerability and powerlessness for the sake of fulfilling basic needs. I will accomplish this by evaluating sexual relationship power as a predictor of transactional sex among adolescent girls living in Kibera and

Huruma. I also argue that girls who participate in economic markets by actively saving money and working for income, have greater sexual relationship power, higher self-efficacy, and lower likelihood of being a victim of gender-based violence. With economic power, girls are in a better position to make independent decisions and contribute to alleviating the poverty of the family and the community. Therefore, it is important to understand the impact of sexual relationship power on adolescent girls' livelihood as it affects the development of the nation. This paper adds new empirical data in the field of adolescent health and will help inform national policies and interventions aimed at improving adolescent health and well-being in Kenya. Furthermore, it will contribute to discussions on the impact of gendered power imbalances and the importance of women and girls' contribution to socio-economic development.

2 Measuring Sexual Relationship Power

Gender-based power refers to the ability of one partner to dominant decision-making, to engage in behaviors against the other partner's wishes, and/or to control a partner's actions (Pulerwitz, Gortmaker, and DeJong 2000). Gender-based power imbalances can make it difficult for women of any age to engage in protective actions against acquiring sexually transmitted HIV (Stokes & Brody, 2019). In 2000, Pulerwitz et al. introduced the SRPS for measuring gender-based power imbalances for women and men. The SRPS stems from social theories of gender that emphasized women's role as passive and sexually submissive and men as competitive and sexually adventurous and gender as a division of labor and power (Connell, 1987). Such theories presume that conflict and tension are intrinsic in personalities, dynamically linked, and result in a multiplicity of masculinities and femininities. Based on these theories, the SRPS was developed to measure power differentials using a quantitative approach. In the initial factor analysis, two

subscales emerged and were retained to address two conceptual dimensions of relationship power: relationship control (Example: “My partner always wants to know where I am.”) and decision-making dominance (Example: “Who usually has more say about whether you have sex?”). Researchers tested 62-items that covered questions about control over decision making, commitment to the relationship, condom negotiation ability, and freedom of action within the relationship among other areas. Items in the relationship control domain used a four-point Likert scale ranging from “strongly agree” to “strongly disagree” and questions in the decision-making domain used three categories (1=your partner has more power; 2=both of you have equal power; 3=you have more power) on each item.

The full SRPS was tested in a sample (n=388) of Latina, African-American, and White women aged 18-45 in the United States. The overall reliability of the relationship control subscale was 0.85 and 0.63 for the decision-making dominance. Results from a multivariate regression analyses showed that a lower score was significantly related to a history of physical violence ($p<0.01$) and forced sex ($p<0.001$), while higher scores were associated with higher levels of education ($p<0.01$), satisfaction with their primary relationship ($p<0.01$) and safer sex behaviors ($p<0.05$) in this population (Pulerwitz, Gortmaker, and DeJong 2000). The SRPS has been used extensively in the field of HIV prevention and sexual risk behavior. In 2018, the scale was tested and validated in a sample of adolescent girls in Kisumu, Kenya to examine the relationship between power, and partner violence and HIV risk outcomes and found to be a good measure (Pulerwitz, Mathur, & Woznica, 2018).

3 Sexual Relationship Power and Economic Empowerment

Balancing power in sexual relationships coincides with women's economic empowerment, which has been associated with improving health seeking behaviors (Nankinga, Misinde, & Kwagala 2016), contraceptive uptake (Corroon, Speizer, Fotso, Akoide, Calhoun, & Irani, 2014), and condom use (Baird et al., 2012). However, among studies that have sampled adolescent girls, the emphasis has been on understanding the role of relationship power in HIV risk and outcomes (Pulerwitz, Mathur, & Woznica, 2018). Less is known about the role of economic empowerment in adolescent sexual relationships.

To date, the scale has been applied in various contexts including sub-Saharan Africa and was found to be associated with sexual and physical violence (Dunkle et al., 2014; Pulerwitz, Mathur, & Woznica, 2018), HIV incidence (Jewkes and Morrell, 2010; Haberland, 2016), condom use (Pulerwitz, Amaro, DeJong, Gortmaker, & Rudd, 2002) and education (Pulerwitz, Mathur, & Woznica, 2018). An important limitation of previous research has been a reliance on HIV risk factors, such as risky sexual behaviors, intimate partner violence, or inconsistent condom use for explaining sexual relationship power. A second limitation is that few researchers have examined the effects of sexual relationship power in adolescent girls who have never had sex. There is little to no evidence about adolescents and the role of sexual relationship power outside the field of HIV prevention and sexual risk behaviors. For the purposes of this study, I focus on understanding the role of gender-based power dynamics and the association between sexual relationship power and sexual engagement, IPV, and economic empowerment among adolescent girls regardless of sexually activity.

The following hypotheses guided this study:

H1: Adolescent girls with higher levels of economic empowerment, measured by material wealth and financial savings, will report higher levels of sexual relationship power.

H2: Adolescent girls with lower levels of sexual relationship power will be more likely to report incidents of IPV and lower self-efficacy.

4 Methodology

Sample

This paper used data collected by the Population Council as part of its Adolescent Girls' Initiative in Kenya (AGI-K) that targeted adolescent girls aged 14-20 residing in low-income, informal settlements in two Kenyan communities: Kibera and Huruma. All adolescent girls registered in the AGI-K program since 2015 were invited to participate.

Data Collection

The questions used in the analysis presented here were nested in an existing survey designed for and administered to AGI-K participants (Austrian et al., 2016). The data were collected from February to May 2019 as a component of AGI-K's third and final survey for an intervention program designed to build social, health, and economic assets for vulnerable adolescent girls living in Nairobi. The surveys were conducted through computer-assisted personal interviews (CAPI) in which the interviewer used a tablet to complete the questionnaire. Data were collected on socio-demographics, education, any experience of physical and sexual violence, sexual behaviors, self-efficacy, material wealth, financial literacy, savings practices, and sexual relationship power.

Written informed consent was obtained from all participants. The study protocol was reviewed and approved for compliance by the Population Council Institutional Review Board

(IRB) and the AMREF Ethics and Scientific Review Committee. In addition, research permits were obtained from the National Council on Science, Technology and Innovation in Kenya. Informed consent was obtained from respondents during the process of data collection.

5 Measures

Dependent variable

The full 24-item scale for measuring SRPS was included in the survey (Table 1). For each item in the SRPS, respondents were read a statement (for example, “My partner has more say than I do about important decisions that affect us.”) and asked whether they strongly agree, agree, disagree, or strongly disagree with the statement. Each item was scored from 1 to 4, with higher scores indicating higher power. The scale was constructed as the sum of the scores of all items. The range was 37-93 in this sample, in which higher scores meant higher sexual relationship power. Internal consistency was $\alpha=0.86$.

Covariates

The main explanatory variables were the ones related to economic empowerment: knowledge of financial principals, material wealth, and experience with saving money. In addition, the following background characteristics of adolescent girls were employed as covariates because they were believed to demarcate important influences of sexual relationship power: marital status or history of living with a boyfriend, sexual practices, and reports of intimate partner violence. Unless noted, all variables were coded as dichotomous variables with 1 meaning that the respondent has engaged in the behavior and 0 meaning has not engaged. Control variables included age and whether they attended school during the current school year.

Relationship status. Two questions measured marital status and relationship experience. Respondents were asked, “Have you ever been married?” and “Are you currently married, living with a boyfriend, separated, divorced or widowed?”

Sexual behavior. A component of the AGI-K survey accounts for sexual risk-taking behavior. Sexual risk-taking behavior involves engaging in sexual activities that are associated with unplanned reproductive outcomes, such as pregnancy, or contracting HIV/AIDs and other sexually transmitted diseases. To measure sexual engagement, participants were asked “How old were you when you had sexual intercourse for the very first time?” The survey included items about sexual partnerships and girls were asked about their past sexual experience. One item on transactional sex was used: “Have you ever been sexually involved with a man (boyfriend, casual partner, one time partner, sponsor) because you needed or thought you would get any of the following [food, shelter/a place to stay, school fees, money, phone or airtime, clothes, shoes, or beauty products, sanitary pads, or other things you want to buy but can’t afford]?” The answers to each of these items were used to classify participants into 1 of 3 mutually exclusive groups: never had sex, had sex but not transactional sex, and had transactional sex.

IPV. Respondents were asked whether they experienced IPV in the past six months—“Has any male done any of the following things to you in the previous year”—and asked about the frequency of such events. The list contained a range of offenses, including being pushed, forced to perform sexual acts, being attacked with a weapon, and being insulted or made to feel bad. Relationship to the perpetrator was asked and a variable was constructed if violence was perpetrated by current boyfriend, former boyfriend, or husband.

Self-efficacy. A measure of self-efficacy was obtained using the Generalized Self-Efficacy scale (Sherer, Maddux, Mercandante, Prentice-Dunn, Jacobs, & Rogers, 1982). The

measure consists of six items like “I can always manage to solve difficult problems if I try hard enough” and “I am confident that I could handle unexpected events very well.” A scale of 0 to 6 was created and a higher score represented higher self-efficacy. Internal consistency for this scale was $\alpha=0.63$.

Financial literacy. Knowledge of financial concepts was assessed by a set of items in which participants were asked to identify forms of savings, the main purpose of having a financial plan, and their financial practices. For example, the following scenario was read:

Each week, Anna sits down and plans what she will earn and spend in the next week. She writes down all the places where she will get money and all the things she will spend it on. Then she is able to see if she has enough money for all of what she wants to buy.

Participants were then asked, “Do you have such a plan” and “What would you call that kind of plan?” The current study summed all items to obtain a cumulative measure with a range of 0 to 10, with a higher score meaning greater financial literacy.

Material wealth. An overall measure of material wealth was created and represented by an index with a range of 1 to 5. Respondents were asked a series of questions about things they own personally. For example, girls were asked the following statement, “Do you personally own or have these items?” The list of items included a combination of essential school items such as a school uniform and school bag, and nonessential or luxury items like a mobile telephone, a bicycle, and jewelry. The material wealth variable was computed as a sum across a total of 13 items. Principal Component Analysis was used to create a global scale with a range of 1 to 5. Internal consistency for the material wealth scale was $\alpha=0.46$.

Savings practices. Savings practices were measured using self-reported data. For examples, girls were asked, “In the past six months, have you saved, or put money aside to use at a later time?” If yes, the participants indicated the amount they have accumulated over the past

year. The amount saved was split into three groups: 1) no money saved, 2) amount saved is between the range of 1Ksh and 4999Ksh, and 3) amount saved is equal to or greater than 5000Ksh.

6 Analysis

Descriptive analyses were used to describe the sociodemographic characteristics, economic assets, and sexual relationship power of this sample. The dependent variable, sexual relationship power, followed a normal distribution allowing the use of parametric statistics (Knapp, 1990). Bivariate correlations were computed to determine the relationship between sexual relationship power and each of the predictor variables. T-tests were used to assess differences in outcomes by economic (having saved money in the past six months) and relationship status (ever having had sex, ever being married or cohabited with a boyfriend, and ever experienced IPV in past six months). Observed differences by financial literacy, material wealth, self-efficacy, and the total amount saved were examined using Pearson's chi-squared test.

Lastly, multivariate linear regression models were used to investigate factors that shape SRPS with a particular focus on economic empowerment (e.g., financial literacy, material wealth, and history of saving money). The dependent variable of interest was sexual relationship power.

The main model used in this analysis followed:

$$y_i = \sum_{j=1}^K x_i \beta_j + \epsilon_i = x_i' + \epsilon_i \quad [1]$$

as,

$$SRPS_i = \beta_0 + x_{i,k} * \beta_j + \varepsilon_i \quad [2]$$

where SRPS is the key explanatory variable or outcome and $x_{i,k} * \beta_j$ represents the set of independent variables: age, wealth, age, education, relationship status, sexual behaviors, IPV, self-efficacy, financial literacy, material wealth and savings practices.

To avoid overestimations, the regression models were conducted using a robust regression in Stata/IC 14.2 with the `vce(robust)` option applied (Rabe-Hesketh & Skrondal, 2008). The skewness for SRPS was 0.29 and 0.42 for the residuals which is close to the value of 0.00 for a normal distribution. If a variable's value for skewness falls within the range from minus twice the standard error of their skewness, to plus twice the standard error of skewness, then the variable is not significantly non-normal (Rabe-Hesketh & Skrondal, 2008). As no points extremely deviate from the straight, diagonal line, it was assumed that there were no major deviations from normality (Rabe-Hesketh & Skrondal, 2008). Also, the overall shape of the scatterplot shows that more scores are concentrated around the center, and it can be concluded that the data is not non-linear or heteroscedastic (Rabe-Hesketh & Skrondal, 2008). Finally, the absence of multicollinearity was checked using VIF values. Each value was below 10, indicating that none of the variables has an issue with multicollinearity. In conclusion, the assumptions for normality, linearity, homoscedasticity, and the independence of residuals was satisfied.

7 Results

Descriptive statistics

A total of 3,044 girls were contacted, and 2,560 girls completed the interview for a response rate of 84%. The main reasons for a nonresponse were refusals or challenges with locating girls who may have moved outside the study area. This study's analytical sample included adolescent girls who reported ever being married, living with a boyfriend, ever having a boyfriend, or ever having a romantic partner, even if they never had sex with them (n=1,197). The reference sample (n=1,363) for this study were girls who reported having no romantic partner, and thus, did not meet the criteria for answering SRPS questions. The two groups were chosen for showing differences in demographic characteristics among adolescent girls who have or have had romantic experiences compared to girls without this experience.

Of the 2,560 girls who were interviewed, 46.8% (n=1,197) reported having had a romantic partner experience, and this group formed the analytical sample. For the control variables, age and schooling status were both statistically different between groups. Girls in the analytical group were slightly older (M=17.04, SD=1.27, Range: 13-20) than girls in the reference group. School enrollment was highest in the analytical sample (87%) compared to 75% in the reference group. All variables used to explore relationship characteristics showed that girls who have had a romantic partner experienced significantly different experiences; 32% had ever had sex and 8% had ever been married compared to 2% and 0.07% in the reference group, respectively. A higher proportion of girls in the analytical sample reported some form of IPV than girls that reported no romantic partner experience (3.5% vs., 0.29%, p=0.00). As for economic empowerment, 45% of the reference group and 52% of the analytical group reported that they saved money in the past year. Girls without romantic partner experience saved more

money when compared to girls who have had romantic partner experience, although both groups reflected similar levels of financial literacy and material wealth. For both groups, self-efficacy scores averaged about 5 on a scale of 0 to 6. Descriptive statistics for all variables are shown in Table 1.

Levels of sexual relationship power

The SRPS was administered to 1,197 girls who reported that they had ever had a romantic experience or relationship, regardless having sex with that partner. Cronbach's alpha of the scale was 0.86, suggesting high internal consistency. The distribution of responses to the SRPS 24-items are presented in Table 2. Girls scored higher on items measuring shared decision-making in relationships, with most girls agreeing that their interests are respected and equally met by their partner. More than 50% of respondents disagreed with the statements: "Most of the time, we do what my partner wants to do," "My partner has more say than I do about important decisions that affect us," and "My partner does what he wants, even if I do not want him to." Yet, submissive attitudes in the context of sexual activity were reported, particularly control over conception usage. Measures of behavioral skills indicated that over 70% girls did not feel confident that they could use contraception as they desired. Girls also rated very highly the likelihood of aggravating partner violence if they asked their partner to use a condom; 25% felt that their partner would get angry if they asked their partner to use a condom and 26% reported that their partner would get violent if asked. Mismatched sexual desire was reported by 10% of girls in the sample.

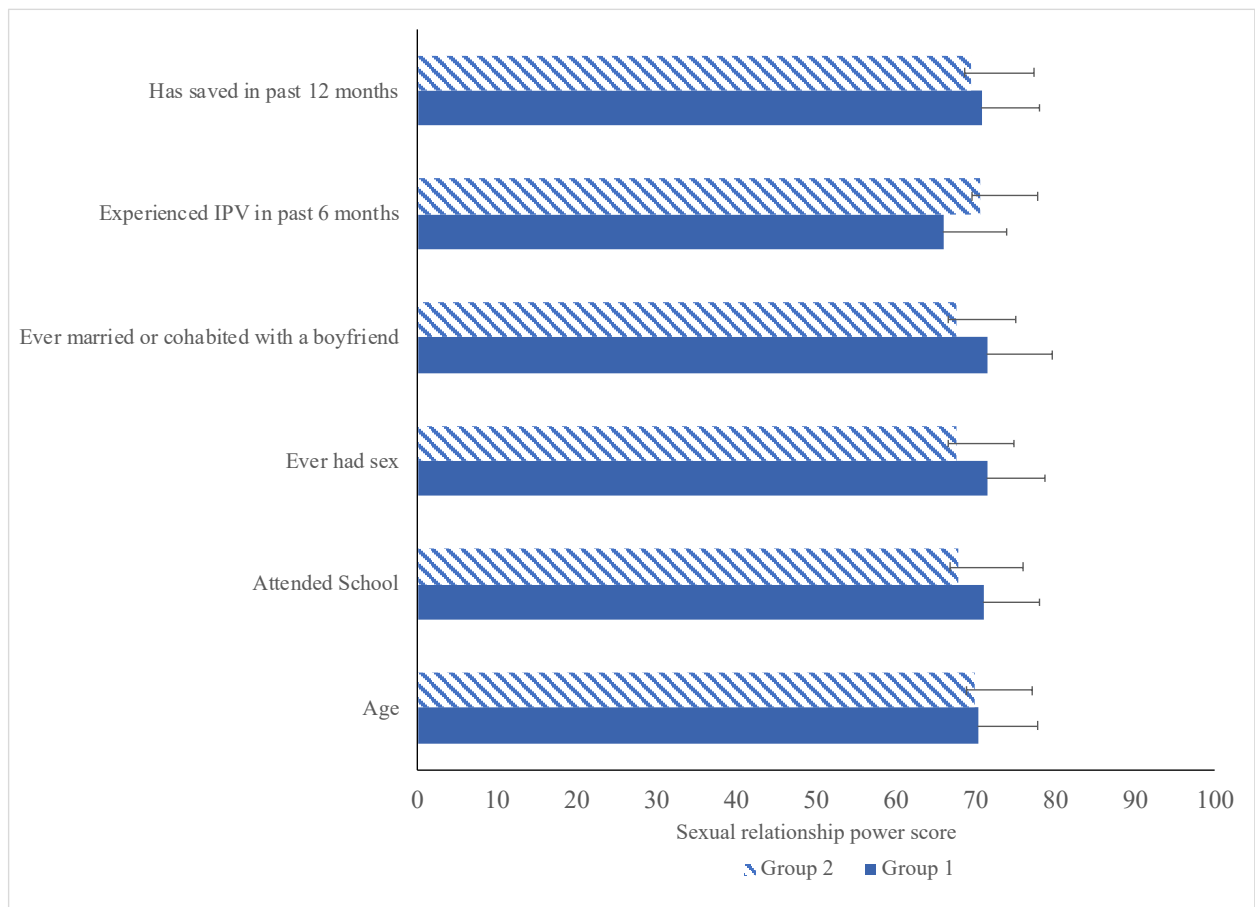
Table 1. Descriptive Statistics of AGI-K Study Participants Aged 13-20 Years

Variable	No romantic partner experience reference group (n=1363)				Have had romantic partner experience analytical sample (n=1197)				t
	Mean	SD	Min	Max	Mean	SD	Min	Max	
Demographics									
Age	16.39	1.22	13	20	17.04	1.27	13	20	-13.33***
Attended school in current school year, %	87.41%				75.63%				7.80***
Relationship experience									
Ever had sex (yes), %	2.13%				32.25%				-23.26***
Ever married or cohabited with a boyfriend (yes), %	0.07%				8.10%				-10.71***
Self-efficacy score (0-6)*	4.92	1.31	0	6	4.94	1.21	0	6	375.11***
Experienced IPV in past 6 months, %	0.29%				3.50%				-6.15***
Economic empowerment									
Financial literacy *	6.56	1.75	1	10	6.66	1.66	0	10	443.04
Material Wealth Index (1-5) *	2.90	1.38	1	5	3.02	1.47	1	5	217.89
Has saved in past 12 months, %	45.19%				51.96%				-3.43***
Amount saved (Kenyan Shillings)*	1382.95	2136.92	0	20000	1198.46	3351.05	0	49000	82.40
1-4999Ksh	41.23%				93.98%				
greater than or equal to 5000Ksh	58.77%				6.02%				
* p<0.1 ** p<0.05 *** p<0.01									
*Chi square reported									

Table 2. Measuring Sexual Relationship Power Using the Sexual Relationship Power Scale, Sample Proportions Who Strongly Agree/Agree/Disagree Strongly Disagree, Among Adolescent Girls Who Have had a Romantic Partner

Item	Response options, % (n=1,197)			
	Strongly agree	Agree	Disagree	Strongly disagree
Most of the time, we do what my partner wants to do.	3.26	11.61	60.99	24.14
My partner won't let me wear certain things.	5.35	28.74	49.21	16.71
When my partner and I are together, I'm pretty quiet.	4.09	26.73	54.05	15.12
My partner has more say than I do about important decisions that affect us.	5.18	24.73	51.88	18.21
My partner tells me who I can spend time with.	3.43	17.21	59.15	20.22
If I asked my partner to use a condom, he would think I'm having sex with other people.	4.93	12.36	53.97	28.74
I feel/felt trapped or stuck in our relationship.	3.93	19.97	57.98	18.13
My partner does what he wants, even if I do not want him to.	1.92	11.95	63.91	22.22
I am more committed to our relationship than my partner is.	2.59	18.46	61.40	17.54
When my partner and I disagree, he gets his way most of the time.	3.93	24.73	56.73	14.62
If my partner wants to have sex, he would expect me to agree.	6.02	22.72	50.96	20.30
My partner always wants to know where I am.	10.19	51.21	31.08	7.52
If I asked my partner to use a condom, he would get angry.	2.59	11.78	60.48	25.15
If I asked my partner to use a condom, he would get violent.	1.17	10.19	62.41	26.23
My partner might be having sex with someone else.	3.68	20.55	58.48	17.29
He lets me know I am not the only partner he could have.	2.84	18.88	61.74	16.54
I can use contraception as I want to.	4.76	22.56	52.13	20.55
I can express my opinion in my relationship.	20.38	70.43	7.69	1.50
I have a say in making important decisions in my relationship.	23.39	68.59	6.85	1.17
I feel valued in our relationship.	17.88	63.07	16.54	2.51
My partner listens to my opinions.	20.05	72.77	5.76	1.42
My partner likes it when I make suggestions.	18.05	72.01	8.52	1.42
When my partner and I are together, I feel respected.	16.71	71.85	9.86	1.59
My partner listens to me when I don't want to have sex (if in non sexual relationship ask: My partner listens to my wish to not have sex)	22.72	67.00	8.19	2.09

The results of the descriptive analyses for sexual relationship power are shown in Table 3. Total sexual relationship power scores averaged 70.10 ($sd=7.47$, range: 37-93). Sexual relationship power was higher among older girls (17-20 years), school goers, those who have not initiated sex, and those who put money away in savings (Figure 1). As shown in Table 4, sexual relationship power was higher for girls who ever had sex, $t(1195)=8.62$, $p=0.00$) compared to who never had sex; and girls who had been married or cohabited with a boyfriend $t(1195)=5.33$, $p=0.00$. Approximately 3.5% of girls reported being harmed by an intimate partner in the last six months and average sexual relationship power was lower than girls who did not experience IPV in the last six months, $t(1195)=3.68$, $p=0.00$. In response to the 10 questions assessing financial literacy, participants averaged 6.66 ($sd=1.66$, range: 0-10). Average score for material wealth was 2.95 ($sd=1.42$, range: 1-5), and girls who reported saving money in the last year had higher sexual relationship power ($M=70.66$, $sd=7.26$) when compared to girls who did not report any savings in the last year, $t(1195)=-2.69$, $p=0.01$. There was no statistical difference in the amount of money saved.



*Group 1 included girls who were aged 13-16, attended school in current year, never had sex, never married or cohabited with a boyfriend, reported no IPV in last 6 months, and reported saving money in the past 12 months.
 *Group 2 included girls who were aged 17-20, did not attend school in current year, had sex, ever married or cohabited, reported IPV in last 6 months, and reported not saving money in the past 12 months.

Figure 1. Comparing sexual relationship power scores among adolescent girls in Kenya with romantic partner experience by age, schooling status, relationship experience, and economic empowerment.

Table 3. Sexual Relationship Power Among AGI-K Girls Who Reported Having Had Romantic Partner Experience, by Demographic Characteristic

Variable	Have had romantic partner experience analytical sample (n=1197)		
	SRPS Mean	SD	t
Sexual relationship and power scale (SRPS), overall	70.10	7.47	
Mean SRPS by			
Age			0.781*
13-16 years	69.88	7.23	
17-20 years	70.23	7.61	
Attended school in current school year			-6.30***
yes	70.89	7.07	
no	67.77	8.14	
Relationship experience			
Ever had sex			8.62***
yes	71.41	7.28	
no	67.61	7.22	
Ever married or cohabited with a boyfriend			5.33***
yes	66.27	8.12	
no	70.44	7.33	
Experienced IPV in past 6 months			3.68***
yes	65.95	7.78	
no	70.44	7.33	
Economic empowerment			
Has saved in past 12 months			-2.69**
yes	70.66	7.25	
no	69.50	7.68	
Amount saved (Kenyan Shillings)			-2.11
1-4999Ksh	69.99	7.40	
greater than or equal to 5000Ksh	71.90	8.45	
* p<0.1 ** p<0.05 *** p<0.01			

Bivariate correlations were computed to examine correlations among the predictor variables and sexual relationship power (Table 4). Several motivational variables (i.e., attending school, self-efficacy, material wealth, savings in the past year, and financial literacy) were positively correlated with sexual relationship power (Hypothesis 1). Several of the behavioral variables related to relationship experience (i.e., ever married or lived with a boyfriend, ever had sex, victim of IPV in the last six months) were negatively associated with sexual relationship power. For girls with a history of saving money in the last year, their sexual relationship power scores were higher than those who did not save money in the past year. While this correlation

was below the threshold of $\rho=0.10$, it could be because a fraction of the sample reported having saved money in the past year.

Table 4. Pairwise Correlation Matrix for all Study Variables

Variables	SRPS	2	3	4	5	6	7	8	9	10	11
2. Age	0.013	--									
3. Attending school in current year	0.180*	-0.210*	--								
4. Ever married/lived with a boyfriend	-0.152*	0.140*	-0.320*	-0.083*	--						
5. Ever had sex	-0.240*	0.254*	-0.366*	0.019	0.394*	--					
6. Experienced IPV in last 6 months	-0.106*	0.048*	-0.061*	-0.004	0.097*	0.136*	--				
7. Self-efficacy score	0.142*	0.050*	0.034	0.199*	-0.026	-0.046*	-0.004	--			
8. Material wealth score	0.199*	0.000	0.169*	0.243*	-0.128*	-0.155*	0.008	0.147*	--		
9. Saved in the past year	0.078*	0.009	0.026	0.164*	0.010	-0.018	0.004	0.085*	0.195*	--	
10. Financial literacy score	0.123*	0.099*	0.040*	0.246*	-0.029	-0.031	-0.010	0.131*	0.062*	0.131*	--
11. Amount saved	0.035	0.093*	-0.077*	0.141*	0.042	0.015	0.012	0.093*	0.122*	0.332*	0.021

* $p<0.05$, ** $p<0.01$, *** $p<0.001$

The results of the multivariate linear regression models are presented in Table 5. In the first model with control variables only, age and attending school in the current school year were positively associated with sexual relationship power. Specifically, attending school in the current school year is associated with a 3-unit ($b=3.376$, 95% CI [2.378 – 4.375], $p<.001$) increase in power.

In the second model, controlling for individual characteristics, 9% of the variance in power was explained. In this model, sexual relationship power decreases for girls who reported having had sex ($b= -2.891$, 95% CI [-3.892- -1.889], $p<0.001$), had transactional sex ($b= -3.767$, 95% CI [-6.718- -0.816], $p<0.001$), and been victim to any form of IPV ($b=-3.172$, 95% CI [-5.409 - -0.985], $p<0.001$). Although statistically nonsignificant, girls who reported having lived

with a boyfriend or ever married had lower sexual relationship power than girls without this experience ($b=-1.022$, 95% CI [-2.682-0.639], $p>0.05$).

A third model including the controls, sexual behaviors, self-efficacy, and measures of economic empowerment explained about 12% of the variance in sexual relationship power in this sample. The association between sexual relationship power and sexual behaviors remained negative. Factors related to economic empowerment were positively associated to sexual relationship power. Girls who saved at least 5000Ksh [\$45.95] or more had higher levels of sexual relationship power ($b= 2.361$, 95% CI [0.611 - 4.110], $p<0.001$) compared to those who saved less than this amount or did not save in the past year. Material wealth increased power ($b=0.559$, 95% CI [0.264 - 0.854], $p<0.001$) and a similar effect was observed for financial literacy ($b=0.368$, 95% CI [0.134 – 0.622], $p<0.001$).

Table 5. Multivariate Linear Regression Model Results: Predicting Sexual Relationship Power Among Adolescent Girls in Kenya, Controlling for Age and Education

	Sexual Relationship and Power Scale (SRPS)											
	Model 1			Model 2			Model 3			Model 4		
	B	95% CI		B	95% CI		B	95% CI		B	95% CI	
Age	0.365** (0.172)	0.026	0.703	0.489*** (0.170)	0.156	0.823	0.409** (0.169)	0.079	0.740	0.276 (0.170)	-0.057	0.610
Attended current school year	3.376*** (0.509)	2.378	4.375	1.700*** (0.554)	0.614	2.787	1.220** (0.563)	0.115	2.325	2.515*** (0.530)	1.475	3.554
Ever married or ever lived with a boyfriend				-1.067 (0.852)	-2.740	0.605	-1.022 (0.846)	-2.682	0.639			
Never had sex				0 (.)			0 (.)					
Had sex				-2.891*** (0.510)	-3.892	-1.889	-2.625*** (0.508)	-3.621	-1.629			
Had transactional sex				-3.767** (1.504)	-6.718	-0.816	-3.182** (1.490)	-6.105	-0.259			
Experienced IPV in past 6 months				-3.172*** (1.140)	-5.409	-0.935	-3.214*** (1.127)	-5.425	-1.003			
Self-efficacy score (0-6)				0.678*** (0.172)	0.341	1.016	0.531*** (0.172)	0.193	0.868			
Material wealth score (1-5)							0.559*** (0.150)	0.264	0.854	0.738*** (0.151)	0.442	1.034
Financial literacy score (0-10)							0.378*** (0.125)	0.134	0.622	0.447*** (0.127)	0.198	0.695
Amount saved equal to or less than 4999ksh							0.469 (0.430)	-0.375	1.312	0.529 (0.439)	-0.331	1.390
Amount saved equal to or greater than 5000ksh							2.361*** (0.892)	0.611	4.110	2.361*** (0.907)	0.582	4.140
Constant	61.36*** (3.060)	55.36	67.37	58.35*** (3.059)	52.35	64.35	56.16*** (3.073)	50.13	62.19	57.95*** (3.071)	51.93	63.97
Observations	1194			1194			1194			1194		
R-squared	0.036			0.092			0.118			0.074		
Adjusted R-squared	0.034			0.087			0.109			0.069		
F	22.19			17.24			14.32			15.82		
p-value	0.000			0.000			0.000			0.000		
Standard errors in parentheses												
* p<0.1 ** p<0.05 *** p<0.01												

Lastly, a fourth model estimated the effects of economic empowerment, controlling for age and schooling. Here adolescent girls with some form of economic holding, material or monetary, reported higher levels of sexual relationship power. Economic empowerment led strong advantages and nearly countered the effects of attending school or having high self-efficacy—girls who saved money held more power ($p<0.01$).

8 Discussion

The focus of the present study was to explore those factors that may be associated with the presence and scale of sexual relationship power among adolescent girls, integrating sexual behaviors, IPV, self-efficacy, material wealth, and financial practices. Among these factors, several were associated with influencing sexual relationship power. Positive influences included having high self-efficacy, knowledge of essential finance concepts, having material wealth, and saving money. Engaging in sex, in transactional sex, having lived informally with a partner or married, and being a victim of IPV were associated with lower sexual relationship power. This study echoes findings from other studies that highlighted sexual relationship power as an important indicator of HIV risk—in addition, to its role in helping adolescent girls navigate sexual relationships, maximize health, and lower the risk of STIs and violence (Corroon, Speizer, Fotso, Akoide, Calhoun, & Irani, 2014; Nankinga, Misinde, & Kwagala 2016; Pulerwitz, Mathur, & Woznica, 2018).

Sexual risk behaviors were prevalent in this sample, and several factors did predict lower sexual relationship power (Hypothesis 1). Sexual relationship power was lower among girls who reported having sexual or romantic experiences from living with a partner, being married, having had sex, and engaging in transactional sex. For adolescent girls in this sample, those who never had sex had higher perceived sexual relationship power. Thus, sexual relationship power declines when an adolescent girl engages in sex. This finding is concerning because many girls reported inconsistent condom use. On the SRPS items measuring condom efficacy, a high proportion of girls reported an inability to negotiate condom use. This indicates that adolescent girls in this sample face a higher probability of engaging in unprotected sex, and in turn face a higher risk of STI infections and unplanned pregnancies. These findings suggest that, even with knowledge of

condoms and the importance, adolescent girls with lower power may not have the courage to advocate for using protection or trust their partner to agree if they ask, which could cause their safe sex preferences to be dismissed. A girl that has higher perceived sexual relationship power may feel that she can prioritize her preferences and make decisions regarding her sexual health. Although not assessed in this study, gaining a clearer understanding of the factors that limit or prevent adolescent girls from using condoms or contraception could help explain the reasons for not using condoms consistently when SRH knowledge is evident.

As the results showed, in the broader context of a girl's position in society, the more violence or abuse a girl experiences from a partner, the lower her sexual relationship power. This finding matched earlier studies that highlighted that higher perceived relationship power significantly lowers the likelihood of experiencing partner violence (Pulerwitz et al., 2018; Teitelman et al., 2008). Culturally, girls are conditioned to make decisions based on the prospect of being answerable to the men in their lives and, in some cases, encouraged to surrender their aspirations to the financial care of a romantic partner (Zembe et al., 2015). Consequently, girls become financially dependent on a romantic partner, which limits them from leaving an unhealthy relationships.

A Kenyan study found that adolescent girls who work and save money regularly had less likelihood of experiencing IPV (Muthengi et al., 2016). Saving money can help an adolescent girl feel less obligated to seek alternative income-generating activities, such as exchanging sex for money or other resources. When a girl can independently access the things she wants or needs, this might eliminate the obligation or burden to satisfy a romantic partner in exchange for financial security. This theory is supported by evidence from a recent Tanzanian-based study that

found that cash transfers helped adolescent girls decrease engaging in transactional sex for basic needs and shifted their focus to more stable relationships (Gichane et al., 2020).

I hypothesized that economic empowerment in terms of money saving activities would predict a higher sexual relationship power held by an adolescent girl. Based on the results of this study, a significant proportion of empowerment is derived from being financially literate, owning material things that hold some monetary value, and putting money aside. These findings are consistent with earlier research (Muthengi et al., 2016), and emphasize the importance of creating and securing women's financial independence as a foundation for better reproductive health outcomes and for improving their ability to make free-willed choices in life. It is encouraging that recent interventions conducted in African settings have shown that increasing economic empowerment can be accomplished by equipping girls with financial literacy (Muthengi et al., 2016), giving girls access to bank accounts early in life (Austrian, et al., 2018; Bandiera et al., 2020), and by providing cash transfers as a component of HIV interventions (Baird et al., 2019).

There are several limitations to the present study that are worth noting. First, the sample only included adolescent girls from low-income settings. Adolescent girls in low-income setting might have different reasons for saving money, such as paying for school fees, and these needs may be different from girls from families with greater financial resources and rely less on financing their education. Thus, these results may not be representative of the general populations. Additionally, economic empowerment may have different benefits that vary by lifestyle and opportunities to save are not universal. These factors were not accounted for in this study. Second, the survey did not directly assess a girl's motivation for saving money. Evaluating the impetus to save money is warranted and could help inform future interventions

that are designed to help young women save money and become financially independent and less reliant on transactional relationships. Lastly, the study was based on self-reported data, which may be subject to recall bias, and the framing and delivery of questions by an interviewer may have influenced responses. As a result, risky sexuality activity and IPV incidents are likely higher than what is reported in this sample based on national trends. Future studies might explore these behaviors using a self-administered interview approach to report on sensitive topics.

Several strengths are worth mentioning that separate this study from previous investigations of the effects of economic empowerment on adolescent's sexual and reproductive health and outcomes. Using responses to the SRPS, I examined how well saving money or having access to economic markets predicted sexual relationship power. I focused on predicting sexual relationship power because (a) gender empowerment is a targeted strategy in most risk reduction interventions involving adolescent girls and (b) the prevalence of transactional sex is rising among adolescent girls in low-income settings, which places them at higher risk for STIs, HIV, and other life-altering outcomes. The findings presented here show that adolescent girls, who learn and practice saving money, are less likely to fall victim to partner violence and are more likely to feel in control of their decisions. There are multiple benefits to empowering girls to understand fundamental facts about money and to saving money during adolescence. These benefits could help make daily life less precarious for adolescent girls and suggest that interventions focused on reducing HIV risk and prevalence in low-income settings should include financial-skill building strategies.

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APPENDIX A: DATA AND METHODS

The research methodology used in this paper included multiple regression analysis to determine the effect of several independent variables on SRPS. The dependent variable of interest was sexual relationship power. In this sample, sexual relationship power was measured by the Sexual Relationship Power Scale (SRPS) developed by Pulerwitz, Gortmaker, and DeJong (2000) to measure power in sexual relationships and to investigate the role of relationship power in sexual decision-making and HIV risk. In this study, the SRPS was shown to possess good internal reliability (coefficient alpha=0.86).

The main model used in this analysis followed:

$$y_i = \sum_{j=1}^K x_i \beta_j + \epsilon_i = x_i' + \epsilon_i \quad [1]$$

as,

$$SRPS_i = \beta_0 + x_{i,k} * \beta_j + \epsilon_i \quad [2]$$

where SRPS was the key explanatory variable or outcome and $x_{i,k} * \beta_j$ represented the set of independent variables: age, wealth, age, education, relationship status, sexual behaviors, intimate partner violence (IPV), self-efficacy, financial literacy, material wealth and savings practices.

Before running the regression, the assumptions of multiple regression analysis were examined (normally distributed variables, the relationship between two variables is a straight linear relationship, that the variability of scores or a one unit change is reasonably the same for

all other predictor variables, and that the residuals are independent) (Rabe-Hesketh & Skrondal, 2008). The normality of the dependent variable and the residuals is shown in Figure 2. The skewness for SRPS was 0.29 and 0.42 for the residuals which was close to the value of 0.00 for a normal distribution (Table 6). If a variable's value for skewness falls within the range from minus twice the standard error of their skewness, to plus twice the standard error of skewness, then the variable is not significantly non-normal (Rabe-Hesketh & Skrondal, 2008).

The overall shape of the scatterplot showed that more scores were concentrated around the center, and it can be concluded that the data was not non-linear or heteroscedastic (Rabe-Hesketh & Skrondal, 2008) (Figure 3). To avoid overestimations, the regression models were conducted using a robust regression in Stata version 14 with the `vce(robust)` option applied (Rabe-Hesketh & Skrondal, 2008). Finally, the absence of multicollinearity was checked using VIF values (Table 7). Each value was below 10, indicating that none of the variables has an issue with multicollinearity. In conclusion, the assumptions for normality, linearity, homoscedasticity, and the independence of residuals were satisfied.

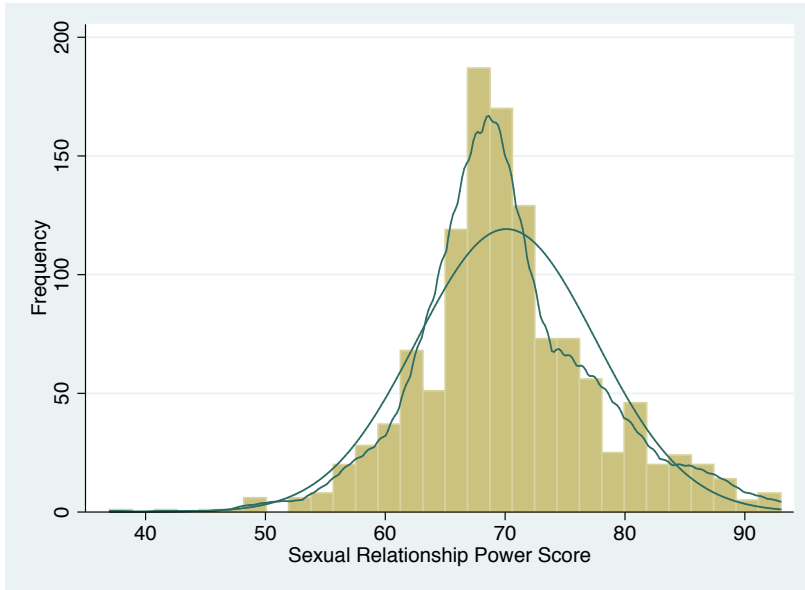


Figure 1. Histogram of sexual relationship power score of adolescent girls in Kenya

Table 6. Summary Statistics for Dependent Variable, SRPS

Sexual Relationship Power Score	
Percentiles	Smallest
1%	37
5%	42
10%	46
25%	48
	Largest
50%	69
75%	92
90%	93
95%	93
99%	93
Obs	1197
Mean	70.10
SD	7.47
Variance	55.92
Skewness	0.29
Kurtosis	3.92

Table 7. Variance Inflation Factor to Assess Multicollinearity

	VIF	1/VIF
Age	1.1	0.91
Attending school in current year	1.41	0.71
Ever married/lived with a boyfriend	1.26	0.79
Ever had sex	1.35	0.74
Ever had transactional	1.05	0.95
Experienced IPV in last 6 months	1.01	0.98
Self-efficacy score	1.03	0.97
Material wealth score	1.16	0.86
Saved in the past year	1.03	0.97
Financial literacy score	1.03	0.97
Amount saved (1-4999KSH)	1.08	0.92
Amount saved (≥ 5000 KSH)	1.08	0.92
Mean VIF	1.14	

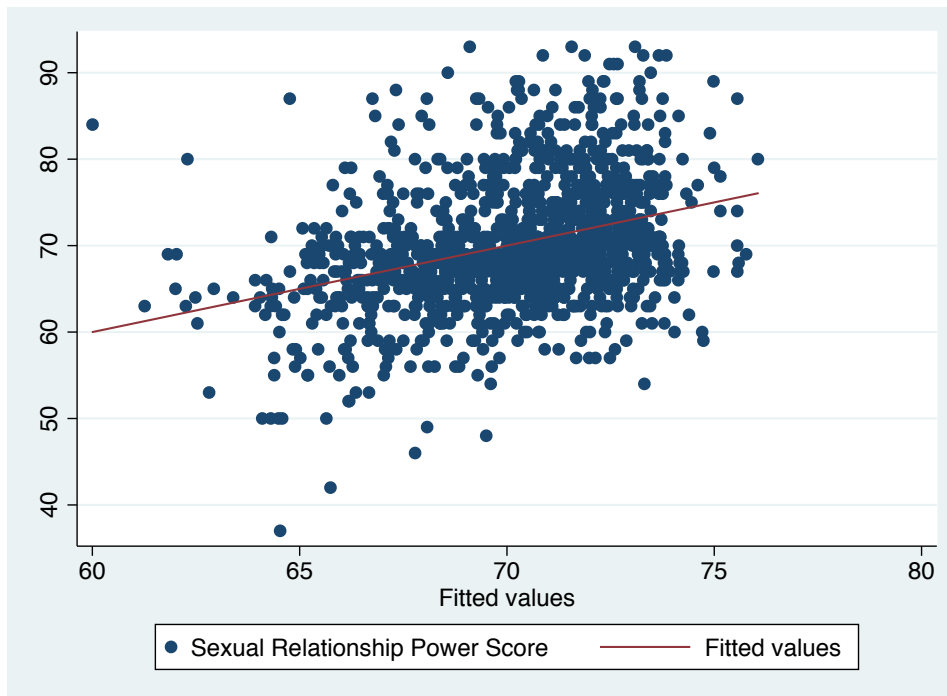


Figure 2. Residual-versus-fitted plot

GAME CHANGER? PHONES AND SEXUAL AND REPRODUCTIVE HEALTH KNOWLEDGE AMONG ADOLESCENT GIRLS IN KENYA

ABSTRACT

Background: Ownership of mobile phones is growing rapidly among adolescents in Kenya. More information is needed in the ongoing debate on how media in all forms, from print to analog and digital platforms play a role in sexual and reproductive health behaviors and practices among adolescents. This study assessed how owning or having access to media, both traditional and digital, is associated with sexual and reproductive health knowledge and practices.

Methods: Longitudinal data from the Adolescent Girls' Initiative were analyzed at three time periods. I apply a Latent Class Analysis for stratifying girls into low, medium, and high knowledge levels. HIV and contraceptive knowledge scores are mapped to the probability of owning or having access to a radio, television, and mobile phone, and educational status and age serve as controls.

Results: Three time periods were analyzed which included 3,052 adolescent girls in 2014, 2,754 in 2017, and 2,560 in 2019. For all three time periods, adolescent girls who were clustered in class 3 (high knowledge) had highest occurrence of HIV testing, living in a household with a radio, television, and mobile phone, and a higher occurrence of owning a personal mobile phone. A higher chance of testing for HIV and higher levels of knowledge of HIV and contraception was linked to households with a radio, television, mobile phone, and to adolescent girls who personally owned a mobile phone.

Conclusion: These findings can be used to influence the adoption of mobile technology into interventions that center on making reproductive health services more accessible and adolescent-friendly.

1 Introduction

There is a quickly growing body of research about, the use and impact of mobile phones among adolescents around the world to communicate, obtain internet-based information, and share information (UNICEF, 2017a). Kenya has the highest mobile penetration in Sub-Saharan Africa, and 97% of all internet users in Kenya access the internet on mobile phones (Kemp, 2020). In 2019, the total number of mobile phone connections was 46.94 million which was equivalent to 91% of the total population. Mobile phone ownership among adolescents ages 12-19 Kenya has also increased rapidly because of reduced prices that make increased connectivity via mobile phones more affordable (Aker & Mbiti, 2010). As a result, adolescents can now carry out a broad range of interactions, including new and sensitive transactions—like communicating with strangers or sending or receiving uncensored messages—which previously required permission from an adult (Corker, 2010).

In this mobile phone era, UNICEF (2017) suggested that having access to or owning a mobile phone could positively influence some of the world's most marginalized youth—particularly by accomplishing Sustainable Development Goal 5 and 5B that recommends enabling digital technology to promote and improve gender equality and women's empowerment. Mobile phones can help disrupt inequalities and have been shown to help reduce poverty (Porter, 2012), improve access and use of reproductive health services (World Bank, 2014), increase health information seeking (Corker, 2010), and as an indicator for measuring gender equality (Rotondi, Kashyap, Pesando, Spinelli, & Billari, 2020). The present study uses data to explore if phone ownership offers possibilities for creating more informed adolescent girls who make use of sexual and reproductive health (SRH) services and have a greater knowledge of sexual and reproductive health (SRH) topics.

Girls between the ages of 15 and 19 in Kenya make up 60% of unplanned pregnancies, and only 11% of sexually active adolescents report using birth control or contraceptives (PMA Kenya, 2019). Eighteen percent of adolescent girls aged 15-19 are already mothers or pregnant with their first child by age 18 (Kenya National Bureau of Statistics [KNBS], 2014), and they are less likely to attend antenatal care visits, which can lead to high-risk pregnancies (UNICEF, 2017b). Additionally, young Kenyan women (ages 15-24) account for 24% of all new sexually transmitted HIV infections (UNAIDS, 2019). Data from the most recent Demographic and Health Survey (DHS) in Kenya indicate low levels of contraceptive uptake, HIV/AIDS awareness, and HIV testing (KNBS, 2015) as factors related to these high rates of infections. Specifically, 49% of adolescent females aged 15-19 had comprehensive knowledge about HIV and AIDS prevention and transmission: that is, they knew that both condom use and limiting sexual intercourse to one uninfected partner can reduce their chance of getting HIV. Successfully transferring this knowledge into practice is not evident from this data. Fifty percent of unmarried sexually active 15-19-year-old adolescent girls do not use any contraceptive method; and 54% of adolescent girls aged 15-19 have ever been tested for HIV (KNBS, 2014).

Adolescents who may want to avoid pregnancies may not be able to do so due to knowledge gaps and misconceptions about where to obtain contraceptive methods and how to use them (WHO, 2011). Previous research has found that a lack of awareness related to the risk of contracting HIV or methods for avoiding pregnancy could lead to an inaccurate appraisal of one's own HIV risk and be a barrier to seeking services (Ankomah, Omoregie, Akinyemi, Ladipo, & Adebayo, 2011). In low- and middle-income countries (LMICs), most young people have very limited or no access to sexual and reproductive (SRH) education and services, largely due to a lack of youth-friendly services, social stigma, policies and procedures inhibiting the

provision of contraception and abortion services to girls (Challa et al., 2018; Singh, Darroch, Vlassoff, & Nadeau, 2003; Ssewanyana et al., 2018; Williamson, 2013). In a qualitative study conducted in Kenya, Ssewanyana et al. (2018) found that youth are not seeking SRH services because the services were not youth-friendly—many girls noted feeling unsupported by healthcare workers that view contraceptives as giving permission for sex outside of marriage. Thus, young people remain with unmet SRH needs. In settings that lack youth-friendly SRH services, creating mobile platforms that improve access to SRH information could help remove the barriers that hold youth back from seeking SRH information and services (UNICEF, 2017).

Past studies have suggested that mobile phone ownership among women increases access to information (Corker, 2010), improves the timeliness of seeking reproductive health interventions (Hampshire, 2015), and encourages safe sexual lifestyles (Hampshire, 2015). Multiple studies support the idea of using mobile technology to encourage youth to seek SRH services and unbiased information (Biddlecom, Singh, & Munthali, 2007; Burns, Keating, & Free, 2016; Cornelius et al., 2012). Rotondi et al. (2020) analyzed data on cellular coverage and mobile phone penetration from seven Sub-Saharan African countries. Their study revealed that mobile-phone access among women (aged 15-49) is associated with lower gender inequality, higher contraceptive uptake, and lower maternal and child mortality. With the increasing concentration of mobile interactions among youth, a more comprehensive understanding of the role of mobile phones is necessary for improving access to SRH information and services (GSMA, 2015). However, there is still limited research on the relationship between mobile phone ownership and SRH knowledge and behaviors, especially among youth. The objective of this study is to investigate the association between mobile phone access or ownership and SRH knowledge and behaviors. I explore this association using latent class analysis (LCA) to

investigate latent clusters of SRH knowledge levels among a large sample of Kenyan adolescent girls and to investigate the association between these clusters, mobile phone ownership, and household characteristics.

The Current Study

This study is designed to explore the association between mobile phone ownership and reproductive health knowledge and behavior. The importance of sexual and reproductive health knowledge in contributing to the use of modern contraceptives, safe sexual practices, and HIV testing has been examined in a number of African contexts (Barden-O'Fallon, deGrafr-Johnson, Bisiki, Sulzbach, Benson, & Tsui, 2004; Brinkley-Rubinstein & Craven, 2014; Rotondi, Kashyap, Pesando, Spinelli, & Billari, 2020). Rotondi et al. (2020) found that women who own a mobile phone were better informed about sexual and reproductive health services, had a higher contraceptive uptake rate, were more likely to know of a place to get HIV tested, and also more likely to get tested than women who did not own a mobile phone.

The goal of this study is to investigate if owning a mobile phone is associated with 1) HIV knowledge, 2) contraceptive knowledge, or 3) the likelihood of testing for HIV. I propose the following hypotheses: 1) awareness of HIV/AIDS and contraceptive methods can be used to form latent classes by stratification of knowledge levels (i.e., low, medium, and high); 2) higher occurrence of HIV testing in households with radio, tv, or phone; 3) higher levels of SRH knowledge in households with radio, tv, or phone; 4) higher HIV testing rates among girls who own a phone; 4) higher SRH knowledge among girls who own a phone. I will address these hypotheses by generating three knowledge-level groups (low, medium, high) and using LCA I

will define the differentiating factors that lead to one group having more SRH knowledge or higher HIV testing rates over the other.

2 Methodology

Data

This paper used longitudinal data collected by the Population Council as part of its Adolescent Girls' Initiative in Kenya (AGI-K) that targeted adolescent girls aged 14-20 residing in low-income, informal settlements in two Kenyan communities: Kibera and Huruma. Data collection for AGI-K involved three phases: Wave 1 ($n=3052$, ages 10 to 14) in 2015, a post-intervention follow-up in 2017 ($n=2753$, ages 12-16) and a final assessment in 2019 ($n=2564$, ages 14-20). A total of 2,560 girls participated in all three waves of data collection. Each survey included questions on socio-demographic factors, mobile phone ownership, and reproductive health knowledge measurements, among other variables.

The survey was reviewed and approved for compliance by the Population Council Institutional Review Board (IRB) and the AMREF Ethics and Scientific Review Committee. In addition, research permits were obtained from the National Council on Science, Technology and Innovation in Kenya. Informed consent was obtained from respondents during the process of data collection.

3 Measures

HIV/AIDS knowledge

Knowledge of HIV/AIDS items included questions about HIV transmission, ways to prevent HIV, and common misconceptions about contracting the virus. Three questions focused

on where a person could reduce their chances of getting the AIDS virus by 1) having sex with only one uninfected partner and no other partners, 2) by using a condom every time they have sex, 3) by not having sexual intercourse at all; one question asked whether a healthy-looking person can have AIDS; and three questions assessed whether the respondent knew if the virus that causes AIDS can be transmitted from a mother to her baby during pregnancy, during delivery, and by breastfeeding. These items had three response categories: “yes,” “no,” and “don’t know.” All answers were recoded into two categories, “correct” and “incorrect,” then coded as 1 and 0, respectively. Those who responded “don’t know” were recoded as ‘incorrect’ to result in a dichotomized ordinal variable, which is a common practice employed when using latent class analysis to ensure interpretability of findings (Collins & Lanza, 2010). This variable coding is useful for assessing the difference between those who are certain and those who are unsure (Brinkley-Rubinstein & Craven, 2014). All scores were totaled to create a composite score for measuring overall HIV/AIDS knowledge of the overall concept for each respondent who had a possible range of 0 to 7.

Contraceptive knowledge

A set of questions were asked of all participants about their awareness of contraception, specifically, methods for preventing pregnancy, protecting against HIV/AIDS, and protecting against sexually transmitted infections (STIs). A total of seven methods (the pill, intra-uterine devices [IUDs], injectables, implants, male condoms, female condoms, and emergency contraception) and two traditional methods (rhythm or calendar method and withdrawal) were mentioned when participants were asked, “Which ways or methods have you heard about?” The sum of all items formed a composite measure, contraceptive knowledge, that represents the number of methods that were named spontaneously by the respondent.

Ever tested for HIV

Participants were asked if they had ever been tested for HIV. This variable was chosen for this study because it is thought to be related to one's perception of HIV risk. (Barden-O'Fallon et al., 2004).

Covariates

Household mobile phone, employment, mobile phone ownership, and *owning* a radio or television were coded as binary variables. Two other covariates of interest included age and current grade level. For current grade, respondents were asked, "What class in primary/secondary school are you attending this year?" Age was calculated using date of birth.

4 Analysis

LCA was used to explore the number of distinct classes of adolescent girls displaying different levels of reproductive health knowledge (low, medium, and high). LCA is a quantitative technique approach that classifies respondents into mutually exclusive groups with respect to a given trait, of which the overall sample is grouped based on a pattern of responses (Collins & Lanza, 2010). The goal of LCA is to determine the smallest number of latent classes. LCA obtains latent class probabilities (i.e., the probability of being within a particular class) based on maximum likelihood estimates and conditional probabilities for each variable within a class (Collins & Lanza, 2010). LCA is based on the assumption that underlying variables cannot be measured directly, rather indirectly through observed data (Rabe-Hesketh & Skrondal, 2008).

Starting with a one-class model, models with one additional class were evaluated until the best fit was obtained. For each model and during each of the three waves, six dichotomous (employment, own a radio, television, household mobile phone, ever had an HIV test, and

whether they owned a mobile phone) and four indicators (age, current grade, HIV knowledge, and contraceptive knowledge) were used. Fit for each of the three models was examined using Akaike's information criterion (AIC) and Schwarz's Bayesian information criterion (BIC), log-likelihood, and the different number of latent classes to extract was based on the log-likelihood, AIC, and BIC values and whether the solution showed logical patterns that were distinct from other subgroups (Collins & Lanza, 2010). The performance of one, two, and three class models were assessed and compared. A three-class model was preferred for stratifying knowledge levels into three groups: low, medium, and high. A two-class model was tested and performed well, however, based on the fit indices, a three-class model was the best fit and also aligns with the expected three levels of knowledge.

The probability of membership of each class was calculated, and the relative size of each class was investigated using modal assignment where girls were assigned to the class for which they had the highest probability of membership (Collins & Lanza, 2010). The analysis was carried out using Stata version 14.2 and was used to identify subgroups from 10 observed indicators for each survey period. Participants with missing values for one or more covariates were excluded from the analysis based on listwise deletion within STATA.

Conditional probabilities are presented from the final model, which is the probability of having reproductive health knowledge (HIV knowledge and knowledge of contraceptive methods) and behaviors (ever tested for HIV) conditional on membership of that class, with the optimum number of classes and including covariates (age, current grade level, household mobile phone, employment, mobile phone ownership, owning a radio or television). Results for the effect of the covariates are presented as probabilities, which yields the same results from

carrying out a multinomial logistic regression across the separate classes using one class as a reference group (Collins & Lanza, 2010).

5 Results

Descriptive Statistics

At baseline in 2015, the survey was carried out on a sample of 3,052 adolescent girls from Nairobi and Huruma. A total of 2,560 girls were interviewed in all three waves in 2015, 2017, and 2019. Although the sample size in Wave 3 was smaller (n=2560) than the overall AGI-K sample, the original demographic distribution and household characteristics remained consistent across time. The mean age of respondents was 13, 15, and 17 in 2015, 2017, and 2019, respectively. Approximately 18% were employed during Wave 2, which declined during Wave 3 when most girls may have transitioned to boarding school (current grade level=10). Across all time periods, nearly all adolescent girls lived in a household with a mobile phone; over 70% had a television in their home, and about 6 out of 10 households had a radio. The proportion of adolescent girls who personally owned a mobile phone increased with time, with the largest increase between Waves 2 and 3. All descriptive statistics are shown in Table 1.

Table 1. Descriptive Characteristics of Study Sample, 10 to 19-Year-Old Adolescent Girls in Kenya

Characteristic	Wave 1 N = 3,052		Wave 2 N = 2,754		Wave 3 N = 2,560	
	N	%	N	%	N	%
Age, mean (SD)	12.60 (1.28)		14.71 (1.29)		16.69 (1.29)	
Current grade level, mean (SD)	6.60 (1.38)		8.46 (1.42)		10.30 (1.33)	
Employed	318	10.42	495	17.97	379	14.80
Household has						

a mobile phone	2,921	97.89	2,615	97.63	2,018	97.63
a television	2,288	76.27	1,962	74.8	1,518	73.37
a radio	1,929	64.64	1,525	58.32	1,252	60.57
Girl owns a mobile phone	66	2.20	229	8.73	415	20.06

The results found here also show that there were varying levels of HIV and contraceptive knowledge, and knowledge increased with time (Table 2). For both SRH indicators, the proportion of adolescent girls with perfect scores increased between Waves 1 and 3, and more girls went for HIV testing in Wave 3 (Figure 1).

More than half of the respondents in Wave 3 had a comprehensive knowledge of HIV, while a much lower proportion (25%) of adolescent girls had a comprehensive knowledge of contraception. Most respondents had heard of the pill, injectables, and intra-uterine devices (IUDs), while emergency contraception was least known among modern contraceptive methods. Adolescent girls in this sample were least familiar with two traditional methods: rhythm method and withdrawal. Further details on the items used can be found in Figure 1.

Characteristic	Wave 1			Wave 2			Wave 3		
	Mean (SD)	min	max	Mean (SD)	min	max	Mean (SD)	min	max
HIV knowledge score	4.27 (1.87)	0	7	4.64 (1.68)	0	7	5.41 (1.39)	0	7
Contraceptive knowledge score	0.04 (0.39)	0	9	1.36 (1.54)	0	9	2.27 (1.74)	0	9
Ever tested for HIV, N (%)	788 (27.46%)	0	1	1,493 (56.23%)	0	1	2,134 (84.35%)	0	1

Table 2. Indicators of Sexual and Reproductive Health Knowledge and Practices

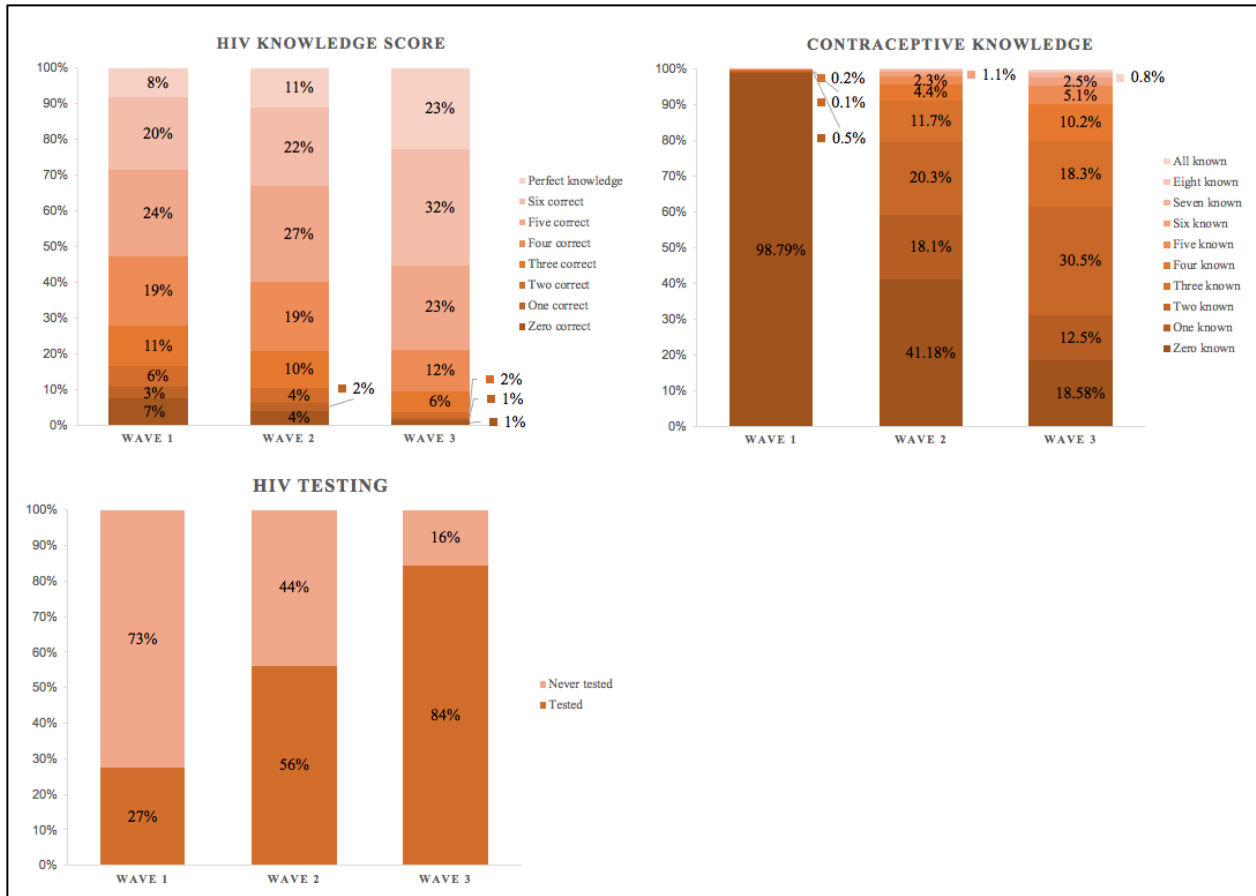


Figure 3. By wave, measures of and distribution of sexual and reproductive knowledge and HIV testing behaviors

Latent class analysis

Model fit statistics

The fit statistics for each model are presented in Table 3 with one-, two-, and three-latent class solutions. Due to the models containing both dichotomous and continuous variables, the Akaike's information criterion (AIC) and Schwarz's Bayesian information criterion (BIC) were examined to determine the goodness of fit (Goodman, 1985, 1996). AIC and BIC are measures that combine fit and complexity, and for the log-likelihood fit is measured negatively by $-2 \ln(\text{likelihood})$ in which the larger the value is, the worse the fit (Goodman, 1985, 1996). Given two models that fit on the same data, the model with the smallest value is the best model (Goodman, 1985, 1996). The three classes were defined as low-, medium-, and high-knowledge profiles.

Table 3 shows the degrees of freedom, log-likelihood, AIC, and BIC for each model. For each of the three waves, the log-likelihood, which is useful to compare nested models, AIC, and BIC statistics, suggested that the three-class model was slightly superior. For wave one, the three-class model had the lowest AIC (AIC = 49,349.24 for two latent classes versus AIC = 48,842.13 for three latent classes), while the BIC (BIC = 49,499.83 for two latent classes v. AIC = 49,058.98 for three latent classes) and the log-likelihood (LL = -24,649.62 for two latent classes v. LL = -24,385.06 for three latent classes) and suggested the three-class model.

For waves two and three, the-log likelihood, AIC, and BIC statistics suggested that the three-class model was the preferred model. A careful examination of both the two- and three-class model solutions led to selecting the three-class model. The parameter estimates presented a solution with a logical interpretation, and it was more easily identified.

Table 3. Indicators of Fit for One, Two, and Three Latent Classes

Wave One				
Number of Classes	<i>df</i>	Log-Likelihood	AIC	BIC
1	14	-25370.20	50768.41	50852.74
2	25	-24649.62	49349.24	49499.83
3	36	-24385.06	48842.13	49058.98
Wave Two				
Number of Classes	<i>df</i>	Log-Likelihood	AIC	BIC
1	14	-27575.52	55179.04	55263.37
2	25	-26711.09	53472.17	53622.76
3	36	-26557.02	53186.03	53402.88
Wave Three				
Number of Classes	<i>df</i>	Log-Likelihood	AIC	BIC
1	14	-24640.41	49308.83	49393.16
2	25	-23876.93	47803.85	47954.44
3	36	-23686.95	47445.90	47662.75

First wave LCA results

For year one (2015), class one, class two, and class three contained approximately 11%, 47%, and 42% of the participants, shown in Table 4. For working, owning a radio, having a television, having a household phone, whether they had a personal mobile phone, and contraceptive knowledge, there was little variability between the three latent classes. HIV knowledge was measured on a scale of 0 to 7 and contraceptive knowledge ranged from 0 to 9. Class one contained the lowest HIV ($M = 1.28$) and contraceptive knowledge ($M = 0.01$) along with the youngest age ($M = 11.59$) and grade level ($M = 4.60$). Additionally, this class had the lowest occurrence of having an HIV test (0.05%). Class two had the second highest rates of HIV knowledge ($M = 4.57$), age ($M = 11.85$), and grade level ($M = 6.13$). Class three had the highest rates of HIV knowledge ($M = 4.70$), age ($M = 13.72$), and grade level ($M = 7.69$), and the highest occurrence of having an HIV test (39%).

Table 4. First Wave LCA Marginal Means with a Three-Class Model

		Class 1	Class 2	Class 3
Pr(Class)	<i>n</i>	10.96%	46.86%	42.18%
Probability of				
Working	3,052	0.07	0.10	0.12
Radio	3,036	0.52	0.68	0.64
TV	3,052	0.67	0.76	0.78
Household Phone	3,036	0.98	0.98	0.98
HIV Test	2,870	0.05	0.22	0.39
Personal Phone	3,052	0.00	0.01	0.04
Mean of				
HIV Knowledge	3,052	1.28	4.57	4.70
Contraceptive Knowledge	3,051	0.01	0.01	0.09
Age	3,052	11.59	11.85	13.72
Current Grade	2,999	4.60	6.13	7.69

Second wave LCA results

Table 5 reports class membership probabilities, and these were the expected proportions of the population in each class. Class one, class two, and class three contained approximately 12%, 50%, and 38% of the participants respectively. Class one had the lowest HIV knowledge ($M = 3.56$) and contraceptive knowledge ($M = 0.42$) coupled with the lowest age and current grade. Additionally, this class had the lowest occurrence of HIV testing (30%), and having a radio, television, working, and having a personal mobile phone (1%). Class two had the mid-range of HIV knowledge ($M = 4.68$) and contraceptive knowledge ($M = 0.98$) along with mid-range scores of age and current class. This class had a higher occurrence of HIV testing (51%) than class one and higher, albeit small, rates of having a personal mobile phone (0.04). Finally, class three had the highest rates of HIV knowledge ($M = 4.90$) and contraceptive knowledge

($M = 2.13$), along with the highest mean age and current grade. Within class three, the probability of working (24%), having had an HIV test (71%), and having a personal mobile phone (20%) is the highest of all three classes. The results are shown in Table 5.

Table 5. Second Wave LCA Marginal Means with a Three-Class Model

		Class 1	Class 2	Class 3
Pr(Class)	<i>n</i>	11.88%	49.57%	38.56%
Probability of				
Working	2,754	0.16	0.14	0.24
Radio	2,837	0.42	0.61	0.59
TV	3,052	0.65	0.78	0.77
Household Phone	2,837	0.98	0.97	0.98
HIV Test	2,655	0.30	0.51	0.71
Personal Phone	2,754	0.01	0.04	0.20
Mean of				
HIV Knowledge	2,753	3.56	4.68	4.90
Contraceptive Knowledge	2,681	0.42	0.98	2.13
Age	2,754	13.43	14.15	15.82
Current Grade	2,624	6.28	8.08	9.74

Third wave LCA results

For the third wave, class one, class two, and class three contained approximately 9%, 45%, and 45% of the participants. The results are in Table 6. Class one and two had similar occurrences of working (9%). Class one had the lowest scores for HIV knowledge ($M = 4.28$) and contraceptive knowledge ($M = 1.07$) in addition to the lowest age ($M = 15.59$) and current grade ($M = 7.83$). Additionally, this class had the lowest occurrence of HIV testing (61%), and having a radio, television, and having a personal mobile phone (1%). Class two had the mid-range of HIV knowledge ($M = 5.38$) and contraceptive knowledge ($M = 1.78$) along with mid-range scores of age and current class. Class two had a higher occurrence of HIV testing (76%)

than class one and a higher rate of having a personal mobile phone (16%). Finally, for the last wave, class three had the highest rates of HIV knowledge ($M = 5.66$) and contraceptive knowledge ($M = 3.02$) along with the highest mean age ($M = 17.63$) and current grade ($M = 11.41$). Within class three, the probability of working (22%), having had an HIV test (97%), and owning a personal mobile phone (40%) was the highest of all three classes.

Table 6. Third Wave LCA Marginal Means with a Three-Class Model

		Class 1	Class 2	Class 3
Pr(Class)	<i>n</i>	9.23%	45.42%	45.35%
Probability of				
Working	2,560	0.09	0.09	0.22
Radio	2,654	0.49	0.62	0.60
TV	3,052	0.66	0.79	0.75
Household Phone	2,654	0.93	0.99	0.97
HIV Test	2,530	0.61	0.76	0.97
Personal Phone	2,560	0.02	0.16	0.40
Mean of				
HIV Knowledge	2,560	4.28	5.38	5.66
Contraceptive Knowledge	2,461	1.07	1.78	3.02
Age	2,561	15.59	15.97	17.63
Current Grade	2,069	7.83	9.87	11.41

6 Discussion

The main objective of this study was to use a LCA approach to investigate if owning a mobile phone was associated with 1) HIV knowledge, 2) contraceptive knowledge, or 3) the likelihood of testing for HIV. The results showed that a three-class model represented the best fit. Class 1 represented the lowest level of HIV knowledge in all three waves, and higher levels were observed in class 2, followed by the highest levels in class 3. For all three time periods,

adolescent girls who were clustered in class 3 (high knowledge) had a higher probability of ever testing for HIV, of living in a household that had a radio, television, and phone, and a higher likelihood of personally owning a phone. In contrast, adolescent girls clustered in class 1 (low knowledge), although membership was significantly lower (9-12%) than classes 2 and 3, this class a lower probability of owning a mobile phone and the lowest probability of ever testing for HIV.

To my knowledge, this study is the first of its kind to use latent class analysis to investigate characteristics associated with HIV knowledge, contraceptive knowledge, and probability of HIV testing behaviors among adolescent girls in Kenya. The results presented in this study complemented what other researchers highlighted on the possibility of mobile phones being associated with having a higher level of knowledge of contraception and HIV and a higher probability of ever testing for HIV (Corker, 2010; Hampshire, 2015; Rotondi et al., 2020). HIV/AIDS interventions that incorporated mobile phones for information sharing were noted for creating awareness and knowledge of SRH services and concepts and for increasing the likelihood of seeking SRH services among women (Corker, 2010; Hampshire, 2015; Rotondi et al., 2020). Another study based in the United States showed that dating application users reported higher rates of HIV testing than nonusers (Coor, Kachur, Friedman, Witbart, Habel, Berstein, & Hogben, 2019).

Currently, SRH-related interventions and educational outreach efforts targeting adolescent girls primarily use traditional platforms like radio ads for dissemination (KNBS, 2015). In 2015, the United Nation expanded goal 5 of the Sustainable Development Goals (achieving gender equality and empowerment of all women and girls) on the importance of enhancing the use of enabling technology, in particular information and communications

technology, to promote the empowerment of women and girls (United Nations, n.d). In the area of HIV, gender inequalities drive HIV acquisition as well as amplify its impact, thus using technology to empower adolescent girls strengthens efforts to reduce rates of HIV infections among adolescent girls.

There is a growing body of literature focused on the use of mobile phones and social media for improving access to sexual and reproductive health knowledge and services. In India, a cross-sectional survey of adolescent girls found that girls spent an average of 2-4 hours per day using smartphones and 69% preferred text or SMS for awareness about reproductive and sexual health information (Singh and Jain, 2017). Another study, in Ghana, on the mobile phone usage trends for obtaining SRH information, found that using phones for education and prevention of STIs was linked to the type of phone, where those who owned a smartphone were more likely to use their phone for SRH knowledge seeking (Alhassan, Abdul, Adzimah-Yeboah, Nyaledzigbor, Agana, Mwini-Nyaledzigbor, 2019). To reach their full potential and achieve equal participation in society, adolescent girls need to feel empowered to make autonomous decisions. Mobile phones favor independence and reinforce communication by calling, texting, or browsing the internet. Mobile cells have completely transformed how people communicate and operate in the world. How can these tools be used to improve access to SRH services, especially for youth who have a hard time seeking sexual and reproductive health services on their own? Developing phone-based platforms that allow adolescents to search for and access health service providers and contraceptive methods could be a promising approach for giving youth an option to stay in touch with their reproductive health needs.

While it is unclear whether owning a mobile phone in Kenya has heightened sexual behaviors in a positive or negative way, the findings shown here support a call for more research

to fully assess how adolescent girls are engaging with mobile phones. Many of the adolescent girls included in this sample will eventually become phone owners. It is critical to understand both the risk and opportunities of owning a mobile phone, and the value it has for improving adolescent sexual and behavioral outcomes.

The latent class analysis provides useful information about varying levels of SRH knowledge which exist in this sample and can help identify specific characteristics that support higher levels of knowledge. While the data analysis employed in the present study led to a stratified sample by knowledge levels, the class-approach is not easily generalizable to other groups, which makes it difficult to broadly extend these conclusions at a population-level. Additionally, a composite score was used for measuring HIV and contraceptive knowledge. This approach did not produce results that precisely identified knowledge gaps, which might be of interest if certain questions are consistently answered incorrectly across the sample. Additionally, the relationship between mobile phones and SRH knowledge and HIV testing rates should be interpreted mindful of certain study limitations. First, mobile phone behavior was not measured in the survey, and owning a mobile phone was assigned to having greater access to information which may or may not reflect reality. Future work in this area might consider exploring mobile phone behaviors in more detail because they may be used for other reasons that may have a negative impact on adolescent girls. Additional research should address behaviors associated with mobile phone access and their impact on adolescent reproductive health and social mobility.

Overall, there is little innovation in the field of SRH-related interventions, and it may mean that opportunities are missed to educate adolescent communities using mobile technology (UNICEF, 2017). Translating what is known about risk factors and unsafe practices into

HIV/AIDS prevention models has also been a long-standing approach for curtailing the HIV epidemic in high-burden, low-income countries; however, little has been done to leverage the power of information technologies like mobile phones. The diffusion of information looks quite different for today's youth who are growing up in a world where mobile technology and the internet have always had a presence in their daily life. Based on these findings, owning a mobile phone for an adolescent girl could be a powerful instrument for gaining access to information and for making independent decisions about their reproductive health. Humanitarian efforts must also evolve with technology and find ways to incorporate behavior change strategies with mobile technology.

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APPENDIX A: LATENT CLASS ANALYSIS

Table 7. Items Used in the Latent Class Analysis to Measure Sexual and Reproductive Health Knowledge

Item	Wave 1	Wave 2	Wave 3
	N = 3,052	N = 2,754	N = 2,560
	% of total sample with a certain response (yes)		
<i>HIV knowledge</i>			
Can people reduce their chances of getting the AIDS virus by having just one uninfected sex partner who has no other sex partners?	58.89%	63.11%	79.88%
Can people reduce their chance of getting the AIDS virus by using a condom every time they have sex?	51.36%	54.39%	68.81%
Can people reduce their chance of getting the AIDS virus by not having sexual intercourse at all?	73.48%	71.11%	81.34%
Is it possible for a healthy-looking person to have the AIDS virus?	66.83%	75.48%	85.26%
Can the virus that causes AIDS be transmitted from a mother to her baby:			
a. During pregnancy?	57.14%	55.93%	59.01%
b. During delivery?	61.15%	70.73%	79.60%
c. By breastfeeding?	84.91%	89.19%	92.61%
<i>Contraceptive knowledge*</i>			
Which ways or methods have you heard about?			
a. PILL: Women can take a pill every day to avoid becoming pregnant.	26.15%	38.07%	61.64%
b. IUD: Women can have a loop or coil placed inside them by a doctor or a nurse.	1.54%	7.23%	16.17%
c. INJECTABLES: Women can have an injection by a health provider that stops them from becoming pregnant for one or more months.	27.69%	35.16%	56.60%

d. IMPLANTS: Women can have several small rods placed in their upper arm by a doctor or nurse which can prevent pregnancy for one or more years.	10.77%	11.19%	22.34%
e. MALE CONDOM: Men can put a rubber sheath on their erect penis before sexual intercourse.	46.15%	27.13%	33.95%
f. FEMALE CONDOM: Women can place a thin, transparent rubber in their vagina before sexual intercourse.	20.00%	9.37%	16.45%
g. RHYTHM METHOD: Every month that a woman is sexually active she can avoid pregnancy by not having sexual intercourse on the days of the month she is most likely to get pregnant.	7.69%	2.32%	3.75%
h. WITHDRAWAL: Men can pull out their penis from the vagina before ejaculation.	7.69%	1.53%	3.01%
i. EMERGENCY CONTRACEPTION: As an emergency measure, women can take pills up to three days after having unprotected sex to avoid getting pregnant. These pills are also called "morning after pills".	15.38%	4.98%	13.20%
*In Wave 1, contraceptive knowledge questions were only administered to girls who reported being sexually active.			

Ethical Clearance



Amref Health Africa in Kenya

REF: AMREF – ESRC P143/2014

November 2, 2018

Karen Austrian
Population Council
P.O. Box 17643-00500, Nairobi, Kenya
Tel: +254 724-519406
Email: kaustrian@popcouncil.org

Dear Dr. Austrian,

RESEARCH PROTOCOL: ESTABLISH THE COMBINATION OF INTERVENTIONS ON WITH THE GREATEST IMPACT ON THE WELL-BEING OF ADOLESCENT GIRLS IN WAJIR COUNTY AND NAIROBI SLUMS.

Thank you for submitting your protocol to the Amref Health Africa Ethics and Scientific Review Committee (ESRC).

This is to inform you that the ESRC has approved the following modification of your protocol:

- a. Change of Investigators: one Co-investigator (Dr. Beth Kangwana) who is a staff at Population Council was added to replace Dr. Eunice Muthengi (who was removed in the prior renewal process). One investigator (Joyce Mumah) has been removed from the protocol as she is no longer employed at APHRC.
- b. Modification in the testing personnel. Already certified HTS counsellors will be engaged as there is currently a freeze on training new HTS counsellors as NASCOP revises their curriculum.
- c. Addition of a 200/- compensation to respondents to appreciate their participation in the study.
- d. Revision of consent forms to reflect the compensation described above, as well as to include a provision for sharing de-identified data open access at the end of the study.

The approval period is from November 2, 2018 to November 1, 2019 and is subject to compliance with the following requirements:

- a) Only approved documents (informed consents, study instruments, advertising materials etc.) will be used.
- b) All changes (amendments, deviations, violations etc.) are submitted for review and approval by Amref ESRC before implementation.
- c) Death and life threatening problems and severe adverse events (SAEs) or unexpected adverse events whether related or unrelated to the study must be reported to the ESRC immediately.
- d) Any changes, anticipated or otherwise that may increase the risks or affect safety or welfare of study participants and others or affect the integrity of the research must be reported to Amref ESRC immediately.
- e) Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period (attach a comprehensive progress report to support the renewal).
- f) Clearance for export of biological specimen or any form of data must be obtained from Amref ESRC and the relevant government authorities for each batch of shipment/export.
- g) Submission of an executive summary report within 90 days upon completion of the study. This information will form part of the data base that will be consulted in future when processing related research studies so as to minimize chances of study duplication and/or plagiarism.



Please do not hesitate to contact the ESRC Secretariat (esrc.kenya@amref.org) for any clarification or query.

Yours sincerely,

A handwritten signature in blue ink, appearing to be "M. Karim", written over a horizontal line.

A small handwritten blue initial, possibly "f", located to the left of the name.

Prof. Mohamed Karim
Chair, Amref ESRC



CC: Samuel Muhula, Monitoring & Evaluation and Research Manager, Amref Health Africa in Kenya

SECTION 1: RESPONDENT'S BACKGROUND

	QUESTIONS		SKIP TO
101	[RECORD THE TIME INTERVIEW BEGINS USE 24 HOUR TIME]	a. HOUR [6-20] b. MINUTES [0-59]	
102_M1	Were you born on 102_M1a <input type="text"/> <input type="text"/> PRE-FILLED MONTH OF BIRTH IN MIDLINE SURVEY - 102a In what month were you born In what year were you born 102_M1b <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> PRE-FILLED YEAR OF BIRTH IN MIDLINE SURVEY 102b In what year were you born	YES 1 NO 2 a. MONTH [1-12] <input type="text"/> <input type="text"/> 88 DONT KNOW MONTH YES 1 NO 2 b. YEAR [1999-2005] <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> 8888 DONT KNOW YEAR	102_M1b 106_M2
106_M2	Have you lived here continuously for the last two years? NOTE: FOR BOARDING GIRLS, ASK ABOUT WHERE SHE LIVES WHEN SHE IS NOT BOARDING	YES 1 NO 2	109
106_M3	When did you move here? IF EARLIER THAN 2017, go back and change 106_M2 to YES	a. MONTH [1-12] <input type="text"/> <input type="text"/> 88 DONT KNOW MONTH b. YEAR 2017-2019 <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	
107	Think about the place where you currently live. Is it a city, a town, or a village?	CITY 1 TOWN 2 VILLAGE 3	
108	a. What is the name of the place where you currently live? b. In which county is [name of the place]?	 COUNTY CODE [01-47] <input type="text"/> <input type="text"/> NOT IN KENYA 77 DONT KNOW 88	
108_M4	Why did you move here? [READ ALL OPTIONS]	YES NO a. For school 1 2 b. Better housing 1 2 c. Cheaper housing 1 2 d. Accompanying family members 1 2 e. For work 1 2 f. Escaping early marriage 1 2 g. Death of parent(s) / guardian 1 2 h. Separation or divorce of parents 1 2 i. Political violence 1 2 j. Famine or drought 1 2 k. No choice (forced to move away) 1 2 l. Marriage 1 2 m. Insecurity 1 2 q. OTHER 1 2	
109	In the last one year, on how many separate occasions have you traveled away from your home community and slept away?	NUMBER OF TRIPS [1-80] <input type="text"/> <input type="text"/> NONE 0 DONT KNOW 88	114
110	a. In the last one year, have you been away from your home community for more than one month at a time? b. In the last one year, how many month/s in total were you away from your home community for more than one month at a time? c. Where were you during the period mentioned? d. In which county is the place you just mentioned?	YES 1 NO 2 NUMBER OF MONTHS [1-12] <input type="text"/> <input type="text"/> COUNTY CODE <input type="text"/> <input type="text"/>	114

		[01-47]	NOT IN KENYA DON'T KNOW	77 88	
	e. For what reasons did you go to the place you just mentioned? [READ ALL OPTIONS]	a. For marriage b. For school c. For medical reasons d. Could not afford to live where I was e. Accompanying family members f. Personal problems at home(family dispute, abuse) g. For work h. Escaping early marriage i. Separation or divorce from husband /partner j. Death of parent(s) / guardian k. Separation or divorce of parents l. Death of husband /wife/ partner m. Political violence n. Famine or [poverty in the other place o. Stigma due to HIV status p. Other forms of stigma /discrimination p_1. For school holidays q. OTHER	YES	NO	
114	What is your religion?	CATHOLIC PROTESTANT ISLAM TRADITIONAL NO RELIGION OTHER (SPECIFY_____)		1 2 3 4 5 96	
114_M5	How important is religion to you? [READ ALL OPTIONS]	NOT IMPORTANT AT ALL NOT VERY IMPORTANT SOMEWHAT IMPORTANT VERY IMPORTANT		1 2 3 4	
SECTION 2: USE OF SKILLS					
206	In your everyday life, how often do you usually listen to the radio? [READ RESPONSE OPTIONS]	ALMOST EVERY DAY AT LEAST ONCE A WEEK AT LEAST ONCE A MONTH SEVERAL TIMES A YEAR NOT AT ALL		1 2 3 4 5	
207	In your everyday life, how often do you usually watch television? [READ RESPONSE OPTIONS]	ALMOST EVERY DAY AT LEAST ONCE A WEEK AT LEAST ONCE A MONTH SEVERAL TIMES A YEAR NOT AT ALL		1 2 3 4 5	
208	In the past month, how often have you used a mobile phone, that you personally own? [READ OPTIONS ALOUD]	SEVERAL TIMES A DAY ONCE A DAY FEW TIMES A WEEK FEW TIMES A MONTH NEVER/DON'T HAVE A PHONE		1 2 3 4 5	
209	In the past month, how often have you used a mobile phone owned by someone else? [READ OPTIONS ALOUD]	SEVERAL TIMES A DAY ONCE A DAY FEW TIMES A WEEK FEW TIMES A MONTH NEVER		1 2 3 4 5	211
210	Who is the main person from whom you most commonly borrow a phone?	MOTHER FATHER HUSBAND MALE FRIEND FEMALE FRIEND BOYFRIEND/ROMANTIC PARTNER SIBLING OTHER RELATIVE OTHER NON-RELATIVE(Specify)		1 2 3 4 5 6 7 8 88	
F1	FILTER ON SITE	IF WAJIR			301
211	In the past week, have you used a mobile phone to do any of the following? [READ OPTIONS ALOUD]	SEND TEXT MESSAGES SEND OR RECEIVE MONEY MAKE PHONE CALLS TAKE A PICTURE OR VIDEO GET NEWS INFORMATION ABOUT POLITICS LISTEN TO RADIO DOWNLOAD/PLAY MUSIC, GAMES, VIDEOS OR APPS CONNECT WITH FRIENDS NEVER/DON'T HAVE ACCESS TO A PHONE	YES	NO	214

		OTHER (SPECIFY)	1	2	
212	Some cell phones are basic phones, feature phones or smartphones. Feature phones and smartphones can be used to access the internet and apps. What kind of mobile phone do you most commonly use?	A. BASIC/SIMPLE PHONE B. FEATURE PHONE C. SMARTPHONE D. DON'T KNOW		1 2 3 88	214
213	In the past week, did you use a mobile for accessing? [READ OPTIONS ALOUD]	a. THE INTERNET (GOOGLE/YAHOO SEARCH) b. WHATSAPP c. FACEBOOK OR FACEBOOK MESSENGER d. TWITTER e. INSTAGRAM f. YOUTUBE g. SNAPCHAT h. PINTEREST i. OTHER (SPECIFY)	YES	NO 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2	
214	In your every day life, how often do you go online or use the internet? This could be through a computer, smartphone, tablet or other device that belongs to you or someone else. This can be from any location - private or public. [READ OPTIONS ALOUD]	SEVERAL TIMES A DAY ONCE A DAY FEW TIMES A WEEK FEW TIMES A MONTH NEVER/NOT AT ALL NOT APPLICABLE/NO INTERNET DEVICE		1 2 3 4 5 6	
215	Have you ever used any of the following social media sites?	a. TWITTER b. INSTAGRAM c. FACEBOOK d. YOUTUBE e. WHATSAPP f. Other (specify)	YES	NO 1 2 1 2 1 2 1 2 1 2 1 2	
F2	SKIP IF 215c=2 [NOT A FACEBOOK USER]				F3
216	How long have you been using Facebook?	<1 year 1-2 years 3-4 years ≥5 years Don't know		1 2 3 4 88	
217	Do you have a Facebook account of your own?	YES NO Other (specify)		1 2 96	F3
218	How many of your friends also use Facebook? Would you say all, most, a few or none of them? READ ALL RESPONSES	ALL OF THEM MOST OF THEM FEW OF THEM NONE OF THEM DON'T KNOW		1 2 3 4 88	
219	In the past month, how often did you use Facebook? READ ALL RESPONSES	SEVERAL TIMES A DAY ONCE A DAY SEVERAL TIMES IN A WEEK ONCE A WEEK FEW TIMES A MONTH NEVER DON'T KNOW		1 2 3 4 5 6 88	
220	Do you ever use Facebook for any of the following reasons: READ ALL RESPONSES	ENTERTAINMENT GET INFORMATION ABOUT GOVERNMENT OR PUBLIC SERVICES GET NEWS AND INFORMATION ABOUT POLITICS GETTING SUPPORT FROM OTHERS MEETING OTHERS WITH THE SAME INTERESTS STAY IN TOUCH WITH FAMILY AND FRIENDS OTHER (SPECIFY)	YES	NO 1 2 1 2 1 2 1 2 1 2 1 2 96	
F3	IF 215e=2 [NOT A WHATSAPP USER]				226
221	How long have you been using WhatsApp?	<1 year 1-2 years 3-4 years ≥5 years Other (Specify)		1 2 3 4 96	
222	Do you have a WhatsApp account of your own?	YES NO		1 2	

		Other (Specify)	
223	How many of your friends also use WhatsApp? Would you say all, most, a few or none of them? READ ALL RESPONSES	ALL OF THEM 1 MOST OF THEM 2 FEW OF THEM 3 NONE OF THEM 4 DON'T KNOW 88	
224	In the past month, how often did you use WhatsApp? READ ALL RESPONSES	SEVERAL TIMES A DAY 1 ONCE A DAY 2 SEVERAL TIMES IN A WEEK 3 ONCE A WEEK 4 FEW TIMES A MONTH 5 NEVER 6	
225	Do you ever use WhatsApp for any of the following reasons: READ ALL RESPONSES AND CHECK ALL THAT APPLY	ENTERTAINMENT YES NO 1 2 GET INFORMATION ABOUT GOVERNMENT OR PUBLIC SERVICES 1 2 GET NEWS AND INFORMATION ABOUT POLITICS 1 2 GETTING SUPPORT FROM OTHERS 1 2 MEETING OTHERS WITH THE SAME INTERESTS 1 2 STAY IN TOUCH WITH FAMILY AND FRIENDS 1 2 OTHER (SPECIFY) 1 2	
226	For people your age, what is the main positive effect of using Facebook? [DONT READ OPTIONS, CHECK ONLY ONE]	COMMUNICATION WITH FRIENDS AND FAMILY 1 DATING PEOPLE 2 FINANCIAL GAIN 3 FINDING INFORMATION/NEWS/CURRENT EVENTS 4 GETTING SUPPORT 5 HAPPINNESS, ENTERTAINMENT, CONVENIENCE 6 LEARNING NEW THINGS 7 MEETING PEOPLE WITH SIMILAR INTERESTS 8 SELF-EXPRESSION 9 DON'T KNOW 96 OTHER (SPECIFY) 88	
227	For people your age, what is the main negative effect of using Facebook? [DONT READ OPTIONS, CHECK ONLY ONE]	BULLYING/PEOPLE BEING MEAN/SPREADING RUMORS 1 CAUSES PSYCHOLOGICAL ISSUES 2 DISTRACTED OR ADDICTED TO DEVICES 3 DRAMA 5 GIVES TEENS AN UNREALISTIC PICTURE OF OTHERS' LIVES 6 HARMS RELATIONSHIPS/NOT ENOUGH IN-PERSON COMMUNICATION 7 INCREASING CRIME 8 PEER PRESSURE/TEENS TOO EASILY INFLUENCES 9 SHARING INAPPROPRIATE PICTURES/NUDE PHOTOS 10 OTHER (SPECIFY) 96 DON'T KNOW 88	
228	Overall, what effect would you say social media (Facebook, WhatsApp, Instagram, SnapChat) has had on people your age? READ ALL RESPONSES	MOSTLY POSITIVE 1 MOSTLY NEGATIVE 2 NEITHER POSITIVE OR NEGATIVE 3 DON'T KNOW 88 OTHER (SPECIFY) 96	
SECTION 3: RESPONDENT'S SCHOOLING			
QUESTIONS			
	PRELOADED MIDLINE SURVEY RESPONSE TO QUESTION 301	Ever attended school YES 1 NO 2	302_M7 301
301	Have you ever attended school? [Clarify this does not include Duksi or Madrassa]	YES 1 NO 2	302
301_M6	There are many reasons why young people your age have never been to school. What are the reasons you have never been to school? {CHECK ALL THAT APPLY}	LACK OF SCHOOL FEES, UNIFORMS, MATERIALS YES NO 1 2 GOT MARRIED 1 2 SICKNESS 1 2 NEEDED/WANTED TO EARN MONEY 1 2 NOT INTERESTED 1 2 PARENTS NOT INTERESTED 1 2 NO SCHOOL CLOSE BY 1 2 OTHER (SPECIFY) _____ 1 2 DON'T KNOW 1 2	
F4	FILTER ON RELIGION	Q114 NOT EQUAL TO 3 (NOT MUSLIM) Q114 EQUAL TO 3 (MUSLIM)	401 326
302	At what age did you start Standard 1/School?	AGE [10-19] <input type="text"/> <input type="text"/> DON'T KNOW 88	303
302_M7	Did you attend school at any time between 2017 and 2019?	YES 1 NO 2	310

303	Was the highest level of school you attended: primary OR secondary between 2017 and 2019? [Note: Select "None of the Above" if respondent did not attend primary or secondary school within this period.]	PRIMARY SECONDARY NONE OF THE ABOVE	1 2 3	305 305_M8
304	What is the highest class you completed at <u>primary</u> school, between 2017 and 2019?	ECD STANDARD [1-8] DID NOT COMPLETE STANDARD 1	77 <input type="text"/> 0	F6 308
305	What is the highest class you completed at <u>secondary</u> school?	FORM [1-4] DID NOT COMPLETE FORM 1	<input type="text"/> <input type="text"/> 0	
305_M8	CHECK HIGHEST LEVEL OF SCHOOL IN MIDLINE SURVEY	PRIMARY SECONDARY	1 2	308
F5	[IF 304 < 8 OR 303=1]			308
306	How many times did you take the Kenya Certificate of Primary Education (KCPE)?	ONE TWO THREE OR MORE NEVER TAKEN	1 2 3 4	308
307	The last time you took the KCPE, what were your marks?	MARKS [0-500] DON'T KNOW	<input type="text"/> <input type="text"/> <input type="text"/> 888	
308	Have you ever attended a trade or vocational school between 2017 and 2019?	YES NO	1 2	
309	Have you attended school at any time during [the 2019 school year]?	YES NO	1 2	312
310	At what month and year did you stop attending school?	MONTH YEAR [2015, 2016, 2017, 2018] DON'T KNOW STOPPED IN 2014 OR EARLIER	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> 88 77	
311	What are the reasons you left school when you did? [DO NOT READ LIST, CHECK ALL MENTIONED]	SCHOOL ISSUES Waiting for KCPE/KCSE Results Going to new school this term Finished primary school Not selected to secondary school Finished secondary school Not doing well at school Don't like school/rather do something else Problems with/afraid of other students Problems with/afraid of teacher Travel/distance to school Parents/guardian don't want FINANCIAL/WORK Financial/Costs No money for development funds Need to work at home/fields/livestock Need to work/earn money MARRIAGE/BIRTH Marriage Pregnancy Has baby/nursing baby ILLNESS/DEATH Respondent sick/ill Illness of HH member Death of HH member HOUSEHOLD ISSUES Need to look after brothers/sisters Separation/divorce of parents OTHER ISSUES Other (specify)_____	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 18 19 20 21 22 96	ALL F6
312	What is the name of the school you attend? {SELECT FROM LIST}	Other (specify)_____	96	
313	Is this a primary or a secondary or vocational school?	PRIMARY SECONDARY TRADE/VOCATIONAL	1 2 3	315 318

314	Is this <u>primary school</u> a community, government, mission, or private formal or private informal school?	COMMUNITY GOVERNMENT MISSION PRIVATE FORMAL PRIVATE INFORMAL	1 2 3 4 5	316 316 316 316 316
315	Is this <u>secondary school</u> a community, government, mission, or private formal or private informal school?	COMMUNITY GOVERNMENT MISSION PRIVATE FORMAL PRIVATE INFORMAL	1 2 3 4 5	317 317 317 317 317
316	What class in <u>primary school</u> are you attending this year?	STANDARD [1-8]	<input type="text"/>	ALL 318
317	What class in <u>secondary school</u> are you attending this year?	FORM [1-4]	<input type="text"/> <input type="text"/>	ALL 318
318	Do you live at home, at boarding school, or somewhere else to attend school?	LIVE AT HOME BOARDER AT SCHOOL LIVE SOMEWHERE ELSE	1 2 3	
319	How do you usually get to school?	BY FOOT / WALKING OWN BICYCLE/HOUSEHOLD BICYCLE BICYCLE TAXI/BODA BODA BUS/MATATU/MINIBUS/OTHER PUBLIC TRANSPORT PRIVATE VEHICLE SCHOOL TRANSPORT OTHER (SPECIFY _____)	1 2 3 4 5 6 96	321_MWJ 321_MWJ 321_MWJ 321_MWJ
320	How much fare do you usually pay in total to get to school and back?	a. PER DAY PER MONTH PER TERM b. KENYA SHILLINGS DONT KNOW	1 2 3 <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> 88888	
321	How long does it usually take you to get to school?	a. HOURS [0 -12] b. MINUTES [0-59] DONT KNOW	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> 88	
321_MWJ	[EVERYONE CURRENTLY IN SCHOOL] About how long do you spend studying and doing homework each day?	a. HOURS [0-6] b. MINUTES [0-59] DONT KNOW	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> 88	
322	During the previous term, how many days of school did you miss?	DAYS MISSED SCHOOL [1-80] NONE DONT KNOW	<input type="text"/> <input type="text"/> 0 88	324
323	What were the reasons for your absence [RECORD ALL MENTIONED]	STUDENT SICK/ILL YOUNGER BROTHER/SISTER SICK OTHER HOUSEHOLD MEMBER SICK MARKET DAY NEEDED TO WORK AT HOME NEEDED TO RUN ERRANDS FOR PARENTS UNIFORM DIRTY PROBLEMS WITH/AFRAID OF OTHER STUDENTS PROBLEMS WITH/AFRAID OF TEACHER MENSTRUATION WOULD RATHER DO SOMETHING ELSE WENT TO SEE/WAS WITH BOYFRIEND NEEDED TO WATCH BROTHERS/SISTERS BEREAVEMENT/FUNERAL LACK OF SCHOOL/TUITION FEES INTER-CLAN CLASHES OTHER (SPECIFY _____)	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 96	
324	In the past school week , how many days was your school in session?	DAYS [0-7]	<input type="text"/> <input type="text"/>	
325	In the past school week, how many days did you attend school?	DAYS [0-7]	<input type="text"/> <input type="text"/>	
F6	FILTER ON RELIGION	Q114 NOT EQUAL TO 3 (NOT MUSLIM)		330

		Q114 EQUAL TO 3 (MUSLIM)	326
326	In the past month, have you attended Duksi?	YES NO	1 2 328
327	When you attended Duksi, how many days per week did you attend, and how many hours each day?	A. DAYS [0-7] B. HOURS [0-12]	<input type="text"/> <input type="text"/>
328	In the past month, have you attended Madrassa?	YES NO	1 2 330
329	When you attended Madrassa, how many days per week did you attend, and how many hours each day?	A. DAYS [0-7] B. HOURS [0-12]	<input type="text"/> <input type="text"/>
F7	IF 301 = NO, NEVER ATTENDED SCHOOL		401
330	Now I would like to ask about each of the schools and grades you have attended.	FILL IN SCHOOLING HISTORY SHEET	
SECTION 4: WORK, SAVINGS, AND FINANCIAL LITERACY QUESTIONS			
401	Yesterday, how much time did you spend doing household chores, such as cooking, cleaning, laundry, collecting firewood, water? [IF YESTERDAY WAS FRIDAY, SATURDAY OR SUNDAY, ASK ABOUT THURSDAY. DURING SCHOOL HOLIDAY, ASK ABOUT THE LAST WEEK WHEN SCHOOL WAS IN SESSION.]	a. HOURS [0-24] b. MINUTES [0-59] DON'T KNOW	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> 88
402	Aside from your housework, have you done any work for pay in the last seven days?	YES NO	1 2
403	As you know, some girls take up jobs for which they are paid in cash or kind. Others sell things, have a small business or work on the family farm or in the family business. Just to be sure, in the <u>last seven days</u> , have you done any chores or activities for which you got paid or were given something in return (for example food, or other goods)?	YES NO	1 2
404	Aside from your housework, have you done any work or chores or activities for which you were paid in cash or kind in the <u>last one year</u> ?	YES NO	1 2 407
406	Now I would like to ask about each of the different kinds of activities or work that you have done in the last one year, this includes working in your own business and any other income generating activities.	[FILL IN WORK AND WORK INCOME SHEET]	
407	I want to talk about the items that a person might own. Do you personally own or have these items? [READ LIST; IF 'YES' ASK 408]	408 Who last gave you [ITEM], gave you money to buy this item, or purchased this item for you? USE THE FOLLOWING CODES: [DO NOT READ LIST] SELF- WITH MONEY EARNED MOTHER FATHER GUARDIAN BOYFRIEND HUSBAND SUGAR DADDY MALE FRIEND FEMALE FRIEND OTHER RELATIVE TEACHER OTHER (SPECIFY)	1 2 3 4 5 6 7 8 9 10 11 12

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	<p>Now I am going to ask you several questions about different issues related to your use of any money you earned or money you were given, spending money, and savings. We know that some girls have money to spend and save and others don't. So, there are no right or wrong answers, just answer as honestly as you can.</p>																																																																								
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410	<p>In the last one year, when you spent money on your daily needs, other odds and ends, or other expenses, where did you get that money from?</p> <p>[RECORD ALL MENTIONED]</p>	<table border="1"> <thead> <tr> <th></th> <th>YES</th> <th>NO</th> </tr> </thead> <tbody> <tr> <td>a. MOTHER</td> <td>1</td> <td>2</td> </tr> <tr> <td>b. FATHER</td> <td>1</td> <td>2</td> </tr> <tr> <td>c. GUARDIAN YOU LIVE WITH</td> <td>1</td> <td>2</td> </tr> <tr> <td>d. OTHER RELATIVES</td> <td>1</td> <td>2</td> </tr> <tr> <td>e. FRIEND</td> <td>1</td> <td>2</td> </tr> <tr> <td>f. BOYFRIEND</td> <td>1</td> <td>2</td> </tr> <tr> <td>g. HUSBAND</td> <td>1</td> <td>2</td> </tr> <tr> <td>h. SUGAR DADDY/SPONSOR</td> <td>1</td> <td>2</td> </tr> <tr> <td>i. STRETCHING MONEY</td> <td>1</td> <td>2</td> </tr> <tr> <td>j. OWN SAVINGS</td> <td>1</td> <td>2</td> </tr> <tr> <td>k. SAVINGS GROUP/CHAMA</td> <td>1</td> <td>2</td> </tr> <tr> <td>l. CASUAL JOBS/CHORES</td> <td>1</td> <td>2</td> </tr> <tr> <td>m. STEADY JOB</td> <td>1</td> <td>2</td> </tr> <tr> <td>n. CASH TRANSFERS</td> <td>1</td> <td>2</td> </tr> <tr> <td>o. CHURCH/NGO/GOOD SAMARITAN</td> <td>1</td> <td>2</td> </tr> <tr> <td>q. NEIGHBOR</td> <td>1</td> <td>2</td> </tr> <tr> <td>r. BROTHER</td> <td>1</td> <td>2</td> </tr> <tr> <td>s. SISTER</td> <td>1</td> <td>2</td> </tr> <tr> <td>p. OTHER (SPECIFY _____)</td> <td>1</td> <td>2</td> </tr> </tbody> </table>		YES	NO	a. MOTHER	1	2	b. FATHER	1	2	c. GUARDIAN YOU LIVE WITH	1	2	d. OTHER RELATIVES	1	2	e. FRIEND	1	2	f. BOYFRIEND	1	2	g. HUSBAND	1	2	h. SUGAR DADDY/SPONSOR	1	2	i. STRETCHING MONEY	1	2	j. OWN SAVINGS	1	2	k. SAVINGS GROUP/CHAMA	1	2	l. CASUAL JOBS/CHORES	1	2	m. STEADY JOB	1	2	n. CASH TRANSFERS	1	2	o. CHURCH/NGO/GOOD SAMARITAN	1	2	q. NEIGHBOR	1	2	r. BROTHER	1	2	s. SISTER	1	2	p. OTHER (SPECIFY _____)	1	2											
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411	Now I would like to ask about each of the things that you might have spent money on.	FILL IN EXPENSES SHEET																																																																							
412	In the past six months, have you saved, or put money aside to use at a later time?	<table border="1"> <thead> <tr> <th>YES</th> <th>NO</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>2</td> </tr> </tbody> </table>	YES	NO	1	2	418																																																																		
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413	In total, how many shillings do you currently have saved?	<p>KENYA SHILLINGS <input type="text"/></p> <p>DON'T KNOW <input type="text"/> 8888</p>																																																																							
414	How many more shillings would you like to save?	<p>KENYA SHILLINGS <input type="text"/></p> <p>DON'T KNOW <input type="text"/> 8888</p> <p>{IF NONE RECORD "00" AND SKIP TO 416}</p>	416																																																																						

415	How long do you think it will take you to save this amount of money?	<p>a. YEARS [0-99] <input type="text"/> <input type="text"/></p> <p>b. MONTHS [0-11] <input type="text"/> <input type="text"/></p> <p>c. DAYS [0-29] <input type="text"/> <input type="text"/></p> <p>DON'T KNOW 8888</p>																																																	
416	<p>What are you saving for?</p> <p>[DO NOT READ LIST]</p>	<table border="1"> <thead> <tr> <th></th> <th>YES</th> <th>NO</th> </tr> </thead> <tbody> <tr><td>a. EMERGENCIES</td><td>1</td><td>2</td></tr> <tr><td>b. PERSONAL ITEMS</td><td>1</td><td>2</td></tr> <tr><td>c. HOUSEHOLD EXPENSES</td><td>1</td><td>2</td></tr> <tr><td>d. OWN SCHOOL FEES</td><td>1</td><td>2</td></tr> <tr><td>e. SCHOOL FEES FOR OTHERS</td><td>1</td><td>2</td></tr> <tr><td>f. SCHOOL SUPPLIES</td><td>1</td><td>2</td></tr> <tr><td>g. OWN BUSINESS</td><td>1</td><td>2</td></tr> <tr><td>h. FAMILY BUSINESS</td><td>1</td><td>2</td></tr> <tr><td>i. GENERAL FUTURE USE</td><td>1</td><td>2</td></tr> <tr><td>j. AGRICULTURAL INPUTS</td><td>1</td><td>2</td></tr> <tr><td>k. MEDICAL EXPENSES FOR SELF</td><td>1</td><td>2</td></tr> <tr><td>l. MEDICAL EXPENSES FOR OTHER</td><td>1</td><td>2</td></tr> <tr><td>m. TRANSPORT/TRIPS</td><td>1</td><td>2</td></tr> <tr><td>o. HELP MOTHER/FATHER</td><td>1</td><td>2</td></tr> <tr><td>n. OTHER (SPECIFY _____)</td><td>1</td><td>2</td></tr> </tbody> </table>		YES	NO	a. EMERGENCIES	1	2	b. PERSONAL ITEMS	1	2	c. HOUSEHOLD EXPENSES	1	2	d. OWN SCHOOL FEES	1	2	e. SCHOOL FEES FOR OTHERS	1	2	f. SCHOOL SUPPLIES	1	2	g. OWN BUSINESS	1	2	h. FAMILY BUSINESS	1	2	i. GENERAL FUTURE USE	1	2	j. AGRICULTURAL INPUTS	1	2	k. MEDICAL EXPENSES FOR SELF	1	2	l. MEDICAL EXPENSES FOR OTHER	1	2	m. TRANSPORT/TRIPS	1	2	o. HELP MOTHER/FATHER	1	2	n. OTHER (SPECIFY _____)	1	2	
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417	Now I would like to ask about the places where you have saved your money in the last one year.	FILL IN SAVINGS SHEET																																																	
418	<p>Now I'm going to read you a story and then ask you some questions about the story:</p> <p>"Each week, Anna sits down and plans what she will earn and spend in the next week. She writes down all the places where she will get money and all the things she will spend it on. Then she is able to see if she has enough money for all of what she wants to buy."</p>																																																		
419	Do you have such a plan?	<p>YES 1</p> <p>NO 2</p>	422																																																
420	Is your plan written down?	<p>YES 1</p> <p>NO 2</p>																																																	
421	Would you say that you follow your plan all of the time, some of the time, rarely, or never?	<p>ALL OF THE TIME 1</p> <p>SOME OF THE TIME 2</p> <p>RARELY 3</p> <p>NEVER 4</p>																																																	
422	What would you call that kind of plan?	<p>BUDGET 1</p> <p>SAVINGS PLAN 2</p> <p>FINANCIAL GOAL 3</p> <p>DON'T KNOW/OTHER 88</p>																																																	
423	<p>Now I'm going to read you another story and then ask you some questions about it:</p> <p>'Imani is 17 and lives with her mother and her younger sister. Her older sister Mary is married and lives in another town, three hours away. Mary just had a baby boy, and Imani is eager to visit her sister. Imani will need to save money for transport and a small gift for the baby. A cute little hat would be perfect!</p>																																																		

	<p>a busy day, and then to budget to that that sister. Imani will need to save money for transport and a shirt for the day. It was like that would be perfect. But she can't take money from her savings because she is saving that money to start her own business. Imani's dream is to start a small catering business. Hopefully, her neighbor will employ her to work extra days in her hotel so she can get the money she needs for her trip."</p>		
424	<p>What is one of Imani's short term financial goals?</p>	<p>TRANSPORT TO VISIT HER SISTER 1 BUY A GIFT FOR HER NEPHEW 2 START A BUSINESS 3 OTHER 4 DON'T KNOW 88</p>	
425	<p>What is Imani's long term financial goal?</p>	<p>TRANSPORT TO VISIT HER SISTER 1 BUY A GIFT FOR HER NEPHEW 2 START A BUSINESS 3 OTHER 4 DON'T KNOW 88</p>	
426	<p>What are some of the <u>formal</u> ways of saving your money?</p> <p>DO NOT READ OPTIONS, CHECK ALL THAT APPLY Leave blank if not mentioned</p>	<p>BANK/BANK ACCOUNT 1 SAVINGS ACCOUNT 2 HOMEBANK/UNDER MATTRESS/HOLE 3 BOX/CLOSET 4 WITH A FRIEND 5 WITH A PARENT OR GUARDIAN/SIBLING 7 IN A SAVINGS GROUP/CHAMA 8 SHOPKEEPER 9 INVESTMENTS 10 MPESA 11 OTHER (specify) 96 DON'T KNOW 88</p>	
427	<p>What are some of the <u>informal</u> way of saving your money?</p> <p>DO NOT READ OPTIONS, CHECK ALL THAT APPLY Leave blank if not mentioned</p>	<p>BANK/BANK ACCOUNT 1 SAVINGS ACCOUNT 2 HOMEBANK/UNDER MATTRESS/HOLE 3 BOX/CLOSET 4 WITH A FRIEND 5 WITH A PARENT OR GUARDIAN/SIBLING 7 IN A SAVINGS GROUP/CHAMA 8 SHOPKEEPER 9 INVESTMENTS 10 MPESA 11 OTHER (specify) 96 DON'T KNOW 88</p>	
428	<p>Grace would like to buy a new notebook for the next school term which starts in eight weeks. If the notebook costs KSH 100 and she can save KSH10 each week, will she reach her goal?</p>	<p>YES 1 NO 2</p>	
429	<p>In the situation I described in the previous question, if Grace figured out how much she needed to save each week, and for how many weeks she needed to save in order to reach her goal, what would that be called?</p>	<p>BUDGET 1 SAVINGS PLAN 2 FINANCIAL GOAL 3 DON'T KNOW 88</p>	
430	<p>If Grace discovered that she couldn't reach her goal with that plan, what changes could she make so she would still reach her goal?</p>	<p>BUY A CHEAPER NOTEBOOK 1 SAVE MORE EACH WEEK 2 GIVE HERSELF LONGER TIME TO REACH HER GOAL 3 ASK PARENTS FOR HELP 5 OTHER 4 DON'T KNOW 88</p>	
431	<p>Do you agree or disagree with the following statement: "Only people with a lot of money can save"?</p>	<p>AGREE 1 DISAGREE 2</p>	
432	<p>If you could only spend money on one of the following, which would it be?</p> <p>[READ ALL OPTIONS]</p>	<p>SWEETS 1 FOOD 2 A NEW DRESS 3</p>	
433	<p>When there are weeks, for example, when you have met all your basic needs and at the end of the week you still have KSH 50 remaining, what do you usually do with that money?</p>	<p>SAVE/PUT ASIDE FOR FUTURE USE 1 SPEND/BUY SOMETHING EXTRA 2 DON'T KNOW 88</p>	
SECTION 5: SOCIAL CAPITAL AND NETWORKS			
QUESTIONS			
501	<p>In the last one year, have you been a member of any social groups or clubs? For instance, are you a member of church/mosque/religious group?</p> <p>[READ LIST; IF 'YES' ASK 502 and 503]</p>	<p>502 When is the last time you attended this club?</p> <p>1 = Within last 7 days</p>	<p>503 Was it a girls only club or mixed girls and boys?</p>

		2 = Within the last month 3 = Within the last one year						
		YES	NO	LAST 7 DAYS	LAST MONTH	IN THE LAST ONE	Girls Only	Mixed
a.	Gender club/Child rights/Human rights/HIV&AIDS/Health life skills/Guidance & counseling club	1	2	a. 1	2	3	a. 1	2
b.	Girl guides/scouts	1	2	b. 1	2	3	b. 1	2
c.	Sports club	1	2	c. 1	2	3	c. 1	2
d.	Arts, drama, poetry, music, choir or dancing group	1	2	d. 1	2	3	d. 1	2
e.	Church group/Muslim group	1	2	e. 1	2	3	e. 1	2
f.	Environmental/science/math club	1	2	f. 1	2	3	f. 1	2
g.	Any other _____	1	2	g. 1	2	3	g. 1	2
<p>[FIRST ASK ALL QUESTIONS FOR MALES AND RECORD ANSWERS IN COLUMN A; THEN RETURN TO ASK ALL QUESTIONS FOR FEMALES AND RECORD ANSWERS IN COLUMN B]</p> <p>Now I want to ask about your good friends. What we mean by a good friend is someone you can confide in about personal matters and share important information.</p>								
[FRIENDS: 0-80; RECORD 80 IF MORE THAN 80; RECORD 88 IF DON'T KNOW]				A. MALES		B. FEMALES		
504	How many good friends do you have who are (MALE/FEMALE)?	<input type="text"/> <input type="text"/> [IF = 0 → "FEMALES"]			<input type="text"/> <input type="text"/> [IF =A= 0 & B=0 → 509]			
505	How many of these (MALE/FEMALE) friends are currently attending school?	<input type="text"/> <input type="text"/> [IF = 0 → GO TO 507 A']			<input type="text"/> <input type="text"/> [IF = A=0 & B=0 → 507]			
FS1	IF 301 = 2 (NO) OR 302_M7 = 2 (NO) OR 309 = 2 (NO) [DIDNT ATTEND SCHOOL]							507
506	How many of these (MALE/FEMALE) friends are attending your school?	<input type="text"/> <input type="text"/> DON'T KNOW 88			<input type="text"/> <input type="text"/> DON'T KNOW 88			
506_E1	How many of these (MALE/FEMALE) friends think that it's important to attend school?	<input type="text"/> <input type="text"/> DON'T KNOW 88			<input type="text"/> <input type="text"/> DON'T KNOW 88			
507	How many of these (MALE/FEMALE) friends are married?	<input type="text"/> <input type="text"/> DON'T KNOW 88			<input type="text"/> <input type="text"/> DON'T KNOW 88			
507_E2	How many of these (MALE/FEMALE) friends have a boyfriend, girlfriend, or romantic partner?	<input type="text"/> <input type="text"/> DON'T KNOW 88			<input type="text"/> <input type="text"/> DON'T KNOW 88			
508	How many of these (MALE/FEMALE) friends have given birth/fathered a child?	<input type="text"/> <input type="text"/> DON'T KNOW 88			<input type="text"/> <input type="text"/> DON'T KNOW 88			
508_E3	How many of these (MALE/FEMALE) friends have had sexual intercourse?	<input type="text"/> <input type="text"/> DON'T KNOW 88			<input type="text"/> <input type="text"/> DON'T KNOW 88			
508_E4	How many of these (MALE/FEMALE) friends think that it's important to have sexual intercourse in exchange for money or things?	<input type="text"/> <input type="text"/> DON'T KNOW 88			<input type="text"/> <input type="text"/> DON'T KNOW 88			
I will now read a few statements and you will respond on whether you 'agree' or disagree								
509	I have many friends in my neighborhood/community				AGREE	1		
					DISAGREE	2		
510	I feel safe walking around in my neighborhood/community during the day				AGREE	1		
					DISAGREE	2		
511	I feel safe walking around in my neighborhood/community after dark				AGREE	1		
					DISAGREE	2		
512	People in my neighborhood/community trust one another				AGREE	1		
					DISAGREE	2		
513	Sometimes, in my every day life, I feel scared that I will be raped				AGREE	1		

		DISAGREE	2																																																																														
514	I have been touched indecently by a boy or man in the past six months	AGREE DISAGREE	1 2																																																																														
515	I have been robbed in the past six months while in my neighborhood/community	AGREE DISAGREE	1 2																																																																														
516	I have been robbed in the past six months while outside my neighborhood/community	AGREE DISAGREE	1 2																																																																														
517	In my neighborhood/community, boys or men tease me as I go about my day	AGREE DISAGREE	1 2																																																																														
517_M9	I have a good female friend in my community who I can turn to for help if I had a serious problem	AGREE DISAGREE	1 2																																																																														
518	There is a female adult in my community, other than my parents or teacher, who I can turn to if I had a serious problem	AGREE DISAGREE	1 2																																																																														
518_M10	I have a good female friend who I meet regularly in my life that I can discuss my problems and joys, and ask questions of.	AGREE DISAGREE	1 2																																																																														
519	There is a female adult, that is not my mother or teacher, who I meet regularly in my life that I can discuss my problems, joys, and ask questions of.	AGREE DISAGREE	1 2																																																																														
519_M11	Think about a female adult who is a family member or relative, who you are closest to in your life. From one to ten, with 10 being the most and 1 being none at all, how much do you trust this person?	SCALE 1-10 (10 BEING THE MOST AND 1 BEING NONE)	<input type="text"/> <input type="text"/>																																																																														
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519_M12	Think about a female adult who is not a family member, who you are closest to in your life. From one to ten, with 10 being the most and 1 being none at all, how much do you trust this person?	SCALE 1-10 (10 BEING THE MOST AND 1 BEING NONE)	<input type="text"/> <input type="text"/>																																																																														
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520	<p>Q520A Could you count on the following people if you needed money urgently?</p> <p>[READ THE LIST. IF NO ON Q520A, GO TO NEXT ITEM, SKIP Q520B, Q520C]</p> <table border="1"> <thead> <tr> <th></th> <th>YES</th> <th>NO</th> <th>Male Only</th> <th>Female Only</th> <th>Both</th> </tr> </thead> <tbody> <tr> <td>A Parent/guardian</td> <td>1</td> <td>2</td> <td>1</td> <td>2</td> <td>3</td> </tr> <tr> <td>B Sibling</td> <td>1</td> <td>2</td> <td>1</td> <td>2</td> <td>3</td> </tr> <tr> <td>C Relative</td> <td>1</td> <td>2</td> <td>1</td> <td>2</td> <td>3</td> </tr> <tr> <td>D A close friend</td> <td>1</td> <td>2</td> <td>1</td> <td>2</td> <td>3</td> </tr> <tr> <td>E Neighbor</td> <td>1</td> <td>2</td> <td>1</td> <td>2</td> <td>3</td> </tr> <tr> <td>F Boyfriend/husband</td> <td>1</td> <td>2</td> <td>1</td> <td>2</td> <td>3</td> </tr> <tr> <td>G Mentor</td> <td>1</td> <td>2</td> <td>1</td> <td>2</td> <td>3</td> </tr> <tr> <td>H Teacher</td> <td>1</td> <td>2</td> <td>1</td> <td>2</td> <td>3</td> </tr> </tbody> </table>		YES	NO	Male Only	Female Only	Both	A Parent/guardian	1	2	1	2	3	B Sibling	1	2	1	2	3	C Relative	1	2	1	2	3	D A close friend	1	2	1	2	3	E Neighbor	1	2	1	2	3	F Boyfriend/husband	1	2	1	2	3	G Mentor	1	2	1	2	3	H Teacher	1	2	1	2	3	<p>Q520B Sex</p>	<p>Q520C Residence/location (CODE)</p> <p>CODES 1 Resides in my household 2 Resides in this community 3 Resides in neighboring community 4 Resides elsewhere/ upcountry (rural area)</p> <table border="1"> <thead> <tr> <th>Male</th> <th>Female</th> </tr> <tr> <th>CODES</th> <th>CODES</th> </tr> </thead> <tbody> <tr><td><input type="text"/></td><td><input type="text"/></td></tr> <tr><td><input type="text"/></td><td><input type="text"/></td></tr> <tr><td><input type="text"/></td><td><input type="text"/></td></tr> <tr><td><input type="text"/></td><td><input type="text"/></td></tr> <tr><td><input type="text"/></td><td><input type="text"/></td></tr> <tr><td><input type="text"/></td><td><input type="text"/></td></tr> <tr><td><input type="text"/></td><td><input type="text"/></td></tr> <tr><td><input type="text"/></td><td><input type="text"/></td></tr> <tr><td><input type="text"/></td><td><input type="text"/></td></tr> <tr><td><input type="text"/></td><td><input type="text"/></td></tr> </tbody> </table>	Male	Female	CODES	CODES	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
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521	<p>Q521A Other than your parent or guardian, could you count on the following people to take you in for the night in case of an emergency?</p> <p>[READ THE LIST. IF NO ON Q521A, GO TO NEXT ITEM, SKIP Q521B, Q521C]</p> <table border="1"> <thead> <tr> <th></th> <th>YES</th> <th>NO</th> <th>Male Only</th> <th>Female Only</th> <th>Both</th> </tr> </thead> <tbody> <tr> <td>A Sibling</td> <td>1</td> <td>2</td> <td>1</td> <td>2</td> <td>3</td> </tr> <tr> <td>B Relative</td> <td>1</td> <td>2</td> <td>1</td> <td>2</td> <td>3</td> </tr> </tbody> </table>		YES	NO	Male Only	Female Only	Both	A Sibling	1	2	1	2	3	B Relative	1	2	1	2	3	<p>Q521B Sex</p>	<p>Q521C Residence/location (CODE)</p> <p>1 Resides in my household 2 Resides in this community 3 Resides in neighboring community 4 Resides elsewhere/ upcountry (rural area)</p> <table border="1"> <thead> <tr> <th>Male</th> <th>Female</th> </tr> <tr> <th>CODES</th> <th>CODES</th> </tr> </thead> <tbody> <tr><td><input type="text"/></td><td><input type="text"/></td></tr> <tr><td><input type="text"/></td><td><input type="text"/></td></tr> </tbody> </table>	Male	Female	CODES	CODES	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>																																																				
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	C A close friend 1 2 D Neighbor 1 2 E Boyfriend/husband 1 2 F Mentor 1 2 G Teacher 1 2	1 2 3 1 2 3 1 2 3 1 2 3 1 2 3	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
COMMUNICATION				
Now I want to talk to you a bit about your relationship with your parents/guardians and the things that you may or may not talk about together				
[FIRST ASK ALL QUESTIONS FOR GIRL'S MOTHER AND RECORD ANSWERS IN COLUMN A; THEN RETURN TO ASK ALL QUESTIONS FOR GIRL'S FATHER AND RECORD ANSWERS IN COLUMN B] READ ALL OPTIONS FOR MOTHER/FEMALE GUARDIAN & FATHER/MALE GUARDIAN IF 529=5 FOR A GO TO B IF 529=5 FOR A & B, SKIP TO 528_MWJ				
529	Do you feel close to your (MOTHER/FEMALE GUARDIAN/FATHER/MALE GUARDIAN)? [READ OPTIONS] Very close 1 Somewhat close 2 Not very close 3 Not at all close 4 NOT APPLICABLE/DON'T HAVE ONE 5	A. MOTHER/FEMALE GUARDIAN <input type="checkbox"/> <input type="checkbox"/> if 529a=5 SKIP to 529b	B. FATHER/MALE GUARDIAN <input type="checkbox"/> <input type="checkbox"/> if 529b=5 SKIP to 528_MWJ	528_MWJ
530	Do you feel comfortable sharing your thoughts and feelings with your (MOTHER/FEMALE GUARDIAN/FATHER/MALE GUARDIAN)? [READ OPTIONS] Very comfortable 1 Somewhat comfortable 2 Not very comfortable 3 Not at all comfortable 4	A. MOTHER/FEMALE GUARDIAN <input type="checkbox"/> <input type="checkbox"/>	B. FATHER/MALE GUARDIAN <input type="checkbox"/> <input type="checkbox"/>	
531	Do you enjoy spending time with your (MOTHER/FEMALE GUARDIAN/FATHER/MALE GUARDIAN)? [READ OPTIONS] DEFINITELY TRUE 1 MOSTLY TRUE 2 MOSTLY NOT TRUE 3 DEFINITELY NOT TRUE 4 5	A. MOTHER/FEMALE GUARDIAN <input type="checkbox"/> <input type="checkbox"/>	B. FATHER/MALE GUARDIAN <input type="checkbox"/> <input type="checkbox"/>	
532	How comfortable do you feel talking with your (MOTHER/FEMALE GUARDIAN/FATHER/MALE GUARDIAN) about things that worry you? [READ OPTIONS] Very comfortable 1 Somewhat comfortable 2 Not very comfortable 3 Not comfortable 4	A. MOTHER/FEMALE GUARDIAN <input type="checkbox"/> <input type="checkbox"/>	B. FATHER/MALE GUARDIAN <input type="checkbox"/> <input type="checkbox"/>	
533	How comfortable do you feel talking with your (MOTHER/FEMALE GUARDIAN/FATHER/MALE GUARDIAN) about changes with your body, sexual activity or family planning? [READ OPTIONS] Very comfortable 1 Somewhat comfortable 2 Not very comfortable 3 Not comfortable 4	A. MOTHER/FEMALE GUARDIAN <input type="checkbox"/> <input type="checkbox"/>	B. FATHER/MALE GUARDIAN <input type="checkbox"/> <input type="checkbox"/>	
534	How comfortable do you feel talking with your (MOTHER/FEMALE GUARDIAN/FATHER/MALE GUARDIAN) about problems you have with a boyfriend, husband or romantic partner? [READ OPTIONS] Very comfortable 1 Somewhat comfortable 2 Not very comfortable 3 Not comfortable 4	A. MOTHER/FEMALE GUARDIAN <input type="checkbox"/> <input type="checkbox"/>	B. FATHER/MALE GUARDIAN <input type="checkbox"/> <input type="checkbox"/>	
	[EVERYONE]			

528_MWJ	Please think about your most recent weekday that was not a holiday. About how much time did you spend on leisure time - that is, relaxing, chatting/talking with friends, drinking tea/coffee with friends, reading, telling stories, watching tv, etc.)	HOURS <input type="text"/>	MINUTES <input type="text"/>	
SECTION 6: SELF-EFFICACY AND GENDER ATTITUDES				
QUESTIONS				
SELF-EFFICACY Now, I am going to read you some statements, please tell me if you agree or disagree with them.				
601	I can always manage to solve difficult problems if I try hard enough.	AGREE DISAGREE	1 2	
602	If someone is against me, it is difficult for me to find ways to get what I want.	AGREE DISAGREE	1 2	
603	It is difficult for me to focus on my aims and accomplish my goals.	AGREE DISAGREE	1 2	
604	I am confident that I could handle unexpected events very well.	AGREE DISAGREE	1 2	
605	Because of the help I can get, I know how to manage unexpected situations.	AGREE DISAGREE	1 2	
606	I can solve most problems if I make the necessary effort.	AGREE DISAGREE	1 2	
607	I can remain calm when facing difficulties because I can rely on my own abilities.	AGREE DISAGREE	1 2	
608	When I face a problem, it is difficult for me to find a solution.	AGREE DISAGREE	1 2	
609	If I am in trouble, I can usually think of a solution.	AGREE DISAGREE	1 2	
610	I can usually handle any situation that comes my way.	AGREE DISAGREE	1 2	
MONEY MANAGEMENT				
Now, I am going to read you some statements, please tell me if you agree or disagree with them.				
615	You feel you make good decisions concerning how to manage your money.	AGREE DISAGREE	1 2	
616	Males are better at managing money than females.	AGREE DISAGREE	1 2	
617	Fathers in the family should decide on how family money is spent.	AGREE DISAGREE	1 2	
FS2	IF 301 = 2 (NO) OR 302_M7 = 2 (NO) OR 309 = 2 (NO)			618
SCHOOLING SELF-EFFICACY				
Now, I am going to read you some statements, please tell me if you agree or disagree with them.				
617_M29	I usually have enough time to complete my school work	AGREE DISAGREE	1 2	
617_M30	I do not feel confident answering questions in class	AGREE DISAGREE	1 2	
Now, I am going to read you some statements, please tell me if they are not true at all, not true, somewhat true, true or very true.				

617_M31	I'm certain I can master the skills taught in class this year	NOT TRUE AT ALL NOT TRUE SOMEWHAT TRUE TRUE VERY TRUE	1 2 3 4 5
617_M32	I'm certain I can figure out how to do the most difficult class work	NOT TRUE AT ALL NOT TRUE SOMEWHAT TRUE TRUE VERY TRUE	1 2 3 4 5
617_M33	I can do almost all the work in class if I don't give up	NOT TRUE AT ALL NOT TRUE SOMEWHAT TRUE TRUE VERY TRUE	1 2 3 4 5
617_M34	I can do the hardest work in this class if I try	NOT TRUE AT ALL NOT TRUE SOMEWHAT TRUE TRUE VERY TRUE	1 2 3 4 5
617_M35	Even if the work is hard, I can learn it.	NOT TRUE AT ALL NOT TRUE SOMEWHAT TRUE TRUE VERY TRUE	1 2 3 4 5
GENDER ATTITUDES			
Now, I am going to read you some statements, please tell me if you agree or disagree with them.			
618	It is as important for girls to complete secondary school as it is for boys.	AGREE DISAGREE	1 2
619	When a family cannot afford to send all children to school, it is better to send boys than girls.	AGREE DISAGREE	1 2
620	When a husband and wife disagree about the number of children to have, the husband's opinion matters more.	AGREE DISAGREE	1 2
621	A 16-year old girl should get married when she finds an appropriate partner, even if she is still in school.	AGREE DISAGREE	1 2
622	Girls are as intelligent as boys.	AGREE DISAGREE	1 2
GENDER NORMS			
622_M36	Girls should avoid playing sports with boys because they get hurt easily	AGREE DISAGREE	1 2
622_M37	Boys should be raised tough so they can overcome any difficulty in life	AGREE DISAGREE	1 2
622_M38	Girls should avoid raising their voice to be lady like	AGREE DISAGREE	1 2
622_M39	Boys should always defend themselves even if it means fighting	AGREE DISAGREE	1 2
622_M40	Girls are expected to be humble	AGREE DISAGREE	1 2
622_M41	Girls should always fight back if boys try to take advantage of them	AGREE DISAGREE	1 2
622_M42	Girls need their parents protection more than boys	AGREE DISAGREE	1 2

622_M43	Boys should be able to show their feelings without fear of being teased	AGREE DISAGREE	1 2	
622_M44	Boys who behave like girls are considered weak	AGREE DISAGREE	1 2	
622_M45	It's important for boys to show they are tough	AGREE DISAGREE	1 2	
SECTION 7: SELF-REPORTED HEALTH				
ALCOHOL AND SUBSTANCE USE				
Now I would like to ask you a few questions about alcohol and substance use				
708	During the last 4 weeks how often have you had drinks containing alcohol? Would you say... [READ THE LIST] [NOTE: ALCOHOL IS INCLUSIVE OF: BEER, WINE, LIQUOR OR ANY OTHER ALCOHOLIC BEVERAGE]	NEVER EVERY DAY AT LEAST ONCE A WEEK LESS THAN ONCE A WEEK DON'T KNOW	1 2 3 4 88	711
709	How many drinks containing alcohol do you have on a typical day when you are drinking? [DO NOT READ THE LIST] [NOTE: ALCOHOL IS INCLUSIVE OF: BEER, WINE, LIQUOR OR ANY OTHER ALCOHOLIC BEVERAGE]	1 to 2 3 to 4 5 to 6 7 to 9 10+ DON'T KNOW	1 2 3 4 5 88	
710	How old were you when you first had a drink containing alcohol?	AGE [1-18] DON'T KNOW	<input type="text"/> <input type="text"/> 88	
711	Some people use a range of different types of drugs. Which of the following, if any, have you used? [READ THE LIST] [NOTE: DOES NOT INCLUDE ALCOHOL]	MARIJUANA/BANGI KHAT/MIRAA COCAINE HEROIN/BROWN SUGAR/WHITE CREST SMOKELESS TOBACCO/KUBER OTHER (SPECIFY)	1 2 1 2 1 2 1 2 1 2 98	IF NO TO ALL F8
712	How old were you when you first started using drugs?	AGE [1-22] DON'T KNOW	<input type="text"/> <input type="text"/> 88	
SECTION 8. MARRIAGE & SEXUAL BEHAVIOR				
QUESTIONS				
F8	[IF Q802=1 OR Q803=1 at MIDLINE → SKIP]			821
803	Have you ever lived with a boyfriend?	YES NO	1 2	
802	Have you ever been married?	YES NO	1 2	805
804	At what age do you expect to get married?	AGE [10-50] DON'T KNOW DON'T EXPECT TO GET MARRIED	<input type="text"/> <input type="text"/> 88 98	F10 F10 F10
F8B	If 803=1 & 802=2			805
805	Are you currently married, living with a boyfriend, seperated, divorced or widowed?	MARRIED SEPARATED DIVORCED WIDOWED LIVING WITH PARTNER	1 2 3 4 5	
806	When you first got married/started living with your boyfriend, were you attending school?	YES NO	1 2	
806_M46	When you first got married/started living with your boyfriend, were you pregnant?	YES NO	1 2	
807	Now I would like you to think back to all of your relationships. How many times have you been married or lived with someone as if married?	NUMBER OF TIMES	<input type="text"/>	
F9	IF 808A OR 808B OR 808C COMPLETED IN MIDLINE, SKIP TO 821 AND PREFILL NAME IN 821			

		[READ:] Now I would like to ask you some questions about your marriage(s) or the time(s) you lived together with someone as if married, starting with the first person you ever married/lived with.		
		A. 1st marriage	B. 2nd marriage	C. 3rd marriage
808	Name of spouse or partner:	_____	_____	_____
809	What age were you when you first married or started living with [NAME]? AGE DON'T KNOW	<input type="text"/> <input type="text"/> 88	<input type="text"/> <input type="text"/> 88	<input type="text"/> <input type="text"/> 88
809_M47	What month and year was it when you first married or started living with [NAME]? MONTH YEAR DON'T KNOW	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> 88	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> 88	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> 88
810	Compared to your age, how old is [NAME]? YOUNGER THAN YOU 1 ABOUT THE SAME AGE 2 1-4 YEARS OLDER 3 5-9 YEARS OLDER 4 10 OR MORE YEARS OLDER 5 DON'T KNOW 88	1 2 3 4 5 88	1 2 3 4 5 88	1 2 3 4 5 88
811	What is the highest class that [NAME]'s completed? CLASS [1-12] <input type="text"/> HIGHER THAN SECONDARY 13 DID NOT COMPLETE CLASS 1/NO SCHOOL 0 DON'T KNOW 88	<input type="text"/> 13 0 88	<input type="text"/> 13 0 88	<input type="text"/> 13 0 88
812	Did [NAME] or his family promise to make a payment to your family when you got married? YES 1 NO 2 DON'T KNOW 88	1 2 88	1 2 88	1 2 88
813	How much was promised in total? [READ LIST. ASK RESPONDENT TO ESTIMATE. CODE 88 FOR DON'T KNOW] a. SHILLINGS b. CATTLE c. GOATS/SHEEP d. POULTRY e. CAMEL f. OTHER (SPECIFY OTHER) DON'T KNOW	_____ <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> 888	a. _____ b. <input type="text"/> <input type="text"/> c. <input type="text"/> <input type="text"/> d. <input type="text"/> <input type="text"/> e. <input type="text"/> <input type="text"/> f. <input type="text"/> <input type="text"/> 888	a. _____ b. <input type="text"/> <input type="text"/> c. <input type="text"/> <input type="text"/> d. <input type="text"/> <input type="text"/> e. <input type="text"/> <input type="text"/> f. <input type="text"/> <input type="text"/> 888
814	How much has been paid so far? NONE 0 SOME 1 MOST 2 ALL 3 DON'T KNOW 88	0 1 2 3 88	0 1 2 3 88	0 1 2 3 88
815	Was [NAME] chosen for you, or did you choose each other? CHOSE EACH OTHER 1 CHOSEN BY SOMEONE ELSE 2 CHOSEN BY ME AND SOMEONE ELSE 3	1 2 3	1 2 3	1 2 3
816	Did you marry [NAME] because you were pregnant?			

		YES NO	1 2	1 2	1 2	1 2	
817	What type(s) of marriage ceremony did you have with [NAME]? [CIRCLE ALL THAT APPLY]	NONE (LIVING TOGETHER) RELIGIOUS TRADITIONAL CIVIL OTHER (SPECIFY OTHER)	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	0 1 2 3 4	
818	After your marriage to [NAME], where did you and your spouse first live?	SAME COMMUNITY/VILLAGE AS YOUR FAMILY SAME COMMUNITY/VILLAGE AS SPOUSE'S FAMILY SAME /COMMUNITYVILLAGE AS BOTH FAMILIES OTHER LOCATION	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	
819	At the time of your marriage to [NAME], did both of your families approve of the marriage?	BOTH FAMILIES APPROVED ONLY MY FAMILY APPROVED ONLY MY SPOUSE'S FAMILY APPROVED NEITHER FAMILY APPROVED	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	
820	Before you got married to [NAME], did you ...?			YES NO	YES NO	YES NO	
		a. Talk to [NAME] about how to prevent HIV? b. Get tested for HIV? c. Share your HIV status with [NAME]? d. Know [NAME]'s HIV status? e. Talk to [NAME] about being faithful? f. Talk to [NAME] about condoms?		a. 1 2 b. 1 2 c. 1 2 d. 1 2 e. 1 2 f. 1 2	a. 1 2 b. 1 2 c. 1 2 d. 1 2 e. 1 2 f. 1 2	a. 1 2 b. 1 2 c. 1 2 d. 1 2 e. 1 2 f. 1 2	
	PRELOAD DATA FROM MIDLINE, Q808 (USE MOST RECENT PARTNER)						
821	The last time, you indicated that you were married/living together as if married with [NAME]. Are you still married/living together as if married with [NAME]?	MARRIED LIVING TOGETHER NO	0 1 2	0 1 2	0 1 2	0 1 2	824 824
822	Did you separate or become divorced or widowed from [NAME]?	SEPARATED DIVORCED WIDOWED	1 2 3	1 2 3	1 2 3	1 2 3	823_M47B
823	Why did your marriage to [NAME] end? [DO NOT READ OPTIONS]	INFIDELITY ABANDONED BY [NAME] DISAGREEMENT/FIGHTING FINANCIAL TROUBLE FAMILY PRESSURE POLYGYNY LACK OF CHILDREN OTHER	1 2 3 4 5 6 7 8	1 2 3 4 5 6 7 8	1 2 3 4 5 6 7 8	1 2 3 4 5 6 7 8	
823_M47B	Since your relationship with [NAME] ended, have you gotten married again or lived together with someone else?	REMARIED LIVED TOGETHER NO	0 1 2	0 1 2	0 1 2	0 1 2	808 808 F10
824	Does [NAME] reside in the household in which you live?	YES NO	1 2	1 2	1 2	1 2	827

825	Does [NAME] ever spend the night away from your village/area? YES 1 NO 2 DONT KNOW 88	1 2 88	1 2 88	1 2 88	827 827																		
826	How long was [NAME] away from your village/area during the last one year? a. DAYS b. WEEKS c. MONTHS DONT KNOW	<table border="1"><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table> 88							a. <table border="1"><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table> 88							a. <table border="1"><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table> 88							
827	Does [NAME] have other wives? YES 1 NO 2 DONT KNOW 88	1 2 88	1 2 88	1 2 88																			
828	Now I would like to ask you questions about some other aspects of your relationship with [NAME]. I know that some of these questions are very personal. Let me assure you that your answers are completely confidential and will not be told to anyone. I am going to read a series of statement about relationships between husbands and wives and I want you to tell me if it applies to your relationship with [NAME]. a. [NAME] is/was jealous or angry if you talk to other boys/men. b. [NAME] frequently accuses/accused you of being unfaithful. c. [NAME] permits/permitted you to meet your female friends. d. [NAME] tries/tried to limit contact with your family. e. [NAME] insists/insisted on knowing where you are at all times. f. [NAME] trusts/trusted you with money.	YES NO a. 1 2 b. 1 2 c. 1 2 d. 1 2 e. 1 2 f. 1 2	YES NO a. 1 2 b. 1 2 c. 1 2 d. 1 2 e. 1 2 f. 1 2	YES NO a. 1 2 b. 1 2 c. 1 2 d. 1 2 e. 1 2 f. 1 2																			
F10	[FOR WAJIR - IF Q802=2 OR Q803=2 (NEVER MARRIED/COHABITED) →901 IF 829 NOT EQUAL TO 0 AT BASELINE OR MIDLINE [AGE GIVEN], SKIP TO Q836 SEXUAL BEHAVIOR				901 836																		
SEXUAL BEHAVIOR																							
QUESTIONS																							
829	How old were you when you had sexual intercourse for the very <u>first</u> time?	NEVER HAD SEXUAL INTERCOURSE 0 AGE IN YEARS [5-22] <table border="1"><tr><td></td><td></td></tr></table> DONT KNOW 88					829_E5 830 830																
829_E5	Many teens have decided for various reasons not to have sexual intercourse yet.How important are the following reasons in your decision to not yet have had sex? READ EACH STATEMENT AND EACH RESPONSE Codes NOT AT ALL IMPORTANT 1 SOMEWHAT IMPORTANT 2 VERY IMPORTANT 3	A. MY PARTNER DOESN'T WANT TO HAVE SEX 1 2 3 B. MY FRIENDS ARE NOT HAVING SEX 1 2 3 C. I DON'T KNOW HOW TO GET BIRTH CONTROL 1 2 3 D. NO ONE ASKED ME TO HAVE SEX 1 2 3 E. I HAVE NOT YET MET THE RIGHT PERSON 1 2 3 F. IT IS AGAINST MY BELIEFS TO HAVE SEX BEFORE MARRIAGE 1 2 3 G.I DON'T WANT TO GET A BAD REPUTATION 1 2 3 H. I'M NOT READY FOR SEX 1 2 3 I. I DO NOT WANT TO GET AN STD LIKE CHLAMYDIA OR HIV 1 2 3 J. I DO NOT WANT TO GET PREGNANT 1 2 3 K. MY MOTHER OR FATHER IS AGAINST IT 1 2 3 L. MY DOCTOR OR NURSE IS AGAINST IT 1 2 3 M. Other (Specify)			ALL F13																		
830	The <u>first</u> time you had sexual intercourse, were you still attending school?	YES 1 NO 2 DONT KNOW/DONT REMEMBER 88																					
831	What was your relationship to the first person with whom you had sexual intercourse? [DO NOT READ OPTIONS]	HUSBAND 1 BOYFRIEND 2 "SUGAR DADDY" 3 CASUAL ACQUAINTANCE 4 RELATIVE 5 TEACHER 6 STRANGER 7			WAJIR 835																		

		SOMEONE ELSE	8	
832	Was the person you <u>first</u> had sexual intercourse with older than you, younger than you, or about the same age as you?	OLDER YOUNGER ABOUT THE SAME AGE DON'T KNOW/DON'T REMEMBER	1 2 3 88	834 834 834
833	How many years older than you was this person?	NUMBER OF YEARS OLDER DON'T KNOW	<input type="text"/> <input type="text"/> 88	
834	The <u>first</u> time you had sexual intercourse, was a condom used?	YES NO DON'T KNOW/DON'T REMEMBER	1 2 88	
835	The first time you had sex did you want to have sex, not want to have sex, or you were unsure if you wanted to have sex?	WANTED TO HAVE SEX DID NOT WANT TO HAVE SEX UNSURE	1 2 3	WAJIR 901 901 901
836	Now I would like to ask you some questions about your recent sexual activity. When was the <u>last</u> time you had sexual intercourse?	TODAY/LESS THAN A WEEK AGO A WEEK OR MORE AGO A MONTH OR MORE AGO A YEAR OR MORE AGO	1 2 3 4	839 839 839
837	In the last week, how many times did you have sex?	TIMES HAD SEX [1-35] DON'T KNOW	<input type="text"/> <input type="text"/> 88	
838	Of those times you had sex in the last week, how many times did you use a condom? [Consistency check: Maximum = Q837]	TIMES USED CONDOM [1-35] DID NOT USE CONDOM DON'T KNOW	<input type="text"/> <input type="text"/> 77 88	
839	What was your relationship to the <u>last</u> person with whom you had sexual intercourse?	HUSBAND BOYFRIEND "SUGAR DADDY" CASUAL ACQUAINTANCE RELATIVE TEACHER STRANGER SOMEONE ELSE	1 2 3 4 5 6 7 8	
840	Was the person you <u>last</u> had sexual intercourse with older than you, younger than you, or about the same age as you?	OLDER YOUNGER ABOUT THE SAME AGE DON'T KNOW/DON'T REMEMBER	1 2 3 88	842 842 842
841	How many years older than you was this person?	NUMBER OF YEARS OLDER DON'T KNOW	<input type="text"/> <input type="text"/> 88	
842	The <u>last</u> time you had sexual intercourse, was a condom used?	YES NO DON'T KNOW/DON'T REMEMBER	1 2 88	
843	On average, how often did you use a condom every time you had sexual intercourse with this person in the last one year?	ALWAYS SOMETIMES NEVER	1 2 3	
844	In total, with how many different people have you had sexual intercourse in the last six months?	NUMBER OF PARTNERS IN LAST 6 MONTHS [1-35] DON'T KNOW	<input type="text"/> <input type="text"/> 88	
F11	[IF 829 NOT EQUAL TO 0 AT MIDLINE, SHOW NOTE STATING: "RESPONDENT REPORTED HAVING SEX AT MIDLINE, FOR THE FOLLOWING QUESTIONS, ASK ABOUT THE LAST TWO YEARS ONLY." IF 829 EQUAL TO 0 AT MIDLINE, SHOW NOTE STATING: "RESPONDENT REPORTED NEVER HAD SEX AT MIDLINE."]			
845	[ASK ABOUT PREVIOUS TWO YEARS IF HAD SEX AT BASELINE OR MIDLINE] I will now read a list of different profiles of people and I want you to tell me if you have ever had sex with such a person. [READ THE LIST]	A. A TOURIST OR FOREIGNER B. AN EMPLOYER OF YOURS C. A PERSON 10 OR MORE YEARS OLDER THAN YOU D. A TEACHER OF YOURS E. A PERSON WHO PAID YOU FOR SEX F. A PERSON WHO IS MARRIED TO SOMEONE ELSE G. A PERSON YOU MET THROUGH FACEBOOK	YES NO 1 2 1 2 1 2 1 2 1 2 1 2 1 2	

		H. NEVER HAD SEXUAL INTERCOURSE	1	2	F13
846	For the following questions, please think about your own experiences and tell me if you agree or disagree with the following about yourself.				
847	You have not always been able to use condoms when you wanted to. [IF HAD SEX AT MIDLINE: ADD "In the last two years"]	AGREE DISAGREE		1 2	
848	You have had sex with a person in exchange for protection or a place to stay. [IF HAD SEX AT MIDLINE: ADD "In the last two years"]	AGREE DISAGREE		1 2	
849	You have had sex with a person in exchange for him paying rent for you. [IF HAD SEX AT MIDLINE: ADD "In the last two years"]	AGREE DISAGREE		1 2	
850	You have had sex at times when you did not want to. [IF HAD SEX AT MIDLINE: ADD "In the last two years"]	AGREE DISAGREE		1 2	
851	[ASK ABOUT PREVIOUS TWO YEARS IF HAD SEX AT MIDLINE] Have you ever been sexually involved with a man (boyfriend, casual partner, one time partner, sponsor) because you needed or thought you would get any of the following?			YES NO a. Food 1 2 b. Shelter/a place to stay 1 2 c. School fees 1 2 d. Money 1 2 e. Phone/airtime 1 2 f. Clothes/shoes/beauty products 1 2 g. Sanitary pads 1 2 h. Other things you want but can't afford (specify) 1 2	IF NO on ALL F13
F12	If any of 851a-h=YES, ask 852 [insert item from 851, where respondent said yes]				
852	When you're sexually involved with someone because you needed or thought he would give you [insert answer from 851 when yes], would you say you used condoms always, sometimes, rarely, never?	ALWAYS SOMETIMES RARELY NEVER		1 2 3 4	
Sexual Relationship & Power Scale					
F13	IF 803=1 [LIVED WITH A BOYFRIEND] OR 802=1 [EVER MARRIED]				854
853	Have you ever had a boyfriend or romantic partner, even if you have not had sex with them?	YES NO		1 2	F14
Now, I'm going to ask you some questions about your current romantic partner, boyfriend or husband. If you currently don't have one, then think about your most recent romantic partner, boyfriend, or husband. If you currently have more than one partner, think about who you would consider to be your 'main' partner at the moment.					
854	Most of the time, we do what my partner wants to do. [READ OPTIONS]	STRONGLY AGREE AGREE DISAGREE STRONGLY DISAGREE		1 2 3 4	
855	My partner won't let me wear certain things. [READ OPTIONS]	STRONGLY AGREE AGREE DISAGREE STRONGLY DISAGREE		1 2 3 4	
856	When my partner and I are together, I'm pretty quiet. [READ OPTIONS]	STRONGLY AGREE AGREE DISAGREE STRONGLY DISAGREE		1 2 3 4	
857	My partner has more say than I do about important decisions that affect us. [READ OPTIONS]	STRONGLY AGREE AGREE DISAGREE STRONGLY DISAGREE		1 2 3 4	
858	My partner tells me who I can spend time with. [READ OPTIONS]	STRONGLY AGREE AGREE DISAGREE STRONGLY DISAGREE		1 2 3 4	
859	If I asked my partner to use a condom, he would think I'm having sex with other people. [READ OPTIONS]	STRONGLY AGREE AGREE DISAGREE STRONGLY DISAGREE		1 2 3 4	

860	I feel/felt trapped or stuck in our relationship. [READ OPTIONS]	STRONGLY AGREE AGREE DISAGREE STRONGLY DISAGREE	1 2 3 4
861	My partner does what he wants, even if I do not want him to. [READ OPTIONS]	STRONGLY AGREE AGREE DISAGREE STRONGLY DISAGREE	1 2 3 4
862	I am more committed to our relationship than my partner is. [READ OPTIONS]	STRONGLY AGREE AGREE DISAGREE STRONGLY DISAGREE	1 2 3 4
863	When my partner and I disagree, he gets his way most of the time. [READ OPTIONS]	STRONGLY AGREE AGREE DISAGREE STRONGLY DISAGREE	1 2 3 4
864	If my partner wants to have sex, he would expect me to agree. [READ OPTIONS]	STRONGLY AGREE AGREE DISAGREE STRONGLY DISAGREE	1 2 3 4
865	My partner always wants to know where I am. [READ OPTIONS]	STRONGLY AGREE AGREE DISAGREE STRONGLY DISAGREE	1 2 3 4
866	If I asked my partner to use a condom, he would get angry. [READ OPTIONS]	STRONGLY AGREE AGREE DISAGREE STRONGLY DISAGREE	1 2 3 4
867	If I asked my partner to use a condom, he would get violent. [READ OPTIONS]	STRONGLY AGREE AGREE DISAGREE STRONGLY DISAGREE	1 2 3 4
868	My partner might be having sex with someone else. [READ OPTIONS]	STRONGLY AGREE AGREE DISAGREE STRONGLY DISAGREE	1 2 3 4
869	He lets me know I am not the only partner he could have. [READ OPTIONS]	STRONGLY AGREE AGREE DISAGREE STRONGLY DISAGREE	1 2 3 4
870	I can use contraception as I want to. [READ OPTIONS]	STRONGLY AGREE AGREE DISAGREE STRONGLY DISAGREE	1 2 3 4
871	I can express my opinion in my relationship. [READ OPTIONS]	STRONGLY AGREE AGREE DISAGREE STRONGLY DISAGREE	1 2 3 4
872	I have a say in making important decisions in my relationship. [READ OPTIONS]	STRONGLY AGREE AGREE DISAGREE STRONGLY DISAGREE	1 2 3 4
873	I feel valued in our relationship. [READ OPTIONS]	STRONGLY AGREE AGREE DISAGREE STRONGLY DISAGREE	1 2 3 4
874	My partner listens to my opinions. [READ OPTIONS]	STRONGLY AGREE AGREE DISAGREE STRONGLY DISAGREE	1 2 3 4
875	My partner likes it when I make suggestions. [READ OPTIONS]	STRONGLY AGREE AGREE DISAGREE STRONGLY DISAGREE	1 2 3 4
876	When my partner and I are together, I feel respected.	STRONGLY AGREE	1

	[READ OPTIONS]	AGREE 2 DISAGREE 3 STRONGLY DISAGREE 4		
877	My partner listens to me when I don't want to have sex (if in non sexual relationship ask: My partner listens to my wish to not have sex) [READ OPTIONS]	STRONGLY AGREE 1 AGREE 2 DISAGREE 3 STRONGLY DISAGREE 4		
878	In general, who do you think has more power in your relationship? [READ OPTIONS]	YOUR PARTNER 1 BOTH OF YOU EQUALLY 2 YOU 3		
SECTION 9: REPRODUCTIVE HEALTH KNOWLEDGE AND CONTRACEPTION				
QUESTIONS				
F14	IF AGE GIVEN AT MIDLINE		902	
901	At what age did you begin getting your menstrual period?	AGE [4-18] <input type="text"/> DON'T KNOW 88 HAS NOT BEGUN MENSTRUATING 77		
902	From one menstrual period to the next, are there certain days when a woman is more likely to become pregnant if she has sexual relations?	YES 1 NO 2 DON'T KNOW 88	904 904	
903	Is this time just before her period begins, during her period, right after her period has ended, or two weeks after her period?	JUST BEFORE HER PERIOD BEGINS 1 DURING HER PERIOD 2 RIGHT AFTER HER PERIOD ENDS 3 HALFWAY BETWEEN TWO PERIODS 4 OTHER 6 DON'T KNOW 88		
904	Now I would like to talk about family planning – the various ways or methods that a couple can use to delay or avoid a pregnancy. Which ways or methods have you heard about? [FOR METHODS NOT MENTIONED SPONTANEOUSLY, ASK: Now I will read some statements about other family planning methods. Please tell me whether you have heard of this method?]		904_M48	
		[WAJIR: IF Q802=2 & Q803=2, AND MIDLINE Q802 & 803 = 2 SKIP 905] 905 Have you ever used [METHOD]?		
	a. PILL: Women can take a pill every day to avoid becoming pregnant.	YES, SPONT 1 YES, RECOG 2 NO 3 REFUSED 9	YES 1 NO 2 REFUSED 9	
	b. IUD: Women can have a loop or coil placed inside them by a doctor or a nurse.	YES, SPONT 1 YES, RECOG 2 NO 3 REFUSED 9	YES 1 NO 2 REFUSED 9	
	c. INJECTABLES: Women can have an injection by a health provider that stops them from becoming pregnant for one or more months.	YES, SPONT 1 YES, RECOG 2 NO 3 REFUSED 9	YES 1 NO 2 REFUSED 9	
	d. IMPLANTS: Women can have several small rods placed in their upper arm by a doctor or nurse which can prevent pregnancy for one or more years.	YES, SPONT 1 YES, RECOG 2 NO 3 REFUSED 9	YES 1 NO 2 REFUSED 9	
	e. MALE CONDOM: Men can put a rubber sheath on their erect penis before sexual intercourse.	YES, SPONT 1 YES, RECOG 2 NO 3 REFUSED 9	YES 1 NO 2 REFUSED 9	
	f. FEMALE CONDOM: Women can place a thin, transparent rubber in their vagina before sexual intercourse.	YES, SPONT 1 YES, RECOG 2 NO 3 REFUSED 9	YES 1 NO 2 REFUSED 9	
g. RHYTHM METHOD: Every month that a woman is sexually active she can avoid pregnancy by not having sexual intercourse on the days of the month she is most likely to get pregnant.	YES, SPONT 1 YES, RECOG 2 NO 3 REFUSED 9	YES 1 NO 2 REFUSED 9		

	h. WITHDRAWAL: Men can pull out their penis from the vagina before ejaculation.	YES, SPONT YES, RECOG NO REFUSED	1 2 3 9	YES NO REFUSED 1 2 9
	i. EMERGENCY CONTRACEPTION: As an emergency measure, women can take pills up to three days after having unprotected sex to avoid getting pregnant. These pills are also called "morning-after pills".	YES, SPONT YES, RECOG NO REFUSED	1 2 3 9	YES NO REFUSED 1 2 9
904_M48	What are some physical changes in girls during adolescence? [DO NOT READ OPTIONS]	HIPS WIDEN BREASTS DEVELOP OVULATION AND MENSTRUATION DONT KNOW/DONT REMEMBER		YES NO 1 2 1 2 1 2 1 2
904_M49	What are some physical changes in boys during adolescence? [DO NOT READ OPTIONS]	SHOULDERS BROADEN FACIAL HAIR VOICE DEEPENS SPERM PRODUCTION AND EJACULATION WET DREAMS DONT KNOW/DONT REMEMBER		YES NO 1 2 1 2 1 2 1 2 1 2 88 88
904_M50	State if the following are facts or myths [READ OUT OPTIONS]	ONE CANNOT GET PREGNANT WITH ONE SEXUAL ACT CONTRACEPTIVES ARE FOR MARRIED WOMEN USE TWO CONDOMS FOR DOUBLE PROTECTION MENSTRUAL BLOOD MEANS A WOMAN IS DIRTY CONTRACEPTIVE USE IS HARMFUL FOR HEALTH CONTRACEPTIVE PILLS MAKE WOMEN BARREN SEXUAL FEELINGS ARE NORMAL		FACT MYTH REFUSE 1 2 9 1 2 9 1 2 9 1 2 9 1 2 9 1 2 9 1 2 9
904_M51	Do you agree or disagree with the following statements: a. If a woman misses her period, this could mean she is pregnant. b. If a man has an erection and doesn't have sex, it is harmful for his health	a. AGREE DISAGREE DONT KNOW b. AGREE DISAGREE DONT KNOW		1 2 88 1 2 88
F15	[IF Q802=2 & Q803=2 & Q829=0 (NEVER MARRIED/COHABITED & NEVER HAD SEX) & MIDLINE Q829=0 → SKIP]			0
SECTION 10: PREGNANCY AND BIRTHS				
Now I would like to ask you about giving birth QUESTIONS				
F16	IF 1001=2 AT MIDLINE → 1001a IF 1001=1 AT MIDLINE → 1001b			
1001 a	Have you ever given birth?	YES NO		1 2 1003 1002a
1001 b	Have you given birth between 2017 and now?	YES NO		1 2 1003
1002 a	Have you ever given birth to a boy or girl who was born alive but later died?	YES NO		1 2 1004
1002 b	Since 2017, have you given birth to a boy or girl who was born alive but later died?	YES NO		1 2 1004
1003	How many births have you had <u>in total</u> ?	TOTAL BIRTHS [1-5]		<input type="text"/>
1004	Are you pregnant now?	YES NO UNSURE/DONT KNOW		1 2 88 1007 1007

1005	How many months pregnant are you? [RECORD NUMBER OF COMPLETED MONTHS]	MONTHS [0-10] DON'T KNOW	<input type="text"/> <input type="text"/> 88	
1006	At the time you became pregnant, did you want to become pregnant <u>then</u> , did you want to wait until <u>later</u> , or did you <u>not want</u> the pregnancy at all?	THEN LATER NOT AT ALL	1 2 3	1008
1007	Sometimes a girl becomes pregnant when she doesn't want to be. Between now and 2017, were you ever pregnant when you did not want to be?	YES NO	1 2	
1008	Between now and 2017, did you have a pregnancy that miscarried or ended in a stillbirth	YES NO	1 2	
F17	[IF ALL OF 1001, 1002, 1004, 1007 AND 1008 = NO → 1015]			1015
1009	When you found out you were pregnant for the very first time, were you still attending school?	YES NO	1 2	
1010	When you found out you were pregnant for the very first time, were you single, engaged or married?	SINGLE ENGAGED MARRIED	1 2 3	
F18	[IF 1004 = 1 → ASK CURRENT PREGNANCY FOR Q1011-1014] [IF (1001 = 1 OR 1002 = 1 OR 1007 = 1) AND (1004 = 2 OR 1004 = 88) → ASK LAST PREGNANCY FOR Q1011-1014]			
		CURRENT PREGNANCY	LAST PREGNANCY	
1011	Now I would like to ask some questions about your [CURRENT/LAST] pregnancy. Have you seen/did you see anyone for antenatal care for this pregnancy? IF YES: Whom did you see? <i>Probe:</i> Anyone else? [RECORD ALL MENTIONED, IF NONE, RECORD 'NO ONE']	DOCTOR 11 CLINICAL OFFICER 12 NURSE/MIDWIFE 13 TRADITIONAL 21 BIRTH ATTENDANT 21 OTHER 96 NO ONE 97	DOCTOR 11 CLINICAL OFFICER 12 NURSE/MIDWIFE 13 TRADITIONAL 21 BIRTH ATTENDANT 21 OTHER 96 NO ONE 97	1016
F19	[IF CURRENT PREGNANCY = 97 → SKIP] [IF LAST PREGNANCY = 97 → SKIP]			1019 1015
1012	Where did you receive antenatal care for this pregnancy? <i>Probe:</i> Anywhere else? [RECORD ALL MENTIONED]	GOVT. HEALTH CENTER 22 GOVT. HEALTH POST 23 OTHER PUBLIC 26 PVT. HOSPITAL/CLINIC 31 MISSION HOSPITAL/CLINIC 32 OTHER PRIVATE 36 OTHER 96	GOVT. HEALTH CENTER 22 GOVT. HEALTH POST 23 OTHER PUBLIC 26 PVT. HOSPITAL/CLINIC 31 MISSION HOSPITAL/CLINIC 32 OTHER PRIVATE 36 OTHER 96	
1013	What is/are the name of the place(s) where you receive antenatal care?	_____	_____	
1014	How many times did you/have you receive antenatal care during this pregnancy?	NUMBER OF TIMES [1-20] DON'T KNOW	<input type="text"/> <input type="text"/> 88	
			NUMBER OF TIMES [1-20] DON'T KNOW	<input type="text"/> <input type="text"/> 88

F20	[IF 1004 = 1 (CURRENT PREGNANCY) → SKIP]			1019
1015	Are you currently trying to get pregnant?	YES NO	1 2	1019
F21	[IF ALL OF 1001, 1002, 1004, 1007 AND 1008 = NO → CONTINUE OTHERWISE (SKIP TO 1016) →]			1015_M57 1016
1015_M57	At what age would you like to have your first child? PROBE FOR A NUMERIC RESPONSE	YEARS DON'T KNOW	<input type="text"/> <input type="text"/> 88	
1016	Are you currently doing something or using any method to delay or avoid getting pregnant?	YES NO	1 2	1019
1017	Which method are you using? [RECORD ALL MENTIONED]	a. PILL b. IUD c. INJECTABLES d. IMPLANTS e. MALE CONDOM f. FEMALE CONDOM g. RHYTHM METHOD/ SAFE DAYS h. WITHDRAWAL i. BREASTFEEDING/ LACTATIONAL AMENORRHEA j. ABSTINENCE k. EMERGENCY CONTRACEPTION l. OTHER (SPECIFY _____)	YES NO 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2	1019 1019 1019 1019
1018	[ASK IF ANSWER YES TO PILL, IUD, INJECTABLES, IMPLANTS, EMERGENCY CONTRACEPTION, MALE CONDOM OR FEMALE CONDOM IN 1017] Where did you obtain [CURRENT METHOD] the last time?	GOVT. HOSPITAL GOVT. HEALTH CENTER HEALTH POST OTHER PUBLIC FACILITY PRIVATE HOSPITAL/SURGERY MISSION HOSPITAL/CLINIC PHARMACY/CHEMIST PRIVATE DOCTOR OTHER PRIVATE MEDICAL SHOP CHURCH FRIEND/RELATIVE PARTNER/HUSBAND OTHER (SPECIFY _____)	11 12 13 16 21 22 23 24 26 31 32 33 34 96	ALL 1021_M56
1019	Do you know of a place where you can obtain a method of family planning?	YES NO	1 2	1021_M55
1020	Where is that? Any other place? [RECORD ALL MENTIONED]	GOVT. HOSPITAL GOVT. HEALTH CENTER HEALTH POST OTHER PUBLIC FACILITY PRIVATE HOSPITAL/SURGERY MISSION HOSPITAL/CLINIC PHARMACY PRIVATE DOCTOR OTHER PRIVATE MEDICAL SHOP CHURCH FRIEND/RELATIVE OTHER _____ SPECIFY	11 12 13 16 21 22 23 24 26 31 32 33 96	
1021	If you were interested in obtaining family planning, do you feel it would be easy, difficult or not possible to go to a place where you can obtain family planning?	EASY DIFFICULT NOT POSSIBLE DON'T KNOW	1 2 3 88	
F22	[IF 1004 = 1 (CURRENT PREGNANCY) → SKIP] [IF 1017h-j = 1 (USING NATURAL METHOD) → SKIP]			1021_M56 1021_M55
1021_M55	Can you tell me why you are not using a modern method to prevent pregnancy? [RECORD ALL MENTIONED]	FERTILITY-RELATED REASONS INFREQUENT SEX/NO SEX MENOPAUSAL/HAD HYSTERECTOMY SUBFECUND/INFECUND WANTS AS MANY CHILDREN AS POSSIBLE WANTS ANOTHER CHILD SOON OPPOSITION TO USE RESPONDENT OPPOSED HUSBAND/PARTNER OPPOSED OTHERS OPPOSED RELIGIOUS PROHIBITION LACK OF KNOWLEDGE KNOWS NO METHOD	YES NO 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2	

		KNOWS NO SOURCE METHOD-RELATED REASONS HEALTH CONCERNS FEAR OF SIDE EFFECTS LACK OF ACCESS/TOO FAR COST TOO MUCH INCONVENIENT TO USE INTERFERE WITH BODY'S NORMAL PROCESS OTHER (SPECIFY) DON'T KNOW	1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2	
1021_M56	If you could choose exactly the number of children to have in your whole life, how many would that be? PROBE FOR A NUMERIC RESPONSE.	NONE NUMBER DON'T KNOW	0 <input type="text"/> <input type="text"/> 88	

QUESTIONS		SECTION 12: HIV/AIDS AND OTHER STIs			
1201	Now I would like to talk about something else. Have you ever heard of an illness called AIDS?	YES NO		1 2	1216_M62
1202	Can people reduce their chances of getting the AIDS virus by having just one uninfected sex partner who has no other sex partners?	YES NO DON'T KNOW		1 2 88	
1203	Can people get the AIDS virus from mosquito bites?	YES NO DON'T KNOW		1 2 88	
1204	Can people reduce their chance of getting the AIDS virus by using a condom every time they have sex?	YES NO DON'T KNOW		1 2 88	
1205	Can people get the AIDS virus by sharing food with a person who has AIDS?	YES NO DON'T KNOW		1 2 88	
1206	Can people reduce their chance of getting the AIDS virus by not having sexual intercourse at all?	YES NO DON'T KNOW		1 2 88	
1207	Can people get the AIDS virus because of witchcraft or other supernatural means?	YES NO DON'T KNOW		1 2 88	
1208	Is it possible for a healthy-looking person to have the AIDS virus?	YES NO DON'T KNOW		1 2 88	
1209	Can the virus that causes AIDS be transmitted from a mother to her baby: a. During pregnancy? b. During delivery? c. By breastfeeding?	a. DURING PREGNANCY b. DURING DELIVERY c. BREASTFEEDING	YES NO DK 1 2 88 1 2 88 1 2 88		
1210	Do you think your risk of getting infected with HIV is low, medium or high, or do you have no risk at all?	LOW MEDIUM HIGH NO RISK ALREADY INFECTED DON'T KNOW		1 2 3 4 5 88	
1211	When was the last time you were tested for HIV?	LESS THAN 6 MONTHS AGO LESS THAN 12 MONTHS AGO 12 - 23 MONTHS AGO 2 OR MORE YEARS AGO Never tested		1 2 3 4 5	1214
1212	The last time you had the test, did you yourself ask for the test, was it offered to you and you accepted, or was it required?	ASKED FOR THE TEST OFFERED AND ACCEPTED REQUIRED		1 2 3	
1213	I don't want to know the results, so please don't tell me, but did you get the results of the test?	YES NO		1 2	1215 1215
1214	Do you know of a place where people can go to get tested for the AIDS virus?	YES NO		1 2	
1215	Do you personally know someone who has or is suspected to have the AIDS virus?	YES NO		1 2	
1216_M62	Besides HIV, do you know of any other diseases that can be transmitted through sexual intercourse?	YES NO DON'T KNOW		1 2 88	F24 F24
1216_M63	Can you describe any symptoms of sexually transmitted infections in women? DO NOT READ THE LIST. MORE THAN ONE ANSWER IS POSSIBLE. CIRCLE ALL THAT APPLY	A. Abdominal pain B. Genital discharge C. Foul-smelling discharge D. Burning pain on urination E. Genital ulcers/sores F. Genital warts G. Swellings in the groin area H. Itching I. Other (SPECIFY)	YES NO 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2		

		J. Don't know	1	2	
1216_M64	Can you describe any symptoms of sexually transmitted infections in men? DO NOT READ THE LIST. MORE THAN ONE ANSWER IS POSSIBLE. CIRCLE ALL THAT APPLY.	A. Discharge from the penis B. Discharge from the anus C. Burning pain on urination D. Genital ulcers/sores E. Swellings in the groin area F. Can't retract the foreskin G. Ulcer/sores on the anus H. Ulcers/sores on the penis I. Ulcers/sores in the throat J. Lower abdominal pain K. Itching in genitals L. Other (SPECIFY)..... M. Don't know	YES 1 1 1 1 1 1 1 1 1 1 1 1	NO 2 2 2 2 2 2 2 2 2 2 2 2	
Now I will read you some statements about STIs/STDs and I will want you to tell me whether you Agree, Disagree or are not sure about each of them (Don't know)					
1216_M65	a One can have STD/STIs without showing any symptoms	AGREE DISAGREE DON'T KNOW		1 2 88	
	b Condoms protect against most STDs/STIs	AGREE DISAGREE DON'T KNOW		1 2 88	
F23	IF Q829=0, NEVER HAD SEX, ->SKIP.				F24
1216_M66	Have you had or suspected that you had an STI in the past 6 months?	YES NO NO RESPONSE		1 2 96	F24 F24
1216_M67	Did you seek treatment for the STI?	YES NO		1 2	F24
1216_M68	Why didn't you seek treatment for the STI?	1 = Didn't know where to go 2 = No money for treatment 3 = Facility too far 4 = Symptoms cleared up by themselves 5 = Unfriendly staff 6 = Other (SPECIFY _____)		1 2 3 4 5 98	
CONDOM SELF-EFFICACY					
Now, I am going to read you some statements, please tell me if you are very unsure, somewhat unsure, somewhat sure, sure, very sure					
F24	IF SITE=WAJIR -> SKIP				1217
1216_M69	I could carry a condom with me in case I needed one	VERY UNSURE SOMEWHAT UNSURE SOMEWHAT SURE SURE VERY SURE REFUSED		1 2 3 4 5 9	
1216_M70	I could use a condom each time I and my partner had sex	VERY UNSURE SOMEWHAT UNSURE SOMEWHAT SURE SURE VERY SURE REFUSED		1 2 3 4 5 9	
1216_M71	I could talk about using a condom if I were unsure about my partner's feelings on condoms	VERY UNSURE SOMEWHAT UNSURE SOMEWHAT SURE SURE VERY SURE REFUSED		1 2 3 4 5 9	
1216_M72	I could talk a partner into using a condom when we have sexual intercourse	VERY UNSURE SOMEWHAT UNSURE SOMEWHAT SURE SURE VERY SURE REFUSED		1 2 3 4 5 9	
1216_M73	I could say no to sex if my partner refused to use a condom	VERY UNSURE SOMEWHAT UNSURE SOMEWHAT SURE SURE		1 2 3 4	

		VERY SURE REFUSED	5 9
MENTAL HEALTH			
Over the last 2 weeks, how often have you been bothered by any of the following problems			
1217	Little interest or pleasure in doing things, you normally enjoy [DO NOT READ OPTIONS]	0 days 1-7 days 8-12 days 13 or 14 days REFUSE TO ANSWER	1 2 3 4 5
1218	Feeling down, depressed, or hopeless [DO NOT READ OPTIONS]	0 days 1-7 days 8-12 days 13 or 14 days REFUSE TO ANSWER	1 2 3 4 5
1219	Trouble falling or staying asleep, or sleeping too much [DO NOT READ OPTIONS]	0 days 1-7 days 8-12 days 13 or 14 days REFUSE TO ANSWER	1 2 3 4 5
1220	Feeling tired or having little energy [DO NOT READ OPTIONS]	0 days 1-7 days 8-12 days 13 or 14 days REFUSE TO ANSWER	1 2 3 4 5
1221	Poor appetite or overeating [DO NOT READ OPTIONS]	0 days 1-7 days 8-12 days 13 or 14 days REFUSE TO ANSWER	1 2 3 4 5
1222	Feeling bad about yourself — or that you are a failure or have let yourself or your family down [DO NOT READ OPTIONS]	0 days 1-7 days 8-12 days 13 or 14 days REFUSE TO ANSWER	1 2 3 4 5
1223	Trouble concentrating on things, such as reading the newspaper or watching television [DO NOT READ OPTIONS]	0 days 1-7 days 8-12 days 13 or 14 days REFUSE TO ANSWER	1 2 3 4 5
1224	Moving or speaking so slowly that other people could have noticed? Or the opposite — being so fidgety or restless that you have been moving around a lot more than usual [DO NOT READ OPTIONS]	0 days 1-7 days 8-12 days 13 or 14 days REFUSE TO ANSWER	1 2 3 4 5
1225	Thoughts that you would be better off dead or of hurting yourself in some way [DO NOT READ OPTIONS]	0 days 1-7 days 8-12 days 13 or 14 days REFUSE TO ANSWER	1 2 3 4 5
SECTION 13: GBV/DOMESTIC VIOLENCE			
QUESTIONS			
1301	I am going to read a series of statements about marriage and I want you to tell me if you agree or disagree with the statement. A A wife should be able to refuse her husband sex. B It is OK for a man to cook for his family. C Polygamous marriages are part of your culture, so they should continue. D It is better if a family arranges a girls' marriage than her choosing herself. E If a man doesn't hit his wife, it means he doesn't love her. F It is a man's right to have sex with his wife whenever he wants.	AGREE 1 1 1 1 1 1 DISAGREE 2 2 2 2 2 2 DONT KNOW 88 88 88 88 88 88	

	G If a young woman in this community were age 25 and unmarried, people would respect her.	1	2	88	
	H If a husband and wife disagree on using family planning, the husband's opinion should come first	1	2	88	
		1	2	88	
1302	ATTITUDES TOWARDS GENDER VIOLENCE				
	I am now going to ask you to think about several situations involving a husband and a wife. When you think about these questions, please keep in mind that we are asking for your opinion about each situation, not your own personal experience.				
	Sometimes a husband is annoyed or angered by things that his wife does. In your opinion, is a husband justified in hitting or beating his wife in the following situations:				
	a. If she goes out without telling him? b. If she neglects the children? c. If she argues with him? d. If she refuses to have sex with him? e. If she burns the food?	a. GOES OUT b. NEGL. CHILDREN c. ARGUES d. REFUSES SEX e. BURNS FOOD	YES 1 1 1 1	NO 2 2 2 2	DK 88 88 88 88
1303	Has any MALE done any of the following things to you in the previous year, if so, when was the last time it happened: in the last month, in the last 6 months, or more than 6 months ago?				
		1303b			1303c
		WHEN HAPPENED			Relation to Male
		NO	IN THE LAST MONTH	IN LAST 6 MONTHS	MORE THAN 6 MONTHS
	A. Say or do something to humiliate you in front of others?	2	1	2	3
	B. Threaten to hurt or harm you or someone close to you?	2	1	2	3
	C. Insult you or make you feel bad about yourself?	2	1	2	3
	D. Push you, shake you, or throw something at you	2	1	2	3
	E. Slap you	2	1	2	3
	F. Twist your arm or pull your hair	2	1	2	3
	G. Punch you with his fist or something that could hurt you	2	1	2	3
	H. Kick you, drag you, or beat you up	2	1	2	3
	I. Try to choke you or burn you on purpose	2	1	2	3
	J. Threatened to attack you with a knife or other weapon	2	1	2	3
	K. Attacked you with a weapon	2	1	2	3
	L. Touched you in a sexual way (e.g. kissing, grabbing, or fondling), when you did not want them to	2	1	2	3
	M. Try to have sexual intercourse with you when you did not want to but did not succeed	2	1	2	3
	N. Physically forced you to have sexual intercourse even when you did not want to	2	1	2	3
	O. Forced you to perform sexual acts when you did not want to	2	1	2	3
		RELATIONSHIP CODES FOR 1303			
		1 = Husband 2 = Boyfriend 3 = Fiancé 4 = Friend, acquaintance 5 = Relative	6 = Neighbor 7 = Fellow student 8 = Teacher 9 = Foreigner/tourist 10 = Employer	11 = Co-worker 12 = Parent/Guardian 13 = House boy 14 = House boy 15 = Stranger/unknown person 16 = Other	Codes Below
					ADD REFERRAL
F25	[IF Q802=2 & Q803=2 & Q829=0 (NEVER MARRIED/COHABITED & NEVER HAD SEX) OR (MIDLINE NEVER MARRIED/COHABITED)→ Q1310] [KIBERA: IF MIDLINE EVER MARRIED/COHABITED & 821 = 2 (ALL PARTNERS) & 836 = 4 → Q1310] [WAJIR: IF MIDLINE EVER MARRIED/COHABITED & 821 (ALL PARTNERS) = 2 → Q1310]				1310 1310 1310
1304	In the last six months, has your husband/partner ever withdrawn financial support from you?	YES NO			1 2
		DOES NOT PROVIDE FINANCIAL SUPPORT			66
		NO HUSBAND/PARTNER IN THE LAST SIX MONTHS			88
					1310
	How many times in the last six months has your husband/partner hit, slapped, kicked or beaten	NUMBER OF TIMES			

1305	you?	[1-200] NONE	0	1308
1306	The last time you were hit, slapped, kicked or beaten, do you think you deserved it?	YES NO	1 2	
1307	The last time you were hit, slapped, kicked or beaten, had your husband/partner been drinking or using drugs?	YES NO	1 2	
1308	In the previous two years, have you hit, slapped, kicked or beaten your husband/partner?	YES NO	1 2	1310
1309	How many times in the last six months have you hit, slapped, kicked or beaten your husband/partner?	NUMBER OF TIMES [1-200] NONE	<input type="text"/> 0	
QUESTIONS				
F26	IF 1303a-o all = NO -> SKIP			1313
1310	Thinking about what you have experienced in the previous year, among what we have been talking about, did you try to seek help to stop them/the/those person(s) from doing this to you again?	YES NO DID NOT EXPERIENCE OR N/A	1 2	1313 1313
1311	From whom did you seek help? Any one else? [RECORD ALL MENTIONED]	OWN FAMILY HUSBAND/PARTNER'S FAMILY CURRENT/LAST/LATE HUSBAND/ PARTNER CURRENT/FORMER BOYFRIEND FRIEND NEIGHBOR RELIGIOUS LEADER DOCTOR/MEDICAL PERSONNEL POLICE LAWYER SOCIAL SERVICE ORGANIZATION COMMUNITY LEADER/LOCAL ADMN L HEAD/CLASS TEACHER OTHER SPECIFY _____	1 2 3 4 5 6 7 8 9 10 11 12 13 96	
1312	Did you tell any one else about this?	YES NO	1 2	
1313	IF 1313=1 AT BASELINE OR MIDLINE, SKIP TO: As far as you know, did your father/guardian ever beat your mother/guardian?	YES NO DONT KNOW	1 2 88	1314
FEMALE CIRCUMCISION				
IF 1314=1 AT BASELINE OR MIDLINE, SKIP TO:				F27
1314	In some countries, there is a practice in which a girl may have part of her genitals cut. Have you ever heard about this practice?	YES NO	1 2	1320_M74
F27	IF 1315=1 AT BASELINE OR MIDLINE, SKIP TO:			1317
1315	Have you yourself been circumcised?	YES NO	1 2	1317
1316	How old were you when you were circumcised? IF THE RESPONDENT DOES NOT KNOW THE EXACT AGE, PROBE TO GET AN ESTIMATE.	AGE IN COMPLETED YEARS [10-18] DURING INFANCY DONT KNOW	<input type="text"/> 9 5 8 8	
1317	Do you intend to have [your daughter/any of your daughters] circumcised?	YES NO DONT KNOW	1 2 88	

1318	<p>What benefits do girls themselves get if they are circumcised?</p> <p>PROBE: Any other benefits?</p> <p>[RECORD ALL MENTIONED.]</p>	<p>CLEANLINESS/HYGIENE 1 SOCIAL ACCEPTANCE 2 BETTER MARRIAGE PROSPECTS 3 PRESERVE VIRGINITY/PREVENT 4 PREMARITAL SEX 5 MORE SEXUAL PLEASURE FOR THE MAN 6 RELIGIOUS APPROVAL 7 NO BENEFITS 8 DON'T KNOW 88 OTHER (SPECIFY) 96</p>	
1319	<p>Do you think that this practice should be continued, or should it be stopped?</p>	<p>CONTINUED 1 STOPPED 2 DEPENDS 3 DON'T KNOW 88</p>	1320_M74
1319_E6	<p>Why do you think it should or should not continue?</p> <p>[RECORD ALL MENTIONED.]</p>	<p>LIMITS A GIRL'S SEXUAL DESIRE 1 PREVENTS A GIRL FROM HAVING SEX 2 IMPORTANT FOR PREVENTING SEX BEFORE MARRIAGE 3 MARKS THE BEGINNING OF WOMANHOOD 4 RELIGIOUS REASONS 5 IMPORTANT FOR FEMALE HYGIENE 6 MEN ONLY MARRY CIRCUMCISED WOMEN 7 OTHER (SPECIFY) 96 DON'T KNOW 88</p>	
<p>Now, I am going to read you some statements, please tell me how often are the following statements true for you?</p>			
1320_M74	<p>If I see something wrong in school or the neighborhood I feel I can tell someone and they will listen</p> <p>READ OUT OPTIONS</p>	<p>NEVER/RARELY 0 SOMETIMES 1 OFTEN 2</p>	
FS3	<p>IF 301 = 2 (NO) OR 302_M7 = 2 (NO) OR 309 = 2 (NO)</p>		1322_M76
1321_M75	<p>I can speak up in class when I have a comment or question</p> <p>READ OUT OPTIONS</p>	<p>NEVER/RARELY 0 SOMETIMES 1 OFTEN 2</p>	
1322_M76	<p>I can speak up when I see someone else being hurt</p> <p>READ OUT OPTIONS</p>	<p>NEVER/RARELY 0 SOMETIMES 1 OFTEN 2</p>	
1323_M77	<p>I can ask adults for help when I need it</p> <p>READ OUT OPTIONS</p>	<p>NEVER/RARELY 0 SOMETIMES 1 OFTEN 2</p>	
1324_M78	<p>I can speak up when I am being hurt</p> <p>READ OUT OPTIONS</p>	<p>NEVER/RARELY 0 SOMETIMES 1 OFTEN 2</p>	
<p style="text-align: center;">IMPULSIVITY</p>			
<p>IF SITE = WAJIR->SKIP</p>			
<p>People differ in the ways they act and think in different situations. Next I am going to read you some statements to measure some of the ways in which you act and think. For each statement please tell me whether it applies to you rarely/never, occasionally, often, or almost always/always. There are no right or wrong answers, so please answer as quickly and honestly as you can.</p>			
1325	<p>I plan tasks carefully.</p>	<p>Rarely / never 1 Occasionally 2 Often 3 Almost always / always 4</p>	
1326	<p>I plan trips well ahead of time.</p>	<p>Rarely / never 1 Occasionally 2 Often 3 Almost always / always 4</p>	
1327	<p>I am self-controlled.</p>	<p>Rarely / never 1 Occasionally 2 Often 3 Almost always / always 4</p>	

1328	I concentrate easily.	Rarely / never Occasionally Often Almost always / always	1 2 3 4
1329	I save regularly.	Rarely / never Occasionally Often Almost always / always	1 2 3 4
1330	I am a careful thinker.	Rarely / never Occasionally Often Almost always / always	1 2 3 4
1331	I say things without thinking.	Rarely / never Occasionally Often Almost always / always	1 2 3 4
1332	I am a steady thinker.	Rarely / never Occasionally Often Almost always / always	1 2 3 4
1333	I am more interested in the present than the future.	Rarely / never Occasionally Often Almost always / always	1 2 3 4
1334	I like puzzles.	Rarely / never Occasionally Often Almost always / always	1 2 3 4
1335	I am future oriented.	Rarely / never Occasionally Often Almost always / always	1 2 3 4
DECISION MAKING			
Now, I'm going to ask a few questions about things that you do. Are you able to make the following decisions on your own, with someone else or you have no say?			
1336	What to wear when I am not at school or working. Would you say... READ ANSWER OPTIONS ALOUD	ON YOUR OWN YOU WITH SOMEONE ELSE YOU HAVE NO SAY DON'T KNOW REFUSE TO ANSWER	1 2 3 4 5
1337	What to do in my free time. Would you say... READ ANSWER OPTIONS ALOUD	ON YOUR OWN YOU WITH SOMEONE ELSE YOU HAVE NO SAY DON'T KNOW REFUSE TO ANSWER	1 2 3 4 5
1338	What to eat when I am not at home. Would you say... READ ANSWER OPTIONS ALOUD	ON YOUR OWN YOU WITH SOMEONE ELSE YOU HAVE NO SAY DON'T KNOW REFUSE TO ANSWER	1 2 3 4 5
1339	How much education I will get. Would you say... READ ANSWER OPTIONS ALOUD	ON YOUR OWN YOU WITH SOMEONE ELSE YOU HAVE NO SAY DON'T KNOW REFUSE TO ANSWER	1 2 3 4 5

1340	Who I can have as friends. Would you say... READ ANSWER OPTIONS ALOUD	ON YOUR OWN YOU WITH SOMEONE ELSE YOU HAVE NO SAY DON'T KNOW REFUSE TO ANSWER	1 2 3 4 5	
1341	<u>When</u> to marry. Would you say... READ ANSWER OPTIONS ALOUD	ON YOUR OWN YOU WITH SOMEONE ELSE YOU HAVE NO SAY DON'T KNOW REFUSE TO ANSWER	1 2 3 4 5	
1342	<u>Who</u> to marry. Would you say... READ ANSWER OPTIONS ALOUD	ON YOUR OWN YOU WITH SOMEONE ELSE YOU HAVE NO SAY DON'T KNOW REFUSE TO ANSWER	1 2 3 4 5	
1343	How to spend my pocket money. Would you say... READ ANSWER OPTIONS ALOUD	ON YOUR OWN YOU WITH SOMEONE ELSE YOU HAVE NO SAY DON'T KNOW REFUSE TO ANSWER	1 2 3 4 5	
SECTION 15: EXPOSURE TO AGI-K				
	QUESTIONS AND FILTERS	CODING CATEGORIES		
F28	FILTER - IF SITE eq HURUMA, GO TO LIT/MATH			
F29	[BUILT IN CHECK - DATA TO BE PROVIDED] IF 1502=2 AT MIDLINE [DID NOT ATTEND AGI-K MEETINGS] IF 1502=1 AT MIDLINE IF 1502=MIDLINE IS MISSING			F30 1554a 1554b
1554a	The last time you were interviewed, you told us that you had attended an AGI-K or Save/Plan safe spaces group. How often does that group still meet?	NEVER A FEW TIMES A YEAR ABOUT ONCE A MONTH ABOUT ONCE A WEEK	1 2 3 4	1556 1555 1555 1555
1554b	From 2015-2017 Save/Plan was running the AGI-K program that has safe spaces groups. If you were a part of one of those groups, how often does that group still meet?	NEVER A FEW TIMES A YEAR ABOUT ONCE A MONTH ABOUT ONCE A WEEK was not part of a safe spaces group/don't remember if I was part of a safe spaces group	1 2 3 4 5	1556
1555	When the group meets, is your mentor there?	ALWAYS SOMETIMES NEVER	1 2 3	
1556	Apart from group meetings, how often do you still meet with your AGI-K/Save/Plan mentor?	NEVER A FEW TIMES A YEAR ABOUT ONCE A MONTH ABOUT ONCE A WEEK	1 2 3 4	
F30	FILTER IF SITE=WAJIR, SKIP			
F31	HAD A SMATA ACCOUNT AT MIDLINE 1521 = 1 from midline IF 1521 from midline = 2 or missing 1521=MISSING AT MIDLINE			1557a END CAPI 1557b
1557a	The last time you were interviewed you mentioned that you had opened an account at Postbank. Is that account still open?	YES NO DON'T KNOW	1 2	1558 END CAPI END CAPI
1557b	Did you open a SMATA account with Postbank as part of AGI-K?	YES NO DON'T KNOW	1 2	1557c END CAPI END CAPI
1557c	Is that account still open?	YES NO DON'T KNOW	1 2	1558 END CAPI END CAPI

1558	How often do you deposit money in your account	DAILY 1 ONCE A WEEK 2 A FEW TIMES A MONTH 3 ONCE A MONTH 4 A FEW TIMES A YEAR 5 ONCE A YEAR 6	
1559	How often do you withdraw money from your account?	DAILY 1 ONCE A WEEK 2 A FEW TIMES A MONTH 3 ONCE A MONTH 4 A FEW TIMES A YEAR 5 ONCE A YEAR 6 NEVER 7	
1560	How much money do you currently have in your account?	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> KES IF 0 = SKIP DON'T KNOW 88	END CAPI
1561	What are you planning to do with the money that is in your account	YES NO BUY CLOTHES 1 2 BUY LIVESTOCK 1 2 BUY FOOD 1 2 PAY SCHOOL FEES 1 2 BUY SCHOOL SUPPLIES 1 2 USE FOR HEALTH CARE 1 2 USE FOR TRANSPORT 1 2 GIVE TO MOTHER/FATHER 1 2 GIVE TO OTHER RELATIVE 1 2 USE IN AN EMERGENCY 1 2 START A BUSINESS 1 2 NEVER HAD ANY MONEY IN ACCOUNT 1 2 OTHER (SPECIFY) 1 2 DON'T KNOW 1 2	END
F32	HAD A HOME BANK AT MIDLINE 1537 = 1 from midline	IF 1537 from midline =1 IF 1537 from midline = 2 or missing	1562 END CAPI
1562	The last time you were interviewed you mentioned that you were given a homebank by AGI-K/Save. Do you still have that homebank?	YES NO	1 2 END CAPI
1563	How often do you add your own money into the homebank?	DAILY 1 ONCE A WEEK 2 A FEW TIMES A MONTH 3 ONCE A MONTH 4 A FEW TIMES A YEAR 5 ONCE A YEAR 6 NEVER 7	1566
1564	How often do you remove money from your homebank?	DAILY 1 ONCE A WEEK 2 A FEW TIMES A MONTH 3 ONCE A MONTH 4 A FEW TIMES A YEAR 5 ONCE A YEAR 6 NEVER 7	1566
1565	What did you do with the money that you removed?	YES NO BOUGHT CLOTHES 1 2 BOUGHT LIVESTOCK 1 2 BOUGHT FOOD 1 2 PAID SCHOOL FEES 1 2 BOUGHT SCHOOL SUPPLIES 1 2 BOUGHT COSMETICS 1 2 BOUGHT PADS 1 2 ENTERTAINMENT 1 2 USED FOR HEALTH CARE 1 2 USED FOR TRANSPORT 1 2 GAVE TO MOTHER/FATHER 1 2 GAVE TO OTHER RELATIVE 1 2 OTHER (SPECIFY) 1 2	
1566	How much money do you currently have in your homebank?	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> KES IF 0 = SKIP DON'T KNOW 88	END CAPI
1567	What are you planning to do with the money that is in your homebank	YES NO BUY CLOTHES 1 2 BUY LIVESTOCK 1 2 BUY FOOD 1 2 PAY SCHOOL FEES 1 2 BUY SCHOOL SUPPLIES 1 2	

