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Risk and Protective Factors that affect Married Women's Reproductive Health in a Low-Income Community in Mumbai, India

Benjamin Hallowell

B.A., Messiah College, 2012

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Master in Public Health Thesis

Risk and Protective Factors that affect Married Women's Reproductive Health in a Low-Income Community in Mumbai, India

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Introduction

In low and middle-income countries (LMICs), symptoms of reproductive morbidities are the most common health problem reported by women. Women in developing countries are often at higher risk for these problems due to the social, behavioral, cultural, infrastructural, and demographic barriers they face in daily life and in receiving medical treatment. Previous studies conducted in LMICs have found an association between women's self-reported symptoms of reproductive morbidity and negative life situations and have suggested, that rather than a biomedical issue, women in LMICs may express these symptoms to reflect other problems in their lives. Currently, however, women who self-report symptoms of reproductive morbidity are treated only for the biological factors that affect their reproductive health. The purpose of this study is to better identify the factors that affect women's reproductive health outcomes in order to provide suggestions for a more holistic approach when addressing women who present gynecological and related symptoms.

Chapter 1- Background and Significance

Defining Reproductive Morbidity and Gynecological or Related Symptoms

In 1994, the International Conference on Population Development defined reproductive health as "a state of complete physical, mental and social well being and not merely the absence of disease and infirmity, in all matters relating to the reproductive system and to its functions and processes." Reproductive morbidity can be defined as any morbidity or dysfunction of the reproductive system, including those caused by sexual behaviors, contraception, pregnancy, childbirth, abortion, and may include psychological issues (Sadana 2000; Mawajdeh, Al-Qutob, & Schmidt, 2003; Reshmi & Unisa, 2006). Reproductive morbidity encapsulates three subsets of morbidities: obstetric morbidity, contraceptive morbidity, and gynecologic morbidity (Sadana 2000; Mawajdeh et al., 2003; Reshmi & Unisa, 2006). Obstetric morbidities are defined as those caused directly or indirectly by pregnancy and childbirth, including psychological maternal morbidity (e.g. post partum depression), excessive vaginal bleeding, high fever, blurred vision, convulsions not from fever, swelling, excessive fatigue, and anemia (Reshmi & Unisa, 2006). Contraceptive morbidities are defined as those caused by modern or traditional contraceptive methods, including weight gain and loss, depression, "…excessive bleeding, hypertension, headache/body ache/back ache, nausea/vomiting, dizziness, fever, cramps, spotting, abdominal pain, white discharge, irregular periods, breast tenderness, allergy, and reduced sexual satisfaction" (Reshmi & Unisa, 2006: 50). Gynecologic morbidities are those that relate directly and indirectly to the reproductive tract and are not caused by pregnancy or contraception. Gynecologic morbidities are normally caused by sexual behavior and include: pain during sex, bleeding after sexual

intercourse, malodor, itching, fever, burning micturition, backache, tiredness, and abdominal pain, and may include psychological issues (e.g. those that result from forced sex; Reshmi & Unisa, 2006). Due to the difficulty in identifying the exact cause of a reproductive morbidity, this thesis will include all of the previously mentioned symptoms collectively under the term symptoms of reproductive morbidities.

Symptoms of Reproductive Morbidity and RTIs

Symptoms of reproductive morbidity are often associated with the presence of a reproductive tract infection (RTI), which includes endogenous, sexually transmitted, and iatrogenic infections. Endogenous infections are the most common RTI, and are caused from an overgrowth of organisms that are normally present in the female reproductive tract. The most common endogenous infections are bacterial vaginosis and candidiasis. Sexually transmitted infections (STIs) are much less common than endogenous infections, and are usually caused by viruses, bacteria, or organisms that are introduced to the reproductive tract through sexual activity with an infected partner (Trollope-Kumar 2001). Chlamydia trachomatis, gonorrhea, and trichomoniasis are the most common curable sexually transmitted infections. Iatrogenic infections are the least common of the RTIs, and are caused when bacteria or an organism is introduced to the reproductive system through a medical procedure (e.g. insertion of an IUD or childbirth). Untreated, any of these conditions can lead an array of health issues, including, but not limited to premature labor, increased susceptibility to HIV/AIDS, infertility, intrauterine growth retardation, chronic physical pain, social rejection, emotional distress, cervical cancer, and ectopic pregnancy, the latter of which can lead to maternal death (Patel et al., 2006; Garg et al., 2002; Prasad et al., 2005; Trollope-Kumar 2001).

Currently, there is insufficient information to accurately estimate the true prevalence of RTIs or their associated symptoms in LMICs. STIs, a small subset of all RTIs, however, can be estimated, and in 2014 the WHO estimated that 448 million cases of curable STIs occurred annually worldwide, with 75-85% of these cases occurring in developing countries (Mayaud & Mabey, 2004). It is important to note that this estimate is derived from data gathered from hospitals or clinics, and therefore is likely to drastically under represents the true prevalence of STIs in LMICs (Reshmi & Unisa, 2006). As STIs are only a small subset of all RTIs, one can begin to grasp the magnitude of this problem in LMICs.

While the term RTI encompasses all endogenous, sexually transmitted, and iatrogenic infections, the term is frequently associated with those that are sexually transmitted. As the emphasis of this study is on the more common endogenous infections, rather than the term RTI, this study will use the term reproductive morbidity or endogenous infection.

Reproductive Morbidity Symptoms in LMICs

In low and middle-income countries (LMICs), symptoms of reproductive morbidities are the most common health problem reported by women (Reshmi & Unisa, 2006; Garg et al. 2002; Patel & Oomman, 1999; Patel et al., 2005). While the symptoms of reproductive morbidities affect women worldwide, those in developing countries are often at higher risk for these problems due to their lower autonomy in decision-making (including access to healthcare and negotiation in their sexual relationships), limited mobility, and lower access to healthcare (Reshmi & Unisa 2006; Patel et al., 2005). Additionally, most of the primary care services in LMICs are focused on maternal and

child health, and pay little attention to the health of women themselves. Lack of knowledge, time, financial resources, and medication can further hinder these women from proper diagnosis and treatment (Reshmi & Unisa, 2006).

It is vital to better understand symptoms of reproductive morbidities, their connection with reproductive morbidities, and effective treatment options in order to reduce this burden worldwide. Focusing on South Asia, specifically economically disadvantaged communities in India, one can begin to better understand the true prevalence of reproductive morbidities in LMICs; the social, cultural, and economic factors that contribute to these morbidities, the way these morbidities are currently treated, and how this treatment plan can be improved to reduce the burden of reproductive morbidities in LMICs.

The Prevalence of Reproductive Morbidity Symptoms in India

In India women's health problems are often underreported due to: lack of access to health care services, insufficient privacy at healthcare facilities, lack of access to a female doctor, non-reporting of asymptomatic or negatively stigmatized conditions, or non-reporting of symptoms deemed normal or culturally acceptable (Sadana 2000; Barreto et al., 1992; Dixon-Mueller 1993; Koenig et al., 1998; Barua & Kurz, 2001). These issues are often exacerbated when dealing with symptoms of reproductive morbidities as they can be embarrassing and as a "culture of silence" often shrouds these issues in India and in other LMICs (Prasad et al., 2005). Despite the challenges in reporting these conditions, in the 1999 Indian National Family Health Survey (IIPS 2000), 39% of the 90,303 ever-married women sampled nationally reported at least one symptom of reproductive morbidities within the last two months, while other studies

conducted in India documented similar or higher rates (Bang et al. 1989 [55%]; Patel et al., 2005; Patel & Oomman, 1999 [55-84%]; Reshmi & Unisa, 2006 [20-51%]; IIPS 2000 [39%]; Garg et al., 2002 [88%]; Stephenson, Koenig, & Ahmed, 2006 [34.3%]; Barua & Kurz, 2001 [51%]; Rangaivan & Sureender, 2000 [53%]; Koenig, Jejeebhoy, Singh, & Sridhar, 1998 [54%-84%]; Prasad et al., 2005 [53%]; Bhatia & Cleland, 1995 [33%]; while there have been two Indian National Family Health Survey's since1999, they did not address women's reproductive health, and so data from the 1999 survey is often cited as the best estimate). Prior to understanding reproductive morbidities in India, however, it is important to examine the cultural influences that impact the causes, expression, and treatment of these symptoms.

Cultural Factors and Women's Reproductive Health in India

Women in India come from a highly patriarchal society. From the time they are born, women are seen as a financial burden to their family as they are often forced to pay hefty dowries to have their daughters married. With limited value placed on women's education, women are often pulled out of school at an early age to help with household responsibilities and prepare for marriage. Due to gender roles and culturally based beliefs these women are pressured to be married and begin having children at an early age (Barua & Kurz, 2001; Maman et al., 2002; Mason, 1986; Mason & Smith, 2003). With little decision-making autonomy, the great majority of these marriages are often arranged, and upon marriage women traditionally leave their home to live with their new husband and in-laws (Barua & Kurz, 2001).

Once married, women are expected to have children and fulfill their household responsibilities. These duties often involve cooking, cleaning, fetching water, and

catering to the needs of their husband, children, and in-laws (Schensul et al., 2009). Upon arrival to the family, women often have the lowest decision making autonomy in the household, subject to the authority of their husband and mother-in-law.

Expected to have children and fulfill their household responsibilities, women typically only seek healthcare services for problems that interfere with their ability to do household chores, or issues relating to fertility, including maternal and child healthcare (Barua & Kurz, 2001). The limited autonomy that women have in the household often carries over to personal matters, with their mobility, healthcare access (including contraception usage), and sexual activity and birth spacing dictated by their husband and mother-in-law (Barua & Kurz, 2001; Schensul et al., 2009). Many women are also required to have a companion (co-sister, mother-in-law, husband) to travel to and from and healthcare facility, adding complexity to their access to healthcare. These constraints are further exacerbated by their household responsibilities, limited financial resources and autonomy, illiteracy, housing difficulties, gender discrimination, and the limited empowerment that these women often face (Barua & Kurz, 2001; Schensul et al., 2009).

In an effort to maintain their traditional role in maintaining the household, women themselves may disregard their symptoms, and as a result, women are further hindered from these services and their symptoms often go untreated (Barua & Kurz, 2001; Trollope-Kumar 2001). Due to these factors, it is common for women to accept symptoms of reproductive morbidities as a normal aspect of their life, and as a result, women, their family, or healthcare providers frequently fail to take these symptoms seriously (Prasad et al., 2005).

When accessing healthcare, there are both private and governmental services that women can seek treatment from. Aligning with the gender roles and expectations, many of the governmental healthcare facilities are centered on maternal and child health and family planning, with limited emphasis, focus, or resources devoted to the health of women and their concerns. Studies have found that Indian healthcare services often lack the information, counseling, and follow-up services to meet the needs of women (Khan et al., 1999; ICMR, 1991; IIPS, 1995). Women often complain about the lack of respect they receive at public healthcare facilities, the unpredictable availability of physicians, the long wait times, the lack of privacy, the lack of medication, inconvenient clinic hours, and lack of a female provider, all of which limit their access to care (Nataraj, 1994; Ramarao et al., 2001; Murthy, 1999; Ravindran, 1999). The limitations of governmental healthcare facilities cause many of the women to seek care at the more expensive private allopathic or non-allopathic centers, where they perceive they receive better care than in the government health centers (Stephenson et al., 2002).

The Discordance between Self Reported vs. Clinically Diagnosable RTIs

Of the women who overcome these barriers and obtain treatment for their self-reported symptoms of reproductive morbidity, clinical examination and laboratory testing only confirms 26-74% as endogenous or sexually transmitted infections (Patel & Oomman, 1999 [26-74%]; Patel et al., 2005 [30-60%]; Patel et al., 2006 [28.5%]; Prasad et al., 2005 [38%]; Koenig et al., 1998 [26-74%]). In an effort to explain the discordance between self-reported symptoms and clinically diagnosable RTIs, previous research has looked for alternative causes to explain these symptoms.

One of the emerging patterns in the literature is that women express these symptoms as a consequence of their negative life situations, social or psychological life stressors, or other (generally mental) health problems (Kostick et al., 2010; Patel & Oomman, 1999; Patel et al., 2006a; Rashid 2007). This phenomenon is often referred to as somatization, or the process by which individuals express psychological or other life or health problems through somatic/physical health symptoms and complaints (Patel & Oomman, 1999). This process has also been hypothesized as a causal factor for symptoms, as high levels of stress, anxiety, or depression could create changes in the autonomic nervous system, would could a) cause an individual to interpret normal physiological sensations as aches, pains, palpitations, and other negative physical symptoms, or b) actually create changes in the body that generate these symptoms (e.g. changing the ph levels of the vagina, resulting in greater than normal levels of vaginal discharge; Patel & Oomman, 1999). The process of somatization enables these individuals to seek and obtain medical care for culturally accepted and non-stigmatized health problems, when in fact, these symptoms are indicative of other potentially larger or stigmatized negative health or life situations in a woman's life (Patel & Oomman, 1999). Due to the association with negative life situations or other health problems, reproductive morbidities have previously been referred to as "idioms of distress," rather than an indicator of reproductive morbidities (Kostick et al., 2010; Nichter 1981).

Self-reported symptoms of reproductive morbidity may align with the psychosomatic complaints of pelvic pain, tiredness, and back ache that are commonly reported in Western cultures and associated with negative health or life situations (Patel et al., 2006). Similar patterns have emerged in other non-western cultures, including:

"*heart distress*" among Iranian women (Good 1977), the condition called "*nervios*" among Latino women (Low 1985; Guarnaccia et al., 1989), and the Chinese condition "*neuroasthenia*" (Kou & Kleinmann 1989), which have all been connected with dizziness, shortness of breath, weakness, and anxiety and were rarely associated with clinically diagnosable/confirmable diagnosis (Trollope-Kumar 2001).

Somatization, Symptoms of Reproductive Morbidities, and Negative Life Situations

In an effort to better understand how symptoms of reproductive morbidities are associated with negative health or life situations, researchers have analyzed how Indian women define these symptoms, their causes, and associated factors. Specifically, they have focused on white vaginal discharge, back ache, lower abdominal pain, and weakness as they are not only the most commonly reported reproductive morbidity symptoms in India, but also the symptoms that most often correlate with negative health or life situations (Kielmann & Bentley 2003).

Of the four symptoms, vaginal discharge, otherwise known as *safed pani,* is the most commonly reported symptom among Indian women (Schensul et al., 2009). *Safed pani* is considered a highly purified form of *dhatu*, or bodily substance, loss of which may result in weakness or even death (Trollope-Kumar 2001). When reported in India, *safed pani* can refer to either an increase in, or the presence of white and/or yellow discharge or blood from the vagina (Kielmann & Bentley, 2003; Patel et al., 2005c). *Safed pani* is unique from other symptoms because it is viewed as an acceptable reason why a woman may abstain from sex with her husband, as women who have *safed pani* are often seen as polluted, and viewed similarity to when they have their menses. Often women who are experiencing *safed pani* are allowed to have a lighter workload in the

household chores, and take more breaks. *Safed pani* is also unique as it is a non-stigmatized condition, opposed to some of the stigmatized mental health or domestic violence issues which are attributed as its causes. Previous studies have found that *safed pani* is often highly correlated with self-reported symptoms of lower abdominal pain and weakness (Kielmann & Bently, 2003). When asked for the cause of their vaginal discharge, Indian women attribute it to a variety of responses, from biological causes such as frequent pregnancies, abortions, contractive methods (IUDs and sterilization), and infertility, to more social issues, such as the quality of their marital, sexual, and family life, to forced sex, unfaithful husbands, stress and anxiety (Rashid 2007; Patel et al., 2005c; Kostick et al., 2010). Among the previous causes listed, stress, or *tenshun,* is the predominate reason given by women for the cause of their *safed pani* (Kostick et al., 2010). When asked about causes of *tenshun*, the predominate responses given by women are "…(1) relationship with husband, (2) household, (3) relationship with in-laws, (4) children, specifically (5) daughters' marriageability and (6) abuse/harassment from husband" in order of significance (Kostick et al., 2010:536).

Lower abdominal pain and backache are commonly reported together, and previous research found them to be associated with, and commonly attributed to a heavy manual workload (lifting heavy objects and fetching water) and sterilization (Kielmann & Bently, 2003).

Weakness or *kamjori* can be associated with a number of physical or psychological problems including: a lack of strength, a constant state of tiredness, dizziness, reduced sexual desire or satisfaction, or the loss of appetite (Patel & Oomman 1999; Kielmann & Bently, 2003). Despite the nature of the problems, weakness and

vaginal discharge are often reported together, with *safed pani* often attributed as a causal factor for *kamjori* (Patel & Oomman 1999; Schensul et al., 2009). When women were asked about the cause of their weakness, many of the responses aligned with those given for *safed pani*, while others were associated with stress and anxiety, poor or inadequate nutrition, or financial hardship (Rashid 2007; Pachauri & Gittelsohn 1994).

Analyzing the descriptions and causes provided by Indian women of *safed pani,* lower abdominal pain, backache, and *kamjori*, it seems that these symptoms overlap more with the conditions of depression, anxiety, and other psychosocial problems, rather than those associated with endogenous or sexually transmitted infections as they are so often attributed (Patel & Oomman 1999; Trollope-Kumar 2001). Many studies have confirmed this finding and have shown associations between symptoms of reproductive morbidities and a variety of negative health or life situations. These include: early marriage (Raj et al., 2009; Prasad et al., 2005; Prakash et al., 2011), pregnancy and early pregnancy (Gupta 1995; Stephenson et al., 2006; Barua & Kurz, 2001; Bhatia & Cleland, 1995; Reshmi & Unisa, 2006), high fertility (Stephenson et al., 2006; Gupta 1995), low socioeconomic status (Garg et al., 2002; Bhatia & Cleland, 1995), low literacy (Buckshee 1997; Bhatia & Cleland, 1995; Reshmi & Unisa, 2006; Patel et al., 2006b), low gender empowerment/gender inequity (Garg et al., 2002; Barua & Kurz, 2001; Blanc 2001; Patel et al., 2006b), poor mental health (Kostick et al., 2010; Patel & Oomman, 1999; Patel et al., 2005; Patel et al., 2006b; Patel et al., 2005c), anxiety (Patel et al., 2006b), depression (Patel et al., 2006b; Patel & Oomman 1999), intimate partner violence (both sexual and physical) (Stephenson et al., 2006; Kishor & Johnson, 2006; Patel & Oomman, 1999; Patel et al., 2006b; Patel et al., 2005c), poor spousal communication (Santhya &

Dasyarma, 2002), husband's extra-marital affairs (Stephenson et al., 2006; Santhya & Dasyarma, 2002; Patel et al., 2006b; Patel et al., 2005c), high age differential between husband and wife (Stephenson et al., 2006), the use of intra-uterine devices (increased infection risk) (Sowmini & Sankara 2004; Stephenson et al., 2006; Reshmi & Unisa, 2006; Patel et al., 2005c), sterilization (due to post-tubal ligation syndrome) (Stephenson et al., 2006; Sowmini & Sankara 2004; Bhatia & Cleland, 1995; Bang et al., 1989), limited access to healthcare (Barua & Kurz, 2001; Bhatia & Cleland, 1995), and poor hygiene (Bhatia & Cleland, 1995).

Treatment of Reproductive Morbidities

The WHO had previously recommended syndromic management for women who self-reported reproductive morbidity symptoms (Patel et. al., 2005). Syndromic management is the treatment of any women who presents symptoms of reproductive morbidities for one or all of the five most common RTIs, including chlamydia trachomatis, gonorrhea, and trichomoniasis, without a laboratory or clinical confirmation of the infection (Patel et al., 2005; Trollope-Kumar 2001). This suggested treatment method was due in part to the high cost of clinical examinations, the low availability of diagnostic tests and resources for internal exams, the high refusal rate for gynecological examinations (Sadana 2000), and the biomedical connection between gynecological symptoms and RTIs (Rashid 2007). Unfortunately, many of the studies that document a high prevalence of self reported symptoms of reproductive morbidities have also shown that they are poor predictors of RTIs. Using syndromic management to treat these women wastes resources in already struggling healthcare systems, contributes to antibiotic resistance, and in many cases fails to treat the true cause of the patient's

reproductive morbidities (Trollope-Kumar 2001; Kostick et al., 2010). In 2007 the World Health Organization no longer recommended syndromic management for women who presented self-reported reproductive morbidity symptoms, however the National AIDS Control Organization (NACO) of India continues to use syndromic management to treat women (Kostick et al., 2010). Despite the evidence that syndromic management fails to correctly identify RTIs, due to a lack of better treatment alternatives, this method continues today (Patel & Oomman, 1999; Patel et al., 2005).

The aim of this study is to; a) identify the social, behavioral, cultural, infrastructural, and demographic factors that affect a woman's reproductive health; b) identify how women describe these factors and how they affect their reproductive health; in order to c) provide suggestions for a more holistic approach to addressing women who present gynecological and related symptoms in India, South Asia, and in LMICs globally.

Chapter 2- Research Design/Methods

This research is an analysis of the data collected under the NIMH grant titled, "The Prevention of HIV/STI among Married Women in Urban India (2007-2013; RO1 MH075678; S. Schensul, PI)." This research project is part of an ongoing Indo-US collaboration between the UCONN Health Center, the International Center for Research on Women (New Delhi), the Tata Institute of Social Sciences, the Population Council (New Delhi), the Institute for Community Research, and Tulane University that has been going on for over a decade. Through this collaboration, Research and Intervention in Sexual Health: Theory to Action (RISHTA) program was established. The RISHTA married women's project aimed to determine the efficacy of medical treatment, paired with either individual, group (husband and wife couples), or individual and group counseling, was in improving women's reproductive health outcomes when compared to a control (medical treatment only) using a randomized controlled design (RCT).

The Study Community

This RISHTA project was conducted in a low-income, urban "slum" community of 600,000 in the Northeast quadrant of Mumbai, India. This community is composed of individuals who had been displaced from Mumbai (43.1%) and migrants (56.9%) from the Indian States of Uttar Pradesh, Maharashtra, and Bihar. A semi-transitional community, the median length of time spent living in the community is 14 years. In this community, 80.4% of the population lives in single room houses, with a median household size of five individuals living in each residence. Despite the poor conditions, 96.6% of the men are employed, with a majority working as daily wage workers, salaried private workers, auto rickshaw drivers, industrial workers, and petty traders, with a

median monthly income of 4,000 rupees (US $63.96). The employment rate is lower among women, with 25.4% of the women working, engaged primarily in home-based tailoring/sewing work. Although India is predominantly Hindu (80.5%), this community is about 80% Muslim, 15% Hindu, and 5% Buddhist and Christian.

The Women's Health Clinic

To provide a place of recruitment for the married women's project and to address the various health needs and challenges that low-income women in this community face, including: the focus on maternal and child health rather than the health, particularly reproductive health, of the woman; the failure of healthcare facilities to screen for asymptomatic or other STIs/RTIs among women; and the lack of female providers at most health facilities, a women's health clinic (WHC) was organized and established in the municipal urban health center (UHC) in the study community in 2008. Funded by the Mumbai District AIDS Control Society, and staffed with female physicians and residents from Topiwala National Medical College, from 2009-2012 11,757 women came through the clinic. This clinic focused on providing care for women, specifically focusing on their reproductive health, dealing with the morbidities of: *safed pani,* burning micturition, inguinal swelling, lower abdominal pain, genital ulcers, itching, and menstrual problems. Staffed with the resources and personnel to provide gynecological examinations (which were previously unavailable at the UHC), the clinic also provided STI/RTI testing, treatment and syndromic management, condom promotion, health education, follow-up and counseling, referrals, and partner notification services to women who came to the clinic.

Recruitment

As a component of the RISHTA married-women's project, a randomized control trial (RCT) was developed and implemented. To recruit women for the project, all women were triaged upon arrival at the UHC. If they had non-reproductive health problems, women were directed to the women's outpatient department in the UHC. If the women presented reproductive health problems, they were directed to the WHC, where their eligibility for the RISHTA project was determined. In order to be included in the RCT, women had to be 18-40 years old, living with their husbands, have lived in the study community for at least a year, not pregnant at the time of enrollment, and have at least one of six gynecological and related symptoms, which included: vaginal discharge, genital itching, burning micturition, lower abdominal pain, genital ulcers, and inguinal swelling. If the women were eligible to participate, they were given a description of the RISHTA project and asked if they would provide written consent to enroll in the RCT. Regardless of their response and eligibility, women were provided with medical care.

Women who consented to be part of the RCT were then randomly assigned to one of four conditions that were paired with medical treatment, the control group (medical treatment only), individual counseling (IC) only, group couples' counseling (CI) only, or both individual and couples counseling. Women then completed the baseline women's structure survey (WSS), which measured key constructs in the project. They completed a second WSS at 6-months and a third WSS at 12-months. From June 12, 2009 to March 31, 2012, 1125 married women were recruited into the study at the WHC. Prior to the study, power calculations were conducted using a sample size of 1200. As 1125 represented 94% of the target recruitment, and due to the year follow-up period for the

final WSS, the recruitment ended on March 31, 2012, with the final WSS administered March 31, 2013.

The following analysis is based on both the qualitative and quantitative data that was gathered during this project. Specifically, the quantitative analysis was conducted using the data from the 1125 WSS baseline surveys, while the qualitative analysis used the counseling notes that were gathered during the 314 individual counseling sessions.

Preliminary Analysis of the Qualitative Data

Of the 563 women that were randomly assigned to IC or IC+CI, 314 women attended at least one IC session. In these sessions women individually met with a trained counselor to identify and address problems present in the client's life. The counselors explored various domains in the woman's life in order to identify problem areas, including her family (in-laws and natal family), children, level of gender empowerment, social support network, employment, psychological well-being, health problems, health perceptions, health care, martial relationship, financial status, domestic violence incidence, and sexual behaviors. The notes from these sessions were then entered and coded in the Atlas.ti software using the domains previously listed. All of the coded sections on health problems, health care, and sexual behaviors in the IC case reports were read to identify potential factors that affect married women's reproductive health. During this process exemplary quotes were extracted to depict how the identified factors affected women's reproductive health.

Through the analysis of the qualitative data and the review of the literature, initial independent variables were generated based on the women's descriptions of their reproductive health problems and those displayed in the literature. The selected

independent variables for this analysis included the woman's: age, age at marriage, the age difference between the husband and wife, total number of pregnancies, religion, nutrition, education, the husband's education, the husbands income, organizational participation, the woman's sexual health, sexual health knowledge, contraception use, tension (her support network, sources, and ways of coping with tension), emotional status, empowerment, social support and social network, her husbands help and support in the domestic workload, the couples communication level and agreement in decision making, and the level of violence that was present in the woman's marriage.

Initial Hypothesis

Through the preliminary work and literature review, it was hypothesized that a woman's emotional health (specifically tension caused by income, food security, social support, intimate partner violence, and couples communication, in addition to how the woman dealt with the tension), sexual health (e.g., communication with husband about sex, non-coercive/forced sex, enjoyment during sex, and contraceptive use), and her marital relationship (specifically her husbands help and support in domestic work, her allowed NGO organization participation, and marital agreement and violence), were the greatest contributors to woman's reproductive health. This initial hypothesis led to the development of the logic model depicted in Figure 1.

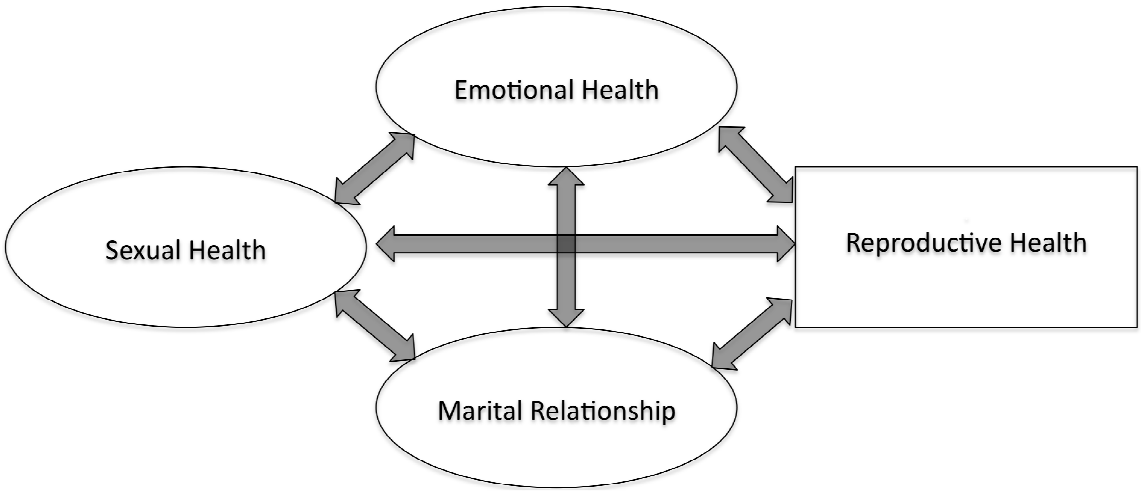

Figure 1. Logic Model.

Quantitative Analysis

To test the preliminary hypothesis and logic model, data from the WSS baseline survey was used. The WSS provides a quantitative assessment of all the women enrolled in the RCT, and explores the same domains as those addressed qualitatively in the individual counseling sessions (the clients: family [in-laws and natal family], children, level of gender empowerment, social support network, employment, psychological well-being, health problems, health perceptions, health care, martial relationship, financial status, domestic violence incidence, and sexual behaviors). While this survey thoroughly covered all of the domains, this analysis will specifically focus on questions that relate to the dependent (women's overall reproductive health) and independent (women's sexual health, mental health, husband's help and support, and selected demographic measures) variables that were identified through the preliminary analysis and extensive literature review.

In an effort to compare the relationships between the independent and dependent variables, fourteen independent variables/scales were created to better represent and

assess the clients overall sexual health (sexual health, contraception use, sexual/STI knowledge, and nutrition scales), emotional health (sources and coping with tension, social support, and emotional status scales), and marital relationship status (partner agreement, husband's help and support, allowed organizational participation, domestic violence, empowerment, and partner communication scales). One dependent variable scale was created to measure and assess the clients overall reproductive health. All data manipulation and analysis was conducted by use of the SPSS software (IBM Corp., 2013). The demographic variables used in the multiple linear regression analysis, in addition to the raw and transformed independent and dependent variables/scales can be observed in Table 1, which is located after the work cited.

Creation of the Independent Variable/Scales

For the sake of brevity, this section will only discuss the creation of the independent variable scales found to be significant in the final analysis. It is important to note however, that all other scales were created in a similar manner. Tables 2-8, located after the work cited, depict the questions that encompass independent variable each scale, in addition to the raw responses for each of the questions.

To create the Sexual Health Scale, twenty-one items were combined from the baseline WSS survey (see the Appendix). The Sexual Health Scale was a composite scale that measured women's sexual enjoyment, sexual competence, sexual desire, the amount of *tenshun* she experienced related to sex, and the presence of forced sex in the marital relationship. Prior to summing the response values for all twenty-one questions and calculating their mean value, negative responses, (those confirming a problem or lack of a positive behavior) were recoded to a value of zero, "midpoint" responses were

recoded to 0.5, and positive responses (those confirming positive behaviors, or lack of problem) were recoded to 1.0. By summing the newly recoded response values and calculating their mean, an overall Sexual Health Scale score was generated with 1.0 representing the best Sexual Health Scale value attainable, and zero representing the poorest value attainable. An example question from this scale is: *13.17 Did your husband ever physically force you to have sexual intercourse with him even when you did not want to? How often did this happen in the last 12 months,* with the responses "*often*" (negative), "*sometimes*" ("midpoint"), and "*never*" (positive) available.

To generate the Sources of Tension Scale, fourteen items were combined from the WSS baseline survey (see the Appendix). The Sources of Tension Scale was a composite scale that measured the number of issues in a woman's life that caused her tension. Prior to summing the response values for all fourteen questions together and taking their mean value, the negative response, "*To a great extent,*" were recoded to 1, "midpoint" responses, *"To some extent,"* were recoded to 2, and positive responses, *"Not at all,"* were recoded as 3. Summing the newly recoded response values together and taking their mean, an overall Sources of Tension Scale was created with 3 being the best scale value attainable, while a value of 1 would be the poorest. An example question from this scale is: *10.5 To what extent do concerns about the following cause you tension? Abuse/harassment from you husband (violence, suspicion, arguing etc.),* with responses *"To a great extent"* (negative), *"To some extent,"* (midpoint), and *"Not at all"* (positive) available. (Note: tension refers to feeling of anxiety, or stress and is commonly associated with depression).

To create the Coping with Tension Scale, nine items were combined from the WSS baseline survey (See the Appendix). The Coping with Tension Scale was a composite scale that measured how women respond to tension, and how it affects them. Prior to summing the response values for all nine questions and taking their mean, the negative response "*yes*" were recoded to 1, while the positive response "*no*" were recoded to 2. By summing the new recoded response values together and taking their average, an overall Coping with Tension Scale score was generated with 2 being the best scale value attainable, while a value of 1 would be the poorest. Example questions from this scale are*: 10.33 Do you experience the following in response to tension? Feel there is no solution to the problem (feeling of hopelessness)?"* or question *10.33 Do you experience the following in response to tension? Think about suicide?* with responses *"yes"*(negative) and *"no"*(positive) available. (Note: tension refers to feeling of anxiety, or stress and is commonly associated with depression).

To generate the Husband's Overall Help and Support Scale, ten items were combined from the WSS baseline survey (see the Appendix). The Husband's Overall Help and Support Scale was a composite scale that measured how often a woman's husband helped in household chores. Prior to summing the response values for all ten questions together and taking their average, negative responses, (those confirming a problem or lack of a positive behavior) were recoded to zero, "midpoint" responses were recoded to 0.5, and positive responses (those confirming positive behaviors, or lack of problem) were recoded to 1.0. By summing the new recoded response values and taking their average, a Husband's Overall Help and Support Scale score was generated with 1 representing the best value attainable, and zero representing the poorest. Because of the

high skewness and model distribution of the scale at zero, the scale was quartered to normalize the skew and distribution with scores 0.00-0.05 (24.6%) assigned a value of 1, 0.50001-0.199999 (18.7%) assigned a value of 2, 0.2-0.37 (29.1%) assigned a value of 3, and 0.03700001-1.00 (27.6%) assigned a value of 4. Example questions from this scale are: *6.5 In the last three months, has your husband been involved in home cleaning?* or question *6.10 In the last three months, has your husband been involved in taking care of the children?* with response choices *"regularly"*(positive), *"sometimes"* ("midpoint"), and *"never"*(negative) available.

To create the Partner Agreement Scale, nine items were combined from the WSS baseline survey (see the Appendix). The Partner Agreement Scale was a composite scale that measured the number of decisions in the marital relationship that the couple agreed/disagreed on. Summing the number of "disagree" responses, an aggregate value was obtained measuring the couples overall level of disagreement. Due to the high skewness and modal distribution at zero, however, the data was quartered to normalize the distribution and skew with scores of 0 (28.4%) disagreements assigned a value of 1, scores of 1-2 (25.6%) disagreements assigned a value of 2, scores of 3-4 (21.0%) disagreements assigned a value of 3, and scores of 5-9 (25.0%) assigned a value of 4. An example question from this scale is: *11.8 Please indicate below whether you and your partner agree or disagree for each item on the following list: The way you discipline the children?* with responses "*agree"* or *"disagree"* available.

To create the Contraception Use variable, one question was analyzed from the WSS baseline survey (see the Appendix). Individuals who responded that they were currently using one of the medically accepted forms of contraception were coded as 2

(Oral pills, Copper-T/IUD, Condom, and Sterilization), while all other responses (Safe Period, Withdrawal, and no contraception use) were recoded as 1.

To create the Organizational Participation variable, eight questions were analyzed from the WSS baseline survey (see the Appendix). The Organizational Participation variable measured if women were involved in any organization in the community. Individuals who responded "*yes*" to any of the analyzed questions were coded as a "yes" or 2 for the organizational participation variable. Women who responded "no" to all eight questions were recorded as "no" or 1 for the organizational participation variable.

Creation of the Dependent Variable Scale

To generate the dependent variable scale, Overall Reproductive Health Outcomes, 27 items were combined from the WSS baseline survey (see the Appendix). The Overall Reproductive Health Outcomes scale was a composite scale that measured the number of reproductive morbidities a woman had experienced in the last three months. Prior to summing the response values for all 27 questions, the negative response "*yes*" was recoded to 1, and the positive response "*no*" was recoded to 0. By adding the newly recoded response values together, an Overall Reproductive Health Outcomes score was generated with zero being the best reproductive health value attainable, and 27 being the poorest. Example questions from this scale are: *23.31 In the last three months have you had the problem of: burning urination?"* or question "*23.35 In the last three months have you had the problem of: ulcers in and around the vagina?"* with response choices *"yes"* (negative) and *"no"* (positive) available.

Reliability Analysis

Prior to conducting the multiple linear regression analysis, a Cronbach's Alpha analysis was conducted on all of the created independent and dependent scales to determine their internal reliability. Any scale that did not produce a Cronbach's Alpha value that exceeded 0.7 was excluded from the analysis. The remaining scales were deemed highly reliable, producing a Cronbach's Alpha value that exceeded 0.7. The individual Cronbach's Alpha scale values, and the number of questions that were included in each scale can be observed in Table 9.

Statistical Analysis

To test the efficacy of the model and to identify the independent variables/scales that had a statistically significant association with the dependent measure (women's overall reproductive health), a multiple linear regression analysis was conducted in SPSS with all of the selected independent variables (IBM 2013).

Qualitative Analysis

Three-hundred and fourteen individual counseling sessions were analyzed to develop an understanding on how each independent variable affected women's reproductive health. For each of the identified significant independent variables, all text coded with the respective domain (domains included: family, children, level of gender empowerment, social support network, employment, psychological well-being, health problems, health perceptions, health care, martial relationship, financial status, domestic violence incidence, and sexual behaviors) were read and analyzed. Summaries were then generated that described the major themes in the coded domains, and how the identified factors affected women's reproductive health.

Human Subjects

Prior to enrolling in the NIMH study, all participants were informed of the potential risks, benefits, and details of project participation by a research staff member. During this time participants had the ability to ask questions, and could then decide to accept or decline participation in the project with no subsequent impact on their treatment. Written consent was then obtained from the participant. IRB approval was obtained from all participating institutions including the Indian Council for Medical Research.

Chapter 3: Results

Demographic Factors

The mean age of the women enrolled in the RCT was 28.61 years old, and on average they were married at the age of 17.7 (46% of the population married below the legal age of 18). The women averaged 3.54 pregnancies, 2.63 living children, and 5 years of education. Despite India's demographics, the women in the sample were predominantly Muslim (91.6%), with 8.1% Hindu, and 0.4% Buddhist. On average their husband's were five years older than their wives at the time of marriage. 96.6% of the husbands were currently employed at the time of the project, with a median monthly income of 4,000 rupees (US $63.96), and a mean education level of 5.69 years. The employment rate was lower among women, with 25.4% of the women employed at the time of the study. The demographic variables used in the multiple linear regression analysis, in addition to the raw and transformed independent and dependent variables/scales can be observed in Table 1.

Women's Reproductive Morbidities

In an effort to better understand how symptoms of reproductive morbidities are associated with negative health or life situations, it is important first to understand what reproductive morbidities the women in this study reported. Table 10, depicted below, shows the frequencies of the reproductive morbidities that were used to make the composite dependent variable scale, Women's Overall Reproductive Health Outcomes. Using the qualitative data, we were able to better describe how the women in the study community define these symptoms and their associated causes. For the sake of brevity, this brief descriptive analysis will only include the reproductive morbidities that have

been previously found to be associated with negative life situations, including white vaginal discharge, backache, weakness, and lower abdominal pain.

Table 10: The raw responses for the questions that were used to create the dependent variable scale (women's overall reproductive health scale). n=1125

Have you experienced the following problem in the last 3 months?	**Yes (Percent)**	**No (Percent)**
White discharge from vagina	1005 (89.5%)	118 (10.5%)
Pain in body	967 (86.1%)	156 (13.9%)
Backache	947 (84.3%)	176 (15.7%)
Headache	937 (83.4%)	186 (16.6%)
Fatigue	923 (82.2%)	200 (17.8%)
Body weakness	846 (75.3%)	277 (24.7%)
Giddiness (Dizziness)	854 (76.0%)	269 (24.0%)
Lethargy	846 (75.3%)	277 (24.7%)
Pain in lower abdomen	772 (68.7%)	351 (31.3%)
Palpitations	672 (59.8%)	451 (40.2%)
Loss of appetite	552 (49.2%)	571 (50.8%)
Constipation	551 (49.1%)	572 (50.9%)
Chest pain	475 (42.3%)	648 (57.7%)
Pain or cramps during menses	469 (41.8%)	654 (58.2%)
Pain during intercourse	436 (38.8%)	687 (61.2%)
Itching in and around vagina	435 (38.7%)	688 (61.3%)
Burning urination	398 (35.4%)	725 (64.6%)
Irregular menses	365 (32.5%)	758 (67.5%)

Table 10 (Cont.): The raw responses for the questions that were used to create the dependent variable scale (women's overall reproductive health scale). n=1125

Have you experienced the following problem in the last 3 months?	**Yes (Percent)**	**No (Percent)**
Sleeplessness	356 (31.7%)	767 (68.3 %)
Swelling of glands in groin	256 (22.8%)	867 (77.2%)
Excessive bleeding from vagina	243 (21.6%)	880 (78.4%)
Swelling in ankles	222 (19.8%)	901 (80.2%)
Pain while urinating	187 (16.7%)	936 (83.3%)
Obstructed urine flow	158 (14.1%)	965 (85.9%)
Increased frequency of micturition	137 (12.2%)	986 (87.8%)
Ulcers in and around vagina	133 (11.8%)	990 (88.2%)
Infertility	85 (7.6%)	1038 (92.4%)
Swelling in ankles	222 (19.8%)	901 (80.2%)
Pain while urinating	187 (16.7%)	936 (83.3%)
Obstructed urine flow	158 (14.1%)	965 (85.9%)
Increased frequency of micturition	137 (12.2%)	986 (87.8%)
Ulcers in and around vagina	133 (11.8%)	990 (88.2%)
Infertility	85 (7.6%)	1038 (92.4%)

Consistent with the literature review, of all the reproductive morbidities vaginal discharge, often referred to as *safed pani,* was the most commonly reported symptom among women in the study population. Describing *safed pani* women often commented on a "heavy" white or bloody discharge from their vagina. Women often associated this problem with backache, lower abdominal pain, weakness, infertility, and low sexual

desire. When describing *safed pani* women frequently mention how it is an inconvenience to them, as they are forced to change their undergarments multiple times a day.

> *I have been having safed pani for the last 1 month. The discharge is so heavy that my inner clothes get wet and I have to change them thrice in a day. Though the color of the discharge is white, it smells.*

When asked about the cause of their *safed pani* women gave a variety of both biological and social causes including the biological causes of: sexual intercourse, childbirth (specifically in relation to c'sections and delivery of female children), miscarriages, age, the use of IUDs, sterilization, and lack of proper hygiene, to more social causes such as: the death of a child, unfaithful husbands, tension (about varying topics), and her domestic workload, as can be better illustrated in the quotes below.

> *After my 4th delivery I began facing the problem of white discharge. I think that after delivering baby girl many women face such problems, it is a very ordinary problem of every women.*

> *I am facing this problem of white discharge because of my C section delivery.*

> *I am having white discharge because of sexual activity and the heavy household work. I think I could also be facing this problem because of my bad marital relationship and domestic tensions that I am going through. Forceful sex could also be reason for my current health complaints.*

Of all the responses given by women for the cause of their *safed pani*, tension and childbirth, specifically c'sections, were the predominate responses.

In line with findings in the literature, women often associated backache with weakness, lower abdominal pain, and vaginal discharge. When describing backache women frequently reported that backache inhibited their ability to do household chores.

> *For the last 4 days I have been having this backache. Due to my backache I am not able to do any of my household work and my daughter does all household work.*

When asked about the cause of their backache women again gave a variety of both biological and social causes, including the biological causes of: childbirth, *safed pani*, and weight gain, to more social issues like: excessive household work, or the lifting of heavy objects. Of all the causes given, *safed pani*, childbirth (specifically c'sections), and excessive household work were the predominate responses given.

> *When my white discharge increases then at that time my back aches more. No medicine is helping me. I am continuing the medicine but due to excessive household work, I am not getting time to rest. I think that this could be the reason for my regular backache.*

Discussing weakness, or *kamjori,* women often associated the problem with backache and *safed pani.* Women commented on how their *kamjori*, similar to backache, prevented them from fulfilling their household responsibilities and taking care of their children. When asked about the cause of their weakness women attributed it to the biological causes of age, childbirth, abortion, poor nutrition, and weight loss, to the social issue of excessive household work.

Describing lower abdominal pain, women often associated the morbidity with *safed pani* and irregular menstruation. When asked about the cause of their lower abdominal pain, women often attributed it to their irregular menstruation or household work.

Identification of Causal Factors that Affect Women's Reproductive Health

A multiple linear regression analysis was used to determine if any of the demographic variables or the created independent variables/scales significantly influenced women's reproductive health outcomes. The results of the multiple linear regression analysis indicated that the twenty-two predictor variables explained 29.3% of the variance in women's reproductive health outcomes (R^2=0.293, F(22,1096)=20.647,

$p<0.000$). The Sexual Health Scale, Coping with Tension Scale, Contraception Use variable, Sources of Tension Scale, Partner Agreement Scale, Husband's Overall Help and Support Scale, and Organizational Participation variable were all found to significantly impact women's reproductive health outcomes at the $p<0.05$ level. None of the demographic variables were found to be statistically significant. It is important to note that for all of the independent variables/scales higher values were the best values attainable, while for the dependent scale, a low value (0) was the best value attainable. Therefore as a women's sexual health, tension coping, contraception use, sources of tension, partner agreement, and organizational participation improved, so did her reproductive health outcomes. On the contrary, as her husband's help and support in household chores improved, her reproductive health outcomes were negatively affected. The standardized beta coefficients, t, and p-values for the demographic and independent variables/scales used in the multiple linear regression analysis can be observed in Table 11 below.

Table 11: Results from the multiple linear regression analysis for predictors of women's reproductive health outcomes n = 1119

	Standardized Beta Coefficient	***t*-value**	***p*-value**
Independent Variables			
Sexual Health Scale	-0.311	-9.751	0.000**
Coping with Tension Scale	-0.243	-7.839	0.000**
Contraception Use (bivariate)	-0.101	-3.496	0.000**
Sources of Tension Scale	-0.127	-3.334	0.001**
Partner Agreement Scale (quartered)	-0.104	-3.145	0.002**
Husband's Overall Help and Support Scale (quartered)	0.076	2.716	0.007**
Organizational Participation (bivariate)	-0.051	-1.968	0.049*
Couples Religion (bivariate)	-0.038	-1.459	0.145
Wife's Education Level (trivariate)	-0.043	-1.438	0.151
Nutrition Level (trivariate)	-0.029	-1.002	0.317
Sexual Health Knowledge Scale	0.029	0.946	0.344

Note: $^{\dagger}p < .10$; *$p < .05$; **$p < .01$.

Table 11(Cont.): Results from the multiple linear regression analysis for predictors of women's reproductive health outcomes n =1119

	Standardized Beta Coefficient	***t*-value**	***p*-value**
Independent Variables			
Husband's Income (square root)	-0.023	-0.849	0.396
Husband's Violence Scale (quartered)	0.025	0.706	0.480
Age Difference at Marriage (square root)	0.017	0.640	0.522
Emotional Status Scale (quartered)	-0.020	-0.610	0.542
Husband's Education Level (quartered)	-0.015	-0.538	0.590
Total Number of Pregnancies	-0.016	-0.463	0.643
Partner Communication Scale (quartered)	0.013	0.401	0.689
Social Support and Network Scale	-0.008	-0.244	0.808
Wife's Age (natural log)	0.007	0.225	0.822
Empowerment Scale	-0.004	-0.130	0.896
Age at Marriage (bivariate)	-0.001	-0.019	0.985

Note: $^{\dagger}p < .10$; $*p < .05$; $**p < .01$.

In the following qualitative analysis, each variable that was found to significantly impact women's reproductive heath outcomes was individually analyzed in order to better understand how the variable impacted women's reproductive health outcomes. The variables were analyzed in order of statistical significance, with the Sexual Health Scale analyzed first, and the Organizational Participation variable analyzed last.

Women's Sexual Health

Based on the multiple linear regression analysis, there was a positive association between a woman's sexual health score ($\beta = -0.311$, $p<0.0001$) and her reproductive health outcomes. In the qualitative data common themes emerged that explain this relationship, specifically focusing around women's enjoyment, or lack of enjoyment in her sexual relationship.

One of the major reasons women failed to enjoy sexual activity/their sexual relationship was the presence of existing health problems. Often these problems were caused by tension, heavy household chores/manual labor, or caused naturally. These health problems decreased a women's interest in sex, and often caused her pain during sexual activity. Refusing sex due to pain during intercourse occasionally resulted in forced sex, additional health problems, and a further reduced satisfaction in their sexual relationship.

> *I do not have good sexual relationship with my husband. He does not listen to me whenever I denies for sex. Due to weakness and health problem, I do not feel for having sex frequently. I avoid sex. But he always forces me for sex. If I refuse to have a sex then he starts biting me.*

> *I do not have good sexual relationship with my husband. He is not listening to me whenever I denies for sex. Due to rashes near vagina, I do not feel for having sex frequently. I avoid sex but he always tries to force me for sex. He wants to have sex daily… During menstruation period also he is forcing me for having sex.*

Another major reason women did not experice satisfaction in their sexual relationship was the presense of forced sex. This often took place in response to a women deniying their husband sex due to an existing health problem or the lack of privacy, although this could also occur any time a woman denied sex to her husband.

> *I used to fear him a lot as he used to abuse me physically and sexually. He always demanded various sexual activities like anal and oral sex from me…He forces me to do anal sex, though I complain about pain in the vagina and lower back but he never listened to me.*

While not as present as the other two themes, women often failed to enjoy sexual activity and their sexual relationship when there was a lack of contraception. These women worried about pregnancy during sexual activity and were unable to enjoy it.

> *He does not use a condom. I am worried due to pregnancy. Hence I am not able to enjoy at the time of sex.*

On the contrary, women who enjoyed sexual activity and their sexual relationship with their husband often mentioned that they had a good marital, had no health problems that impeded on their enjoyment, commented on the absense of forced sex, and often were using or were not bothered by the use/lack of use of contraception.

> *My husband and I share a healthy sexual relationship. We both enjoy sex and it happens with both the partners consent, there was no force of any kind. I am free to say a no for the act if I do not feel like it at any time and when I am feeling unwell and do not feel like having sex my husband was understanding and does not force me to have sex. Overall I am very happy with my marriage and sex life…*

Sources of Tension

In contrast to the following section, which explores how tension and tension coping affects women's reproductive health, this section focuses on how sources of tension could impact women's reproductive health outcomes. Based on the multiple linear regression analysis there is a significant positive association between a woman's

sources of tension ($\beta = -0.127$, $p<0.001$) and her reproductive health outcomes. Although there were no direct connections made by the women in the qualitative data, themes emerged linking their finances, children, marital, natal, in-law relationships and their reproductive health. The hypothesized connection presented in this section is that women who had fewer causes of tension: a) had an improved financial situation and positive relationships with their children, husband, natal family and in-laws relative to individuals who had a higher sources of tension scores, and that these influences could positively impact their reproductive health; b) had fewer severe or worrying health problems that they experienced tension over, and in this case tension causes would simply serve as an indicator of their good health; or c) both of these factors occurring simultaneously. Regardless of the situation, further research would need to be conducted prior to establishing an accurate conclusion. The following description further elaborates on the patterns found among participant's sources of tension, but in no way attempts to relate them back to their reproductive health outcomes or status.

As can be observed both quantitative and qualitatively, financial concerns were one of the most prevalent causes of tension in women's lives. Often financial problems expanded to other areas of the women's lives as limited financial resources caused them to struggle providing education and dowry payments for their children, proper nutrition for their family, and strained their family relationships as they argued over these situations with their husband, natal family, and in-laws.

> *We don't have money to manage our house expenses. Hence we won't be able to send any money to my in-laws. Each month we have to take loan for some emergency expenses like health, education. My tension starts from every morning like what to prepare for lunch? Each day I have to face new circumstance due to economic condition. My tensions will never decrease. It is increasing day by day.*

Due to financial problem I am always tensed. My husband is not able to earn enough money for family expenditure. I am worried about my daughter marriage. We don't have any savings for our daughter's marriage.

Women also experienced tension over the well-being (health and health-care), education, and marriage of their children. While education and dowry/marriage concerns were primarily financially based, women often experienced considerable tension over the health and well-being of their children, either for the duration of the illness, or long-term for mothers of children with chronic conditions (e.g. polio, Down's Syndrome).

My eldest daughter is suffering from Polio from childhood. She can't walk properly. Her 1 leg is not working properly to support her…Due to my daughter's health I am always in tension. Some time in tension I doesn't want to eat. I think that if I am not there, who will take care of her. My daughter is currently studying in 6th std. She is 12 years old.

I wants to give proper education to my children, I know my economical condition is very bad but still I want to give proper education to them. I am always worried about their future and education, I know that I don't have funds but I will search other option.

Women also experienced tension over their relationship with their in-laws and natal family. In-law tension generally arose between the woman and her relationship with her mother-in-law and sister-in-laws. Often women experienced strained relationships with the mother-in-law as they adjusted to a new home, home life, and a new figure of authority. Often in-law tensions and concerns transferred to the martial relationship as it affected the mother-in-law, son, wife relationship. Tension from the natal family often originated from the separation the woman had from her parents and family members, and generally related to the well-being, financial stability, or relationship with individual family members.

My mother-in-law still expects me to do all household work though MIL has more 3 daughters in law now. My mother in law taunts me if I take rest from my work. My mother-in-law has habit of using abusive words for daughter in laws,

especially for me, which hurts me emotionally.

Yes, I have another tension in my life that is my parents. They stay in this community and they are old so I feel tensed about them. They are old enough to do their own work and I am their only child if I will not take care of them then who will do? So I feel tensed as how to take care of them though I stay so near by to their place. They can't pay their bill as they don't have money so I do that part.

The marital relationship was also a significant source of tension for women, and generally the situation was compounded on by tensions in other areas of the women's lives, including financial, in-law, and children problems. Other marital tensions originated from the martial relationship itself, including those caused by husband's laziness, poor marital communication, forced sex, extra-marital affairs, or abuse/domestic violence.

My husband daily he needs alcohol as well as sex, this is why I have tension with my life, he don't wants to leave alcohol, otherwise I am going to leave him.

If my husband had fight with someone, then he fights with me. If he has any problem at outside or work place his outburst all his anger on me. He loves me. He takes cares of me. But due to financial crisis he is always tensed. Hence he is getting angry on me. He is verbally and physically abusing me.

Women's health problems and treatment were a significant source of tension for women. Often, health issues followed a cyclical pattern where a health problem would cause the woman tension, the tension would further exacerbate the health problem, increasing the woman's tension. Women also had tension about paying and obtaining treatment for the health problem, in addition to household work that was often left undone as they sought treatment, or that that they were unable to perform due to their health condition.

Other than finance, I am tensed about my own health problems. Because I feel that when I fall ill, there is lots of money spent without any reason and during that I cannot do any other work. Also this repetitive illness is making me more weak and irritated.

My white discharge got increased when I was tensed more...

Coping with Tension

According to the multiple linear regression analysis there is a significant positive association between a woman's tension coping mechanisms ($\beta = -0.243$, $p<0.0001$) and her reproductive health outcomes. Prior to understanding how coping with tension impacts reproductive health outcomes, however, it is important to understand how women talk about tension and how they cope/deal with it.

When discussing the presence of tension in their lives, women often referred to tension as a "shadow" or "heavy burden" that they constantly carried. Rather than a stressful life event or time period in their lives, these women seemed to be suffering from chronic stress/tension levels.

> *C- Okay. Can I ask you how often you feel tensed? W- ha ha (she laughed) how I will know this. Because tension is part of life just like own shadow, it does not leave you. If one issue is over than next is there.*
>
> *It is a prolong tension, it feels as I am carrying a heavy baggage on my shoulder from a long period of time.*

When asked how they coped with tension women frequently responded that they cried, beat their children, or discontinued their household chores, often to lay down. During this time period women often commented that they felt restless or depressed, and sometimes thought about running away, and in extreme cases, thoughts of or attempted suicide.

As a result of their chronic tension levels, women's tension or tension coping mechanisms, women often reported that tension affected their reproductive health. The most common response was among women reporting an increase in white discharge as a result of the tension in their lives. Less frequently women attributed an overall sense of tiredness, increased body ache, sleeplessness, loss of appetite, and increased back and

body pain as a result of their tension. While some of these issues by themselves cannot cause women's reproductive health problems, they can aggravate, prolong, and worsen existing conditions, lowering a women's overall health. While not related to reproductive health, women frequently mentioned that tension caused spikes in their blood pressure and gave them palpitations.

> *Because of this tension I used to have sleepless nights and thus my health kept getting bad.*
>
> *When I experience tension then my palpitation increase and I feels nauseate. Also when I feels tensed, I do not keep my concentration intact and I do something wrong like vegetable got spoiled while cooking. I beat my children as I get easily irritated if children do not listen to me. When I feel tensed, I experience low-self esteem and rejection from my inside. I tried to commit suicide last year by engulfing medicine… whenever I feel tense, I either cry or sit silently.*

Contraception Use

In the multiple linear regression analysis there was a significant positive association between contraception use ($\beta = -0.101$, $p<0.0001$) and reproductive health outcomes. While there are no qualitative connections made by the women between their contraception use and an improved state of reproductive health, there are patterns among contraceptoin users/nonusers that help explain this relationship.

One of the first factors observed in the qualitative data was between condoms and forced sex. Men engaged in this behavior rarely used a condom given the circumstances. On the other hand, women who stated that their husband used a condom often remarked that their husband never forced them for sex, that sex happened with mutual consent, or that they had a good marital relationship/their husband was caring and understanding.

> *I have healthy sexual relationship with my husband. He does not force me for sex as it happens with my mutual consent. My husband uses condom at the time of sex.*

It is important to note, however, that this pattern did not extend to other forms of

contraception.

The second pattern observed was between contraception and a woman's finacial resources and empowerment within her famiy. In these cases women who were not using contraception did so because they did not have the financial resources to afford it, or have the approval (from husband or mother in law) to begin or continue using contraception.

> *…my eldest sister-in-law has inserted the Cooper-T so my family members were not happy with her, so she was forced to take out the copper-T. So I didn't think of copper-T insertion but now everything is fine, he is using condom. But initially before going to abroad, he was not willing to use condom, so I was not forcing him also.*

> *…we never had money to spend on expensive medications or any contraception method.*

> *After all my deliveries I thought of opting tubectomy but my father-in-law denied for that and said that if I ever does such operation no one will take food from my hand. After that my husband also didn't allow me to get the operation and he said that he will not be able to pay the bills of hospital.*

While the connection between financial resources, empowerment and reproductive health outcomes is difficult to support with the present data, we were able to generate a potential hypothesis to explain this connection. The proposed hypothesis is that a lack of a financial resources or paternal approval for contraception could carry over to a woman's healthcare needs, causing her to have unwanted children and poorer reproductive health outcomes, although further research would needed to support this connection.

The third pattern that emerged between contraception users and reproductive health outcomes was among women who experienced health problems, or iatrogenic infections, as a result of a specific type of contraception. Women who had undergone female sterilization often attributed backache and white discharge to the sterilization procedure. Women who use/used IUDs/CopperT associated a number of problems with its insertion, use, and/or removal, including white discharge, irregular menses and heavy

flow, weakness, and pain during sexual intercourse. Women who used an IUD and had it removed often commented on how it "did not suit her" and so she therefore had it removed, with no other further elaboration given. Women using oral contraception pills associated their use with menstrual problems, weakness, and burning urination. Similar to IUDs, women often commented on how oral contraception was "affecting their body" or "did not suit her" in a general sense to describe why they discontinued this form of contraception.

> *… I inserted copper-T but due to that I got irregular menses with heavy flow.*
>
> *…after my first pregnancy, I used copper-T but it did not suit me, so after 6 months I took out that and after that I did not use anything but my husband was using condom. Then after my second child's delivery, I started taking Mala-D (contraceptive pills), but I was not comfortable taking that as I used to feel weakness for that.*

It is interesting to note that while women who used contraception reported fewer symptoms of reproductive morbidity overall, women who used IUD's or had undergone sterilization reported the highest number of reproductive morbidities symptoms, followed by women who did not use contraception, followed by women who used condoms or oral contraceptives. This could be attributed to the poor quality of the medical procedures around sterilization and IUD insertion, or attributed to the lack of required follow-up on behalf of the women.

Despite the reasons why women may have discontinued one type of contraception, a majority of the women who were using a contraception method continued to use different types despite one type not "suiting her" or it "affecting their body." Often women transferred from IUDs or birth control pills to condoms, pills, IUDs or a combination (condom with pills or IUD).

..to avoid pregnancy I am using IUD but some how IUD didn't suit my body and after 4-5 months I went to Doctor and removes my IUD from my body. Currently we are using condom as contraception.

Partner Agreement

In the multiple linear regression analysis there was a positive association between a woman's partner agreement score ($\beta = -0.104$, $p<0.002$) and her reproductive health outcomes. Themes that emerged around partner agreement, specifically around martial communication, marital relationship quality, and domestic violence help explain this relationship. According to the qualitative data, women who had higher partner agreement scores had better marital relationships, fewer fights, and decreased incidences of domestic violence, which can explain the improved reproductive health outcomes, although this connection would need to be further explored. The following description further elaborates on the connection between partner agreement and marital communication, fighting, and domestic violence.

In the qualitative data, women who commented that they had a high degree of partner agreement with their spouse often mentioned that this was the result of good martial communication. These women often had a substantial amount of decision-making power in their relationships, and talked about problems/disagreements with their spouse as they arose.

I takes all major decisions in the family … My husband gives all his salary to my hand every month. I am having good communication with my husband. He is very slient. If I am having any problem I discuss the same with my husband. My husband understands my feeling much better than any other person.

I have a very good relationship with my husband and we talk out everything, if there is something that is worrying me, I would talk to him and if there is anything he is worried about he would speak to me and they would find solutions to the issues together and in the best way that would be accepted by both of them. At times we both think very differently and there are disagreements and we have

fights but then that is natural and it happens with every one. I have no complaints with my husband or about my husband.

Potentially in part due to their high level of partner agreement and good marital communication skills, these women often mentioned that they had good marital relationships.

I make all major decisions in the family.... my husband gives all his salary to my hand every month. We are taking each decision with after discussing with each other. My husband is very understanding, loving, caring, and supportive. He takes concern for any of my issues.

As expected, individuals with higher levels of partner agreement also experienced fewer fights and disagreements in their marriage. As domestic violence in marital relationships is often triggered by arguments or existing fights, women who reported high levels of partner agreement always commented on an absence of domestic violence in their lives.

I make all decision for my family…There is no violence. My husband is very calm and quiet, very rare does he get angry. He never abuses me, neither verbally nor physically.

Women who mentioned that they had high levels of partner disagreement mentioned that they did not communicate with their partner on these issues (often to avoid fighting or domestic violence) and preferred to keep quite rather than addressing the issue at hand. These women documented higher rates of fighting in their marital relationship.

I if I argue with him he used to fight with me and also beat me. I am very frustrated I am just alive just because my kids.

I am less confident in taking decisions independently even when I am sure that I is right. In such situations I prefers to keep mum.

When I talk about financial constraints, he beats me. There is no communication between us.

Husband's Help and Support

According to the multiple linear regression analysis there was a negative association between the help and support a woman received from her husband ($\beta = 0.076$, $p<0.007$) and her reproductive health outcomes (as her husband's help and support increased, so did her number of reproductive health problems). It is important to note, however, that when the level of the husband's help and support is compared to a women's reproductive health outcomes graphically, a unique, U-shaped graph is generated, with women whose husband's help regularly or never in household chores having the poorest health outcomes, and women whose husbands help sometimes having the best health outcomes, as can be seen below in Figure 2.

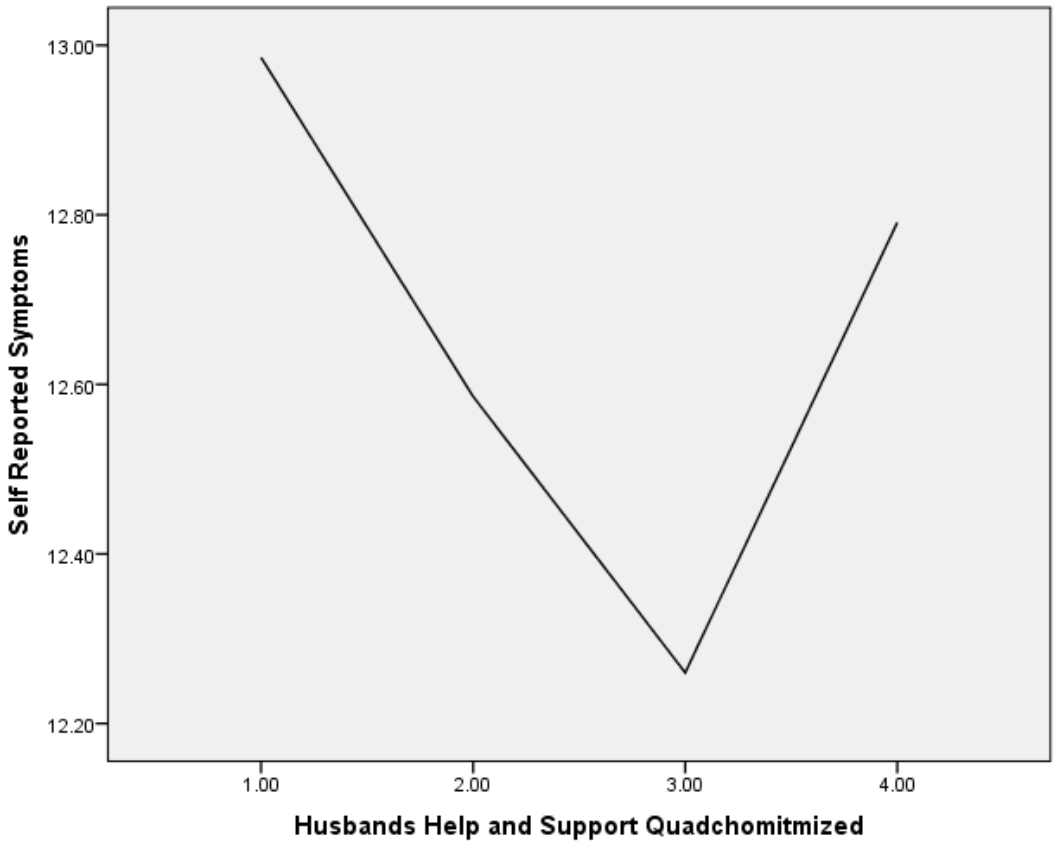

Figure 2: Graph of the Husband's Overall Help and Support Scale vs. Overall Reproductive Health Outcomes Scale

This pattern was further confirmed when a correlation was run between women's health problems and husbands help and support to generate an r = 0.001. In analyzing women's descriptions of their husband's help and support in household chores there were direct connections between their husband's help and support and their own health problems. For analysis purposes, the groups never, sometimes, and regularly will be analyzed separately.

In analyzing women who received no help from their husband in household chores there were direct connections between a lack of husband's help and support and health problems. In these cases women attributed heavy and un-aided household work to an increase or cause in vaginal discharge, headaches, backaches, hand and leg pain, weight loss, and uterine prolapse. While un-aided household chores did not cause all of these conditions, it often perpetuated the problem, as women could not take time off of work to seek medical treatment, prolonging the problem/condition. In some cases, un-aided household work indirectly caused additional reproductive health problems for women. As a result of these health problems and feelings of tiredness from their household chores, these women often experienced a lack of sexual desire and denied sex when asked by their husband, occasionally resulting in forced sex and additional reproductive health problems.

> *I have to do lots of household wok. I don't get time to rest. Since morning till evening I do household work. Hence I is not able to give attention to myself and my health.*

Women who lacked their husband's help and support in household chores also commented that they had limited social support. Due to the extensive amount of time

that these women spent performing household work, they often had little time to socialize with other individuals in or outside of their home.

> *I do not get much time to talk with others as most of the time I am busy with household work.*

In contrast to this description, women whose husband's helped them "sometimes" in household chores seemed to avoid many of these negative health outcomes. In the qualitative data women who commented that their husband helped them in household chores often remarked that they had a good marital relationship with their husband and children, and that this also extended to the father/child relationship.

> *My husband is understanding and also helps me in household chores. He has a good hold on our children and they always pay attention what he is saying.*

> *I have good communication with my husband... If I am having any problem I discuss the same with my husband. My husband understands my feelings much better than any other person. My husband helps me in household work if I am not feeling well.*

While the husbands were not always regularly involved in the household chores, women stated that they aided them in their workload when they were ill or suffering from various health problems allowing them to make a quicker recovery. Based on this description, one could see how women whose husband's help out "regularly" in the household chores would have the worst health outcomes. In this instance, rather than a predictor for lower stress and exertion on the wife's body, the husband's "regular" help and support serve as an indicator that their wife is currently ill. Follow-up questions, such as "Does your husband currently help in household chores because you are ill or physically unable to perform your household duties?" could further confirm this trend.

Wife's Organizational Participation

In the multiple linear regression analysis there was a significant positive association between a woman's organizational participation ($\beta = -0.051$, $p<0.049$) and her reproductive health outcomes. In analyzing women's qualitative descriptions of organizational participation there were no direct connections made by women between their involvement, or lack of involvement, in an organization and their reproductive health. There were, however, patterns that emerged around employment, empowerment, social support, and financial aid that may help explain this relationship. Based on these patterns it could be hypothesized that the increased employment and financial aid, and improved social support and empowerment that is associated with improved organizational participation could positively influence women's reproductive health outcomes, although further studies would be needed in order to better explain this relationship. The following description further elaborates on the connection between organizational participation, employment, empowerment, social support, and financial aid.

In the qualitative data, women who were a member of an organization and desired employment often commented on how they found a job and were employed directly by the organization, or through connections the organization had with other employment areas. Becoming an earning member of the family, some women stated that they were more empowered in the household, and became a decision maker as a result of their employment.

> *I was working for a local community based organization; my payment earning was 650/- rupees for per month. From that time my husband allowed me to take important decision…after joining job at the organization and I felt very nice, my*

personality is totally changed after joining there was improvement in my social contacts I become confident.

Women not seeking immediate employment became involved with NGOs and other organizations to further their education through vocational (mainly tailoring) classes offered by the organization. These classes allowed the women to learn valuable skills that would allow them to be employed at a later date either in, or outside of their home, improving their family's financial status.

I am learning tailoring course from NGO. If I get machine than I can start tailoring at home and earn some money.

Regardless of employment seeking status, many women involved in an organization noted an increased social support structure as a result of their participation, as the organization allowed them to make connections with other women throughout their community. Another way women benefited from organizational participation was through receiving financial aid to send their children to school.

Women's descriptions of their lack of organizational involvement were associated with mistrust and poor social support. Often women who were asked, but showed no interest in participating in an organization exhibited distrust towards other women, and the community in general.

I am not part of any local social group or any local NGO…I do not have any friends in the community as I know the nature of females. Initially, they will talk with you very nicely and will get all information out, then they will gossip about you with other women so I doesn't like spending time with them.

I am not part of any social organization … I do not have any friends also. I sometimes chat with other females in my lane but no one is friend kind of with whom I can share my feelings. I do not speak much about my problems or tensions with others. Whenever I feel angry or irritated, I keeps silent or discuss with my husband. But when I have any issue with the husband, I do not speak with him or I just keep murmuring.

Chapter 4- Discussion and Conclusion

The results from this study show that a women's sexual health, marital relationship, and emotional health are the most significant predictors of women's overall reproductive health outcomes. These results confirm previous findings on the association between self-reported symptoms of reproductive morbidity and negative life situations, and support the view that women's' negative life situations can serve as both an indicator and a causal factor for poor reproductive health outcomes. These results are important because they directly relate to clinical practice, and encourage the development and implementation of a more holistic treatment approach with women who self-report reproductive morbidities that addresses the contributors to the problem as well as the problem itself. This approach is essential because in LMICs symptoms of reproductive morbidity are the most common health problem reported by women, particularly in South Asia.

One of the major strengths of this study was the ability to link the quantitative results from the multiple linear regression analysis to the qualitative data obtained from the individual counseling sessions. The qualitative data allowed us to further explain the trends and causality found in the regression analysis as we were able to further elaborate on the associations between the sexual, emotional, marital, and reproductive health domains.

Specifically analyzing the connection between women's sexual and reproductive health, the results from the multiple linear regression found that as a women's sexual enjoyment and contraception use improved, so did their reproductive health outcomes. Shifting to the qualitative data to expand on these results, in terms of sexual enjoyment

we found three main reasons why women reported that they failed to enjoy sexual activity, they were: 1) the presence of an existing health problem; 2) the presence of forced sex; or 3) the lack of contraception use, all of which not only negatively impacted women's enjoyment, but their reproductive health outcomes as well. Analyzing themes around contraception use, this study found low rates of forced sex among couples who used condoms as contraception, although this pattern could not be extended to other contraceptive methods.

Examining the connection between women's emotional and reproductive health, the results from the multiple linear regression found that as women's sources and coping mechanisms of tension improved, so did their reproductive health outcomes. In the qualitative data women's main sources of tension revolved around their financial situation, their relationship with children, husband, and in-laws, and tension they experienced over their own health problems. When asked how women coped with tension, common responses were crying, beating their children, and discontinuing their household chores, which they often did to lie down. When asked about the consequences of tension in their lives, the most frequent response was white vaginal discharge, with other women attributing tension to a cause in their tiredness, increased body ache, sleeplessness, loss of appetite, increased leg and back pain, depression, and thoughts of suicide. While some of these issues by themselves cannot cause women's reproductive health problems, they can aggravate, prolong, and worsen existing conditions, lowering a women's overall health.

Exploring the connection between women's marital relationship and their reproductive health outcomes, the results from the multiple linear regression found that as

couples partner agreement scores, women's organizational participation, and the husband's help and support in household chores improved, so did their reproductive health outcomes. In the qualitative data we found that women who had better partner agreement had better marital communication, increased decision-making power, improved marital relationships, and fewer fights and incidences of domestic violence in contrast to women who had poor partner agreement scores. When looking at organizational participation, we found that women who were allowed to join and participate in organizations had: better employment as a result of their involvement; often more empowerment/decision making power as they became an earning member of the family; more educational opportunities, as many are offered through various organizations; and improved social support as a result of being networked with other community members. When analyzing husband's help and support in household chores, we found that: a) women who received no help in household chores had poor reproductive health outcomes, attributing their workload to a cause of numerous reproductive health problems; b) women who received some help from their husband in household chores had good marital relationships, and improved reproductive health outcomes; and c) women whose husbands always helped in household chores had poor reproductive health outcomes, as they were required to do the chores because of their spouse's physical ailments.

While further research will need to be done to better define and/or confirm the causality pathways described or hypothesized above, this work represents a major step forward in both identifying and defining how critical social/structural factors are interconnected with reproductive morbidity, especially among women in LMICs.

Clinical Implications

The results from this study suggest that in order to effectively treat women's symptoms of reproductive morbidity, a more holistic treatment approach should be implemented that addresses not only the biological, but the sexual, emotional, and marital factors that affect women's reproductive health outcomes. The following description offers suggestions as to how these factors could be addressed through interventions at each of four ecological levels: individual, couple, community, and institutional.

At the individual level, there are numerous ways that treatment interventions could address the sexual, emotional, and marital factors that affect women's reproductive health outcomes. Addressing the sexual health factors, health practitioners should assess women's sexual enjoyment when documenting their reproductive health history, as this could provide key sights to problems that affect their reproductive health. Health care providers should also promote and provide contraception for these women, and provide them with communication strategies that could be used to deal with forced sex or to negotiate sexual activity more effectively with their partner. With respect to emotional health, health practitioners should be prepared to provide counseling services to women that address ways they can reduce tension and cope with it more effectively in their lives. With regard to the marital relationship, health practitioners should include information about women's domestic workload, and their husband's help and support, in women's medical history, as this factor is a powerful determinant in their reproductive health outcomes. Finally, staff should also be prepared to provide women with guidance in improving their communication with their spouses.

At the couple's level, when treating women who self-report symptoms of reproductive morbidities health professionals should work to improve couple's sexual health by promoting contraception use in the marital relationship and by fostering communication skills, through couple's counseling, that the couple could use to address forced sex or other marital relationship problems. Improving women's emotional health, medical professionals should work with the couple to help identify positive ways that the couple can effectively reduce and cope with tension. Practitioners should make the couple aware of mental and emotional health issues, and encourage both men and women to begin seeking treatment for these conditions. Physicians should work to foster communication and decision-making skills in the marital unit, and work to promote gender equity and empowerment within marital relationships.

At a community level there are many tasks that NGOs, governmental, and healthcare organizations can be involved in that have the potential to improve women's overall reproductive health outcomes. These organizations should work to promote cultural norms that both condone contraception use in the marital relationship, and support healthy sexual relationships were sexual activity is initiated only at mutual consent. In an effort to advance women's emotional health, these organizations should work to reduce the stigma associated with mental and emotional health problems. Addressing the marital relationship, organizations should work to promote norms that: support male involvement in household work; promote women's involvement in community organizations; and promote women's empowerment, mobility, and decision making autonomy.

At the institutional level, healthcare organizations should work to provide affordable care for the low-income populations these facilities often serve. Rather than focusing solely on material and child health, as is typical in India and many other LMICS, healthcare facilities also should cater to women and their reproductive health needs. These organizations should be tailored to meet the cultural/religious needs of the community, and in areas with Islamic or Hindu populations, these facilities should be staffed with female physicians and medical staff so women are not barred from care because of the gender of the provider. In addition, it is essential that these organizations not only promote, but also have and are willing to provide contraceptives to their patient populations. To improve women's emotional health, it is important to offer counseling services for women, and to provide these services in-house, as limited mobility can often impair women's ability to receive health services when referred elsewhere. To improve women's marital relationships, it is essential that these organizations begin assessing and addressing the marital component of health as a routine part of physicians visits.

Conclusion

By implementing and providing a holistic treatment approach for women who self-report reproductive morbidities, healthcare organizations can more effectively treat the psychosocial as well as the biophysiological causes of women's reproductive morbidities and begin to improve women's overall and reproductive health outcomes. Women in India, and in many other LMICs, live in highly patriarchal societies in which gender inequity is integrated into societal laws and regulations, community norms, family and daily life. These issues are further exacerbated by poverty, gender discrimination, household responsibilities, illiteracy, housing difficulties, and limited mobility,

empowerment, and decision-making autonomy. Because of these factors, women's self-reported reproductive morbidities often serve as a self-expression of their negative life situations, social or psychological life stressors, or other mental health problems. Intervention and treatment approaches will effectively treat, address, or improve women's overall and reproductive health outcomes when they begin to address the social, behavioral, cultural, infrastructural, and demographic barriers and challenges women face.

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Table 1: Descriptive statistics of the original and transformed variables used in the multiple linear regression analysis. (n=1125)

Independent Variables	***Mean***	***Standard Error***	***Mode***	***Standard Deviation***	***Skewness***	***Range***
Sexual Health Scale	0.6807	0.0056	0.76	0.18827	-0.685	0-1
Coping with Tension Scale	1.4347	0.0081	1.11	0.2721	0.252	1-2
Contraception Use (bivariate)	1.5191	0.1492	2.00	0.4999	-0.077	1-2
Sources of Tension Scale	2.3434	0.1047	2.36	0.3511	-0.420	1-3
Partner Agreement Scale	1.6821	0.0094	2.00	0.3144	-0.818	1-2
Partner Agreement Scale (quartered)	2.4249	0.0341	1.00	1.1463	0.115	1-4
Husband's Help and Support Scale	1.5016	0.0126	1.00	0.4222	0.848	1-3
Husband's Help and Support Scale (quartered)	2.5973	0.0338	3.00	1.1345	-0.180	1-4
Organizational Participation Scale	1.0150	0.0015	1.00	0.0496	4.335	1-2
Organizational Participation (bivariate)	1.900	0.0089	2.00	0.2995	-2.678	1-2
Wife's Education Level (years)	5.02	0.120	0	4.021	0.119	0-15
Wife's Education Level Scale (trivariate)	1.00	0.023	1.00	0.774	0.006	1-3

Table 1 (Cont.): Descriptive statistics of the original and transformed variables used in the multiple linear regression analysis. (n=1125)

Independent Variables	**Mean**	***Standard Error***	***Mode***	***Standard Deviation***	***Skewness***	***Range***
Couples Religion (bivariate)	1.08	0.008	1.00	0.278	2.993	1-2
Wife's Nutrition Level Scale	1.8102	0.0101	2.00	0.3386	-1.562	1-2
Wife's Nutrition Level (bivariate)	1.7164	0.0134	2.00	0.4509	-0.962	1-2
Sexual Health Knowledge Scale	0.4649	0.0080	0.50	0.2688	-0.059	0-1
Husband's Income	4633.39	80.907	3000	2708.887	2.377	0-30,000
Husband's Income (square root)	64.9270	0.6108	54.77	20.4509	-0.313	1-174.25
Age Difference at Marriage	5.1502	0.1091	5.00	3.6584	1.911	-9-30
Age Difference at Marriage (square root)	3.8667	0.0133	3.87	0.4458	0.884	1-6.32
Husband's Violence Scale	0.1604	0.0062	0.00	0.2095	1.862	0-1
Husband's Violence Scale (quartered)	2.4951	0.0326	2.00	1.0924	0.045	1-4
Emotional Status Scale	1.7603	0.0164	1.00	0.5489	0.427	1-3
Emotional Status Scale (quartered)	2.4889	0.0327	3.00	1.0972	0.000	1-4

Table 1 (Cont.): Descriptive statistics of the original and transformed variables used in the multiple linear regression analysis. (n=1125)

Independent Variables	**Mean**	***Standard Error***	***Mode***	***Standard Deviation***	***Skewness***	***Range***
Husband's Education Level (years)	5.69	0.123	0	4.117	0.057	0-17
Husband's Education Level (quartered)	1.47	0.033	2	1.101	0.026	1-4
Total Number of Pregnancies	3.54	0.067	4	2.247	0.770	0-14
Social Support and Network Scale	2.4363	0.0126	2.75	0.4238	-0.628	1-3
Wife's Current Age	28.61	0.166	30	5.553	0.273	18-40
Wife's Current Age (natural log)	3.3347	0.0058	3.40	0.1950	-0.041	2.89-3.69
Partner Communication Scale	2.4345	0.0155	3.00	0.5190	-0.633	1-3
Partner Communication Scale (quartered)	2.6782	0.0315	2.00	1.0569	-0.136	1-4
Empowerment Scale	1.8615	0.0117	1.58	0.3944	0.167	1-3
Wife's Age at Marriage	17.70	0.092	18	3.085	0.636	3-35
Wife's Age at Marriage (bivariate)	1.5404	0.0149	2.00	0.4986	-0.163	1-2

Dependent Variable	**Mean**	***Standard Error***	***Mode***	***Standard Deviation***	***Skewness***	***Range***
Women's Overall Reproductive Health Scale	12.6462	0.1322	14.00	4.4332	-0.029	0-26

Table 2: The raw responses for the questions that were used to create the sexual health scale. n=1125

	Always (percent)	**Sometimes (percent)**	**Never (percent)**
Do you discuss about sex freely with your husband?	390 (34.7%)	333 (29.6%)	402 (35.7%)
Does your husband discuss sex freely with you?	435 (38.7%)	359 (31.9%)	331 (29.4%)
How often do you initiate sex with your husband?	16 (1.4%)	224 (19.9%)	885 (78.7%)
To what extent do concerns about the cause your tenshun?	**To a great extent (percent)**	**To some extent (percent)**	**Not at all (percent)**
Sexual relationship with your husband	104 (9.2%)	194 (17.2%)	827 (73.5%)
Husbands extramarital sex	45 (4.0%)	59 (5.2%)	1021 (90.8%)
Please indicate below whether you and your partner agree or disagree for each item on the following list:		**Agree (percent)**	**Disagree (percent)**
Husband forcing sex		666 (59.2%)	458 (40.7%)
How often in the past 12 months did this happen?	**Often (percent)**	**Sometimes (percent)**	**Never (percent)**
Physically force you to have sexual intercourse with him even when you did not want to?	79 (7.0%)	154 (13.7%)	892 (79.3%)
Force you to perform any sexual acts you did not want to?	59 (5.2%)	101 (9.0%)	962 (85.5%)
During the past 12 months, did your husbands alcohol use lead him to be abusive toward you:	**Yes (percent)**	**No (percent)**	**System missing (percent)**
Sexual abuse	36 (3.2%)	73 (6.5%)	1016 (90.3%)

Table 2 (Cont.): The raw responses for the questions that were used to create the sexual health scale. n=1125

	Yes (percent)	No (percent)
Have you ever used any kind of contraceptive method to delay pregnancy?	670 (59.6%)	455 (40.4%)
Are you currently using any contraception?	609 (90.6%)	63 (9.4%)
Can you refuse if your husband demands sex and you don't want it?	884 (78.6%)	241 (21.4%)

Have you ever experienced?	Yes, I do, currently (percent)	Yes, I have in the past (percent)	No, never (percent)
A lack of interest in sexual activity?	476 (42.3%)	56 (5.0%)	593 (52.7%)
A lack of lubrication?	314 (27.9%)	64 (5.7%)	747 (66.4%)
Taking a long time to get aroused?	324 (28.8%)	70 (6.2%)	731 (65.0%)
Pain or discomfort during sexual activity?	424 (37.7%)	52 (4.6%)	649 (57.7%)
Difficulty achieving orgasm?	307 (27.3%)	54 (4.8%)	764 (67.9%)

Had the problem in the last three months?	Yes (percent)	No (percent)
Sexual dissatisfaction	300 (26.7%)	823 (73.3%)
Loss of sexual desire	435 (38.7%)	688 (61.2%)

	High (percent)	Low (percent)	No risk (percent)
How possible is it that you might get a sexually transmitted disease	32 (2.8%)	137 (12.2%)	955 (85.0%)
How possible is it that your husband might get a sexually transmitted disease	23 (2.0%)	93 (8.3%)	1008 (89.7%)

Table 2 (Cont.): The raw responses for the questions that were used to create the sexual health scale. n=1125

	Strongly agree (percent)	**Agree (percent)**	**Disagree (percent)**	**Strongly disagree (percent)**
A woman should always be ready whenever husband wants to have sex	356 (31.7%)	396 (35.3%)	302 (26.9%)	69 (6.1%)
Women's engage in sex only for men's satisfaction	394 (35.1%)	251 (22.4%)	361 (32.1%)	117 (10.4%)

Table 3: The raw responses for the questions that were used to create the coping with tension scale. n=1125

Do you experience the following in response to tension?	**Yes (Percent)**	**No (Percent)**
Can't concentrate on housework	810 (72.0%)	315 (28.0%)
Sleeplessness	781 (69.4%)	344 (30.6%)
Feel there is no solution to the problem (feeling of hopelessness)	775 (68.9%)	350 (31.1%)
Retaliation	672 (59.7%)	453 (40.3%)
Surrender (give up; tolerate it)	655 (58.2%)	470 (41.8%)
I would not care about anything	575 (51.1%)	550 (48.9%)
Feel like leaving (desired to runaway from the house)	503 (44.7%)	622 (55.3%)
Feel like sleeping	488 (43.4%)	637 (56.6%)
Think about suicide	465 (41.3%)	660 (58.7%)

Table 4: The scale components for the contraception use scale, and the dichotomous variable that was created using the scale components. n=1125

Are you currently using contraception? And if so what type?	**Agree (percent)**
Oral Pills	76 (6.8%)
Copper-T/IUD	136 (12.1%)
Condom	230 (20.4%)
Female Sterilization	141 (12.5%)
None	540 (48.1%)
Currently Using Contraception	**Frequency (Percent)**
Yes (coded as 1)	583 (51.9%)
No (coded as 2)	540 (48.1%)

Table 5: The raw responses for the questions that were used to create the sources of tension scale. n=1125

To what extent does concerns about ____ cause you tension?	**To a great extent (percent)**	**To some extent (percent)**	**Not at all (percent)**
Household finances	697 (62.0%)	219 (19.5%)	209 (18.6%)
Your children (e.g. education, health, future)	687 (61.1%)	207 (18.4%)	231 (20.5%)
Water Problem	550 (48.9%)	217 (19.3%)	358 (31.8%)
Your daughter (e.g. behavior, future marriage)	323 (28.7%)	161 (14.3%)	641 (57.0%)
Unhealthy environment (e.g. bad smell, garbage, flies)	323 (28.7%)	360 (32.0%)	441 (39.2%)
Relationship with in-laws (e.g. expectations, conflict)	233 (20.7%)	209 (18.6%)	683 (60.7%)
Abuse/harassment from your husband (e.g. violence, suspicion, arguing)	182 (16.2%)	263 (23.4%)	680 (60.4%)
Communication with your husband	177 (15.7%)	306 (27.2%)	642 (57.1%)
Obtaining/preparing enough food for your family/self	177 (15.7%)	245 (21.8%)	703 (62.5%)
Anti-social elements in community (e.g. teasing, harassment, theft)	129 (11.5%)	230 (20.4%)	766 (68.1%)
Husband's alcohol use	70 (6.2%)	44 (3.9%)	1011 (89.9%)
Relationship to natal family	66 (5.9%)	157 (14.0%)	902 (80.2%)
Your reputation among neighbors (e.g. neighborhood gossip)	65 (5.8%)	133 (11.8%)	927 (82.4%)
Pressure from husband or family to have children	61 (5.4%)	109 (9.7%)	955 (84.9%)

Table 6: The raw responses for the questions that were used to create the partner agreement scale. n=1125

Please indicate whether you and your partner agree or disagree for each item on the following list:	**Agree (percent)**	**Disagree (percent)**
Not enough money to meet the needs of the household money matters	555 (49.4%)	569 (50.6%)
School fees for the children	758 (67.4%)	366 (32.6%)
You're spending too much time with friends and neighbors	846 (75.3%)	278 (24.7%)
Husbands drinking taking money from the household	827 (73.6%)	297 (26.4%)
Your relationship with your husband's parents and family	776 (69.0%)	348 (31.0%)
Your husband's relationship with your family	827 (73.6%)	297 (26.4%)
Inadequate dowry given by your parents	857 (76.2%)	267 (23.8%)
The way you discipline the children	788 (70.1%)	336 (29.9%)
Husband forcing sex	666 (59.3%)	458 (40.7%)

Table 7: The raw responses for the questions that were used to create the husband help and support scale. n=1125

In the last three months has your husband been involved in?	**Regularly (Percent)**	**Sometimes (Percent)**	**Never (Percent)**
Fetching water from common tap	368 (32.7%)	205 (18.2%)	552 (49.1%)
Taking family members to the doctor	312 (27.7%)	411 (36.5%)	402 (35.7%)
Taking care of the children	302 (26.8%)	382 (34.0%)	441 (39.2%)
Payment of electricity bill	238 (21.2%)	205 (18.2%)	682 (60.6%)
Going to ration shop	180 (16.0%)	263 (23.4%)	682 (60.6%)
Purchasing vegetables and groceries	130 (11.6%)	267 (23.7%)	728 (64.7%)
Cooking	62 (5.5%)	230 (20.4%)	833 (74.0%)
Home cleaning	42 (3.7%)	159 (14.1%)	924 (82.1%)
Washing clothes	23 (2.0%)	84 (7.5%)	1018 (90.5%)
Washing utensils	22 (2.0%)	79 (7.0%)	1024 (91.0%)

Table 8: The scale components for the wife's organizational participation scale, and the dichotomous variable that was created using the scale components. n=1125

Are you a member of any of the following?	**Yes (Percent)**	**No (Percent)**
Mahila Mandals	66 (5.9%)	1059 (94.1%)
Chitfund/B.C.	34 (3.0%)	1091 (97.0%)
Bachat Gut	19 (1.7%)	1106 (98.3%)
NGOs/CBOs	8 (0.7%)	1117 (99.3%)
Political Party	4 (0.4%)	1121 (99.6%)
Religious Groups	2 (0.2%)	1123 (99.8%)
Informal Cultural Groups	1 (0.1%)	1124 (99.9%)
Credit Cooperative Society	1 (0.1%)	1124 (99.9%)
Are you a member of an organization?	**Frequency (Percent)**	
Yes (coded as 2)	112 (10.0)	
No (coded as 1)	1013 (90%)	

Table 9: Reliability analysis results for the selected independent and dependent variable scales that were used in the multiple linear regression analysis (n=1125)

Independent Variable Scales	**Cronbach's Alpha**	***n***
Sexual Health Scale	0.845	21
Coping with Tension Scale	0.731	9
Sources of Tension Scale	0.745	14
Partner Agreement Scale	0.859	9
Husband's Help and Support Scale	0.823	10
Sexual Health Knowledge Scale	0.828	14
Husband's Violence Scale	0.932	21
Emotional Status Scale	0.883	9
Partner Communication Scale	0.843	6
Social Support and Network Scale	0.765	8
Empowerment Scale	0.714	12
Dependent Variable Scales	**Cronbach's Alpha**	***n***
Women's Overall Reproductive Health Scale	0.781	27

Appendix

WSS BASELINE SURVEY

(As administered)

Section: 1 Demographic Factors

No	Questions and filters	Coding categories		Skip to
1.1	What is your current age?	(In completed years)	_____	
1.2	What is the highest class/standard you have completed? ("0" for no)	No. of classes	_____	
1.3	What is your religion?	Hindu Muslim Buddhist Christian	1 2 3 4	
1.4	Were you born in Mumbai?	Yes No	1 2	**→ 1.6**
1.5	If no, at what age did you move to Mumbai?	(Age in Years)	_____	
1.6	What is your Native State?	WRITE IN	_____	
1.7	How long are have you lived in this community?	Years/Months	_____/____	
1.8	Age at Marriage	In completed years)	_____	
1.9	Whether the marriage was	Arranged Love	1 2	

Section: 2 Husband

No.	Questions and filters	Coding categories		Skip to
2.1	What is your Husband's age	In completed years	_____	
2.2	What is the highest grade he has completed? ("0" for no school)	No. of classes		
2.3	What is your husbands' Native State?	WRITE IN	_____	
2.4	Was he born in Mumbai?	Yes No	1 2	→2.6
2.5	If no, at what age did he move to Mumbai	(Age in Years)	_____	
2.6	How long he has been staying in this community?	In Years	_____	
2.7	What was your husbands' age at the time of marriage?	(In completed years)	_____	

Section: 3 Household

No.	Questions and filters	Coding categories				Skip to
3.1	Where you live, who owns your residence?	Own house Rent house Friends or relatives house	1 2 3			
3.2	How many rooms are there in your household? (Including kitchen)	No. of Rooms	_____			
3.3	Number of people in your residence?		_____			
3..	Types of people in household: 1=Yes 2=No	3.4 (Blank) 3.5 (Blank) 3.6 Mother-in-law 3.7 Father-in-law 3.8 Husband's Siblings 3.9	1 1 1 1 1 1	2 2 2 2 2 2		
3..	What household items do you have at home? 1=Yes 2=No	3.10 refrigerator 3.11 (blank) 3.12 (blank) 3.13 Bicycle 3.14 Motorcycle/ scooter 3.15 (Blank) 3.16 Auto rickshaw 3.17 Sewing machine 3.18 Mobile phone 3.19 (Blank) 3.20 (Blank) 3.21 (Blank) 3.22 Television	1 1 1 1 1 1 1 1 1 1 1 1 1	2 2 2 2 2 2 2 2 2 2 2 2 2		

Section: 4 WOMEN'S LIFESTYLE

No.	Questions and filters	Coding categories		Skip to
4.1	Do you work for cash (money)?	Yes No	1 2	 → **4.5**
4.2	If yes, do you work in or outside the home?	Home-based worker Outside home	1 2	
4.3	What is the nature of your work? (Write here the respondent's actual work) _____	Govt.job Pvt job Domestic servant Small or Petty Business Zari industry worker Sewing/tailoring Teacher Daily wage Rag picker	1 2 3 4 5 6 7 8	

		Other: Specify _____	9 10	
4.4	How much do you earn in a month (in Rs.)	Rupees	_____	
Tobacco and Alcohol				
4.5	Do you eat tobacco (tobacco paan or Mishri or Mawa or Gutka)?	Yes No	1 2	
4.6	Do you use mishri to brush your teeth?	Yes No	1 2	
4.7	D;k vki 'kjkc ihrh gS@ Do you drink alcohol?	Yes No	1 2	
Financial Power				
4.8	Do you have a bank account?	Yes No	1 2	
4.9	Does your household own any property?	Yes No	1 2	
4.10	Do you have any property under your name (land/house)?	Yes No	1 2	
Leisure				
4.11	How much time in a day do you get for leisure/rest (free time from employment and household work)?	hours	_____	
4…	What do you typically do in your leisure time?	4.12 Sleep 4.13 Read 4.14 Watch TV 4.15 Talk with my neighbors/friends 4.16 Learning/skill- 4.17 building Other: Specify _____	1 2 1 2 1 2 1 2 1 2 1 2	
Food & Nutrition				
4.18	**Blank**			
4.19	**Blank**			
4.20	Did you <u>ever</u> go to sleep at night hungry because there was not enough food?	Yes No	1 2	
4.21	Did you <u>ever</u> go without eating the whole day because there was not enough food?	Yes No	1 2	
4.22	In last one month, did you go to sleep at night hungry because there was not enough food?	Yes No	1 2	
4.23	In the last month, did you go without eating the whole day	Yes No	1 2	

	because there was not enough food?			

Organization participation (Social and Political)

No.	Question and filters	Coding categories			Skip to
4…	Are you a member of any of the following:	4.24	Mahila mandals	1 2	
		4.25	Bachat Gut	1 2	
		4.26	Chitfund/B.C.	1 2	
		4.27	Credit cooperative	1 2	
		4.28	society		
		4.29	NGOs/CBOs	1 2	
		4.30	Political party	1 2	
		4.31	Informal cultural groups	1 2	
			Religious groups	1 2	

Section: 5 HUSBAND LIFESTYLE

No.	Question and filters	Coding categories		Skip to
5.1	Nature of your husband's work? (Write here the respondent's actual work) 5.1.1 _____	Not Working Daily Wage worker HMV driver LMV driver Business Petty trader Hawker Casual worker Construction worker Contractor Industrial worker Salaried Private Salaried Government Other: Specify _____	00 01 02 03 04 05 06 07 08 09 10 11 12 13	
5.2	How much does he earn in a month (in Rs.)? [if give daily wage, then confirm with her the # days he works per month and calculate onthly]	Rupees	_____	
5.3	Whether your husband stays away from home overnight for work purposes?	More than once per week Once per week Once per month Rarely Never	4 3 2 1 0	
5.4	How much time each day does your husband spend at home in leisure?	WRITE IN (in hours)	_____	
5.5	How much time does your husband spend with friends	WRITE IN (in hours)	_____	

	outside the home in each week (except on holiday)?			

Section: 6 Husband Help and Support

No.	Questions and filters		Coding categories				Skip to
6…	In the last three months, has your husband been involved in…	6.1	Cooking	1	2	3	
		6.2	Fetching water from common tap	1	2	3	
		6.3	Washing clothes	1	2	3	
		6.4	Washing utensils	1	2	3	
		6.5	Home cleaning	1	2	3	
		6.6	Taking family members to the doctor	1	2	3	
	1= R: Regularly 2= S: Sometimes 3= N: Never	6.7	Purchasing vegetables and groceries	1	2	3	
		6.8	Payment of electricity bill	1	2	3	
		6.9	Going to ration shop	1	2	3	
		6.10	Taking care of children	1	2	3	
Communication							
6.11	Do you listen to your husband's suggestions in family matters/HH work?		Always Sometimes Never	1 2 3			
6.12	Does your husband listen to your suggestions in family matters/HH work?		Always Sometimes Never	1 2 3			
6.13	Do you talk to your husband about your problems?		Always Sometimes Never	1 2 3			
6.14	Does your husband talk with you about his problems?		Always Sometimes Never	1 2 3			
6.15	Do you discuss about sex freely with your husband?		Always Sometimes Never	1 2 3			
6.16	Does he discuss sex freely with you?		Always Sometimes Never	1 2 3			
6.17	Do you share your feelings with your husband?		Always Sometimes Never	1 2 3			
6.18	Does your husband share his feelings with you?		Always Sometimes Never	1 2 3			

Section: 7 Social Support and Social Networks (from SUBI)

		Not at all	To some extent	Very much
7.1	Do you consider the other members of your	1	2	3

	household a source of help to you in finding solutions to most of the problems you have?			
7.2	Do you think that most of the members of your household feel closely attached to one another?	1	2	3
7.3	Do you think that you would be looked after well by other members of your household in case you were seriously ill?	1	2	3
7.4	Do you feel your friends/relatives would help you out if you were in need?	1	2	3
7.5	Do you sometimes worry about the relationship you and your husband have?	1	2	3
7.6	Would you wish to have more friends than you actually have?	1	2	3
7.7	Do you sometimes feel that you lack a real close friend?	1	2	3
7.8	Do you sometimes worry that you do not have close personal relationships with other people?	1	2	3

Section: 8 EMPOWERMENT SCALE

No.	Questions and filters	Coding categories		Skip to
8.1	Please tell me who in your family decides the following: whether to purchase major goods for the household, such as a TV/refrigerator	Self Jointly with Husband Husband/Other	1 2 3	
8.2	Please tell me who in your family decides the following: whether you can work outside the home?	Self Jointly with Husband Husband/Other	1 2 3	
Family Size Decision-Making Empowerment				
8.3	Please tell me who in your family decides the following: how many children to have?	Self Jointly with Husband Husband/Other	1 2 3	
8.4	**Blank**			
8.5	If you wanted to buy yourself a dress/sari, would you feel free to do it without consulting your husband (or a senior member of your family)?	Yes No	1 2	
8.6	If you wanted to buy yourself a small item of jewelry, such as a bangle/ would you feel free to do it without consulting your husband (or a senior member of your family)?	Yes No	1 2	
8.7	Does your husband gives you his salary?	On regular basis Only when asked Does not give at all	1 2 3	
8.8	Do you put aside money to spend as you wish?	Yes No	1 2	

Do you have to ask your husband or a senior family member for permission to go to:				
8.9	The local market?	Yes No	1 2	
8.10	The local health center?	Yes No	1 2	
8.11	A place outside Shivajinagar (e.g. Sion Hospital)?	Yes No	1 2	
8.12	A community center, park, or plaza?	Yes No	1 2	
8.13	The home of relatives or friends in the community your natal place?	Yes No	1 2	
8.14	Are you afraid to disagree with your husband for fear he may become angry with you?	Yes No	1 2	

Section: 9 EMOTIONAL STATUS (SUBI)

No.	**Questions and filters**	**Coding categories**		**Skip to**
9.1	Do you get easily upset if things don't turn out as expected?	Not so much To some extent Very Much	1 2 3	
9.2	Do you sometimes feel sad without reason?	Not so much To some extent Very Much	1 2 3	
9.3	Do you feel too easily irritated?	Not so much To some extent Very Much	1 2 3	
9.4	Do you feel disturbed by feelings of anxiety and tension?	Not so much To some extent Very Much	1 2 3	
9.5	Do you feel your life is boring/uninteresting?	Not so much To some extent Very Much	1 2 3	
9.6	Do you worry about the future?	Not so much To some extent Very Much	1 2 3	
9.7	Do you feel your life is useless?	Not so much To some extent Very Much	1 2 3	
9.8	Do you feel that minor things upset you more than necessary?	Not so much To some extent Very Much	1 2 3	
9.9	Do you get easily upset if you are criticized?	Not so much To some extent Very Much	1 2 3	

Section: 10 *TENSHUN*

To what extent do concerns about the following cause you *tenshun*?		**Rating:** 1 = To a great extent 2 = To some extent 3 = Not at all
10.1	Household finances	1 2 3
10.2	Relationship with in-laws (expectations, conflict, etc.)	1 2 3
10.3	Your children (education, health, future, etc.)	1 2 3
10.4	Your daughter (behavior, future marriage, etc.)	1 2 3
10.5	Abuse/harassment from your husband (violence, suspicion, arguing, etc.)	1 2 3
10.6	Husband's alcohol use	1 2 3
10.7	Communication with your husband	1 2 3
10.8	Sexual Relationship with your husband	1 2 3
10.9	Pressure from husband or family to have children	1 2 3
10.10	Your reputation among neighbors (e.g. neighborhood gossip)	1 2 3
10.11	Obtaining/preparing enough food for your family / self	1 2 3
10.12	Relationship to natal family	1 2 3
10.13	Water Problem	1 2 3
10.14	Unhealthy environment (bad smell, garbage, fly etc.)	1 2 3
10.15	Husband's extramarital sex	1 2 3
10.16	Anti-social elements in community (boys/men tease girls/women; harassment to move out or pay rent or electricity illegally; theft)	1 2 3

Support for Tenshun

10 …	Are you likely to seek any help or support from the following in dealing with tensions? (For all to answer) 1= Yes 2= No	10.17	Parent	1	2
		10.18	Sister	1	2
		10.19	Brother	1	2
		10.20	Friend	1	2
		10.21	In-laws	1	2
		10.22	Husband	1	2
		10.23	Relatives	1	2
		10.24	Other natal Family		
		10.25	members	1	2
		10.26	Neighbors	1	2
		10.27	Police	1	2
			Community organization	1	2

Section: 10 Consequences of Tenshun

10 …	Do you experience the following in response to <u>tension</u>?	10.28	Headache	1	2	
		10.29	Backache	1	2	
		10.30	Feel like sleeping	1	2	
		10.31	Sleeplessness	1	2	
		10.32	Can't concentrate on housework	1	2	
		10.33	Feel there is no solution to the problem (feeling of hopelessness)	1	2	
		10.34	Think about suicide	1	2	
		10.35	I would not care about anything	1	2	
		10.36	Surrender (give up; tolerate it)	1	2	
		10.37	Feel like leaving (desired to runaway from the house)	1	2	
		10.38	Retaliation	1	2	
		10.39	Dizziness	1	2	

Section: 11 Partner Agreement

A Please indicate below whether you and your partner agree or disagree for each item on the following list:

Note: 1) 'Agree : means 'Both she and her husband agree on the issue'
2) 'Disagree : means 'Her view is different from husbands' view on the issue'
3) If the item is not applicable, then 'Agree' should be marked by the interviewer.

		Agree	**Disagree**
11.1	Not enough money to meet the needs of the household Money Matters	1	2
11.2	School fees for the children	1	2
11.3	You're spending too much time with friends and neighbors	1	2
11.4	Husband's drinking taking money from the household	1	2
11.5	Your relationship with your husband's parents and family	1	2
11.6	Your husband's relationship with your family	1	2
11.7	Inadequate Dowry given by your parents	1	2
11.8	The way you discipline the children	1	2
11.9	Husband forcing sex	1	2

Section: 12 MARITAL RELATIONSHIP Conflicts with Husband

No.	Questions and filters		Coding categories	
12…	If there is verbal argument with your husband, do you do any of the following…	12.1	Go out of the house	1 2
		12.2	Talk to someone inside house	
			Talk to friends outside of house	1 2
		12.3	Yell at husband	
			Calmly discuss problem with	1 2
		12.4	husband	1 2
		12.5	Throw things in the house	
			Hit children	1 2
		12.6	Talk to no one / stay quiet	1 2
		12.7	Cry	1 2
		12.8	Go to natal family	1 2
			Go to Mahila Mandal	1 2
		12.9	Seek help from a NGO/CBO	1 2
		12.10	worker	1 2
		12.11	Stop eating food	
		12.12		1 2
		12.13		1 2
12.13a	How would you describe your marital relationship?		Very Happy	1
			Somewhat happy	2
			Neither happy nor unhappy	3
			Somewhat unhappy	4
			Very unhappy	5
12.13b	What are the parts of your marital relationship that you would want to improve? [ask about each and place tick mark where relevant. Also record any additional comments.]	12.13b1	Greater communication	1 2
		12.13b2	Sharing household/family responsibilities	1 2
		12.13b3	Leave smoking/ chewing tobacco/ drinking	1 2
		12.13b4	Trust and sharing	1 2
		12.13b5	No violence	1 2
		12.13b6	Earn money and give money for house hold expenses	1 2
		12.13b7	Care of children	1 2
		12.13b8	Respect family members	1 2
		12.13b9	More understanding of each other's moods and tensions	1 2
		12.13b10	Marital sex	
		12.13b11	Love and respect for each other	1 2

When your husband gets angry does he:

No.	Questions and filters	Coding categories	
12.14	Insult and humiliate you?	Always	1
		Sometimes	2
		Never	3
12.15	Yell at you	Always	1
		Sometimes	2
		Never	3
12.16	Does he criticize you?	Always	1
		Sometimes	2

		Never	3
12.17	Does he nag you?	Always Sometimes Never	1 2 3
12.18	Are you able to disagree with each other without becoming angry?	Always Sometimes Never	1 2 3

VIOLENCE

No.	Questions and filters		Coding categories	
13 …	First, I am going to ask you about some situations which happen to some women. Please tell me if these apply to your relationship with your husband. 1=Yes 2=No	13.1	He is jealous or angry if you talk to other men.	1 2
		13.2	He frequently accuses you of being unfaithful.	1 2
		13.3	He does not permit you to meet your female friends.	1 2
		13.4	He tries to limit your contact with your natal family.	1 2
		13.5	He insists on knowing where you are at all times.	1 2
		13.6	He (does/did) not trust you with any money.	1 2
		13.7	He says or does something to humiliate you in front of others	1 2
		13.8	He threatens to hurt or harm you or someone close to you	1 2
		13.9	He insults you or makes you feel bad about yourself	1 2
13….	How often did this happen in the past 12 months (1 – often, 2 – sometimes, 3-never)	13.10	Slap you?	1 2 3
		13.11	Twist your arm or pull your hair?	1 2 3
		13.12	Push you, shake you, or throw something at you?	1 2 3
		13.13	Punch you with his fist or with something that could hurt you?	1 2 3
		13.14	Kick you, drag you or beat you up?	1 2 3
		13.15	**Blank**	
		13.16	**Blank**	
		13.17	Physically force you to have sexual intercourse with him even when you did not want to do	1 2 3
		13.18	Force you to perform any sexual acts you did not want to?	1 2 3

Section: 14 Substance use (Husband)

No.	Question and filters	Coding categories		Skip to
	Alcohol and tobacco use by the husband			
14.1	Does your husband currently eat tobacco (tobacco paan or Mishri or Mawa)?	Yes No	1 2	
14.2	Does your husband drink alcohol?	Yes No	1 2	→15.1
14.3	During the past 30 days, how many days did he drink?	Number of days (Code 0 for never)	_____	
14.4	How many times in the past 30 days, did he come home heavily drunk?	Number of days (Code 0 for never)	_____	
14.5	During the past 12 months, did your husband's expenditures alcohol leave the family with inadequate money for household maintenance (i.e. food, educational fees, clothing)?	Many times Sometimes Rarely Never	1 2 3 4	
14…..	During the past 12 months, did your husband's alcohol use lead him to be abusive toward you?	14.6 Emotional abuse 14.7 Physical abuse 14.8 ySexual abuse 14.9 Verbal abuse	1 2 1 2 1 2 1 2	

Section 15: Sexual Health

Birth Control and Reproductive Decision-making Reproductive History			
15.1	Total number of pregnancies	Number	_____
15.2	Number of live births	Number	_____
15.3	Number of living children	Number	_____
15.4	Number of stillbirths	Number	_____
15.5	Number of unintended / unwanted pregnancies	Number	_____
15.6	Number of MTPs/Induced Abortion	Number	_____
15.7	Number of spontaneous abortions	Number	_____
15.8	No. of deceased children	Number	_____
15.9	Your age at first pregnancy	_____	_____
15.10	Your age at last pregnancy	_____	_____

Birth Control Methods				
15.11	Have you ever used any kind of contraceptive method to delay or stop pregnancy?	Yes No	1 2→	If no, skip to next section
15.12	Are you currently using any contraception	Yes No	1 2→	Q15.15

15.13	What is the type of current method?	Oral Pills Copper-T/IUD Nirodh/Condom Safe period Withdrawal Male Sterilization Female Sterilization	1 2 3 4 5 6 7	Q15.15
15.14	If sterilized, at what age you were sterilized?	(age in completed years)	_____	
15.15	Who decides the use of contraception?	Myself Husband Both Others specify_____	1 2 3 4	

Section: 16 Sexual Health: Hygiene

No.	Questions and filters	Coding categories		
16….	How do you currently maintain hygiene during your periods?	16.1 Cloth 16.2 Sanitary napkin 16.3 **Blank** 16.4 Other: Specify _____	1 2 1 2 1 2
16.5	Do you wash 'inttoitus' by flushing with water, soap, or commercial products?	Yes No	1 2
16.6	Do you remove your pubic hair?	Yes No	1 2
16.7	Usually how frequently	Once in two week Once in month Once in three months Once in six months Once in a year	1 2 3 4 5
16.8 16.9 16.10 16.11 16.12	How?	Scissor By shaving With hair removal creams/Soap **Blank** Other: Specify _____	1 2 1 2 1 2 1 2
16…	Do you apply any of these to your vagina:	16.13 Powder 16.14 Coconut oil 16.15 **Blank** 16.16 **Blank**	1 2 1 2

Section 17: MARITAL SEX

No.	Questions and filters	Coding categories		Skip to
17.1	How many times did you have penetrative sexual intercourse with your husband in the last one month?	(No. of times)	|___|___| **If not 00**	
17.2	How often do you initiate sex with your husband?	Always Sometimes Never	1 2 3	
17.3	Can you refuse if your husband demands sex and you don't want it?	Yes No	1 2	

Section: 18 Sexual Symptom Questions

18…..	**Have you ever experienced:**	Yes, I do, currently	Yes, I have, in the past	No, never
18.1	A lack of interest in sexual activity	1	2	3
18.2	A lack of lubrication	1	2	3
18.3	Taking a long time to get aroused	1	2	3
18.4	Pain or discomfort during sexual activity	1	2	3
18.5	Difficulty achieving orgasm	1	2	3

Section: 19 Knowledge of Husband's Health Problems

Sr. No.	Does your husband have any of the following problems in the last Six months:	Yes = 1 No = 2			Did he take treatment for the problem Yes=1 No=2 3=Don't know			
19…	Kamjori/sexual weakness	19.1	1	2	19.2	1	2	3
19…	Problems in urination	19.3	1	2	19.4	1	2	3
19…	White, yellow or red discharge from penis	19.5	1	2	19.6	1	2	3
19…	Phoda-phunsi on genitals	19.7	1	2	19.8	1	2	3

Section: 20 HIV/STI RISK

No.	Questions and filters	Coding categories		Skip to
20.1	Have you ever had sex with a man other than your husband?	Yes No	1 2	 →21.1
20.2	How many times in the past 12 months have you had sexual intercourse with a man other than your husband?	Never Number of times	0 _____	
20.3	Last time when you had sex with this partner, did your partner use a condom?	Yes No	1 2	

Section: 21 **Husband's EMS/Sexual History**

21.1	To your knowledge, has your husband, had pre-marital sex with a woman?	Yes No Don't know	1 2 3
21.2	Had extra-marital sex with a woman?	Yes No Don't know	1 2 3
21.3	Had sex with sex workers?	Yes No Don't know	1 2 3
21.4	Is he currently involved in sex with other women?	Yes No Don't know	1 2 3

Section: 22 Sexually Transmitted Disease Knowledge Scale

	Answer: Correct ( ) Incorrect ( )	**Correct (1)**	**Incor-rect (2)**	**Don't know (3)**
22.1	Only bad people get sexually transmitted diseases.	1	2	3
22.2	If any body has signs of a sexually transmitted disease he/she should get an antibiotic from the chemist	1	2	3
22.3	Having a sexually transmitted disease increases the chances of getting AIDS.	1	2	3
22.4	Condoms cannot protect against a sexually transmitted disease.	1	2	3
22.5	When persons have an STD, They should use a condom while having sex.	1	2	3
22.6	I can tell by appearance if someone has a sexually transmitted disease.	1	2	3
22.7	A person can get a sexually transmitted disease from an unclean public toilet.	1	2	3
22.8	If a person takes an antibiotic before having sex it cannot prevent a sexually transmitted disease.	1	2	3
22.9	HIV can be spread by using someone else's personal belongings, like a comb or a hairbrush.	1	2	3
22.10	A person can get HIV from casual contact (such as shaking hands, coughing, using the same toilet seat) with people who have the disease.	1	2	3
22.11	HIV can be spread through hugging.	1	2	3
22.12	HIV can be spread from a female to her unborn child during pregnancy.	1	2	3

Section 23: Women's Health Problems

Sr. No.	Problems	Had the problem in the last three months 1= Yes 2= No			Treatment taken for this problem in the last three months 1=Yes 2=No		
23…	Backache	23.1	1	2	23.2	1	2
23…	Headache	23.3	1	2	23.4	1	2
23…	Giddiness (Dizziness)	23.5	1	2	23.6	1	2
23…	Pain in body	23.7	1	2	23.8	1	2
23…	Loss of appetite	23.9	1	2	23.10	1	2
23…	Chest pain	23.11	1	2	23.12	1	2
23…	Palpitations	23.13	1	2	23.14	1	2
23…	Pain in lower abdomen	23.15	1	2	23.16	1	2
23…	Swelling of glands in the groin	23.17	1	2	23.18	1	2
23…	Irregular menses	23.19	1	2	23.20	1	2
23…	Pain or cramps during menses	23.21	1	2	23.22	1	2
23…	Excessive bleeding from vagina	23.23	1	2	23.24	1	2
23…	Infertility	23.25	1	2	23.26	1	2
23…	Obstructed urine flow	23.27	1	2	23.28	1	2
23…	Pain while urinating	23.29	1	2	23.30	1	2
23…	Burning urination	23.31	1	2	23.32	1	2
23…	White discharge from vagina	23.33	1	2	23.34	1	2
23…	Ulcers in and around vagina	23.35	1	2	23.36	1	2
23…	Itching in and around vagina	23.37	1	2	23.38	1	2
23…	Swelling in ankles	23.39	1	2	23.40	1	2
23…	Pain during intercourse	23.41	1	2	23.42	1	2
23…	Sexual dissatisfaction	23.43	1	2	23.44	1	2
23…	Loss of sexual desire	23.45	1	2	23.46	1	2
23…	Body weakness	23.47	1	2	23.48	1	2
23…	Sleeplessness	23.49	1	2	23.50	1	2
23…	Increased frequency of micturation	23.51	1	2	23.52	1	2
23…	Fatigue	23.53	1	2	23.54	1	2
23…	The lethargy	23.55	1	2	23.56	1	2
23…	Constipation	23.57	1	2	23.58	1	2

Section: 24 Perceived Risk

24.1	How possible is it that you might get a sexually transmitted disease.	High Low No risk	1 2 3
24.2	How possible is it that your husband might get a sexually transmitted disease.	High Low No risk	1 2 3

Section: 25 Exposure Questions NGO/CBO contact

NGO/CBO	Have you heard of this organization? *1=Yes, 2=No*		Did you meet any of the outreach staff of this organization meet you in the last three months? *1=Yes, 2=No*		Did you participate in any of the activities of this organization in the last three months *1=Yes, 2=No*		Did you receive any help with a problem from this organization in the last three months *1=Yes, 2=No*	
Apnalaya	25.1	1 2	25.2	1 2	25.3	1 2	25.4	1 2
Niramaya	25.5	1 2	25.6	1 2	25.7	1 2	25.8	1 2
Stree Mukti Sangathan	25.9	1 2	25.10	1 2	25.11	1 2	25.12	1 2
CORO	25.13	1 2	25.14	1 2	25.15	1 2	25.16	1 2
Lok Seva Sangam	25.17	1 2	25.18	1 2	25.19	1 2	25.20	1 2
Hindustan Convent Church	25.21	1 2	25.22	1 2	25.23	1 2	25.24	1 2
RISHTA	25.25	1 2	25.26	1 2	25.27	1 2	25.28	1 2

25.	Has anyone from these NGO/CBOs had a program or a discussion on the following:	25.29	Gender equality	1 2
		25.30	Good martial communication	1 2
		25.31	Marital roles and responsibilities	1 2
		25.32	Women's health	1 2
		25.33	Reducing violence against women	1 2
		25.34	Elimination of extramarital sex	1 2
		25.35	HIV/STI prevention	1 2

Social campaigns

No.	**Questions and filters**	**Coding categories**		**Skip to**
25.36	**Blank**			
25.36.1	Have you ever heard or seen a campaign/ march conducted by anyone the community?	Yes No	1 2	 →25.47
25.36.2	If yes, how many campaign/march you have heard/ seen in past six months		_____	
25.36.3	How long back you had heard or seen the most recent campaign/march?	Actual days Months	_____ _____	
25.36…	What was the occasion for the	25.36.4 Women's Day	1 2	

	most recent campaign/march you saw?		25.36.5 Ganpati 25.36.6 Ramjan 25.36.7 Diwali 25.36.8 Dasahra 25.36.9 Others_____	1 2 1 2 1 2 1 2 1 2	
25.36.10	Who organized such campaign/march?		Apnalaya Niramaya Stree Mukti Sangathan CORO Lok Seva Sangam Hindustan Convent Church RISHTA Others	1 2 3 4 5 6 7 8	
25.36.11	In which place in Shivaji Nagar was such campaign/march was organized?		_____		
25.37	Blank				
25.38	Did you participate or receive any message from the campaign/march?		Yes No	1 2	
25…	What were the main messages of the campaign/march?	25.39 25.40 25.41 25.42 25.43 25.44 25.45 25.45a 25.46	Gender equality Good martial communication Marital roles and responsibilities Women's health Reducing violence against women Elimination of extramarital sex HIV/STI prevention Marketing of WHC/MHC Other messages Specify_____	1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2	

Masjid/Church/Mandir

25.47	Does your husband go to a Masjid/Mandir/Church?		Yes No	1 2	→25.57
25.48	How often does he go to Masjid/ Mandir/ Church?		Rarely Once per month Once a week (on Friday) More than once per week Daily	1 2 3 4 5	
25…	Does your husband	25.49	Gender equality	1 2	

	comes back to home from Masjid/ Mandir/ Church and talk on these following issues?	25.50 25.51 25.52 25.53 25.54 25.55 25.56	Good martial communication Marital roles and responsibilities Women's health Reducing violence against women Elimination of extramarital sex HIV/STI prevention Other messages Specify_____	1 2 1 2 1 2 1 2 1 2 1 2 1 2	
25.57	Did you participate in Alma's or any religious programs?		Yes No	1 2	→25.66
	Does Alima's discuss on the following issues	25.58 25.59 25.60 25.61 25.62 25.63 25.64 25.65	Gender equality Good martial communication Marital roles and responsibilities Women's health Reducing violence against women Elimination of extramarital sex HIV/STI prevention Other messages Specify_____	1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2	

The UHC

No.	**Questions and filters**	**Coding categories**		**Skip to**
25.66	Have you been to the Shivajinagar Urban Health Center before this visit	Yes No	1 2	→25.68
25.67	How many times in the past year (if this is the first visit in a year then put "0")		_____	
25.68	Have year heard about Woman's Health Clinic at the Municipal Hospital?	Yes No	1 2	
25.69	Have you heard about the Male Health Clinic at the Municipal Hospital?	Yes No	1 2	

Section 26: COMMUNITY NORMS SURVEY

Sr. No.	**Norms**	**(1)** Strongly agree	**(2)** Agree	**(3)** Disagree	**(4)** Strongly disagree
26.1	A wife should eat after her husband and children have had their food.	1	2	3	4
26.2	A woman should always be ready	1	2	3	4

	whenever husband wants to have sex.				
26.3	A woman should obtain permission for treatment from the husband for any kind of health problems.	1	2	3	4
26.4	A wife should manage the household with whatever money the husband gives.	1	2	3	4
26.5	A woman is responsible for her poor health.	1	2	3	4
26.6	A man should have control over his wife.	1	2	3	4
26.7	A woman should work only with other women outside of the house.	1	2	3	4
26.8	If wife disobey husband she should be sent to her maternal home (as punishment).	1	2	3	4
26.9	A woman can beat/hit her husband whenever her husband beats her.	1	2	3	4
26.10	Only man is responsible for household finance.	1	2	3	4
26.11	Woman can get spoiled if she goes out of her home	1	2	3	4
26.12	A wife should take permission from the husband when she goes any where out of house.	1	2	3	4
26.13	A wife should think about her husband and children's health before her.	1	2	3	4
26.14	Women's engage in sex only for men's satisfaction.	1	2	3	4
26.15	Status of women is lower than man.	1	2	3	4
26.16	If a husband is angry he can yell at his wife.	1	2	3	4
26.17	A wife should always criticize husband's bad behavior.	1	2	3	4
26.18	A woman should talk about her health problems only with other women.	1	2	3	4
26.19	Woman should always cover their head/wear burkha/dupatta before stepping out of the house.	1	2	3	4
26.20	A husband should only talk about household work and childcare issues with the wife.	1	2	3	4
26.21	If a husband beats his wife, she should not share it with anyone.	1	2	3	4
26.22	Only the wife is responsible for all house hold work.	1	2	3	4
26.23	A man can spend any amount of	1	2	3	4

	time with his friends, as he wishes.				
26.24	A woman should finish all the household work before taking rest.	1	2	3	4
26.25	Husband is a woman's pride	1	2	3	4
26.26	A woman is responsible for reputation, honor, respect of the family.	1	2	3	4
26.27	,A woman can participate in community activity as per her wish.	1	2	3	4
26.28	A woman can talk to men other than her husband	1	2	3	4
26.29	A wife can be beaten up if she does not listen to (obey) her husband.	1	2	3	4