REPEATED ABORTION AND IT'S ASSOCIATION WITH MATERNAL MORBIDTY IN INDIA

(A study on District level household & Family Survey (DLHS-4) 2012-13 INDIA.)

Submitted by

Dr. Jeetesh kourav

M2016HE010

A dissertation submitted in partial fulfilment of the requirements for the Degree of Master of Health administration

School of Health System Studies

Tata Institute of Social Sciences

February 2018

DECLARATION

I, Jeetesh kourav, hereby declare that this dissertation entitled **"Repeated abortion and its association with Reproductive morbidity in India"** is the outcome of my own study undertaken under the guidance of Dr. Priyanka Dixit, Assistant Professor, School of Health System Studies, Tata Institute of Social Sciences, Mumbai. It has not previously formed the basis for the award of any degree, diploma or certificate of this or any other university. I have duly acknowledge all the sources used by me in the preparation of this dissertation

Date 26/02/2018

Dr.Jeetesh Kourav

CERTIFICATE

This is to certify that the dissertation entitled "Repeated abortion and its association with Reproductive morbidity in India" is the record of the original work done by Jeetesh Kourav under my guidance and supervision. The results of the research presented in this dissertations/thesis have not previously formed the basis for the award of any degree, diploma, or certificate of this institute or any other institute or university.

Priyanka Dixit
26/2/2018

Date- 26/02/2018

Dr. Priyanka Dixit
Assistant Professor
School of Health System Studies
Tata Institute of Social Sciences, Mumbai

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LIST OF ABBREVIATIONS

ANM- Auxiliary Nurse Midwife

CHC- Community Health Centre

FRU- First Referral Unit

NACO- National AIDS Control Organisation

PHC- Primary Health Centre

RTI- Reproductive Tract Infection

LTIs- Lower Tract Infections

UTIs- Upper Tract Infection

PID- Pelvic Inflammatory Disease

SC- Sub centre

STI- Sexually Transmitted Disease

WHO- World Health Organisation

UN- United Nation

IUD- Intrauterine Devices

SSC- Senior School Certificate

HSC- High School Certificate

ST- Scheduled Tribe

SC- Scheduled Cast

OBC- Other Backward Class

FC- Forward Caste

OC- Oral Contraceptive

VHW- Village Health Worker

ASHA- Accredited Social Health Activist

ICTC- Integrated Centre for Testing and Counselling

UTI- Urinary Tract Infection

HIV- Human Immunodeficiency Virus

AIDS- Acquired Immunodeficiency Syndrome

IIPS- International Institute of Population Studies

DFID- Department for International Development

BSS- Behaviour Surveillance Survey

NFHS- National Family Health Survey

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Chapter 1

Introduction

1.1 Repeated Abortion

The 1994 Programme of Action of the International Conference on Population Development (ICPD) defines reproductive health as a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity, in all matters relating to the reproductive system and to its functions and processes. Reproductive health care also means of having full access to good quality of services and information.

Abortion also defined as the termination of a pregnancy by the complete removal of an embryo or foetus from the female body or uterus, which is in resulting or causing its death. Abortion can occur in many ways like spontaneously if done nonintentional or due to the complications during gestation period of pregnancy also known as miscarriage, and abortion if perform purposely or intentionally then called induced abortion or less frequently "induced miscarriage. (definition from *Wikipedia)* when abortion performed two or more than two times intentional and nonintentional or more than two consecutive losses of pregnancy is termed as Repeated abortion. An abortion which takes place due to deliberate outside intervention is called induced abortion or M.T.P. (Medical Termination of Pregnancy). A pregnancy that terminates after the fetus is at least 28 weeks comes under the category of still birth. Spontaneous abortion is the natural death of an embryo or fetus before it is able to survive independently. Induced abortion is the intentional termination of pregnancy before the fetus can live independently. Abortion may be because of one's own personal choice or in case of health issues or complications. Unsafe abortion is defined by WHO as a procedure for terminating an unwanted pregnancy either by persons lacking the necessary skills or in an environment lacking minimal medical standards or both. Providers are Doctors, Nurses, ANMs ,Multipurpose workers, trained dais, untrained dias , anganwadi workers ,others.(W.H.O definitions)

Reproductive morbidity amongst women refers to any dysfunction of the reproductive tract, or any morbidity resulting from reproductive behaviour including pregnancy, abortions, childbirths or sexual behaviour. Thus, reproductive morbidity amongst women refers to physical conditions of being unwell that are related to reproductive development during childbearing and also outside of the childbearing period (Oomman 2000; World Health Organization (WHO) 1990; Zurayk et al. 1993).

As per the world health organisation and medical council guidelines reproductive morbidity can be broadly categorised into three subgroups – All ill health issues and problems in relation to pregnancy and childbirth also reproductive complications stemming from pregnancy, delivery and postpartum delivery complications but not due to any accidental or incidental causes are categorised in Obstetric morbidity.

Health problems, disease or dysfunction of the reproductive system or track related to sexual behaviour or practice outside pregnancy such as RTIs, menstrual problems, cervical ectopic, infertility, cancers, prolepses and problems related to sexual intercourse are categorised under Gynaecological morbidity. Conditions which result from efforts to limit fertility by traditional or modern methods specifically refers to health problems primarily due to the side effects of using contraceptive methods, predominantly the insertion of Intra-Uterine Device (IUD), female sterilization under unhygienic conditions or lack of post-operative care are known as contraceptive morbidity.

In general reproductive morbidity can also be define as an outcome of not just biological factors but also women socioeconomic and demographic factors like poverty, malnutrition, infection, women autonomy control over resources, powerlessness and repeated childbearing due to son preference in some areas, education, working status and high fertility also play an important role in poor maternal health conditions in India.

Abortion is usually stigmatised by the religious, political and other leaders, because of this political and social sensitivity surrounding abortion it is extremely difficult to measure the incidence of induced abortion (Johnston 2002; Singh 2010) and when it is unsafe abortion rather the women who undergoes abortion not the provider of abortion discloses the occurrence of any such procedure, so unsafe abortion is either not reported at all or it is reported as spontaneous abortion (singh2010), so the incidence of unsafe abortion estimated from the number of deaths and number of women seeking medical care following abortions represents only the tip of iceberg (WHO report global and regional estimates 2008).

Legalization of abortion in India is not a big thing abortion is legal in India for more than three decades but access to safe health services is still limited for most women, this ratio changes according to demographic variations, it has been estimated that more nearly 80 to 90% of abortion in India are not safe and performed under potentially unsafe conditions in considerably not appropriate facilities by semi unqualified to qualified doctors without any training and past experience. Due to dearth of medical provision women has to avail these providers and services provided by them because lack of availability, accessibility and affordability of proper heath care delivery system mainly in rural India.

As per literature review many studies says most of the maternal deaths in rural India are due to unsafe abortion or due to the complications of repeated abortion.

The medical termination of pregnancy Act in 2002 and 2003 was amended to improve women health and make sure to access the safe abortion but the impact of these changes on the number and safety of abortions in India has not yet been evaluated properly India where child preference is rooted in cultural norms, there is a strong preference for male child over female child, particular sex identification techniques are now a days more accessible and easily available at the cost of money, abortion is used for sex determination and considered main cause of the repeated abortion, particularly in those rural areas where laws are not followed strictly and sex determination techniques are available easily. Although many studies say and there are ampule number of evidences suggests that the reasons of seeking repeated abortion are more diverse than sex preference.

A study conducted in Maharashtra found child spacing was the main reason for the repeated abortion, adding to this young women did not have experience using contraceptives. Other reasons like non-consensual sex, sexual violence and women inability to refuse their husband demands were the more cited reason for repeated abortion from the study conducted at Tail Nadu. While considering son preference is the main driver of the induced abortion in India then making contraceptive services widely available would have rarely much effect in the women health and relatively little effect in the reduction of repeated abortion, there is need of in-depth study and Identifying these and other factors that lead to abortion has important policy implications.

1.2 Developed and Developing Country

According to World Health Organisation report 2016, every year globally there are an estimated 40-50 million abortions takes place, which corresponds to approximately 125,000 abortions per day, every day 830 women die from preventable causes related to pregnancy and childbirth. Perhaps maternal deaths are decreasing over the past decades but still a main concern particularly in the less developed regions or developing countries when compared to developed countries.

The maternal mortality ratio which is a SDG target 3.1 is highest in sub- Saharan Africa (546 per 100,000 live births) followed by Oceania (187 per 100,000 live births) is called upon Governments to reduce global maternal mortality ratio to less than 70 per 100,00 live births by 2030. However maternal mortality ratio in more developed regions is 12 per 100,000 live births. The numbers of women aborting an unwanted child and pregnancy has been dipped globally from last decade but the rate of

unsafe abortion continues to be bad and worst. The number of abortions performed still continues to be high a killing approximately 70,000 women a year in country like India and other developing countries.

An estimated 56 million induced abortions occurred during 2010-1014, as compared to 50 million in 1990-1994 each year worldwide, this number in increased abortion mainly because of population growth. The annual rate of abortion, estimated at 35 abortions per 1,000 women of childbearing age (i.e., those 15-44 years old) in 2010-2014, has reduced slightly from 40 per 1000 in 1990-1994. When it's compared with developed and developing countries, women in developing countries have a higher likelihood of having an abortion than their counterparts in developed regions, the abortion rates are 36 per 1000 women and 27 per 1000 respectively, between 1990-1994 and 2010-2015.

As per WHO 2015 reports the abortion rates declined markedly in developed regions from 46 to 27 per 1000 women of childbearing age, in contrast it remained roughly the same or very slight variation in developing regions; also the annual number of abortions fell in developed regions from about 12 million to 7 million during this period whereas it has increased in developing countries from 38 million to 49 million although the reproductive population grew in both regions with almost same pace. The proportion of abortion occurring worldwide in developing regions rose from 76% to 88% worldwide with 25% pregnancy of them ended in abortions in 2010-2014. In contrast with developed countries the proportion of abortion declined from 39% to 27% between 1990-1994 and 2010-2014, whereas it increased from 21% to 24% in developing countries.

The annual no of abortions in Asia fell slightly between 1995 and 2003, from 26.3 million to 25.9 million. During 2003 majority of abortions occurred in Eastern Asia and south Central Asia 10 million of which includes china only and 9.6 million abortions occurred in India. As per the international report published by WHO in 2003 about 16 million of abortion performed during the year were safe and 10 million of abortions were occurred in unsafe procedures.

1.3 Reproductive Morbidity and abortion in India

One in three of 48.1 million pregnancies in India ended in an abortion, according to the country's first large-scale study on abortions and spontaneous pregnancies that accounted for 2015 data. The country recorded around 15.6 million abortions in 2015, reports the study published in The Lancet. Close to half, or 48%, of pregnancies were spontaneous and 0.8 million women used unsafe methods for an abortion, putting their health and lives at risk. Using abortion pills was the most popular method, which made up 12.7 million or 81% of all abortions, followed by 2.2 million surgical terminations of pregnancy. The

number of medical termination of pregnancies (induced abortions) has started to dip in India. However, is that the country still records a large number of such abortions -- in 2008; India saw 6.41 lakh abortions across 12,510 institutions, approved to carry out MTP. According to the Family Welfare Statistics in India 2009, brought out by the Union health ministry, India recorded 7.25 lakh MTPs in 2005, 7.21 lakh in 2006 and 6.82 lakh induced abortions in 2007.

According to the 2008 figures, the latest compiled data, Uttar Pradesh recorded the highest number of MTPs (89,194) followed by Tamil Nadu (63,875), Orissa (59,945), Assam (58,409) and Maharashtra (54,545). The other states with high abortion numbers include West Bengal (46,753), Haryana (31,126), Delhi (30,846), Rajasthan (29,292), Gujarat (27,837) and Bihar (24,149). While Punjab recorded 14,834 abortions, the Union territory of Chandigarh recorded 1,162. Madhya Pradesh had 19,385 MTPs, Kerala 14,227 and Karnataka 17,500. The states/UTs with the lowest abortion figures included Daman and Diu (42), Andaman and Nicobar Islands (94) and Goa (930).The north-eastern states recorded abortion numbers below 1,000. While Meghalaya recorded 344 MTPs, the figure for Mizoram was 524. Nagaland had 670 and Arunachal Pradesh 655 MTPs. At present 8% of maternal mortality in India is due to unsafe abortions. So reduction in abortion numbers as a whole will automatically decrease mortality figures also." Experts say the high number of abortions in India continues to be a major risk factor for women. A recent international report had said that only two in five of the estimated 6.4 million abortions that take place annually in India are safe

Chapter 2

Literature review

Repeated abortion is a silent killer progressing rapidly all over the world and women are paying high cost of their life, according to a study conducted by Alan Guttmacher Institute, as an estimate approximately 45 percent of abortions are repeated abortions, which increased risks for women who undergo multiple abortions. Study done by Dr. David Reardon proposed that women who undergo abortions have an increased risk of death adding to this a single induced abortion can increases 45 percent chances of maternal death compared to women with no history of abortion, and each additional abortion is associated with an higher death rate. Women had two abortions and three abortions are more likely to die with increased risk of death 114 percent and 192 percent respectively.

2.1 Current abortion practices in India: a review of literature

Induced and spontaneous abortions are the most common outcome of the pregnancy, from the previous literature review and studies it has been noted that the prevalence of spontaneous abortion is 10% to 15% in all clinically recognized pregnancies. As per some studies the prevalence of spontaneous abortion is so early in some cases that women is not even aware that she was pregnant and carried abortion, adding to this some reports from WHO said that globally approximately 42 million pregnancies are terminated intentionally or voluntarily every year, out of them 20 million through unskilled providers in unhygienic condition, 22 million within legal system.

Further 19 of every 20 million unsafe abortions take place in less developed regions and this is where 98% of abortion related death occurs in the world. Approximately 6.8 million abortions occur every year in south central Asia including India and china with estimated rate of 17 unsafe abortions per 1000 women, with abortion performed annually ranges from 0.6 to 6.7 million. The actually incidence is very difficult to figure out because of gross under reporting of abortions, probably the figure which is cited in most of the studies for the abortion takes places annually in India is 6.7 million, of which very small number or about one million abortions are performed legally rest are performed by medical and non-medical practitioners in India. Rate and level of unsafe abortion are very high in India in comparison with other Asian countries, especially given that abortion is legal for broad range of indications, and available in both public and private health sectors.

Agrawal (2006), using NFHS-2 data found that 26% of women residing in urban areas accounted for 44% of abortions. Pallikadavath and Stones (2006) found positive associations between abortion and higher education, urban residence and maternal age at subsequent birth. Recent published data on abortions have analyzed a few states like :3 northern states with poor health and socioeconomic indicators: Bihar, Odisha , Madhya Pradesh in DLHS-3. Bose & Trent (2006) use data from the National Family Health Survey (NFHS2) to examine the effects of social and demographic characteristics of women on the likelihood of abortion and differences between abortion practices in women from northern and southern states were also studied. (p. 261). Elul (2011) extends the evidence on the determinants of induced abortion in India provided by Bose & Trent (2006) by using data from the Indian state of Rajasthan to consider a wider set of determinants that include community and contextual factors.

A study conducted in India revealed that annually around 6.5 million abortions performed out of which maximum number (56%) unsafe were accounted as 3.6 million. In India, around 12000 women die each year due to repeated abortion and as consequences of unsafe abortion while many women suffer from serious consequences of repeated abortion like reproductive morbidity and abortion related complications. As per estimates 8- 20% maternal deaths in India are contributed though unsafe abortion adding to this 3-9% of all pregnancies are terminated thorough repeated abortion including both induced and spontaneous abortions, and 18% of maternal mortality can be contributed to this, however review suggest that women of all age seek abortion, and majority of those belongs to 20-29 years of age in India. National data from NFHS-4 1989-99 show a lifetime induced abortion ratio of 1.1 among married adolescents, the vast majority of women seeking abortion are married, and thorough 20-30% is unmarried. Among unmarried majority of them are below 15 years.

2.2 Stigma associated with repeated abortion in India.

Reasons for repeated abortion in India is mainly included as child preference and postponement of childbearing, lack of women autonomy, lack of support from the partners mostly in case of rape where not wanting to raise a child conceived [15] in many cases particularly in rural India some abortions are performed for the own desire or family pressure for having baby of specific sex or mostly given preference to the child. Disapproval of single mother or early age motherhood, extremely cases like disabilities, rejection of contractive methods or lack of access to the contraceptive in India.

Several literature reviews suggest that most of abortions are performed to limit family size or to space next pregnancy. Recently some studies in Madhya Pradesh revealed that the major or more frequent cause for the attempting repeated abortion was noticed, women desired to family size 41%, and need for spacing by 30%, few studies also revealed that risk to women health is also a relatively common reason for attempting abortion. Less frequent causes are commonly reported as reason for repeated abortion are pregnancy occurring soon after marriage or occurring outside of marriage, failure of contraceptive, problems with fetus, sexual violence and women inability to refuse husbands sexual desire, women ill health, adding to socioeconomic and demographic factors which are culturally associated and led to unwanted pregnancy and repeated abortion in India.[16]

2.3 Son Preference and Sex-Selective abortion

Many literature review suggest that abortion may be used for sex selection in those cultures where there is strong preference is given for specific sex and where prenatal sex identification technology is widely accessible without any amendment of strict laws, preference to child over girls is very common.[19] as per an estimates 10 million female foetuses illegally aborted in India and 500000 girls are being lost their life through sex selective abortion annually [20] from literature review its revealed that for every four post-natal deaths there is one prenatal deaths among girls, which constituted as about one million foetuses or unreported infanticides, occurred between 1981 and 1991 [21]

Another study revealed that overall, around 4.2 to 12.1 million sex selective abortion of girls beings performed in India from 1998 to 2010 [22]. As per the last four census surveys data there is increasing disparities in the child sex ratio dropped from 962 (girls to 1000 boys) in 1981 to 945 in 1991 to 927 in 2001[23] as per 2011 census data the ration decreased further, to 914.24. However most of the studies suggest that instead of sex preference or sex selective abortion, spontaneous abortion is the main cause which underlies demand for most repeated abortion in India. NFHS-II analysed recordings of 90000 women in India and found that between women who had all boys and women who had all girls, there was no significant difference in the probability of their having an abortion. Out of all states only Haryana (of 26 states information), was the states where women whose previous child was a girl, were about two times likely to terminates the pregnancy than other women [25] adding to this Maharashtra has the higher incidence of sex-selective abortions and unwanted sex of the fetus was the reason stated by 12.5% of abortion seekers, where 19% women belongs to rural and 5.8% belongs to urban [26].

2.4 **Spontaneous Abortion, the root of repeated abortion**

An estimated 80 million spontaneous pregnancies occur each year worldwide, resulting in 42 million induced abortions and 34 million spontaneous births [27] In India, 21% of reported births in the past five years are unplanned or unwanted by women.7 Spontaneous pregnancy can result from non-use of contraception, or from contraceptive failure.[28] Knowledge of appropriate contraceptive methods and adequate information of contraceptive uses can decrease the prevalence of repeated abortion, millions of couple including men and women do not have access to appropriate contraceptive methods and do not have information, support to use them effectively. Many studies revealed that why some women do not to use contraceptive even though they do not want to become pregnant, according to report from Alan Guttmacher Institute 54% women who had abortions used a contraceptive method (usually condom or pill) during the month they became pregnant, however 76% of pill users and 49% of condom users reported having used methods inconsistently, 13% of pill users and 14% of condom users reported correct use,[30] 46% of women who sought abortions had not used any contraceptive during the months they became pregnant. Of these women, 33% had perceived themselves to be at low risk for pregnancy, 32% had concerns about contraceptive methods, 26% had unexpected sex and 1% had been forced to have sex.[31]

About half of spontaneous pregnancies occur among 11% of women who are at risk for spontaneous pregnancy but are not using contraceptives. Most of these women have practiced contraception in the past.[32] Roughly 140 million women in 2008 in developing countries were not practicing contraception, despite their desire to delay or stop childbearing, and 75 million more were using traditional, failure-prone methods.[33] In Southeast Asia, 48% of all pregnancies are spontaneous and each year, an estimated 2.7 million spontaneous pregnancies occur in adolescents.[34] Annually in India 78% conceptions are unplanned and 25 % unwanted.

2.5 Early Pregnancy and Abortion

Adolescence or teenage is the period when psychosocial, physical, structural, functional developments occur in child to prepare and realise her to bear the responsibility of motherhood, pregnancy during early age is considered to be very high risk event, because teenage is not consider as ideal age for pregnancy, and teenage girls are immature for reproduction both physically and psychologically. Irrespective of high maternal mortality and poor health of women child marriage and early confinement is embedded customs in India, with poverty and ignorance magnifying the problem in India? [37] As per

WHO recent data around 20% to 60% of young age pregnancies and abortion are spontaneous According to NFHS-I in India, nearly 58% of adolescents have commenced childbearing and only 7% adolescent females use contraception.[39] In 2001, there were 219 million youth aged 15-24 years in India, representing 21% of the population.40 The proportion of 20-24 year-olds who had married before turning 18 declined from 50% in 1998-1999 to 47% in 2005-2006.

About one in six 15-19 year-olds had already given birth or become pregnant, and about half of India's total fertility rate was attributable to those aged 15-24.11 Studies from 1970s and 1980s suggested that unmarried (mostly young) women constituted 20-30% of all clients seeking abortion,[41] a pattern observed in both rural41 and urban areas.[42], In addition, at least half of the unmarried women seeking abortions were adolescents, many below 15 years.14 Several studies have confirmed, that unmarried adolescents and young women are a highly vulnerable group, as many sought abortion in their second trimester.41-43 Indeed, in a study that compared married and unmarried abortion seekers, 59% of unmarried adolescents, compared with 26% of their married counterparts, underwent second-trimester abortions.[43]

2.6 Abortion law in India

Abortion and all abortion related deaths can be preventable when performed by qualified doctors at recognised heath centre using correct technique under sanitary conditions, almost all abortion its consequences related to abortion are preventable if the proper recognizing the preventable nature of most maternal morbidity and mortality related to unsafe abortions. The Indian parliament passed the Medical Termination of Pregnancy (MTP) Act in 197. The MTP Act relatively a liberal law which permits a women to seek an abortion to save her life in mentioned circumstances also preserve her physical and mental health for both social and economic reasons, in case of all rape or incest, including fatal impairment, or when pregnancy results from contraceptive failure, Subsequent amendments in 2002 and 2003 have aimed to expand safe services by devolving abortion service regulation to the district level, changing physical requirements for facilities providing first trimester abortions, and allowing medical abortion at facilities not approved for surgical abortion.

In addition to MTP and abortions laws, and legal policy interventions, there are many interventions are implemented to increases the availability of safe abortion service in India, like as IPAS, a international, non-profit organisation working in reproductive health, mainly focusing on sage abortion and women's reproductive rights, was established around 84 public sector and 5 private sector comprehensive abortion care training centre in India, also with support from Government of India, many non-

governmental organizations like Janani, Pathfinder, Family Planning Association of India, and Parivar Seva Sansthan are also working for improving women reproductive health and improve access to safe abortion services in India.

The standards for a facility providing second trimester abortions have not changed compare to the previous rules of MTP Act 1971.The requirements are (operating table, abdominal or gynaecological surgery equipment, Boyle's apparatus for general anaesthesia, autoclave, drugs and supplies for emergency resuscitation). However, certain changes have been made in standard norms for first trimester abortions. There is no more need to have on-site capability of managing emergency complications. Trained health personnel to recognize and deal with emergency situations and further able to refer women for emergency care is mandatory.

Instead of these policy and abortion laws in India abortion rate is still high as compare to other Asian countries. Unfortunately service delivery interventions have not led to significant reduction in the level of the maternal morbidity and mortality including unsafe abortion in India. Main reason which is cited in various studies is limited access to and utilization of safe abortion services, in those areas where population density is very high in living in very diverse socioeconomic condition. In India three-fourths of the Indian population live in rural areas followed by semi urban areas where abortion services are rarely available, or if available then underutilization of safe abortion services are limited due to various social and cultural factors like lack of awareness of the legality of abortion, limited awareness of the and understanding on implication of unsafe abortion and lack of information on availability of safe providers and methods.

2.7 Spontaneous Abortion

Older maternal age, obesity, smoking, alcohol and caffeine consumption have been accounted as factors for spontaneous abortion. It has also been shown in some studies that socio cultural factors like educational status, employment, place of residence and social classes play role in spontaneous abortion. Women with lower educational levels, unemployed women, women in lower social classes have increased risk of spontaneous abortion. In a study conducted in Turkey, it was found that five years or less educational level, employment of women, non-using of ANC during the early period of gestation and spousal violence during pregnancy have been identified as the risk factors for spontaneous abortions. (Catak B, Oner C, Sutlu S, Kilinc S. Effect of socio-cultural factors on spontaneous abortion in Burdur, Turkey: A population based case-control study. Pak J Med Sci. 2016;32(5):1257-1262.)

2.8 Reproductive Morbidity

To assess the prevalence of different type of reproductive morbidity a study on rural and urban health settings was conducted which focused on gathering the baseline of the common reproductive illness reported by women and found gynecological morbidity was most common reported health problem followed by Obstetrics and Contraceptive morbidity (Rajani et al. 2011). The most common gynecological problem reported was reproductive tract infection (RTIs), both upper and lower RTI, followed by menstrual dysfunction and infertility with almost similar patterns in both the settings. A high prevalence of gynecological morbidities (45.1%), with majority having symptoms suggestive of RTIs (26.4%) followed by menstrual problems (26%) has been reported in a community based cross sectional study in urban slum of Bhavnagar city (Gosalia et al. 2012). Vaginal discharge was the most commonly reported symptom among RTIs. However there are very few large scale population based study on reproductive morbidity has been studied till now.

2.9 Sexual transmission

Studies have shown that to prevent unwanted pregnancy rather than to prevent themselves from STIs younger people are more motivated to use condom. (Awasthi, Nichter and Pande 2000; Collumbien, Das and Campbell 2001). For example, a study conducted among unmarried and married men in Orissa to reason out the motivational factors for condom use have found 19 percent unmarried men reported condom use during the last sexual act, out of those 61 percent reported pregnancy prevention to be the major reason for the use of condoms (Collumbien, Das and Campbell 2001). Condom use among high risk group is also very low. A surveillance survey (BSS) among sex workers indicated that 50% consistent use of condom with paying clients in the one month prior to the survey. However, a majority (80%) of sex workers did not use condoms consistently with non-paying customers (NACO 2001b).

2.10 Determinants of Reproductive morbidity

2.10.1 Contraceptive Use

The analysis of contraceptive users in major studies on gynecological morbidity have shown the relationship between contraceptive use and reproductive morbidity. A study conducted (Shenoy, Shenoy, and Gopalakrishnan 1995) in five panchayats of Thiruvananthapuram district on reproductive health and gynecological morbidity indicates the strong association between contraceptive use and lower abdominal pain and Pelvic Inflammatory Diseases (PID). Persons belonging to the low socioeconomic status (SES) had a 2.8 time higher risk of falling ill as compared to high (SES) women. An analysis of

the contraceptive users showed that urban women were three time more likely to undergo post-partum sterilization (PPS) compared to rural women. Women with high SES and manual laborers were 2-3 times more likely to undergo PPS and the level of education was not associated with PPS. Women with PPS had 26 times higher risk for illness. Another study in south India, Karnataka reports on the relationship between gynecological morbidity and contraceptives use (Bhatia and Cleland 1989). Sterilized women were more likely to report all problems except menstrual problems. In the multivariate analysis, the odds ratio of contraceptive users relative to nonusers was 1.57 for vaginal discharge and 2.50 for lower abdominal pain or discharge with

2.10.2 Demographic determinants

There are very few studies in India to documenting the evidence the demographic and iatrogenic factors in causation of RTIs. Even thoughthose are exiting don't conclusive have drawn an association between the role of poor genital/personal hygiene and symptoms of reproductive morbidity (Bhatia and Cleland 1995; Oomman 1996; Santhya 1999; Singh et al. 2001). In some facility based studies, to identify the iatrogenic cause of infection, it has been found that the use of IUD increases the risk of pelvic inflammatory diseases (Shrikhande et al. 1995; Shrikhande, Zodpey and Kulkarni 1998).

The chances of upper and lower reproductive tract infection has been found more likely among the women who underwent sterilization as compared to non-users or those who use reversible contraceptive measures (Bhatia and Cleland 1995; Oomman 1996). Few of the studies also reported that the women undergoing invasive surgical procedures like dilatation and curettage are more likely to have PID (Ggate et al. 1998).

2.10.3 Social determinants

A number of small-scale studies have observed a high level of premarital and extramarital sexual activity in general population. The studies done in young population revealed that less than 10 percent of young women and 15-30 percent of young men reported premarital sexual experience (Jejeebhoy and Sebestian 2003).

Prevailing custom of marriage in early age predisposes women at greater risk of acquiring reproductive morbidity. Similarly men are more vulnerable to acquire to STIs because of early indulgence of men with sex workers or having multiple partners. A study found that around 12-44 percent of female patients (majority of them were married) and around 7-22 percent male (majority of them were unmarried) attending STD clinics were reported to be adolescents (Siddappa, Kumar and Ravindra 1990).

Chapter 3

OBJECTIVE AND METHODOLOGY

This chapter initially presents the rationale of study, objectives of study, research questions. It further presents the conceptual framework and information on study design, study area, sampling technique and data collection. Further the chapter also provides the detailed analysis plan adopted for the study.

3.1 Rationale of study

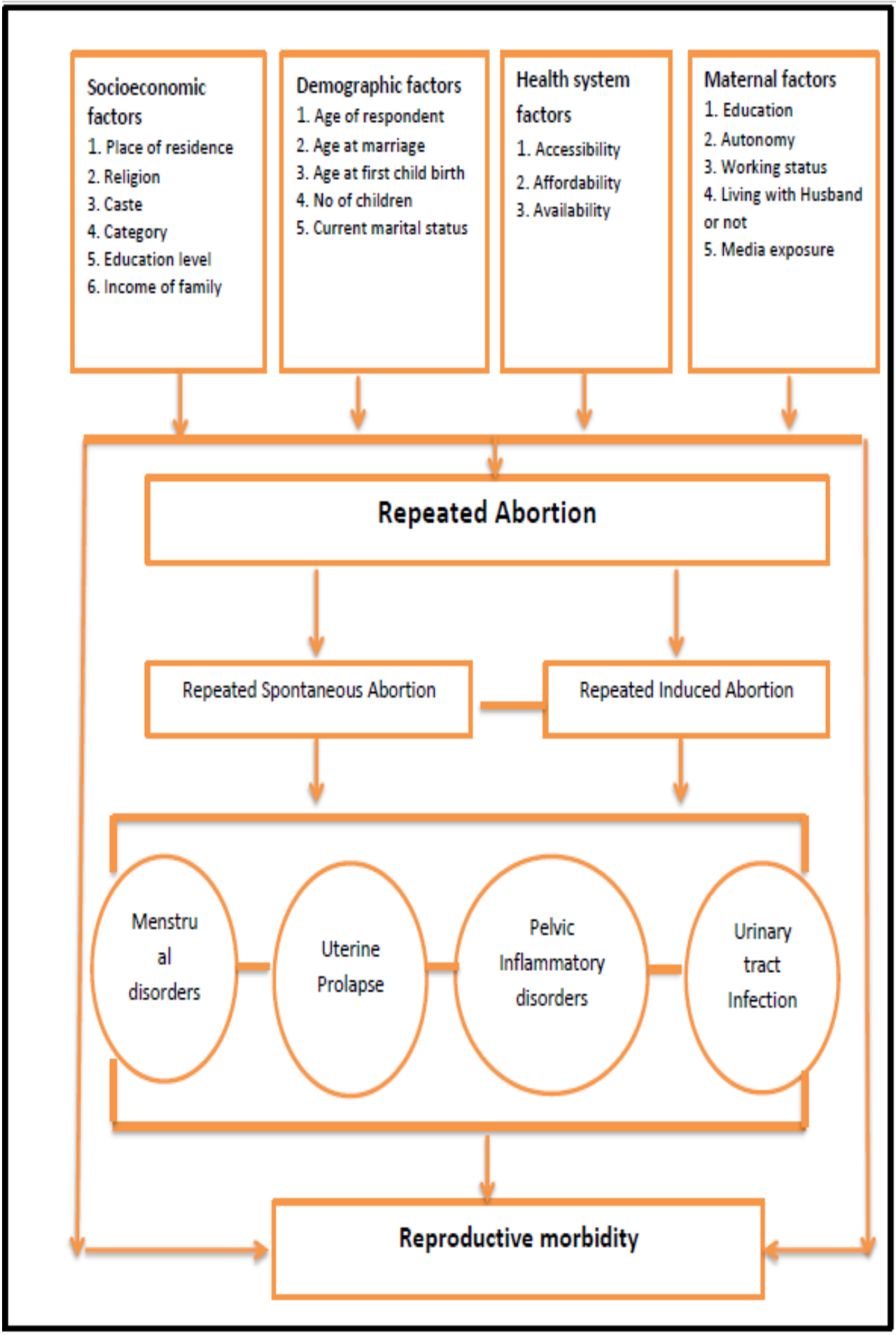
A review of the existing literature indicates that most previous studies on reproductive morbidity in India have been performed on abortion or on reproductive health, few studies shows association between abortion and reproductive mortality also there has been increasing concern over the repeated abortion and reproductive morbidity status of women in India. To our knowledge, no national level study has been conducted on the issue of repeated abortion and in depth analysis in terms of spontaneous abortion and induced abortion however the district level household survey conducted during 2012-13 has collected information on ever married women of age 15 to 49 years who have experienced abortion in the form of spontaneous or induced abortion also collected information on 11 symptoms related to reproductive tract infections, health problems and its correlates. Therefor using this database the present study aims to determine the level of repeated abortion and reproductive morbidity. Attempts also have been made to identify the socioeconomic and demographic factors affecting repeated abortion and reproductive morbidity. Last aim of the study is to investigate the effect of repeated abortion on reproductive morbidity.

3.2 Objective of the study

1. To determine the level of Repeated abortion and reproductive morbidity
2. To identify the socioeconomic and demographic factors affecting repeated abortion and reproductive morbidity.
3. To investigate the effect of repeated abortion on reproductive morbidity

3.3 Conceptual frameworks

There are several factors which affect the repeated abortion and reproductive and sexual health status of women. Figure 1 showing a conceptual framework which reflecting the determinants of repeated abortion and factors which shows the association between repeated abortion and reproductive morbidity


Socioeconomic factors
1. Place of residence
2. Religion
3. Caste
4. Category
5. Education level
6. Income of family
Demographic factors
1. Age of respondent
2. Age at marriage
3. Age at first child birth
4. No of children
5. Current marital status
Health system factors
1. Accessibility
2. Affordability
3. Availability
Maternal factors
1. Education
2. Autonomy
3. Working status
4. Living with Husband or not
5. Media exposure
Repeated Abortion
Repeated Spontaneous Abortion
Repeated Induced Abortion
Menstrual disorders
Uterine Prolapse
Pelvic Inflammatory disorders
Urinary tract Infection
Reproductive morbidity

Socio-economic condition of an individual have a significant role in their health status including reproductive health. Individual own characteristic as well as their household characteristic influences the prevalence of reproductive morbidity and chances of having repeated abortion. However, directly or indirectly lower socio-economic status of women contributes to rate of repeated abortion in the form of spontaneous or induced abortion. Further lack of education and low income level contributes to low use of reproductive health care services. Directly or indirectly reproductive health of women also influenced by demographic factor such as age, age at the marriage, abortion and number of parity play a significant role in their reproductive health status. There are various risk factors which affects health of women and its association with the repeated abortion such as early onset sexual activity and childbearing, lower level of education and income level. In addition factors which influences the awareness of reproductive and sexual health related problems such as intercommunication with spouse or mother in law on reproductive health problems, use of contraceptive methods, awareness of available reproductive and sexual health services and perceived quality of care at the healthcare facility.

3.4 Research Questions

1. Is there an increased repeated abortion among urban and rural people?
2. Is there an increased repeated abortion among poor versus rich household?
3. Is there increased reproductive morbidity associated with abortion?
4. Is there a difference in reproductive morbidity associated with spontaneous and induced abortion?
5. Is a factor associated with repeated abortion and reproductive morbidity is same?

3.5 Research Hypothesis

1. Socioeconomic and demographic variables are not affecting level of repeated abortion and reproductive morbidity
2. There is no association between repeated abortion and reproductive morbidity
3. Level of repeated abortion and reproductive morbidity is same.

A large number of factors such as socio-economic factor especially level of education and media exposure affect women's decision to seek treatment for their problems of reproductive health. Another factor which plays a major role in affecting individual health seeking behaviour is cultural factor via social norms, beliefs and values.

3.6 Socio-economic factors

Socio-economic factors directly or indirectly affect the rate of abortion and reproductive morbidity. In this conceptual framework we have selected five variables of socio-economic factors namely place of residence, religion, caste, education and standard of living. These variables further explained below:

Place of residence

Place of residence play an important role in reproductive health status and decides the pattern of abortion and health seeking behaviour of individual. Many study have found that women who belong to urban area more likely to have awareness related to impact of abortion and reproductive health because of more exposure to healthcare information and services. In contrast, rural women are more likely to be at the risk of reproductive health related issues because of lack of information. The reason could be the poor knowledge of consequences of repeated abortion, reproductive health problems and inaccessible healthcare services

Religion

Religion represents the important and key social characteristic of population. Reproductive and sexual health of women affected by several different practices of personal hygiene and food habit have implication on reproductive health indirectly which is largely influenced by several religious practices.

Caste

Caste system in India which signifies the social position in the society. Schedule Caste and Schedule Tribe are considered as most vulnerable, socially disadvantage and backward section of society, who are still suffering with inequality, low power in decision making, inadequate education and inaccessible healthcare services. They become social and economic disadvantage group due to social exclusion which ultimately contribute to their low level of awareness, high prevalence of abortion and reproductive morbidity.

Education

To measure the human development, education is one of the important social indicators. To improve the level of abortion and reproductive and sexual health of women education plays a vital role. It positively

affects the healthy reproductive behaviour such as use of contraception, maintenance of maternal and child health and improve hygiene practices of the household member. Education plays a key role in improving awareness and promotion of reproductive health behaviour and to make aware people about the consequences of repeated abortion and its impact on women overall health.

Standard of living

To access nutrition and healthcare, wealth status of the households play a major role in determining the utilization health services and the status of the abortion. Using wealth index as an indicator the only problems is that it is difficult to measure and many times fail to capture the true economic conditions. However, as a proxy, an index of standard of living has been created based on the ownership of assets and housing conditions.

3.7 Demographic Factors

There are several demographic factors which influence pattern of repeated abortion and the women's reproductive health such as age, age at marriage, and parity.

Age

Age is an important factor that determines frequency of repeated abortion and reproductive health and fertility. Women at a young age are at higher risk at reproductive morbidity and gone for repeated abortion than the aged women because awareness related to abortion and reproductive health increases with times. However, adoption of the modern healthcare easier for younger women than the older women.

Age at First Marriage

In the country like India where women generally get married at early age and early age of marriage mean longer span of reproductive life and more sexual activity, which put young women at higher risk of developing reproductive morbidity. To measure exposure to the sexual activity age at marriage is considered as a primary indicator**.**

Age at first child birth

In the Indian context where early marriage is a taboo associated in rural population as compare to urban. Early marriage at early age leads to early pregnancy which further leads to many health related complications, with increased risk of undergoing repeated abortion and suffering from reproductive

morbidity, early child bearing and gone for abortion affects both physical and mental health of the women with serious health risk and chances of adopting higher rate of reproductive morbidity.

Parity

Parity affects the period of maternal and reproductive health of women. Higher parity women are at a higher risk maternal morbidity in comparison to women with lower parity. However, number of births and with short birth interval increases the risk of reproductive morbidity.

3.8 Services related factors

Services related determining factor such as availability of health facility with reproductive health care, accessibility of services and most important affordability which influences the utilization of reproductive health care.

Availability of Health Facility and provision of reproductive health related services

Availability of health facility to house or in community influences the healthcare utilization by increasing in awareness of reproductive health related services. Availability of doctor, midwife and modern medicine increases the chance of safe delivery. Forces which pushes women to deliver at home are lack of transport or poor economic conditions or women's experience of uncomplicated deliveries. It's been seen in the village with reproductive health facility are less likely to have maternal complications and other reproductive problems and more likely to use available services.

Accessibility of reproductive related health Services

Nearness of health facility available have an influence on utilization of reproductive health services. Women who resides in area where services available are near more likely to utilize services than those outside the village or at a distant place. It has been seen mostly socially excluded and disadvantage social group resides either out of the village or periphery so chances of availing the services are less likely among them. Moreover stigma and discrimination make this group more vulnerable to face barriers in access to services in comparison to socially advantage group.

Affordability of Reproductive and Sexual Health Services

Women belongs to upper quintile generally avail services from private services with fee-charging in contrast household belongs to lower quintile generally seeks treatment were services are free of cost or with minimal cost. To utilize the health services affordability plays a major role.

3.9 Maternal factors

Maternal factors like education status of mother, working status and autonomy of the women plays vital role in deciding pattern of repeated abortion and health seeking behaviour of mother also current status of the women weathers living with husbands or separated and divorced also leads the prevalence of abortion and reproductive morbidity.

Intermediate Factors

Several as intermediary factor which indirectly affects socio-economic and demographic factors which ultimately affects the reproductive health of women. These factors are awareness of abortion and its consequences on reproductive health and related issues, inter-spousal communication on reproductive health issues, awareness regarding available services and perceived quality of care at public health facilities.

3.10 Operational definition

Abortion:

The National Centre for Health Statistics**,** the Centers for Disease Control and Prevention (CDC), and the World Health Organization0WHO) define abortion as pregnancy termination prior to 20 weeks' gestation or a foetus born weighing less than 500gm.

Repeated Abortion

The American Society of Reproductive Medicine (ASRM) defines repeated abortion or recurrent pregnancy loss is as the occurrence of three or more consecutive pregnancy loss prior to 20 weeks from the last menstrual period.

Spontaneous Abortion

Spontaneous abortion or miscarriage is defined as any pregnancy that is not viable (the foetus cannot survive) or in which the foetus is born before the 20^{th} week of pregnancy.

Induced Abortion

An abortion caused purposely than called an induced abortion or less frequently as "Induced miscarriage" mostly the world abortion is often used to mean only induced abortion.

Reproductive morbidity

Amongst women refer to any dysfunction of the reproductive tract, or any morbidity resulting from reproductive behaviour including pregnancy, abortions, childbirth, postpartum or sexual behaviour.

Upper RTI-

Pain in lower abdomen not related to menses, pain during urination and defecation and lower backache.

Lower RTI-

Vaginal discharge with associated itching or irritation, white or coloured discharge with or without foul odour.

Sexual Intercourse related problems-Sexual intercourse related pain and spotting among women.

3.11 Research design

The research design presented in the conceptual framework. Many background characteristic and service related factors influences the intermediate factors such as socioeconomic and demographic factors including awareness, communication and repeated abortion then separately spontaneous and induced abortion hence reproductive morbidity. A large number of sample is needed to get information is required to understand the linkages on various factors. The present research study involve individual level analysis of factors associated with abortion and reproductive morbidity of women. This has been assessing the influences of socio-economic, demographic and service factors, as well as of intermediate factors of repeated abortion and reproductive morbidity.

3.12 Data source

Data from fourth round of District Level Household Survey, a nationally representative survey conducted in India during 2012-2013, were used. These survey is one of the

DLHS: 4

The District Level Household and Facility Survey is the fourth round of (DLHS-4) nationwide survey which was conducted during 2012-13. The information on women's characteristics, maternal care, immunization and childcare, contraception and fertility preferences, reproductive health including knowledge about HIV/AIDS has been asked from ever-married women who contained under the ever-married women's questionnaire. The information on human resources, infrastructure, and services contained under the health facility questionnaire. DLHS-4 survey is the population–linked facility survey. During this survey all Community Health Centres (CHCs), District Hospitals and Sub Divisional Hospitals were covered. Further, all Sub-Health Centres and Primary Health Centres (PHCs) which serve the population of the selected PSUs were also covered. It contains district wise data on population and household profile, percentage of households having electricity, improved source of drinking water, having access to improved toilet facility, use clean fuel for cooking, mean age of marriage for girls and boys and percentage of currently married women married below age 18 years and 21 years, characteristics of women, fertility, current use of family planning methods, Unmet need for family planning, quality of family planning services, antenatal care, delivery care, percentage of women who received JSY benefits, percentage of women who had any pregnancy complication, any delivery complication, any post-delivery complication, problem of vaginal discharge and menstrual related problems, percentage of pregnancy resulted in live birth, still birth, induced abortion and spontaneous abortion, child immunization, child feeding practices, birth weight, awareness about Diarrhoea, awareness about ARI, treatment of childhood diseases, awareness of RTI/STI and HIV/AIDS, utilization of government health services, birth registration, personal habits, reported prevalence of morbidity, reported prevalence of chronic illness during last one year, Anaemia status by Haemoglobin level, blood sugar level and hypertension.

Measures of variables

A number of measurable variables were identified to understand the linkages between various explanatory factors as mentioned in the conceptual framework, repeated abortion and reproductive morbidity. These variables are defined, categorized and described below:

Dependent Variables

In DLHS-4 survey data on participants who have experienced any form of repeated abortion and had symptom/s of RTI/STI problem during three months prior to the survey were collected by asking whether they had experienced any type of abortion whether intentionally or unintentionally, adding to this what was the frequency of abortion one time, two time, or more than two time, also any of the

following health problems: infection in and around vulva i.e. boils/ulcers/warts around the vulva, painful blister like lesions in and around vagina, itching or irritation over the vulva and swelling in the groin region, pain in the lower abdomen not related to menses, pain during urination and defecations and lower backache, abnormal vaginal discharge, sexual intercourse related problem of pain and spotting among women.

Response Variables

In DLHS-4 each ever-married women aged 15-49 years was asked about her birth history till current status, detailed answer sought about the women experience, including about type of abortion, intensity of abortion, spontaneous abortion and Induced abortion including miscarriage and stillbirths, in the context of their detailed history, the dependent various is subcategories into dichotomous variable indicating whether or not a women experienced an spontaneous one time and repeated spontaneous abortion and induced one time abortion or repeated induced abortion in her after getting marriage.

Covariates or Independent variables

The main research variables included are women sex preference of child and sex composition of living children, 1 is coded if preference for daughter is more than son, 2 is coded if son preference is more than daughter, 3 is coded is preference for son and daughter is equal, in case of sex composition of living children 1 is coded if number of son are living with women, 2 is coded if number of son are not living with women, same for daughter 1 is coded if daughter is living with responded, 2 is coded if daughter is not living with women, with reference to these variable main study variable is computed as "total number of son" and " total number of daughter' are in the family.

The other variable like locality of household (urban, rural), religion of the responded is recoded 1 for Hindu, 2 for Muslim and other religions are recode as "other" category. Education of women is coded (1-illitrate, 2-primary, 3-secondary, 4-higher secondary, 5 graduation and PG), age of respondent is recoded as-"1" below 20 years , "2" 20 years to 30 years, "3" 31 years to 40 years, "4" above 40 years, wealth index[5] (lowest, second, middle, fourth, highest) women age at the time of marriage and first child birth is coded (below 15 years, 16 to 25 years , 26 to 35 years, 36 to 45 years, above 40 years), all states were coded as regional zones(Northern zone, North-Eastern zone, Eastern zone, Western zone, Southern zone)

Computation of Indices

Some indices such as wealth index and autonomy index have been used in this study. A brief description of those indices is given here. or assessing the economic status of the household, a wealth index has been created. The wealth index was constructed using household asset data and housing characteristics. Each household asset is assigned a weight (factor score) generated through principal components analysis, and the resulting asset scores are standardized in relation to a normal distribution with a mean of zero and standard deviation of one (Gwatkin et al., 2000). Each household is then assigned a score for each asset, and the scores were summed for each household; individuals are ranked according to the score of the household in which they reside. The sample is then divided into quintiles (i.e., five groups with an equal number of individuals in each).

Similar to the wealth index, overall abortion status of women is computed by asking specific question "whether women experience any abortion" on the basis of responses abortion is categorised into three categories No abortion, spontaneous abortion, Induced abortion, further spontaneous abortion is computed as one time spontaneous abortion and repeated spontaneous abortion, same for induced abortion is coded as one time spontaneous abortion and repeated induced abortion so finally variable abortion (1- no abortion, 2- one time Spontaneous abortion, 3- Repeated Spontaneous abortion, 4- one time induced abortion, 5- repeated induced abortion)

DLHS -4 collected information from all women on some common symptoms of RTIs, namely, problems with abnormal vaginal discharge or urinary tract infections (UTIs) in the 3 months preceding the survey and intercourse-related pain (often) and bleeding after intercourse (ever). Specifically, the prevalence of reproductive health problems among ever-married women is anticipated from women's self-reported experience with each of the following problems: vaginal discharge accompanied by itching, by irritation around the vaginal area, by severe lower abdominal pain not accompanied by menstruation, by fever, or by any other problem; pain or burning while urinating or frequent or difficult urination; and (among currently married women only) painful intercourse or bleeding after intercourse. However, as information on health problems is based on self-reported symptoms rather than clinical tests or examinations, the results should be interpreted with caution.

3.15 Statistical Analysis

For the first Objective:

We have to calculate the burden of each and every above mentioned repeated abortion spontaneous as well induced abortion. For this analysis dependent variable is selected as presence of any form of abortion experienced by women. To check reproductive morbidity we have calculated the burden of each and every above mentioned symptom separately. For this analysis, dependent variable is selected as presence of each and every symptom separately as a reproductive morbidity.

Further, we have categories the repeated abortion and reproductive morbidity in to following domain, such as, abortion, Repeated Abortion, One time Spontaneous Abortion, Repeated spontaneous abortion, One time Induced abortion, Repeated Induced abortion Reproductive Morbidity , Lower tract , infections (LTIs), Upper tract infections (UTIs) and, Sexual Intercourse related problems.

For the analysis our dependent variables are above mention all two domain of repeated abortion spontaneous and induced abortion then for further analysis we computed abortion into five different domains' No abortion, one time spontaneous abortion, repeated spontaneous abortion, one time Induced abortion, repeated induced abortion The symptom associated with lower track infections includes itching or irritation over the vulva, painful blister like lesions in and around the vulva, and swelling in the groin region. Symptom of upper track infection includes pain in the lower abdomen not related to menses, pain during urination and defecation and lower backache while sexual intercourse related problems consists of pain and spotting during the activity (Wasserheit, 1989). For next level of analysis, our dependent variables are above mention repeated abortion and reproductive morbidity. Further to assess the multiple morbidities among each category we have created a variable with multiple responses for each category separately. If women have reported any one or two or three symptoms out of three symptoms of respective category of lower tract infection and upper tract infection so we have coded as 1or 2 or 3 respectively otherwise 0. Similarly if women have reported one or two symptoms out of two symptoms of sexual intercourse related problems so we have coded as 1 or 2 respectively otherwise 0.

For the Second Objective:

To analyse the second objective which is "To identify the socioeconomic and demographic factors affecting repeated abortion and reproductive morbidity" all the dependent variable repeated abortion and reproductive morbidity both taken separately with reference to socioeconomic and demographic variable to check there impact, in addition to show the significant association between Repeated abortion and all independent factors, we have applied binary logistic regression.

For the third Objective:

For the third objective all the all domains of abortion like no abortion, one time spontaneous abortion, repeated spontaneous abortion, one time induced abortion, repeated induced abortion were analyse with reference to different form of reproductive morbidity as upper track infection, lower track infection, sexual intercourse related problems to investigate the impact over each other.

Independent Variables

Independent variables included for analysis are locality of the respondent, age in completed years, age at the time of marriage, religion, education in completed years, wealth Index quantile, caste, category of the respondent, child combination in family, Regions respondent belongs to.

Wealth index construction

The wealth index is a composite measure of a household's cumulative living standard. In DLHS-4 survey wealth index information was not directly given, therefore we used the collected information on household's ownership of selected assets, such as television and bicycles, source of drinking water access and sanitation facilities, materials used for housing construction and other characteristics that were related as to wealth status. We have generated the wealth index with a statistical procedure known as principal components analysis, so that with the help of wealth index we can able to places individual households on a continuous scale of relative wealth. We have separated all households into five wealth quintiles to compare the influence of wealth on various populations and their health status. Each household asset for which information is collected is assigned a weight or a factor score generated through principal component analysis.

Research design

The research design is presented in the conceptual framework. Individual, socio-economic, demographic characteristics and service related factors influence the choice of provider and type of facility chosen which are the key determinants of safe and legal abortion seeking behaviour. A large number of sample is needed to get information on the prevalence of abortion to understand the association with various independent factors under consideration . The present research study involves individual level analysis of factors associated with prevalence of abortion and abortion seeking behaviour. The unit of analysis is married women in the age group 15-49 years who have experienced any form of abortion.

Methodology

On the basis of these data, associations between repeated abortion and reproductive morbidity and socio-economic, demographic, and services related factors are examined. The present study uses bivariate analysis as well as multivariate analysis such as binary logistic regression model. For those reporting repeated abortion as spontaneous and induced abortion is studied first by using cross tabulations and the net effect using binary logistic regression model. Same as for reproductive morbidity is studied by using cross tabulations with socio-economic and demographic factors.

The level of repeated abortion ascertained from DLHS-4 survey. Analysis is done at the individual level to examine differential in reported prevalence of repeated abortion and reproductive morbidity by selected socio-economic, demographic factors. For the analysis at the individual levels, and also for various socio-economic and demographic indicators, the variables have been computed as total age of respondent is recoded into five subcategory “below age of 20 years, “age between 21 to 30 years” “age from 31 to 40 years” “age above 40 years”, Religion is recoded as Hindu, Muslim, and Other categories, caste is recoded as Schedule Caste(SC), schedule Tribe(ST), Other backward Classes(OBC), others, education is recoded as “illiterate” “primary” “secondary” “Higher secondary” UG&PG” States are recoded into regional zones as “Northern zone” “Northern-eastern zone” “Eastern zone” “Western zone” “Southern zone” on the basis of children living with mother or living out of home with total number of children in the family is recoded as “Child preference” and coded “1”for if number of daughter is more than boy, coded “2” if number of boys same as girls, coded “3” if number of boys are more as compare to girls in the family.

For the further analysis variable abortion is transformed into five categories and recoded as No abortion, One time spontaneous abortion, repeated spontaneous abortion, one time induced abortion, repeated induced abortion, same to create dependent variable reproductive morbidity different variables transformed and recoded and code “1” is given if reproductive morbidity is not associated, code “2” is given if reproductive morbidity is associated with any problems related with reproductive health.

Chapter 4

Determinants of Repeated Abortion and its consequences on women's Reproductive morbidity

4.1 Level of repeated abortion and reproductive morbidity.

Prevalence of Abortion	Total	Reproductive Morbidity	
		No	Yes
No abortion	281666	245994	35672
	88.4%	**87.3%**	**12.7%**
One Time Spontaneous Abortion	20481	16971	3510
	6.4%	**82.9%**	**17.1%**
Repeated abortion	6657	5467	1190
	2.1%	**82.1%**	**17.9%**
One Time Induced abortion	7745	6145	1600
	2.4%	**79.3%**	**20.7%**
Repeated Induced Abortion	2022	1569	453
	.6%	**77.6%**	**22.4%**

We examined the bi-variate differentials to explore how the prevalence of different form of abortion and reproductive morbidity.

Table 1 shows the profile of the ever married women of reproductive age 15-49 years from non EAG states in India**,** first column shows the level of abortion, however second column gives the knowledge of reproductive morbidity with reference to level of abortion in India. Out of 318619 women 88.4% not experienced any abortion; those who have experienced abortion majority of them experienced spontaneous abortion then induced abortion. However who have experienced spontaneous abortion 6.4% experienced one time while 2.1% experienced repeated spontaneous abortion. Women who have experienced Induced abortion 2.4% women experienced one time while 0.6% women experienced repeated induced abortion. With reference to association of abortion and reproductive morbidity out of 88.4% women who have not gone for any abortion, 12.7% women still having sign of reproductive morbidity, those women who have experienced spontaneous abortion and having sign of reproductive

morbidity majority of them (17.9%) experienced repeated spontaneous abortion followed by one time(17.1%) spontaneous abortion, however those women who experienced induced abortion and having sign of reproductive morbidity (22.4%) women experienced repeated induced abortion 20.7% women experienced one time induced.

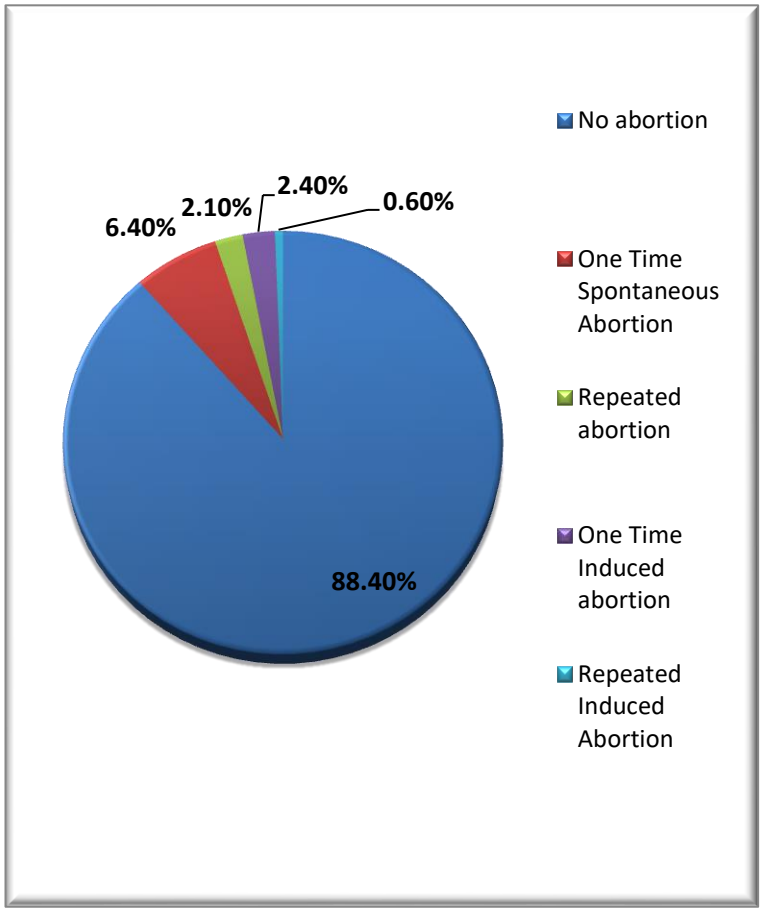
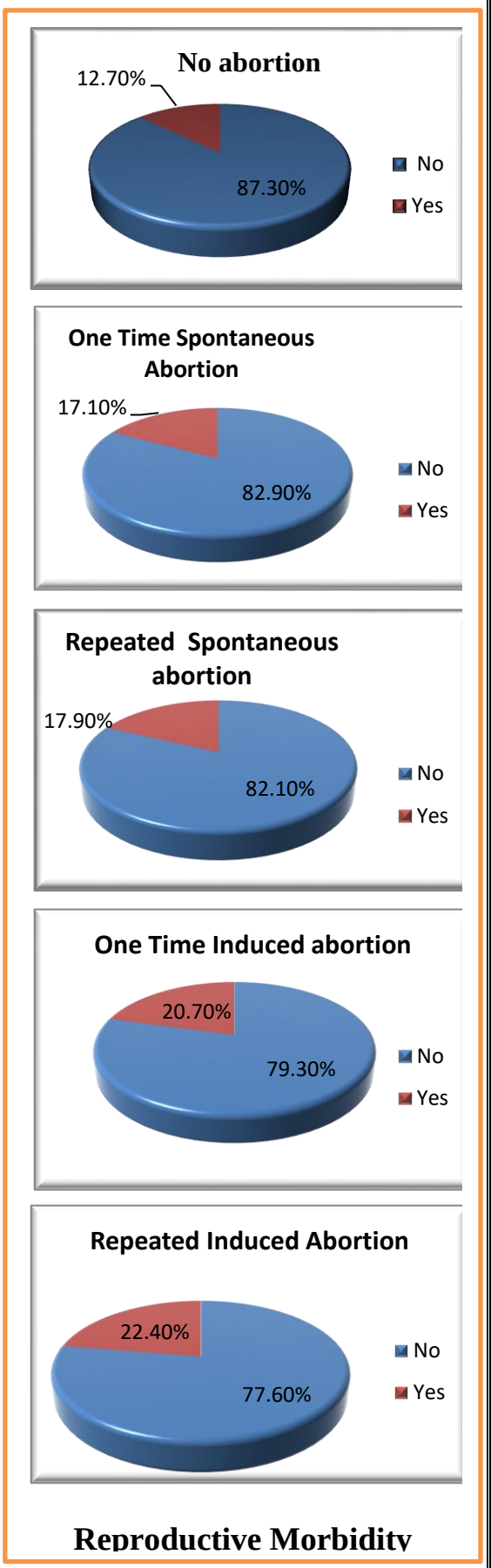


Figure 2 shows level of abortion, and association of Reproductive morbidity with each type of abortion in India of total sample size.



4.2 The socioeconomic and demographic factors affecting repeated abortion and reproductive morbidity.

Socioeconomic demographic characteristics of women		Repeated Abortion						
		Spontaneous abortion		Total	Induced Abortion		Total	No Abortion
		one Time	More than One		one Time	More than One		
locality of household	Rural	11823	3710	15533	3757	953	4710	170044
		55.40%	**54.10%**	**55.10%**	**48.10%**	**46.80%**	**47.90%**	**60.9%**
	Urban	9509	3149	12658	4047	1084	5131	109013
		44.60%	**45.90%**	**44.90%**	**51.90%**	**53.20%**	**52.10%**	**39.1%**
Religion of the family	Hindu	15379	4826	20205	5648	1458	7106	196040
		72.10%	**70.40%**	**71.70%**	**72.40%**	**71.50%**	**72.20%**	**70.3%**
	Muslim	2145	712	2857	742	182	924	25395
		10.10%	**10.40%**	**10.10%**	**9.50%**	**8.90%**	**9.40%**	**9.1%**
	Others	3808	1321	5129	1414	398	1812	57621
		17.90%	**19.30%**	**18.20%**	**18.10%**	**19.50%**	**18.40%**	**20.6%**
Caste of the household	Caste	18100	5740	23840	6570	1709	8279	221330
		84.90%	**83.70%**	**84.60%**	**84.20%**	**83.90%**	**84.10%**	**79.3%**
	Tribe	1815	709	2524	593	140	733	38583
		8.50%	**10.30%**	**9.00%**	**7.60%**	**6.90%**	**7.40%**	**13.8%**
	No caste	1035	301	1336	480	140	620	13924
		4.90%	**4.40%**	**4.70%**	**6.20%**	**6.90%**	**6.30%**	**5.0%**
	Others	381	110	491	161	49	210	5219
		1.80%	**1.60%**	**1.70%**	**2.10%**	**2.40%**	**2.10%**	**1.9%**
Category of the cast	SC	4933	1615	6548	1566	428	1994	65063
		23.10%	**23.50%**	**23.20%**	**20.10%**	**21.00%**	**20.30%**	**23.3%**
	ST	2324	851	3175	661	167	828	47472
		10.90%	**12.40%**	**11.30%**	**8.50%**	**8.20%**	**8.40%**	**17.0%**
	OBC	7927	2455	10382	2921	703	3624	93742
		37.20%	**35.80%**	**36.80%**	**37.40%**	**34.50%**	**36.80%**	**33.6%**
	Others	6147	1938	8085	2656	739	3395	72780
		28.80%	**28.30%**	**28.70%**	**34.00%**	**36.30%**	**34.50%**	**26.1%**
Highest education completed	illiterate	4356	1665	6021	941	322	1263	69265
		20.40%	**24.30%**	**21.40%**	**12.10%**	**15.80%**	**12.80%**	**24.8%**
	<= Primary	4473	1431	5904	1466	424	1890	56223
		21.00%	**20.90%**	**20.90%**	**18.80%**	**20.80%**	**19.20%**	**20.1%**

	Secondary	7999	2468	10467	3277	818	4095	97223
		37.50%	**36.00%**	**37.10%**	**42.00%**	**40.10%**	**41.60%**	**34.8%**
	Higher Secondary	2333	677	3010	1094	235	1329	28204
		10.90%	**9.90%**	**10.70%**	**14.00%**	**11.50%**	**13.50%**	**10.1%**
	UG &PG	2170	620	2790	1027	239	1266	28143
		10.20%	**9.00%**	**9.90%**	**13.20%**	**11.70%**	**12.90%**	**10.1%**
Region	**Northern region**	5339	1940	7279	1645	473	2118	60846
		25.00%	**28.30%**	**25.80%**	**21.10%**	**23.20%**	**21.50%**	**21.8%**
	N-E region	1938	689	2627	893	306	1199	39976
		9.10%	**10.00%**	**9.30%**	**11.40%**	**15.00%**	**12.20%**	**14.3%**
	Eastern region	1770	423	2193	775	222	997	21447
		8.30%	**6.20%**	**7.80%**	**9.90%**	**10.90%**	**10.10%**	**7.7%**
	western region	2630	874	3504	1476	346	1822	41205
		12.30%	**12.70%**	**12.40%**	**18.90%**	**17.00%**	**18.50%**	**14.8%**
	southern region	9655	2933	12588	3015	690	3705	115583
		45.30%	**42.80%**	**44.70%**	**38.60%**	**33.90%**	**37.60%**	**41.4%**
Age in Completed years	**< = 20**	701	131	832	157	17	174	14815
		3.30%	**1.90%**	**3.00%**	**2.00%**	**0.80%**	**1.80%**	**5.3%**
	21-30	7361	2043	9404	2551	469	3020	99337
		34.50%	**29.80%**	**33.40%**	**32.70%**	**23.00%**	**30.70%**	**35.6%**
	31-40	8288	2861	11149	3321	903	4224	99874
		38.90%	**41.70%**	**39.50%**	**42.60%**	**44.30%**	**42.90%**	**35.8%**
	> 40	4982	1824	6806	1775	648	2423	65031
		23.40%	**26.60%**	**24.10%**	**22.70%**	**31.80%**	**24.60%**	**23.3%**
Age At Marriage	**below 15**	1431	520	1951	388	108	496	17453
		6.70%	**7.60%**	**6.90%**	**5.00%**	**5.30%**	**5.00%**	**6.3%**
	15-19	10256	3385	13641	3573	1008	4581	131755
		48.10%	**49.30%**	**48.40%**	**45.80%**	**49.50%**	**46.60%**	**47.2%**
	20-24	6832	2044	8876	2757	641	3398	88346
		32.00%	**29.80%**	**31.50%**	**35.30%**	**31.50%**	**34.50%**	**31.7%**
	25-29	1613	511	2124	695	173	868	21650
		7.60%	**7.40%**	**7.50%**	**8.90%**	**8.50%**	**8.80%**	**7.8%**
	31-40	165	52	217	66	9	75	2637
		0.80%	**0.80%**	**0.80%**	**0.80%**	**0.40%**	**0.80%**	**.9%**
	above 40	1034	348	1382	324	98	422	17215
		4.80%	**5.10%**	**4.90%**	**4.20%**	**4.80%**	**4.30%**	**6.2%**
Age At First Child Born	**Below 20**	9745	2963	12708	3422	1013	4435	129358
		49.40%	**48.60%**	**49.20%**	**45.70%**	**51.30%**	**46.90%**	**52.2%**
	21- 30	9424	2899	12323	3832	913	4745	112289
		47.80%	**47.50%**	**47.70%**	**51.20%**	**46.20%**	**50.20%**	**45.3%**

	31-40	542	229	771	221	48	269	6066
		2.70%	**3.80%**	**3.00%**	**3.00%**	**2.40%**	**2.80%**	**2.4%**
	Above 40	11	10	21	5	2	7	185
		0.10%	**0.20%**	**0.10%**	**0.10%**	**0.10%**	**0.10%**	**.1%**
Child Preference	**Daughter > Son**	3731	1212	4943	1374	313	1687	44492
		17.50%	**17.70%**	**17.50%**	**17.60%**	**15.40%**	**17.10%**	**15.9%**
	Son > daughter	5508	1594	7102	2225	508	2733	73892
		25.80%	**23.20%**	**25.20%**	**28.50%**	**24.90%**	**27.80%**	**26.5%**
	daughter = son	12093	4054	16147	4206	1217	5423	160673
		56.70%	**59.10%**	**57.30%**	**53.90%**	**59.70%**	**55.10%**	**57.6%**
Wealth index quantile	**Poorest**	3402	1134	4536	797	244	1041	53181
		15.90%	**16.50%**	**16.10%**	**10.20%**	**12.00%**	**10.60%**	**19.1%**
	poorer	3986	1331	5317	1235	334	1569	58399
		18.70%	**19.40%**	**18.90%**	**15.80%**	**16.40%**	**15.90%**	**20.9%**
	Middle	4313	1317	5630	1564	388	1952	57334
		20.20%	**19.20%**	**20.00%**	**20.00%**	**19.00%**	**19.80%**	**20.5%**
	Richer	4543	1435	5978	1901	444	2345	55575
		21.30%	**20.90%**	**21.20%**	**24.40%**	**21.80%**	**23.80%**	**19.9%**
	Richest	5088	1643	6731	2307	627	2934	54568
		23.90%	**24.00%**	**23.90%**	**29.60%**	**30.80%**	**29.80%**	**19.6%**
Reproductive morbidity	**No**	17627	5626	23253	6197	1582	7779	243905
		82.60%	**82.00%**	**82.50%**	**79.40%**	**77.70%**	**79.00%**	**87.4%**
	Yes	3705	1233	4938	1608	455	2063	35152
		17.40%	**18.00%**	**17.50%**	**20.60%**	**22.30%**	**21.00%**	**12.6%**

Socioeconomic, Demographic, maternal characters

Table 2 shows the profile of the ever married women of reproductive age 15-49 years from non EAG states in India. Out of 37017 women who have experienced one time spontaneous abortion during last five years from the date of survey, 55.4% belongs to the rural areas, 72.1% are Hindu,37% belongs to Other Backward classes, 20.4% are illiterate an majority of them have completed only Secondary level (37.5%) education, 45% belongs to the Southern region and 25% to northern region, 38.9% belongs to the age group of 31-40 years while 34.5% belongs to the 21-30 years of age group, 48.1% of women age were 15-19 years at the time of first marriage, 49.4% women gave birth to their first child at the age of 15-20 years followed by age of 21-30 (47.8%) years, 56.7% women give equal preference to daughter

and son, while 25.8% women give more preference to son over daughter, 15.9% belongs to poorest quantile and 23.9% to richest quantile and 17.4% prone to reproductive morbidity.

However women who have experienced repeated spontaneous abortion 54.1% belongs to the rural areas, 70.4% are Hindu,35.8% belongs to Other Backward classes, 21.4% are illiterate an majority of them have completed only Secondary level (37.1%) education, 42.8% belongs to the Southern region and 28.3% to northern region, 41.7% belongs to the age group of 31-40 years while 29.8% belongs to the 21-30 years of age group, 49.3% of women age were 15-19 years at the time of first marriage, 48.6% women gave birth to their first child at the age of 15-20 years followed by age of 21-30 (47.5%) years, 59.1% women give equal preference to daughter and son, while 23.2% women give more preference to son over daughter, 16.5% belongs to poorest quantile and 24% to richest quantile and 18% prone to reproductive morbidity.

Those women experienced one time Induced abortion during last five years from the date of survey, 51.9% belongs to the urban areas, 72.4% are Hindu,37.4% belongs to Other Backward classes, 12.1% are illiterate an majority of them have completed only Secondary level (42%) education, 38.6% belongs to the Southern region and 21.1% to northern region, 42.6% belongs to the age group of 31-40 years while 32.7% belongs to the 21-30 years of age group, 45.8% of women age were 15-19 years at the time of first marriage, 51.2 % women gave birth to their first child at the age of 21-30 years followed by age of 15-20 (45.7%) years, 53.9% women give equal preference to daughter and son, while 28.5% women give more preference to son over daughter, 10.2% belongs to poorest quantile and 29.6% to richest quantile and 20.6% prone to reproductive morbidity.

However women who have experienced repeated Induced abortion 52.1% belongs to the urban areas, 71.5% are Hindu,19.5% belongs to Other Backward classes, 12.1% are illiterate an majority of them have completed only Secondary level (40.1%) education, 33.9% belongs to the Southern region and 23.2% to northern region, 44.3% belongs to the age group of 31-40 years while 23% belongs to the 21-30 years of age group, 49.5% of women age were 15-19 years at the time of first marriage, 51.3% women gave birth to their first child at the age of 15-20 years followed by age of 21-30 (46.2%) years, 59.7% women give equal preference to daughter and son, while 24.9% women give more preference to son over daughter, 12% belongs to poorest quantile and 30.8% to richest quantile and 22.3% prone to reproductive morbidity.

4.3 Odds of socioeconomic and demographic factors affecting repeated abortion

Abortion	One time Spontaneous Abortion		Spontaneous Repeated Abortion		One time Induced Abortion		Induced Repeated Abortion	
		95% C.I.for EXP(B)		95% C.I.for EXP(B)		95% C.I.for EXP(B)		95% C.I.for EXP(B)
	Exp(B)	Lower -Upper	**Exp(B)**	Lower -Upper	**Exp(B)**	Lower -Upper	**Exp(B)**	Lower –Upper
Rural (ref)								
Urban	**1.186***	(1.149 -1.225)	**1.319***	(1.248 - 1.394)	**1.388***	1.321 -1.459	**1.536***	1.396 -1.689
Age Below 20 (ref)								
20-29	**1.447***	(1.295 -1.616)	**2.892***	(2.159 - 3.874)	**1.937***	1.578 - 2.377	**3.276***	1.829 - 5.867
30-39	**1.571***	(1.405-1.757)	**4.065***	(3.034 - 5.446)	**2.440***	1.986 - 2.997	**6.049***	3.382 - 10.818
Above 40	**1.467***	1.309 -1.645	**3.978***	(2.962 - 5.343)	**2.101***	1.704 - 2.590	**6.850***	3.819 - 12.287
Education Illiterate (ref)								
Primary	**1.274***	1.217 -1.333	**1.086***	(1.005 -1.172)	**1.800***	1.653 - 1.959	**1.609***	1.386 - 1.868
Secondary	**1.302***	1.248 -1.359	**1.071**	(.997 - 1.151)	**2.309***	2.135 - 2.496	**1.897***	1.652 - 2.180
Higher Secondary	**1.288***	1.213 -1.368	**1.024**	(921 - 1.138)	**2.633***	2.389 - 2.902	**2.099***	1.746 - 2.525
UG & PG	**1.122***	1.052 -1.198	**.856***	(.762 - .961)	**2.272***	2.050 - 2.519	**1.923***	1.583 - 2.335
Religion Hindu (ref)								
Muslim	**1.039**	.986 - 1.095	**1.222***	(1.118 -1.337)	**.923***	.849 - 1.003	**.884***	.750 - 1.041
Others	**1.060***	1.013 - 1.110	**1.012**	(935 - 1.096).	**1.171**	1.091 -1.257	**1.261**	1.105 - 1.440
Caste (ref.)								
Tribe	**.862***	.792 - .938	**1.108**	(.964 - 1.273)	**.707***	.612 - .818	**.411***	.301 - .560
No Caste	**.946**	.875 - 1.022	**.927**	(.806 - 1.067)	**.864***	.775 - .963	**.854**	.701 - 1.041
others	**.852***	.758 - .958	**.898**	(.725 - 1.111)	**.888**	.750 - 1.051	**1.051**	.782 - 1.413
Schedule Caste (Ref.)								
Schedule tribe	**.859***	.798 - .925	**.876***	.772 - .993	**.534***	.464 - .615	**.532***	.401 - .705

Other Backward Classes	**1.099***	1.054 - 1.145	**1.049**	.975 - 1.128	**1.206***	1.128 - 1.290	**1.153***	1.013 - 1.312
Others	**1.089***	1.041 - 1.139	**1.061**	.981 - 1.147	**1.251***	1.166 - 1.343	**1.252***	1.096 - 1.430
Age Marriage below 15 (ref.)								
15-19	**.893***	.840 - .949	**.800***	.724 - .884	**1.055**	.946 - 1.176	**1.209**	.985 - 1.484
20-24	**.718***	.665 - .776	**.469***	.413 - .531	**.984**	.862 - 1.124	**1.086**	.841 - 1.402
25-29	**.694***	.631 - .763	**.388***	.330 - .457	**.965**	.827 - 1.127	**1.127**	.837 - 1.518
30-39	**.6258***	.501 - .781	**.200***	.133 - .302	**.764**	.544 - 1.073	**.355***	.145 - .870
Above 40	**.6998***	.639 - .765	**.523***	.450 - .608	**.801***	.685 - .936	**.850**	.637 - 1.135
Age First Child below 20(ref.)	**1**		**1**		**1**		**1**	
20-29	**1.243***	1.185 - 1.303	**1.553***	1.439 - 1.677	**1.118***	1.035 -1.209	**.874**	.750 - 1.019
30-39	**1.485***	1.323 - 1.668	**2.935***	2.477 - 3.477	**1.183**	.991 - 1.413	**.787**	.552 - 1.122
above 40	**1.226**	.667 - 2.253	**4.223***	2.193 - 8.132	**1.120**	.437 - 2.871	**1.292**	.288 - 5.797
Sex preference D>S (ref.)								
S>D	**.875***	.837 - .914	**.736***	.681 - .796	**.989**	.922 - 1.060	**.920**	.798 - 1.062
D=S	**.969**	.929 - 1.011	**.804***	.748 - .863	**1.089**	1.019 -1.164	**1.159***	1.015 - 1.323
Region Northern Zone(ref.)								
North-East	**.669***	.620 - .721	**.566***	498 - .644	**1.539***	1.384 - 1.711	**2.441***	2.043 - 2.917
Eastern	**.982**	.921 - 1.047	**.592***	.524 - .669	**1.710***	1.553 - 1.883	**1.685***	1.411 - 2.013
Western	**.692***	.656 - .731	**.613***	.560 - .673	**1.358***	1.256 - 1.468	**1.155**	.993 - 1.343
Southern	**.955***	.916 -.995	**.736***	.686 - .790	**1.046**	.976 - 1.121	**.857***	.749 - .979
Constant	**.051**		**.011**		**.005**		**.001**	

(* significant level: *p<0.05, Ref -Reference category, dependent variable- one time spontaneous abortion (0= N0, 1= yes) repeated spontaneous abortion (0= N0, 1= yes), One time Induced abortion (0= N0, 1= yes), repeated induced abortion (0= N0, 1= yes),

To find the factors affecting the repeated abortion among respondents, binary logistic regression analyses are carried out. For this analysis, four dependent variable are selected as one time spontaneous abortion, repeated spontaneous abortion, one time induced abortion, repeated induced abortion, For the analysis of one time spontaneous abortion "1' is coded for women who experienced one time spontaneous abortion otherwise "0" is coded for no abortion other variables are excluded from the analysis, same for repeated spontaneous abortion code as "1' otherwise o, for the analysis of one time induced abortion "1" is coded for women who experienced one time induced abortion otherwise '0" for no abortion and other variables were excluded, same for repeated induced abortion coded "1" if women

experience more than two induced abortion, otherwise "0" other variables were excluded. Table presents the adjusted odd ratio (OR) and 95% confidence interval for one time and repeated abortion with background characteristic of the respondents.

The results of logistic regression displayed in the Table show the adjusted odds ratio of a dichotomized outcome variable, one time spontaneous abortion and its 95 percent confidence interval in relation to selected covariates which includes individual characteristics, socioeconomic and demographic characteristics Table presents all the explanatory variables, which have been tested for their association with dependent variable and the results of odd ratio. During fourth round of survey factors which are significantly associated with one time spontaneous abortion are locality of household, age of respondents category, religion of respondents except Muslim, education of respondents, caste of respondent, age at marriage, age at first child birth, sex preference except desire for equal son and daughter, and regional zones except Eastern zone.

Women belongs to urban areas (OR=**1.186***, 95% CI: (1.149 -1.225) with reference to rural women, Women aged 20-29 years (OR=**1.447*** 95% CI: (1.295 -1.616) 30-39 years (OR=**1.571*** 95% CI: (1.405-1.757) and above 40 years (OR=**1.467*** 95% CI: 1.309 -1.645) with reference to those below 20 years of age. Women who had completed primary education, **(1.274*** 95% CI: 1.217 -1.333) secondary education **(1.302*** 95% CI: 1.248 -1.359), Higher secondary **(1.288*** 95% CI: 1.213 -1.368) and completed Under Graduation and post-graduation **(1.122*** 95% CI: 1.052 -1.198) with reference to illiterate women. Women belongs to other religions **(1.060*** 95% CI: 1.013 - 1.110) except Muslim women **(1.039** 95% CI: .986 - 1.095) who are not significantly associated, with reference to Hindu, women from Schedule Tribe **(.859*** 95% CI: .798 - .925), Other Backward classes **(1.099*** 95% CI: 1.054 - 1.145) and other castes **(1.089*** 95% CI: 1.041 - 1.139) with reference to Schedule Caste, Women who get married at the age of 15-19 years **(.893*** 95% CI: .840 - .949), 20-24 years **(.718*** 95% CI: .665 - .776) 25-29 years **(.694*** 95% CI: .631 - .763), 30-39 years **(.6258*** 95% CI: .501 - .781) and above 40 years **(.6998*** 95% CI: .639 - .765) with reference to those who married below 15 years, those who have first child born at the age of 20-29 years **(1.243*** 95% CI: 1.185 - 1.303), 30-39 years **(1.485*** 95% CI: 1.323 - 1.668) with reference to below 20 years of age, women who gives more preference to son over daughter **(.875*** 95% CI:.837 - .914) with more preference to daughter over son, and women belongs to North- East zone **(.669*** 95% CI: .620 - .721), western zone **(.692*** 95% CI: .656 - .731), Southern zone **(.955*** 95% CI: .916 -.995) with reference to Northern zone all are more likely to experience One time spontaneous abortion than there reference category.

Table presents all the explanatory variables, which have been tested for their association with dependent variable and the results of odd ratio. During fourth round of survey factors which are significantly associated with repeated spontaneous abortion are locality of household, age of respondents category, religion of respondents except other religions, education of respondents except secondary and higher secondary, caste of respondent except other backward classes and other casts, age at marriage, age at first child birth, sex preference, and regional zones

The likelihood of experiencing repeated spontaneous abortion is found to be with Women belongs to urban areas **(OR= 1.319*** 95% CI: 1.248 - 1.394) with reference to rural women, Women aged 20-29 years **(2.892*** 95% CI: (2.159 - 3.874) 30-39 years (OR=**4.065*** 95% CI: 3.034 - 5.446) and above 40 years (OR= **(3.978*** 95% CI: 2.962 - 5.343) with reference to those below 20 years of age Women who had completed primary education, **(1.086*** 95% CI: (1.005 -1.172) Under Graduation and post-graduation **(.856* *** 95% CI: 762 - .961) with reference to illiterate women. Women belongs to Muslim religions **(1.222*** 95% CI: (1.118 -1.337) with reference to Hindu, women from Schedule Tribe **(.876* 95%CI** .772 - .993) with reference to Schedule Caste are more likely to experience repeated spontaneous abortion.

However Women who get married at the age of 15-19 years **(.800*** 95% CI: 724 - .884), 20-24 years **(.469*** 95% CI: .413 - .531) 25-29 years **(..388*** 95% CI: .330 - .457), 30-39 years **(.200*** 95% CI: .133 - .302) and above 40 years **(.523*** 95% CI:.450 - .608) with reference to those who married below 15 years are significantly associated and less likely to experience repeated spontaneous abortion than those women who get married below 15 years of age.

Those who have first child born at the age of 20-29 years **(1.553*** 95% CI: 1.439 - 1.677), 30-39 years **(2.935*** 95% CI: 2.477 - 3.477) and above 40 years (**4.223*** 95% CI: 2.193 - 8.132) are 55%, 2 time and 4 times more likely to experience repeated spontaneous abortion with reference to those women who gave first child birth below 20 years of age respectively.

Women who gives more preference to son over daughter **(.736*** 95% CI: .681 - .796) and equal preference to son and daughter (**.804*** 95% CI:.748 - .863**)** with reference to more preference to daughter over son, women belongs to North- East zone **(.566*** 95% CI: 498 - .644), Eastern zone (**.592*** 95% CI:.524 - .669**)** western zone **(.613*** 95% CI:.560 - .673), Southern zone **(.736*** 95% CI:.686 - .790) with reference to Northern zone are less likely to experience repeated spontaneous abortion than there reference category.

During fourth round of survey factors which are significantly associated with one time induced abortion are locality of household, age of respondents category, religion of respondents except other religions,

education of respondents, caste of respondent, age at marriage only after above 40 years, age at first child birth only 20-29 age group, and regional zones except Southern zone.

Women belongs to urban areas (OR=**1.388* 95**% CI: 1.321 -1.459) with reference to rural women, Women aged 20-29 years (OR=**1.937*** 95% CI: 1.578 - 2.377) 30-39 years (OR=**2.440*** 95% CI: 1.986 - 2.997) and above 40 years (OR=**2.101*** 95% CI: 1.704 - 2.590) with reference to those below 20 years of age. Women who had completed primary education, **(1.800*** 95% CI: 1.653 - 1.959) secondary education **(2.309*** 95% CI: 2.135 - 2.496), Higher secondary **(2.633*** 95% CI: 2.389 - 2.902) and completed Under Graduation and post-graduation **(2.272*** 95% CI: 2.050 - 2.519) with reference to illiterate women. However women belongs to Muslim religions **(.923*** 95% CI: .849 - 1.003) with reference to Hindu, women from Schedule Tribe **(.534*** 95% CI: .464 - .615), Other Backward classes **(1.206*** 95% CI: 1.128 - 1.290) and other castes **(1.251*** 95% CI: 1.166 - 1.343) with reference to Schedule Caste, Women who get married after 40 years **(.801* 95**% CI: .685 - .936) with reference to those who married below 15 years, those who have first child born at the age of 20-29 years **(1.118* 95**% CI: 1.035 -1.209), with reference to below 20 years of age, and women belongs to North- East zone **(1.539*** 95% CI: 1.384 - 1.711), Eastern zone (**1.710*** 95% CI: 1.553 - 1.883) western zone **(1.358*** 95% CI: 1.256 - 1.468), with reference to Northern zone all are more likely to experience One time Induced abortion than there reference category.

Factors which are significantly associated with repeated induced abortion are locality of household, age of respondent's category, religion of respondents except other religions, education of respondents, caste of respondent, age at marriage only 30-39 years, women who give equal preference to son and daughter and regional zones except western zone.

The likelihood of having repeated induced abortion found to be more associated with Women belongs to urban areas (OR=**1.536*** 95% CI: 1.396 -1.689) with reference to rural women, Women aged 20-29 years (OR=**3.276*** 95% CI: 1.829 - 5.867) are 3 times 30-39 years (OR=**6.049*** 95% CI: 3.382 - 10.818) 6 times and above 40 years (OR=**6.850*** 95% CI: 3.819 - 12.287) are approx. 7 times, more likely to experience repeated induced abortion with reference to those below 20 years of age.

Women who had completed primary education, **(1.609*** 95% CI: 1.386 - 1.868) secondary education **(1.897*** 95% CI: 1.652 - 2.180), Higher secondary **(2.099*** 95% CI: 1.746 - 2.525) and completed Under Graduation and post-graduation **(1.923*** 95% CI: 1.583 - 2.335) with reference to illiterate women. However women belongs to Muslim religions **(.884*** 95% CI: .750 - 1.041) with reference to Hindu, Except those women from Schedule Tribe **(.532*** 95% CI: .401 - .705), Other Backward classes **(1.153*** 95% CI: 1.013 - 1.312) and other castes **(1.252*** 95% CI: 1.096 - 1.430) with reference to Schedule Caste, Women who get married

at 30-39 years **(.355*** 95% CI: .145 - .870) with reference to those who married below 15 years, women who give equal preference to son and daughter (**1.159*** 95% CI: 1.015 - 1.323) with reference to more preference to son over daughter, and women belongs to North- East zone **(2.441*** 95% CI: 2.043 - 2.917), Eastern zone (**1.685*** 95% CI: 1.411 - 2.013) southern zone **(.857*** 95% CI: .749 - .979), with reference to Northern zone all are more likely to experience repeated Induced abortion than there reference category.

4.4 **socioeconomic and demographic factors affecting reproductive morbidity**

		reproductive morbidity	
		No	Yes
RECODE of state (Name of the state)	Northern region	61356 22.4%	8601 20.5%
	N-E region	36814 13.4%	6980 16.6%
	Eastern region	20161 7.3%	4404 10.5%
	western region	40018 14.6%	6351 15.1%
	southern region	115994 42.3%	15613 37.2%
religion of respondents	Hindu	193913 70.7%	28852 68.8%
	Muslim	24962 9.1%	4152 9.9%
	Others	55468 20.2%	8946 21.3%
locality of house hold	Rural	163619 59.6%	26294 62.7%
	Urban	110724 40.4%	15655 37.3%
age in completed years	< = 20	13855 5.1%	1962 4.7%
	21-30	97189 35.4%	14394 34.3%
	31-40	98610	16266

		35.9%	38.8%
	> 40	64689	9327
		23.6%	22.2%
Higest education complted	illiterate	66619	9825
		24.3%	23.4%
	<= Primary	54446	9412
		19.8%	22.4%
	Secondery	96180	15265
		35.1%	36.4%
	higher Secondery	28407	4054
		10.4%	9.7%
	UG &PG	28692	3392
		10.5%	8.1%
caste of the household	Caste	220262	32427
		80.3%	77.3%
	Tribe	35435	6361
		12.9%	15.2%
	Nocaste	13580	2282
		5.0%	5.4%
	Others	5066	878
		1.8%	2.1%
Category of the cast	SC	63625	9804
		23.2%	23.4%
	ST	43928	7496
		16.0%	17.9%
	OBC	93903	13601
		34.2%	32.4%
	GENERAL	72887	11048
		26.6%	26.3%
women age the time of first marrage	below 15	16971	2880
		6.2%	6.9%
	15-19	128760	20732
		46.9%	49.4%
	20-24	87618	12757
		31.9%	30.4%
	25-29	21637	2942
		7.9%	7.0%
	31-40	2606	318

		.9%	.8%
	above 40	16751 6.1%	2319 5.5%
women age at the time of first born birth	1.00	126028 51.4%	20018 53.9%
	2.00	112772 46.0%	16176 43.6%
	3.00	6177 2.5%	901 2.4%
	4.00	190 .1%	23 .1%
Sex_combi	Daughter > Son	44749 16.3%	6258 14.9%
	Son > daughter	72836 26.5%	10674 25.4%
	daughter = son	156758 57.1%	25017 59.6%

Table shows the profile of the ever married women of reproductive age 15-49 years from non EAG states in India. For this analysis, dependent variable is selected as repeated abortion, if women have reported that experience at least one out of two form of abortion in a life so we have coded as 1, if women have reported that she experience more than two abortion including both spontaneous and induced abortion we coded as "2". Out of 37017 women who have experience repeated abortion 72% are Hindu, 52.3% belongs to urban areas, 41.9% have completed secondary education, 37.2% belongs to other backwards classes, majority of them belongs to age group of 31-40 years, 45.7% got married at the age of 15-19 years, 51.3% give first child birth at the age of 20-29 years, majority of 38.6% from southern zone, 53.9% give preference to both daughter and sons.

To find the factors affecting the repeated abortion and reproductive morbidity among respondents cross tabulation done, for this analysis, dependent variable is selected as presence of reproductive morbidity, if women have reported that suffering with at least one out of three morbidity so we have coded as 1 otherwise 0. Out of 37017 women who have reported any form of reproductive morbidity 69% are Hindu, 56% belongs to rural India, majority of them are from age group of 31 to 40 years, 38% had completed secondary level educations, 34% belongs to Other Backward class, and 49% of them get married at the age of 15 to 19 years. 45% belongs to southern zone of India; majority of them (59%)

gives equal preference to both daughter and son. 51% of women give birth to first child at the age or below the age of 20 years, and 23% women belongs to richest quantile.

4.5 Odds of socioeconomic and demographic factors affecting reproductive morbidity

Reproductive Morbidity	Exp(B)	95% C.I.for EXP(B) Lower - Upper
Region Northern Zone(ref.)		
North-East	1.292*	1.146 - 1.456
Eastern	1.084	.967 - 1.215
Western	.940	.853 - 1.037
Southern	.721*	.665 - .782
No abortion (Ref)		
1 Spontaneous Abortion	1.253	.745 - .761
Repeated Spontaneous Abortion	1.284	2.107 - 2.165
1 Induced Abortion	1.588	.943 - 2.673
Repeated Induced abortion	1.689	.996 - 2.863
Religion Hindu (ref)		
Muslim	1.10	.999 - 1.214
Others	.961	.883 - 1.045
D>S(Ref)	.986	.906 - 1.073
S>D	1.056	.976 - 1.142
S=D		
Rural(Ref)		
Urban	.921*	.868 - .977
Age Below 20 (ref)		
20-29	1.279	.992 - 1.648
30-39	1.513*	1.174 - 1.951
Above 40	1.276	.986 - 1.653
Education Illiterate (ref)		
Primary	1.132*	1.040 - 1.232
Secondary	.996	.918 - 1.080
Higher Secondary	.979	.874 - 1.096
UG & PG	.804*	.708 - .914

Caste (ref.)		
Tribe	1.196*	1.031 - 1.387
No Caste	.939	.819 - 1.077
others	1.163	.952 - 1.421
Schedule Caste (Ref.)		
Schedule tribe	.898	.779 - 1.035
Other Backward Classes	1.019	.941 - 1.103
Others	1.023	.940 - 1.112
Age Marriage below 15 (ref.)		
15-19	1.020	.911 - 1.143
20-24	.912	.790 - 1.052
25-29	.875	.732 - 1.046
30-39	.579*	.373 -.899
Above 40	1.062	.899 - 1.254
Age First Child below 20(ref.)		
20-29	1.010	.926 - 1.102
30-39	1.327*	1.087 - 1.619
above 40	1.286	.470 - 3.523
Constant	.135*	

The results of logistic regression displayed in the Table show the adjusted odds ratio of a dichotomized outcome variable, reproductive morbidity and its 95 percent confidence interval in relation to selected covariates which includes individual characteristics, socioeconomic and demographic characteristics Table presents all the explanatory variables, which have been tested for their association with dependent variable and the results of odd ratio. During fourth round of survey factors which are significantly associated with reproductive morbidity are locality of household, 30-39 years age of respondents category, primary and above higher secondary education of respondents, 30-39 years of age at marriage, 30-39 years of age at first child birth, and north east and southern zone.

Women belong to North-east (1.292*95% CI: 1.146 - 1.456) and southern zone (721* 95% CI: .665 - .782) are more likely to have reproductive morbidity than those form Northern zone. Women belongs to urban areas (.921* 95% CI: .868 - .977) with reference to rural women, women belongs to 30-39 years (1.513* 95% CI: 1.174 - 1.951)of age with reference to below 20 years age women, women who have completed primary education (1.132* 95% CI: 1.040 - 1.232) and above higher secondary education (.804* 95% CI: .708 - .914) with reference to illiterate women, those women who get married (.579*

95% CI: .373 -.899)and gives first child birth (1.327* 95% CI: 1.087 - 1.619)at the age of 30-39 years with reference to below 20 years of age women are more likely to experience reproductive morbidity

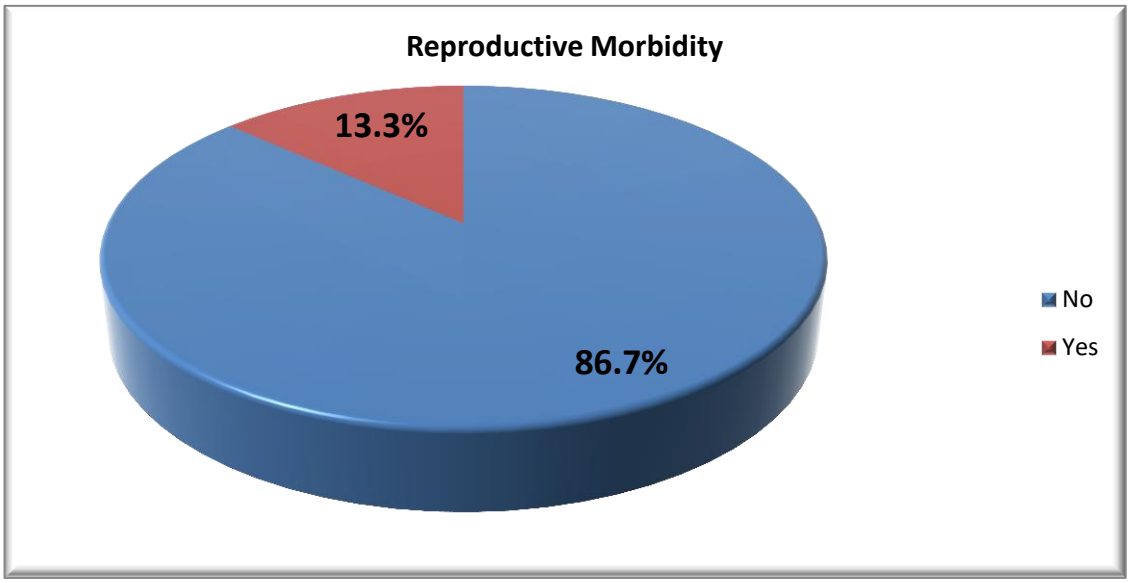


Figure 3.1 shows the level of Reproductive morbidity of total sample

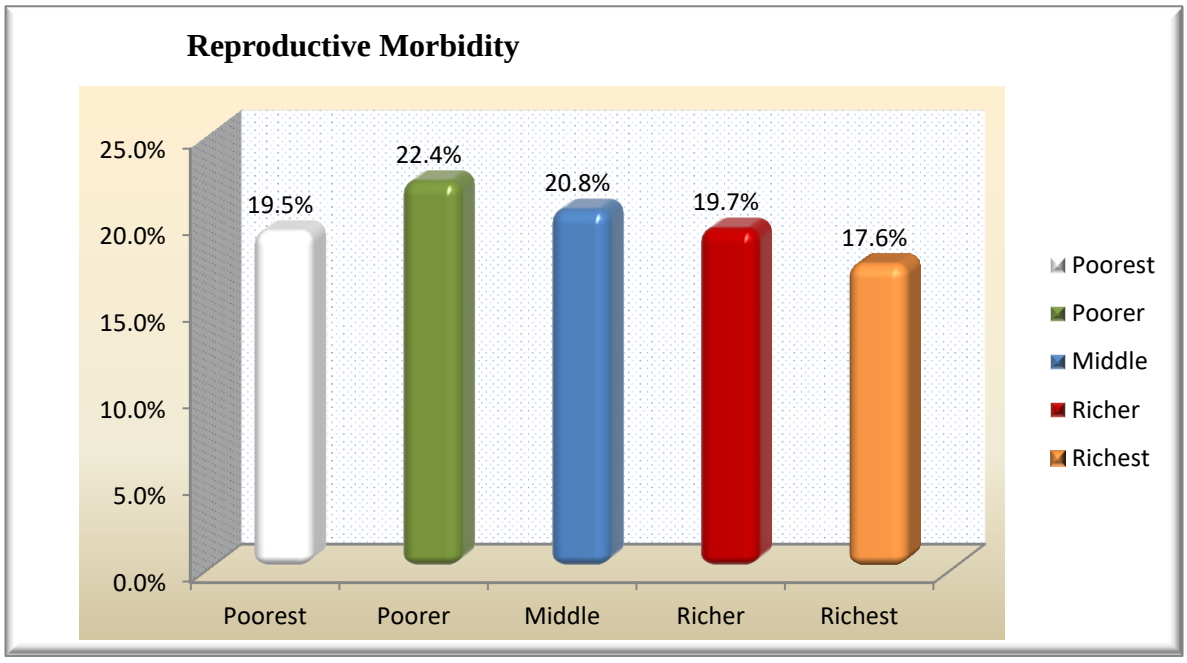


Figure 3.2 shows the wealth quantile and level of reproductive morbidity

Women belongs to poorer quantile are more likely to have reproductive morbidity followed by middle quantile, or highest number of women suffering from reproductive morbidity belongs to the poorer quantile (22.4%)

4.6 Consequences of repeated abortion on reproductive morbidity.

Reproductive Morbidity	Sexual intercourse related problems		Upper track related problems		Lower track related problems		Reproductive morbidity	
	no	yes	no	yes	no	yes	No	Yes
No abortion	258730 **91.9%**	22937 **8.1%**	266352 **94.6%**	15314 **5.4%**	267237 **94.9%**	14429 **5.1%**	245994 **87.3%**	35672 **12.7%**
One Time Spontaneous Abortion	18057 **88.2%**	2424 **11.8%**	18945 **92.5%**	1536 **7.5%**	19070 **93.1%**	1411 **6.9%**	16971 **82.9%**	3510 **17.1%**
Repeated Spontaneous abortion	5825 **87.5%**	832 **12.5%**	6172 **92.7%**	485 **7.3%**	6170 **92.7%**	486 **7.3%**	5467 **82.1%**	1190 **17.9%**
One Time Induced Abortion	6666 **86.1%**	1079 **13.9%**	7069 **91.3%**	676 **8.7%**	7058 **91.1%**	687 **8.9%**	6145 **79.3%**	1600 **20.7%**
Repeated Induced Abortion	1727 **85.4%**	295 **14.6%**	1852 **91.6%**	169 **8.4%**	1804 **89.2%**	218 **10.8%**	1569 **77.6%**	453 **22.4%**
Total	291005 **91.3%**	27567 **8.7%**	300390 **94.3%**	18180 **5.7%**	301339 **94.6%**	17231 **5.4%**	276146 **86.7%**	42425 **13.3%**
Pearson Chi-Square	Value	Asymp. Sig. (2-sided)	Value	Asymp. Sig. (2-sided)	Value	Asymp. Sig. (2-sided)	Value	Asymp. Sig. (2-sided)
	842.656[a]	**.000**	**349.168[a]**	**.000**	**474.860[a]**	**.000**	**988.936[a]**	**.000**

Table 2 presents reproductive morbidity characteristics of women obtained from fourth round of District Level Household Survey. In DLHS- IV collected information form 37017 ever married women of the age group 15-49 years from non EAG stated in India's.

Out of 37017 women who have experienced one time spontaneous abortion 7.5% having upper track urinary infections, 7% having lower track urinary infection, 12% having problems during sexual intercourse and overall 17.4% shows the symptoms of reproductive morbidity. while women who have experienced repeated spontaneous abortion 7.4% having upper track urinary infections, 7.3% having

lower track urinary infection, 12.6% having problems during sexual intercourse and overall 18% shows the symptoms of reproductive morbidity.

However women who have experienced one time induced abortion 8.7% having upper track urinary infections, 8.8% having lower track urinary infection, 13.9% having problems during sexual intercourse and overall 20.6% shows the symptoms of reproductive morbidity. However women who have experienced repeated induced abortion 8.3% having upper track urinary infections, 10.7% having lower track urinary infection, 14.6% having problems during sexual intercourse and overall 22.3% shows the symptoms of reproductive morbidity.

The chi-square test shows that the various variables such as age of women, age at time of birth, religion, caste, education of women and husband, wealth index, region, sex combination of children are significantly associated with abortion as p value is less than 0.05.

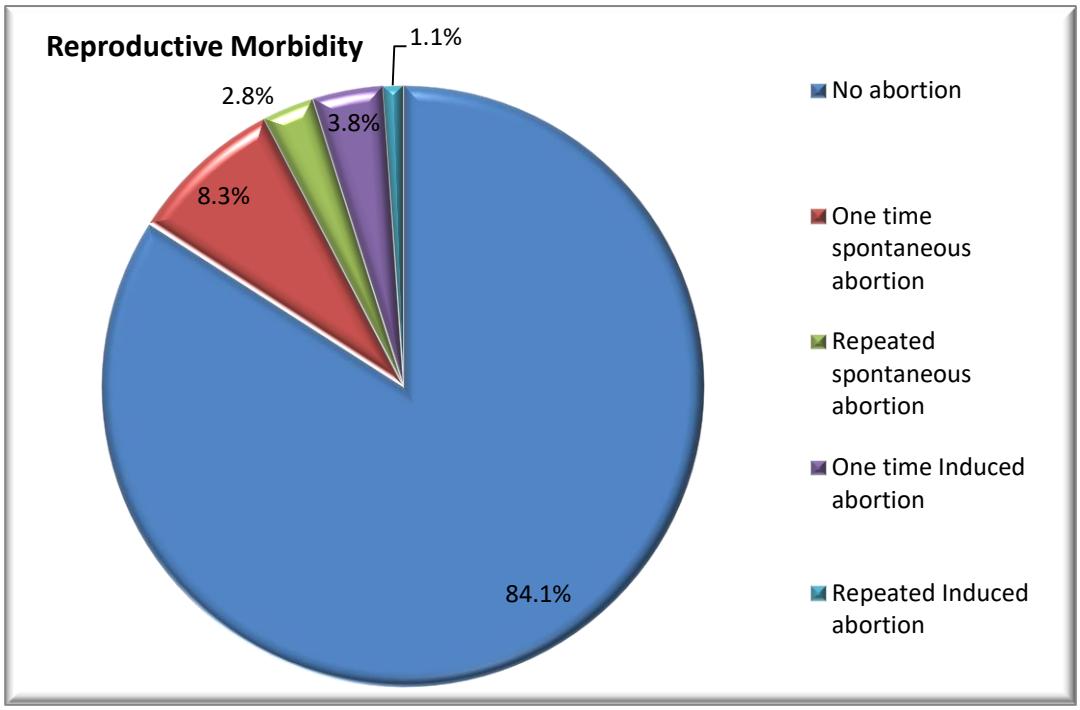


figure 4. Shows prevalence of reproductive morbidity with respect to different forms of abortion

Chapter 5

DISCUSSION

This chapter discusses important findings of the study, provides the conclusion and recommendations and limitation of the study. The present study was based on the data collected during fourth round of District Level Household Survey collected during 2012-13 among ever married women of age group 15-49. The main objectives of the study were to analyse levels, level of repeated abortion and reproductive morbidity and identify the socioeconomic and demographic factors affecting repeated abortion and reproductive morbidity. The study was also conducted to investigate the effect and consequences of repeated abortion on reproductive morbidity.

Discussion

Abortion refers to the termination of a pregnancy. Spontaneous abortion or miscarriage is an unintended pregnancy termination. Induced (elective) abortion is an intentional pregnancy termination by surgical, medical or other means. The emotional needs of a woman who has had an induced abortion may differ from the needs of a woman who has experienced a spontaneous abortion. However, in both circumstances, a wide range of emotions are common. Some women may feel upset, anxious or sad. In the case of a spontaneous abortion a woman may worry that something she did caused the pregnancy loss, some cases women feels relieved after an abortion. Using data from fourth round of District Level Household Survey, this study examined the current burden, level as well as trends down the household survey and how various factor associated with seeking the abortion whether one time spontaneous and induced abortion or repeated abortion of these kind, In additions to these, study also examined the association between repeated abortion and reproductive morbidity.

This study adds the further knowledge in the prior research, because to our knowledge this national-level study is the first to examine the current level, trends and determinants of repeated abortion and reproductive morbidities. In additions to these factors, this study also examined consequences of repeated abortion and its relation to reproductive morbidity.

In this study findings suggest that women who had an spontaneous one time and repeated abortion were dissimilar from women with one time induced or repeated induced abortion as regards socio-economic characteristics. In line with previous other studies (Bankole *et al.* 2008; Ibrahim and Onwudiegwu 2012), a higher proportion of women who had an induced abortion compared with women with spontaneous abortion were young, educated, single, with no living

children and experiencing their first pregnancy in life. In the context of Burkina Faso, these findings may have important implications considering the incidence of abortion in the youth (Rossier *et al.* 2006; Sedgh *et al.* 2011). Recent studies demonstrated that with improving information and awareness about the availability of contraceptive, knowledge about the unwanted pregnancy and abortion complications particularly in adolescents (Prata *et al.* 2011; van den Brink *et al.* 2011). Those women who had experienced repeated induced abortion seemed to have faced much burden of cost more precisely unaffordable cost than those women who had experienced spontaneous repeated abortion. Recent studies strongly highlighted that socio-economic and demographic disparities plays an important role in the access to maternity and pregnancy care (Ronsmans *et al.* 2006).

Repeated abortion is the most discordant women health issue that government and policy making authorities face in all over the world but mostly in developing countries, in this context our study tried to give the actual repeated abortion and one time spontaneous, induced abortion with reproductive morbidity scenario in India. In addition we also examine the current level and prevalence of repeated abortion and reproductive morbidity also the association of repeated abortion and reproductive morbidity in India.

Given the current evidences on low sex ration in India in some regions in particular, the incidence of spontaneous and induced abortion in India can be said to be main indication to those women achieving the desired sex composition with in nuclear families (Chhabra and Nuna, 1994; Das et al., 2000). Our study with reference to fourth round of district household and family survey 2012-2013, shows that in India both kind of repeated abortion is more common among women in the second parity, which demonstrates the women desire to limit family size with desired sex composition of child on recurrent abortion. Adding to this there is a strong association between the sex composition and sex preference with repeated induced abortion even after controlling the locality, age, education, first marriage age, caste, wealth index

In our regression analysis, multiple factors such as various determinant of abortion including repeated abortion like income, gender, year of education, caste, locality, marriage age, and age at first child birth, regional variance has been found to be significantly associated with one time spontaneous, one time induced abortion, repeated spontaneous, repeated Induced abortion. The results reveals that out of total sample, 6.4% women have one time spontaneous abortion, 2.1% have repeated spontaneous abortion, 2.4% women experience one time induced abortion, 0.6% women experience repeated induced abortion.

If we compare to the prevalence of at least one reproductive morbidity which has been found approximately 15 percent which reduced to 12.4%, which reflect only minuscule reduction in the prevalence rate, down the line of five year indicated the neglect or slow response of the healthcare pertaining to concern problem. Prevalence of having at least one reproductive morbidity differ significantly across the different socioeconomic strata. Morbidity among the poorest women was higher than that among the wealthiest women. Rural and Muslim women were also disproportionally suffered by reproductive morbidities. However, women belong to other than Hindu or Muslim was suffering more with the reproductive morbidity. Economic status which reflected by the wealth index, was positively associated with the treatment-seeking behaviour of women.

Finding of first objective shows that women belongs to urban areas are more likely to experience repeated induced abortion followed by one time induced abortion, women who are above 40 years are 7 time more likely to experience repeated induced abortion 4 times more likely to experience repeated spontaneous abortion. Women who had complete atleast higher secondary education secondary and above secondary education they are two times more likely to have one time induced abortion than repeated spontaneous abortion, Muslim women are more likely to experience repeated spontaneous abortion however Hindu women are more likely to experience one time induced and repeated induced abortion, women belongs to Other backward classes and other caste are found to be more associated with repeated induced and repeated spontaneous abortion . likelihood of having one time and repeated spontaneous abortion is more associated with women had married below 15 years of age, however those women experience one time and repeated induced abortion had get married after 15 years of age. Those women gives their first child birth below 20 years are more likely to experience one time spontaneous abortion and 4 time more likely to having repeated spontaneous abortion however less likely to experience repeated induced abortion. Those women give equal preference to son and daughter are more likely to experience repeated induced abortion and less likely to experience repeated spontaneous abortion. Women belongs to North-east, eastern, and western zone are more likely to experience one time induced and repeated induced abortion however less likely to experience repeated spontaneous abortion, women who have reported any form of reproductive morbidity 69% are Hindu, 56% belongs to rural India, majority of them are from age group of 31 to 40 years, 38% had completed secondary level educations, 34% belongs to Other Backward class, and 49% of them get married at the age of 15 to 19 years. 45% belongs to southern zone of India; majority of them (59%) gives equal preference to both daughter and son. 51% of women give birth to first child at the age or below the age of 20 years, and 23% women belongs to richest quantile.

Chapter 6

Conclusion

In conclusion it can be said that still in India there is a need to be focus on the urgent need for contraception, and make people more aware, generate knowledge to avoid the burden of unwanted pregnancy and repeated abortion among women, more focus should be given to the factors which are associated with the repeated abortion like son preference, lack of women autonomy, patriarchal society, and need alteration of social and cultural norms attitude of Indian people (Pande and Astone, 2007).

In conclusion, reproductive health of women is important indicator for the good health status of women. This study reveals that reproductive health awareness and knowledge of women in India is still need to be improved. Reproductive morbidity found to be more prevalent among the marginalized section (Poorest, uneducated, unemployed, Muslims, and tribal women) of the women. Future policies should aim to increase the level of awareness about reproductive morbidities and their related treatment, especially among women belongs to these group. More than half of the women who reproductive morbidity suffered with upper tract infections. With this scenario, more than two-third of the women did not seek any treatment. Hence, their treatment seeking behaviour has been found to be very poor. The finding of the study suggest there is a need to sensitize women and the society towards reproductive health needs of the women. Even though there are high levels of reproductive morbidity among the women who uses the contraception, early detection and prompt treatment is compromised because of 'culture of silence' surrounding the symptoms. However, the morbidity if not identified and treated will lead to discontinuation and possibly nonuse of other methods. Thus women are exposed to the risk of unsafe abortions and high risk pregnancies. Since as we shows a high prevalence of contraceptive use, it is essential to ensure safety. The alternative stand is to improvement of existing methods and introduction of new methods with fewer side effects.

Initiatives to improve women reproductive health status and giving access to higher education, and to make aware about reproductive health will help in mitigating social issue like repeated abortion, in many research and studies its evident that women in India, with higher education, belonging to higher educated rich societies and families and residing in urban areas are more frequently opted for abortion than other counterpart, more focus should be given to the policy and programs at regional and national level which would include mechanisms to realise the importance of the girl child and make girl valuable to the family and society and eradicate the gender inequalities with different social, cultural community awareness programs.

In community programs government more attention should be given to the women autonomy and status in the household and family in relation to son preference and take her own health related decisions, as women in India gain higher autonomy in the household if she having first child as a son and more son more power in the family. Programs should focus more on the availability, accessibility and affordability of essential reproductive health care services, and use of contraception among women to eradicate the reproductive health consequences of induced abortion, also there is a urgent need of awareness and to generate knowledge through, information, education and counselling about the possible adverse consequences of repeated spontaneous and repeated induced abortion on women reproductive health. More in-depth qualitative studies are needed at the community level to better understand the determinants and consequences of repeated abortion and reproductive morbidity in India. In particular, further investigation and research are needed to ascertain the long-term reproductive health consequences of repeated abortion including both repeated spontaneous and repeated Induced abortion.

Recommendation

School adolescents tended to lack adequate information and access on/to family planning services. The promotion of sexual and reproductive health education for pre-adolescents in schools, along with the expansion of out-reach clinic work for family planning methods may be highly beneficial in reducing unwanted pregnancies (Rijsdijk *et al.*2011), and therefore abortions and other risky sexual behaviours (Kirby *et al.* 2006). Additionally, reducing financial barriers to family planning services, especially for poor women and teenagers, may also yield positive effects on unwanted pregnancies and induced abortion rates. In this respect, eliminating unnecessary costs or excessive laboratory tests by health service providers could have a positive impact on the demand for such services.

Based on the above finding need of the hour is to recognize huge burden of reproductive morbidity and need of a programme with as special focus on the reproductive health of the women beyond the picture of maternal health. Improvement in the quality of service delivery particular to contraceptive provision is important. Need to strengthen the information, education and communication strategies pertaining to reproductive health and its related issues. Also research studies are required to understand the perception and attitude of women regarding their reproductive health problems.

Poor reproductive health status of women in India is characterized by the lack of awareness about the reproductive health knowledge and lack of autonomy for women in these rights in India. As per The study brings out certain critical areas and salient points which necessitate urgent attention of the policy makers, service providers and the society at large in similar and other settings:-

The study found in no uncertain terms that younger age groups have a clear correlation with higher repetitive abortion. The systemic and other measures are required to impress upon the society the need to delay marriages and ensure proper spacing of births to, inter alia, reduce maternal morbidity

Societal interventions would be required to act on the emergent need to plan families. All ongoing interventions in health and development must communicate and emphasize to keep the family size small in view of the finding of a correlation of repetitive abortion with a high parity.

All ongoing efforts for literacy and proper education of the womenfolk must be strengthened in view of clear association of illiteracy with high incidence of repetitive abortion. The government and nongovernmental organizations need to be co-opted for the same.

Rather than seeing repetitive abortion just as a „medical" problem, the need to address most of the socio-economic and cultural determinants also is clearly underlined by the finding of higher prevalence of repetitive abortion in tribal women and those belonging to other backward castes.

The planners must understand and appreciate the crucial role of social capital and the social support systems available to the pregnant women reflected in terms of better maternal health, which has been brought out effectively in the form of a definite association of high repetitive abortion in nuclear families in the predominantly rural setting.

The anecdotal experience reported in the study regarding (maternal death), breast abscess and postpartum psychosis were from the tribal community which might be by chance. Nevertheless, there is a need for regular counselling and health education for prevention and timely referral in case of maternal morbidity.

Health system workers have to be trained to identify and assist these groups in order to bring them within the system. The lessons learnt from the study need to be adapted, adopted and scaled up in an appropriate manner in other areas also as they are applicable in most of the settings cutting across the geographical boundaries

Limitation of study

Limitation of study has been described into two categories one due to data set and second due to study design.

Limitation of data set: Firstly, other variable of interest such as the local perceptions and practices related to reproductive morbidity among women, the quality of services, and other factors that has been previously found to be associated with the utilization of health services were not collected in DLHS Survey. Secondly, the large-scale data are mostly symptom based and do not administer detailed information about the phenomenon. The data has been collected mostly to know the prevalence rate of reproductive morbidity in the country.

Limitation due of study design: Although rigorous methods were employed to maintain the data quality of DLHS 4, some limitations are inherent to a cross-sectional survey of this type, which involves reporting of past behaviors. Because abortion is a sensitive topic for many people, it is commonly underreported in national surveys (Arnold et al., 2002; Fu et al., 1998), and information about women who have spontaneous abortion and induced abortions is limited probably because of recall lapse error and reluctance to reveal such incidences. It is likely that illegal abortions, or abortions performed with indigenous methods, are not reported, are underreported, or are reported as spontaneous abortions (Unisa et al., 2007). The treatment seeking question was asked for any reported morbidities together in one question. In the present study, the phrase 'treatment seeking' includes seeking a consultation and/ or treatment for one of the reproductive morbidities. Therefore, the results should be interpreted with caution. Some information has been asked during the survey related role of family members (especially mother in law, husband) that have important role with utilization of health services were not included into the study. Our analysis was based on DLHS survey only therefore, we analyzed only those reproductive morbidity that were included in the survey questionnaire. Study would have been in depth and exploratory if in depth interview were attached to it.

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II

DECLARATION

I, Jeetesh kourav, hereby declare that this dissertation entitled "Repeated abortion and its association with Reproductive morbidity in India" is the outcome of my own study undertaken under the guidance of Dr. Priyanka Dixit, Assistance Professor, School of Health System Studies, Tata Institute of Social Science, Mumbai. It has not previously formed the basis for the award of any degree, diploma or certificate of this or any other university. I have duly acknowledge all the sources used by me in the preparation of this dissertation

Date Dr.Jeetesh Kourav

III

CERTIFICATE

This is to certify that the dissertation entitled