

Effectiveness of intervention program in improving maternal reproductive health practices among the rural poor of Bangladesh

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Abstract

Reproductive and sexual ill-health accounts for 20% of the global burden of all ill-health for women and 14% for men (WHO). In Bangladesh, maternal mortality appears to be declining; however, with at least 194 maternal deaths per 100,000 births, the country still has one of the highest maternal mortality ratios in the world and the highest in South Asia. The government of Bangladesh is widely described as consistently supportive of maternal health, despite several recent changes in power. The government has enacted policies in support of maternal and newborn health along with several other policies in their development. However, many stakeholders feel that the policy commitment of the government has not translated into additional capacity or funding on the ground. Here, an attempt has been to observe where we are now and what to do for the achievement of Millennium Development Goals. A quasi experimental study was conducted by a non-government organization (BRAC) to assess the socio-demographic characteristics, environmental conditions, and obstetric information and family planning methods along with effectiveness of interventions on various issues of reproductive health. Most of the respondent was below 25 years of age (58.2%) with not participating in any income generating activities (96.5%). Majority of them (31.5%) did not complete their primary education. Family planning was adopted by 63.8% study population. A very good proportion of mother (71.4%) received ANC during their last pregnancy. A healthy child is the future of the nation which can be achieved by a healthy mother. Stili delivery by skilled birth attended is poor. People stili far behind to adopt family planning. Intervention programs must focus on sensitizing people on family planning. Therefore, our country will not be in the list of highest maternal mortality country.

Key Words: Intervention program, Maternal reproductive health, Family planning

Introduction

Within the framework of World Health Organization's (WHO) definition of health as a state of complete physical, mental and social well-being, and not merely the absence of disease or infirmity, reproductive health addresses the reproductive processes, functions and system at all stages of life. Reproductive health, therefore, implies that people are able to have a responsible, satisfying and safe sex life and that they have the capability to reproduce and the freedom to decide if, when and how often to do so¹.

Implicit in this are the right of men and women to be informed of and to have access to safe, effective, affordable and acceptable methods of fertility regulation of their choice, and the right of access to appropriate health care services that will enable a women to go safely through pregnancy and child birth and provide couples with the best chance of having a healthy infant.

Five priority aspects of reproductive and sexual health are targeted in the strategy: improving antenatal, delivery, postpartum and newborn care; providing high-quality services for family planning, including infertility services; eliminating unsafe abortion; combating sexually transmitted infections, including HIV, reproductive tract infections, cervical cancer and other gynecological morbidities; and promoting sexual health.

Reproductive and sexual ill-health accounts for 20% of the global burden of ill-health for women and 14% for men². In Bangladesh, maternal mortality appears to be declining; however, with at least 194 maternal deaths per 100,000 births³, the country still has one of the highest maternal mortality ratios (MMR) in the world, and the highest in South Asia. Bangladesh is unlikely to achieve domestic and international targets on the

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reduction of maternal mortality. Improving access to supplies (medicines and equipment) is an essential component of strengthening maternal and reproductive health programs and outcomes. Maternal health challenges cross the entire health system, with deeply embedded issues of human resources, infrastructure, competing priorities and community engagement. Shortages of supplies are identified by stakeholders in Bangladesh as a direct barrier to utilization and positive outcomes at health facilities. These shortages are consequences of constraints on the country's health system, including underfunding, inefficiencies and a weak infrastructure. Supplies are a tangible and visible entry point to raise awareness and commitment to maternal and reproductive health.

The government of Bangladesh is widely described as consistently supportive of maternal health, despite several recent changes in power. The government has enacted policies in support of maternal and newborn health, with several more in development. However, many stakeholders feel that the policy commitment of the government has not translated into additional capacity or funding on the ground. Additionally, though a few health policies in Bangladesh recognize the supply challenges that weaken health service delivery, none of the policies considered identify specific strategies or quantifiable targets for improving the supply chain for maternal health supplies.

The Ministry of Health and Family Welfare (MOHFW) in Bangladesh is divided into the 1. Directorate General of Health Services (DGHS) and 2. Directorate General of Family Planning (DGFP), both of which have responsibility for different aspects of maternal health care. Each provides maternal health interventions at its respective facilities and procures maternal health supplies.

The government's primary maternal and child health program, including menstrual regulation, family planning, antenatal care, postnatal care, and delivery, is under the purview of the DGFP, while much of the emergency obstetric care (EMCOR) in the public system occurs at DGHS facilities. MVA kits only available through DGFP, misoprostol only available through DGHS, and oxytocin and magnesium sulfate

available through both. Nearly all health workers, down to the community level, are permitted and trained in the use of oxytocin. Due in part to easier administration, misoprostol has been rolled out by the government for use at the community level and seems to be more widely available and preferred to oxytocin.

Despite protocol and regulations in place, availability of supplies at public sector facilities is limited, with facilities at all levels reporting stock outs of essential medicines and supplies. This contributes to higher costs for patients who must purchase supplies at private pharmacies.

The private sector is a major player in health service delivery in Bangladesh, handling over half of all facility-based deliveries. Private sector facilities are generally believed to offer higher quality of care than the public sector. This is in part due to more consistent availability of supplies and equipment. Patients are usually required to pay fees for services at private sector facilities.

Under Millennium Development Goal 5 to improve maternal health, Bangladesh must demonstrate consistent and substantial progress to achieve the target of reducing MMR by 75% by 2015. With a baseline MMR of 574 in 1990, then MMR of 228 in 2011, MMR of 188 in 2014 though the 2015 target is 143 maternal deaths goal, as recent estimates of maternal mortality signal that previous declines have stalled (BDHS, 2007, 2011, 2014)^{4,5}. The proportions of deliveries by skilled birth attendance or medically trained providers doubled from 16% in 2004 to 32% in 2011, and increased to 42% in 2014. The HPNSDP targets delivery by a skilled birth attendance or medically trained provider to reach 50% by 2016.⁵

Progress on indicators for MDG Target 5B has been mixed. Bangladesh fares well on contraceptive prevalence rate, though progress has recently slowed down, the 2015 goal of 70% is possible if improvement resumes. However, unmet need for family planning has recently increased. Without additional efforts, Bangladesh is unlikely to achieve the target educations. The adolescent birth rate has declined slowly from the 1991 baseline of 140 births

Table 1: MDG 5 - Improve maternal health

| Target | Indicator |
|--|---|
| 5. A: Reduce by three quarters, between 1990 health personnel and 2015, the maternal | 5.1 Maternal mortality ratio |
| | 5.2 Proportion of births attended by skilled mortality ratio. |
| | 5.3 Contraceptive prevalence rate |
| | 5.4 Adolescent birth rate |
| 5. B: Achieve, by 2015, universal access to Reproductive health | 5.5a Antenatal care coverage (at least one visit) |
| | 5.5b Antenatal care coverage (at least four visits) |
| | 5.6 Unmet need for family planning |

per 1,000 women to the 2007 rate of 126, and then in 2014 the proportion is 1135. Though the number of women receiving at least one ANC visit is steadily increasing, few women receive the recommended minimum of four visits³.

The eighth MDG, Create a Global Partnership for Development, includes a target to increase the share of the population with access to affordable essential medicines. Recognizing that access to affordable medicines in the developing world is low and must increase, this target is measured by a variety of surveys that include pricing, continuous availability, and access, as well as indicators on public sector expenditure for essential medicines and the existence of a recent Essential Drug List in each country.

This research will give an in depth scenario on the effectiveness of health service intervention in improving the overall outcome of the reproductive health as well as in improving the child health condition. This study will also reveal where we are now and what to do for the achievement of Millennium Development Goals.

Methods and materials

A quasi experimental study was conducted by a non-government organization (BRAC) to assess the socio-demographic characteristics, environmental conditions, and obstetric information and family planning methods along with effectiveness of interventions on various issues of reproductive health. Respondents were selected on the basis of being

married and within their reproductive age (15-49 years). This study is based on using that secondary data on maternal reproductive health interventions. Background data for comparison were congregated from the previous studies and research work.

Sampling Frame

Respondents were selected randomly from 360 villages of Nilphamari, Rangpur, Gaibandha, Netrokona, Naoga and Mymensingh. The selection process are described by following chart shown in Figure 1.

Respondents Group

Group 1: Mothers who have had any pregnancy outcome within the study time period from 06/10/2009 to 05/10/2010:

- Mother of live child aged <1 year
- Mother of died child aged <1 year
- Mother who had an abortion, MR, stillbirth or IUD in the study period

Group 2: Mothers of live children aged 12-59 months; these mothers did not have any pregnancy outcome in the mentioned study period

Survey design: Cross-sectional

Research instrument

Questionnaire was used as research instrument in this study.

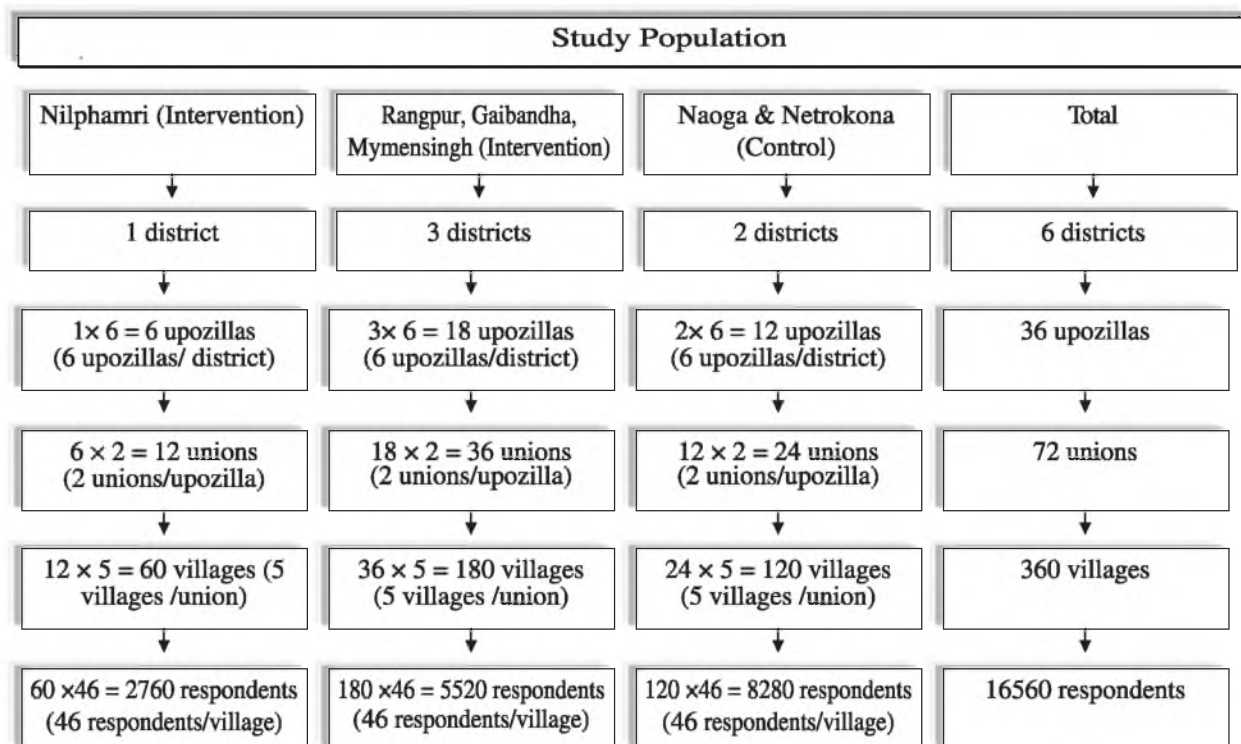


Figure 1: The Sampling frame of study population.

Development and validation of the study questionnaire

A well designed questionnaire was prepared referencing Bangladesh Demographic and Health Survey, 2007. The questionnaire was completely organized by well arrangement of both open and close end questions along with extension of several questions for better understanding and sometimes group of questions were gathered to collect only single information. The open ended questions were finally categorized for the easy of the analysis.

Data collection procedures

The opinions of the respondent on each query were collected through face to face interview with the assistance of validated questionnaire.

Data processing and analysis

Data processing includes of editing, coding, classification and tabulation. After collecting data they were edited to avoid information missing or faulty information and then scrutinized, after then they were coded. Analysis purpose SPSS 16 software was used.

For report writing, graphical presentation and calculation MS office were used.

Result and Discussion

This quasi experimental study demonstrates that the most of the respondents belong to highest quintile group with low educational level. The first part of creating a quasi-experimental design is to identify the variables. The quasi-independent variable will be the x-variable, the variable that is manipulated in order to affect a dependent variable. "X" is generally a groupingvariable with different levels. Grouping means two or more groups, such as two groups receiving alternative treatments, or a treatment group and a no-treatment group (which may be given a placebo - placebos are more frequently used in medical or physiological experiments). The predicted outcome is the dependent variable, which is the y-variable. In a time series analysis, the dependent variable is observed over time for any changes that may take place. Once the variables have been identified and defined, a procedure should then be implemented and group differences should be examined.

Table 2: Socio-demographic profile of respondents household (HH)*

| Background characteristics | Frequency | Percentage |
|--|------------------|-------------------|
| A. Age of respondent | | |
| 25 | 9645 | 58.2 |
| 25.01-35 | 5934 | 35.8 |
| 35.01-45 | 954 | 5.8 |
| 45.01-55 | 27 | 0.2 |
| B. Respondents occupation | | |
| Housewife | 15972 | 96.5 |
| Others | 588 | 3.5 |
| C. Education level | | |
| No formal education | 2429 | 14.7 |
| Primary incomplete | 3497 | 31.5 |
| Primary complete | 1012 | 6.1 |
| Secondary incomplete | 5037 | 30.4 |
| Secondary complete or higher | 2853 | 17.3 |
| D. Land ownership quintile | | |
| Lowest | 5264 | 31.8 |
| Second | 808 | 4.9 |
| Middle | 1156 | 7.0 |
| Highest | 9332 | 56.4 |
| E. Principal wall material of houses | | |
| Brick/ cement | 1919 | 11.6 |
| Tin | 6226 | 37.6 |
| Bamboo/ mud | 6892 | 41.6 |
| Jute stick | 1221 | 7.4 |
| Others | 302 | 1.8 |
| F. Principal floor material of houses | | |
| Bamboo/mud | 15526 | 93.8 |
| Brick/cement | 1021 | 6.2 |
| Others | 13 | 0.1 |
| G. Principal roof material of HH | | |
| Bamboo/mud | 827 | 5.0 |
| Tin | 15466 | 93.4 |
| Others | 267 | 1.6 |
| H. Main fuel of HH | | |
| Straw | 8771 | 53.0 |
| Wood | 4198 | 25.4 |
| Cow dung | 1870 | 11.3 |
| Leaf | 1376 | 8.3 |
| Others | 345 | 2.0 |

*Total respondents = 16560 mothers

Table 3: Distribution of respondent by their family planning information (FP)

| Item | Frequency | Percentage |
|---|-----------|------------|
| A. Use family planning | | |
| Yes | 10562 | 63.8 |
| No | 5996 | 36.2 |
| B. Reason for not using any method | | |
| Wants children | 645 | 10.8 |
| Lactational Amenorrhea | 3176 | 53.0 |
| Currently pregnant | 735 | 12.3 |
| Not in partnership | 454 | 7.6 |
| Others | 986 | 16.3 |
| Total | 5996 | 100 |
| C. Modern method | | |
| Pill | 6242 | 59.1 |
| IUD | 91 | 0.9 |
| Injectable | 2259 | 21.4 |
| Male condom | 461 | 4.4 |
| Implant | 200 | 1.9 |
| Vasectomy | 64 | 0.6 |
| Ligation | 365 | 3.5 |
| Total | 9682 | 91.8 |
| D. Traditional method | | |
| Withdrawal | 147 | 1.4 |
| Safe Period | 690 | 6.5 |
| Herbal / Homeo Medicine | 43 | 0.3 |
| Total | 880 | 8.2 |
| E. Source of contraceptive | | |
| BRAC | 81 | 1.9 |
| Government field worker | 962 | 22.9 |
| Government facility | 830 | 19.8 |
| Satellite clinic | 514 | 12.2 |
| NGO & private sector | 139 | 3.3 |
| F. Knowledge on side effect of contraception | | |
| Yes | 2265 | 23.3 |
| No | 7462 | 76.7 |
| G. Management of side effect | | |
| No action taken | 1816 | 80.2 |
| Went to village doctor | 192 | 8.5 |
| Went to MBBS doctor | 82 | 3.6 |
| Others action taken | 175 | 7.7 |
| H. Prime decision maker regarding FP method | | |
| Jointly with husband | 10468 | 85.8 |
| Husband | 513 | 4.2 |
| Self | 1022 | 8.4 |
| Others | 192 | 1.6 |

Table 4: Distribution of KAP on ANC

| Information | Frequency | Percent |
|--|-----------|---------|
| A. Knows about need for ANC | | |
| Yes | 8754 | 96.6 |
| No | 306 | 3.4 |
| Total | 9060 | 100 |
| B. Why should one go for ANC check up | | |
| Early recognition of complication | 2875 | 32.8 |
| For safe delivery | 3547 | 40.5 |
| To know the position of the baby | 2101 | 24.0 |
| Others | 231 | 2.7 |
| C. Received any ANC during last pregnancy | | |
| Yes | 6467 | 71.4 |
| No | 2593 | 28.6 |
| D. Reason of no ANC | | |
| Not aware about ANC | 42 | 3.4 |
| Thought ANC was not necessary | 905 | 72.6 |
| Lack of money/expensive | 231 | 18.5 |
| Don't know | 68 | 5.5 |
| E. Number of ANC received | | |
| 6+ checkup | 1559 | 25.1 |
| 5 checkup | 670 | 35.7 |
| 4 checkup | 722 | 47.1 |
| 3 checkup | 1049 | 63.7 |
| 2 checkup | 1123 | 81.5 |
| 1 checkup | 1197 | 100 |
| F. Month of pregnancy when first ANC received | | |
| 1 st trimester | 2300 | 35.6 |
| 2 nd trimester | 2930 | 45.4 |
| 3 rd trimester | 1220 | 18.8 |

Components of ANC: Disparity among intervention and control group**Cross tabulation****Table 5: Summary statistics for reproductive history**

| | Intervention | Control | P value |
|--|-----------------|-----------------|---------|
| N | 7678 | 6962 | |
| Median age at 1 st marriage | 15 | 15 | P=0.05 |
| Median age at 1 st conception | 17 | 17 | P=0.05 |
| Total Number of Children Died | 1408 (18.3%) | 1085 (15.6%) | P=0.05 |
| Age stratification of death | | | |
| Neonatal | 12.7 | 11.3 | P=0.05 |
| Infant | 4.0 | 3.1 | P=0.05 |
| 1-2 years | 1.3 | 1.1 | P=0.05 |
| 2-5 years | 1.4 | 1.4 | P=0.05 |
| >5years | 0.8 | 0.6 | P=0.05 |

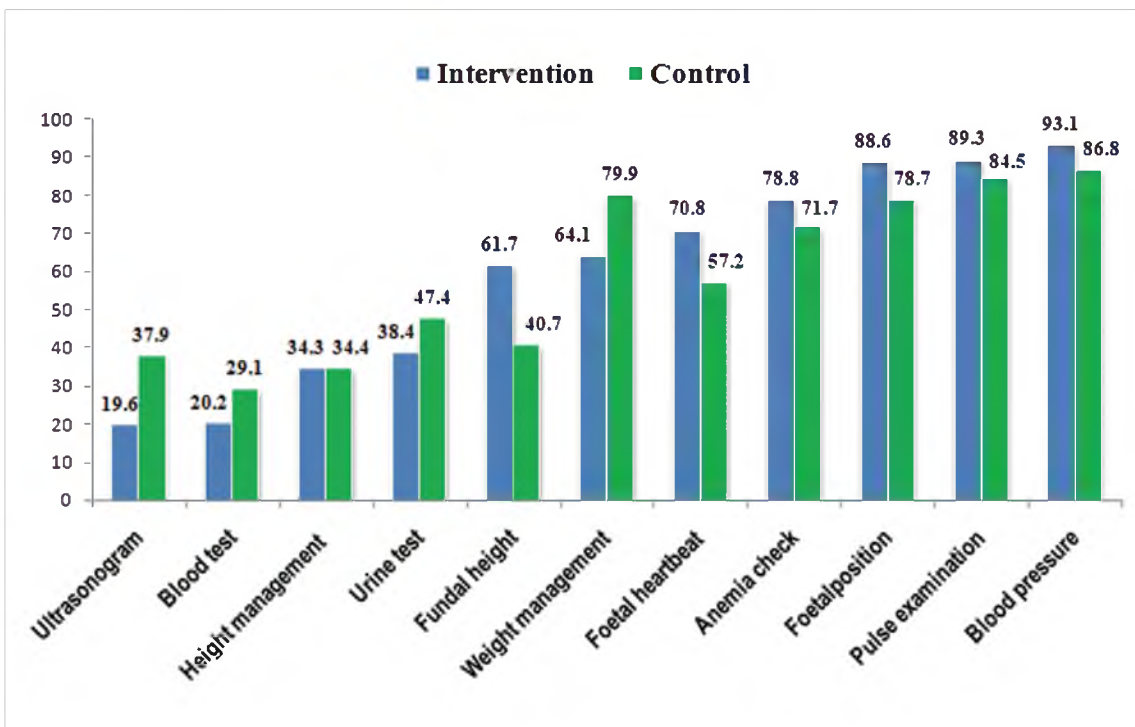


Figure 2: Distribution of mother according to component of ANC.

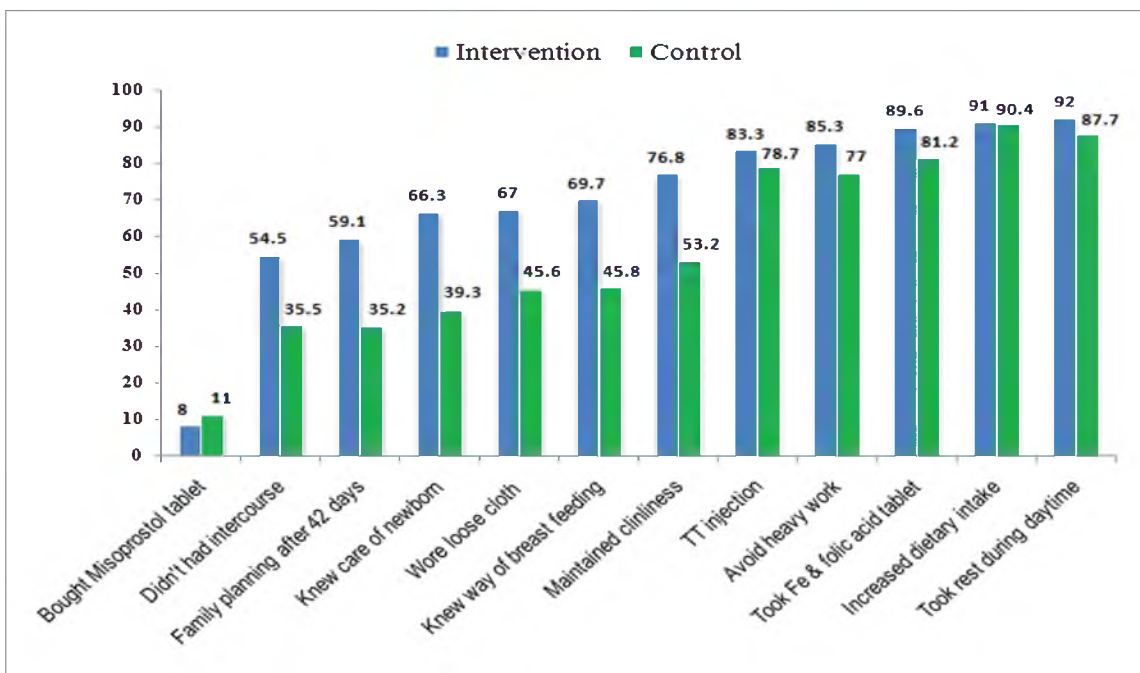


Figure 3: Consequences of counsel on various issues pertaining ANC and PNC.

Table 6: Family planning practices

| | Intervention | Control | P value |
|------------------------------------|--------------|---------|---------|
| N | 7678 | 6962 | |
| Currently using any (FP) method | 62.9 | 62.2 | P=0.05 |
| Currently using modern (FP) method | 91.76 | 91.01 | P=0.05 |

Table 7: Antenatal care practices

| | Intervention | Control | P value |
|---|--------------|---------|---------|
| N | 7678 | 6962 | |
| Knows about need for ANC | 97.3 | 95.5 | P=0.05 |
| Received at least one ANC | 33 | 28.8 | P=0.05 |
| Received at least four ANC | 6.6 | 4.1 | P=0.05 |
| Received ANC from medically trained provider | | | |
| MBBS doctor | 16.2 | 42 | P=0.05 |
| Nurse/ Paramedic | 5.7 | 5.2 | P=0.05 |
| BRAC SK | 57 | 8.3 | P=0.05 |
| Other NGO worker | 10.2 | 10.4 | P=0.05 |

This quasi experimental study demonstrates that the most of the respondents belong to highest quintile group with low educational level. The first part of creating a quasi-experimental design is to identify the variables. The quasi-independent variable will be the x-variable, the variable that is manipulated in order to affect a dependent variable. "X" is generally a grouping variable with different levels. Grouping means two or more groups, such as two groups receiving alternative treatments, or a treatment group and a no-treatment group (which may be given a placebo - placebos are more frequently used in medical or physiological experiments). The predicted outcome is the dependent variable, which is the y-variable. In a time series analysis, the dependent variable is observed over time for any changes that may take place. Once the variables have been identified and defined, a procedure should then be implemented and group differences should be examined.

In an experiment with random assignment, study units have the same chance of being assigned to a given treatment condition. As such, random assignment ensures that both the experimental and control groups are equivalent. In a quasi-experimental design,

assignment to a given treatment condition is based on something other than random assignment. Depending on the type of quasi-experimental design, the researcher might have control over assignment to the treatment condition but use some criteria other than random assignment (e.g., a cutoff score) to determine which participants receive the treatment, or the researcher may have no control over the treatment condition assignment and the criteria used for assignment may be unknown. Factors such as cost, feasibility, political concerns, or convenience may influence how or if participants are assigned to a given treatment conditions, and as such, quasi-experiments are subject to concerns regarding internal validity (i.e., can the results of the experiment be used to make a causal inference?).

Quasi-experiments are also effective because they use the "pre-post testing". This means that there are tests done before any data is collected to see if there is any person confounds or if any participants have certain tendencies. Then the actual experiment is done with post test results recorded. This data can be compared as part of the study or the pre-test data can be included in an explanation for the actual experimental data. Quasi experiments have independent variables that already exist such as age, gender, eye color. These

variables can either be continuous (age) or they can be categorical (gender). In short, naturally occurring variables are measured within quasi experiments.

From the obstetric history we come to know that most of them married and conceived before adulthood. Large number of women had abortion. Good number of women adopted family planning and received ANC during last pregnancy. Our study was based on two clusters of respondents. Among them, intervention group found to avail maternal care than control group.

Comparison was made between two groups which will be helpful for further probing.

Conclusion

People still far behind to adopt family planning (63.8%). Intervention programs must focus on sensitizing people on family planning. Abortion rate is very high among the respondent (62%). Intended and unintended abortion need to be controlled. So therefore our country will not be in the list of highest maternal mortality country.

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