Reproductive System and Sexual Disorders: Current Research

Kabir et al., Reprod Syst Sex Disord 2017, 6:2
DOI: 10.4172/2161-038X.1000207

Research Article OMICS International

Cross Checking of Registered Contraceptive Acceptors: A Study Finding of Two Rural Areas of Bangladesh

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Abstract

Background: Information system is an essential component for planning and management of health and family planning services. In most developing countries, Management Information Systems (MIS) are inadequate in providing the required management support. Data accuracy refers to the degree to which the information measures what was planned to be measured.

Objective: To assess data accuracy through cross checking of registered contraceptive acceptors.

Methods: The registered data was cross checked from four purposively selected unions of Nabiganj sub-district of Habiganj district and Raipur sub-district of Lashmipur district. Overall 12% contraceptive acceptors had been interviewed from the recorded contraceptive acceptors entered in the Family Welfare Assistant (FWA) register through household visits. The interview was done to check whether the contraceptive acceptors had received the appropriate supplies and were using it. The total sample size was 573 acceptors (253 in Raipur and 320 in Nabigang). Data collection was carried out by a structured format during April to September 2007.

Results: Fifty six percentage of the recorded data in Raipur sub-district and only 17% in Nabiganj sub-district matched with the interviewed data. Mismatches due to supply source of different methods were 6% *vs*. 9% and switching over of contraceptive methods were 15% *vs*. 13% in Raipur and Nabiganj respectively. The clients received supply of contraceptive from other sources but recorded in the register as being supplied from Government source. FWA did not keep record in her register on contraceptive method switch over. One very important mismatch was non-acceptors 23% *vs*. 61% in Raipur and Nabiganj but was recorded in the register as acceptors.

Conclusion: Data cross check is one of the strong monitoring systems to find out data accuracy. Programme managers need to be addressed on priority basis in order to make sure that data is reliable for effective and efficient planning.

Keywords: Cross checking; Registered contraceptive acceptors; Match acceptors; Mismatch acceptors

Introduction

Information system is an essential element in the planning and management of health and family planning services. The assessment of management information system is basically a measurement of the performance of selected components or subsystems in the provided health care system. In most developing countries, Management information systems (MIS) are inadequate and unable in providing the required management support in planning for future activities [1]. In many developing countries, the records are kept manually in registers having no feedback systems. This creates problems for data compilation and analysis, resulting in issues of drawing inference for managerial decision making [2]. Moreover, data received from many service centers are incomplete, inaccurate and unconnected to priority tasks and function of local health and family planning provider [3]. Thus, lack of population based information has traditionally been one of the key drawbacks in formulating timely, responsive health policies in many of the developing world. It is a common practice that the policy makers or administrators requests for data from a information or data evaluation unit for policy planning but it is seen that the units send data not of their own, rather data from alternative source. In usual situation, the administrator or policy-maker requests data from an information or evaluation unit, which, in turn, utilize alternative sources of data [4].

MIS's primary role is to gather and assimilate information on a variety of different programs in both public and private sector on order to permit a manager to plan, monitor and evaluate the operations and the performances of the program activities. The different sub-sets of MIS information's indicate the different objectives of the program to be implemented. More specifically, it is expected that MIS would provide support to both the managers and the service providers in strengthening (a) quality of services, (b) for cost control and productivity enhancement, (c) utilization analysis and demand analysis, (d) program planning and evaluation, and (e) smooth functioning of reporting. Unfortunately, in many public and private sectors, MIS is not that effective in achieving its objectives as is expected due to lack of proper and accurate record keeping.

The FP program of Bangladesh is widely acclaimed as a success story in the field of population activities [5]. During the last 25 years, fertility among women of reproductive age in Bangladesh declined dramatically [6]. The change was rapid from the mid-1970s, when the total fertility rate (TFR) was 6.3 children per women and which declined by the early 1990s, when the TFR was 3.4 [7]. Seven successive Bangladesh Demographic and Health Surveys (BDHS) showed a progressive decline in TFR, from 3.4 in 1993–1994, 3.3 in 1996–1997, 3.3 in 1999–2000, 3.0 in 2004, 2.7 in 2007, 2.3 in 2011, and to 2.3 in 2014

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Received March 08, 2017; **Accepted** April 25, 2017; **Published** April 28, 2017

Citation: Kabir H, Saha NC, Gazi R (2017) Cross Checking of Registered Contraceptive Acceptors: A Study Finding of Two Rural Areas of Bangladesh. Reprod Syst Sex Disord 6: 207. doi:10.4172/2161-038X.1000207

[7-11]. Available evidences also shows wide geographic variation in TFR within the country with the highest TFRs in Sylhet (2.9) followed by Chittagong (2.5) and the lowest TFR (1.9) in Khulna and Rangpur. There is also a wide variation in the current contraceptive prevalence rate (CPR) within the country. The current country CPR is 62% with the highest CPR in Rangpur (69.8%) and Rajshahi divisions (69.4%) and the lowest CPR in Sylhet division (47.8%) and the second lowest in Chittagong division (55%). Many reasons like hard-to-reach areas, shortage of manpower and lack of supervision might be associated with geographic variations within the country with TFR and CPR.

In Bangladesh, the Directorate General of Family Planning (DGFP) conducts doorstep delivery of the family planning services, particularly in rural areas, through its female grassroots workers, known as Family Welfare Assistants (FWAs). The FWA visits the home of each married woman of reproductive age (MWRA) once every two months to provide information and counseling on family planning, distribute oral pills and condoms, disseminate information about the services available at the various service centres, and refer clients to service centres. The MIS Unit of the DGFP was established in 1979 to meet the information needs on both family planning and maternal and child health activities [12]. The FWA Register was designed as a longitudinal record keeping system for the FWA. Under the management of MIS Unit of the DFP, it also provided a foundation for the monitoring and supervision of FWA activities through supervisory field-visits [13]. Weaker supervisory mechanisms results in the creation of inaccurate data. Data accuracy is described as the ability of the available information to measure what was expected to be measured [14]. In 2007, Contraceptive acceptors rate (CAR) was 67.8% according to MIS report [15] while CPR was 55.8% as per BDHS-2007 [11]. Primary function of a management information system is to provide data that enhance decision making in provision of health and family planning services.

The National Institute of Population Research and Training (NIPORT) under the Ministry of Health and Family Welfare (MoHFW) of the Government of Bangladesh launched the three year Demand-based Reproductive Health Commodity Project (DBRHCP) in 2005-2008 in two rural sub-districts and one urban slum areas [16]. The goal of the project was to improve the capacity for increased access to and utilization of client centred quality reproductive healthcare. The project was implemented in two low-performing sub-districts: Nabiganj in Habiganj district of Sylhet division and Raipur in Lashmipur district of Chittagong division. The present study intends at cross checking of registered contraceptive acceptors in selected unions of two rural sub-districts under Demand-based Reproductive Commodity Project (DBRHCP).

Methodology

Figure 1 explains flow chart to assess data accuracy.

Methods

The data in the FWAs register was crosschecked in four purposively selected unions (two unions from each sub-district) from Nabiganj sub-district of Habiganj district and Raipur sub-district of Lakshimpur district under DBRHCP. Twelve percent contraceptive acceptors had been interviewed who were enlisted in the FWA register through household visits to check whether they had received the appropriate supplies and were using it. The acceptors were selected randomly. Data collection was carried out during April to September 2007. The data collections were as follows:

Interview with acceptors: A list was prepared from registered acceptors in FWAs Register with the names of acceptors and type of method supplied by the Government service providers during April to September 2007. Experience Field Research Assistants (FRA) of icddr,b conducted the interview with the selected contraceptive acceptors. FRAs interviewed the contraceptive acceptors by using a prescribed format to ascertain the mismatch of record keeping for the contraceptive acceptors. Field Research Officer supervised the quality of data collection and re-interviewed certain number of acceptors for re-confirmation of the findings.

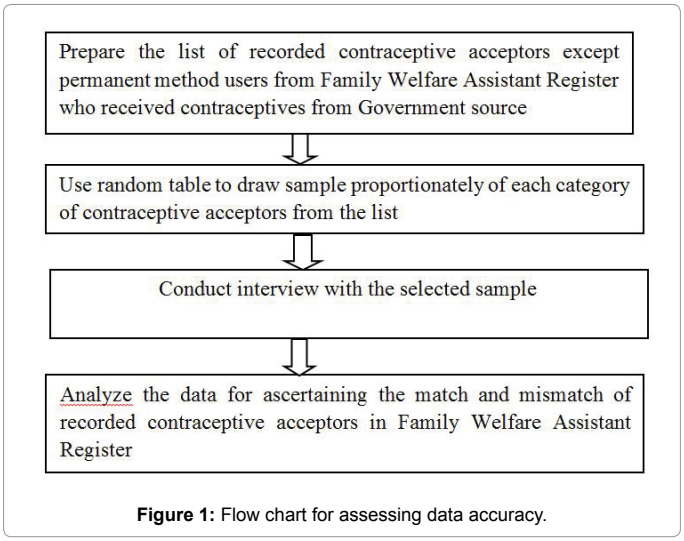

Figure 1: Flow chart for assessing data accuracy.

Re-interview with acceptors: After interview with acceptors conducted by FRA, a special team was formed by all implementing partners to re-interview certain numbers of acceptors for verification of the FRAs findings. The team re-interviewed some of the acceptors.

Sample size of the study

The sample size was calculated with confidence level 95%. The sample size was 384 but we selected 573 samples with non-response rate.

Interview with acceptors: The total 573 acceptors (253 in Raipur and 320 in Nabigang) were interviewed. Each category sample was drawn randomly from the acceptors list of Raipur and Nabiganj sub-district which were shown in (Table 1).

Operational definition of "Match and Mismatch of selected registered data in MIS system

Match: It was defined as "contraceptive aacceptors were found OK during interview who received the supplies from GoB source and recorded as aacceptors in record keeping system".

Mismatch due to sources of methods: It was defined as "some acceptors collected supplies from other sources but recorded in the register as recipients of government supplies".

Mismatch due to switching: It was defined as "some acceptors who switched over to other methods but recorded in the register as previous method user".

Mismatch due to non-acceptors: The mismatch was defined as " clients recorded in the register as recipients and user of methods but actually not a recipient not using any method".

Data analysis

We used the Microsoft offices Excel for data entry and percentage calculation.

Limitation of the study

A potential limitation of the present study was that we used data from only four unions of two rural areas and the findings may not reflect the country status. However, similar studies can be done in other low performing areas to confirm the results.

Results

In Raipur, the findings revealed that around 56% acceptors collected information by FRAs were found to match with the record keeping and the overall mismatch as per operational definition for sources of methods and switching over of method were 21%. Fifteen Implant acceptors matched with the record keeping and only one implant user switched to injection (mismatch due to switching). 118 registered pill acceptors were interviewed in Raipur and among them 52 collected information matched with the FWAs record keeping, 16 mismatches was due to sources of methods. These 16 clients took the supply from other sources but were entered into the FWA register as supply received from Government source. Fifteen pill acceptors switched over to injection method but recorded in the register as pill acceptors. So, the overall mismatch (dissimilarity) for the pill acceptors were 31 and was as a result of changed sources of methods and due to switch from one method to the other. Similarly 17 registered condom acceptors were interviewed and among them ten matched, two acceptors switched to pill and another two switched to injectable) i.e. 4 were mismatched due to switching. 67 registered injecatable acceptors were interviewed. Among them 46 matched and 6 original injection users switched to pill which was still entered as injection users which is a mismatch due to switching in methods. 35 registered CT acceptors interviewed and out of them 19 matched, but 4 switched to pill and 5 switched to injectable. The mismatch among them was 9 which were as a result of switching (Table 2).

Figure 2 shows that overall 23% of the records were mismatched and discarded at the first instance due to the presence non-acceptors among the said acceptor entered/listed sample (100%) in Raipur. Among the 23% false entry, the highest mismatch rate was pill (14%) followed by injectable (5%), CT (3%) and the lowest was condom (1%). Fourteen percent of the respondents (35 out of 118) reported that they were not using any method but the FWA register recorded them as pill acceptors. Three out of 17 were not using condom or any other method

FP Methods	Raipur sub-district		Nabiganj sub-district	
	Acceptors in FWA Register	Sample	Acceptors in FWA Register	Sample
Pill	1,153	118	1,501	142
Condom	22	17	121	23
Injection	678	67	598	76
CT	166	35	338	48
Implant	36	16	144	31
Total	2,055	253	2702	320

Table 1: Describing about interview with acceptors.

Raipur	Sample Number	Match	Mismatch		
			Due to sources of methods	Due to switching	Total
Pill	118	52	16	15	31
Condom	17	10	0	4	4
Injection	67	46	0	6	6
CT	35	19	0	9	9
Implant	16	15	0	1	1
Total	253	142 (56%)	16 (6%)	35 (15%)	51 (21%)

Table 2: Cross checking result of registered contraceptive acceptors in Raipur.

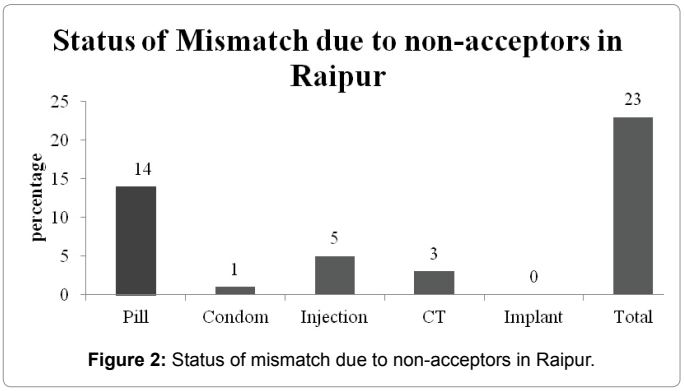

Figure 2: Status of mismatch due to non-acceptors in Raipur.

but recorded in the register as condom acceptors. 15 out of 67 were not using injection or any other method but shown in the FWA register as injectable. 8 out of 35 were not using CT or any other method which was shown acceptors in the register as CT. There were no gaps in entry in non-acceptors among implant user.

In Nabiganj, the findings revealed that around 17% acceptors collected information by FRAs were found to match with the record keeping and the overall mismatch as per operational definition for sources of methods and switching over of method were 22%. 142 registered pill acceptors were interviewed in Nabiganj and among them 21 collected information matched with the FWAs record keeping, 32 mismatches were due to sources of methods. These 32 clients took the supply from other sources but were entered into the FWA register as supply received from Government source. Five pill acceptors switched over to injection method and one switched to condom but recorded in the register as pill acceptors. So, the overall mismatch (dissimilarity) for the pill acceptors were 38 and was as a result of changed sources of methods and due to switch from one method to the other. Similarly 23 registered condom acceptors were interviewed and among them two matched, two acceptors switched to pill i.e. 2 were mismatched due to switching. 76 registered injecatable acceptors were interviewed. Among them 13 matched and 12 original injection users switched to pill which was still entered as injection users and is a mismatch due to switching in methods. 48 registered CT acceptors interviewed and out of them 3 matched, but 12 switched to pill, one switched to condom and 3 switched to injecatable. The mismatch among them was 16 which were as a result of switching. 31 registered Implant acceptors interviewed. Among them 14 matched and 5 original Implant users switched to pill which was still entered as Implant users and is a mismatch due to switching in methods (Table 3).

Figure 3 shows that overall 61% of the records were mismatched due to the presence non-acceptors among the said acceptor entered/listed sample (100%) in Nabiganj. This is a big fallacy and it can also be stated as system loss or very bed way of inflating the acceptor rates to give a better look to FP activities. Among the 61% false entry, the highest mismatch rate was pill (26%) followed by injectable (16%), CT (9%), Condom (6%) and the lowest was Implant (4%). Sixteen percent of the respondents (83 out of 142) reported that they were not using any method but the FWA register recorded them as pill acceptors. Nineteen out of 23 were not using condom or any other method but recorded in the register as condom acceptors. 51 out of 76 were not using injection or any other method but shown in the FWA register as injectable. 29 out of 48 were not using CT or any other method which was shown acceptors in the register as CT. 12 out of 31 were not using Implant or any other method which was shown acceptors in the register as Implant.

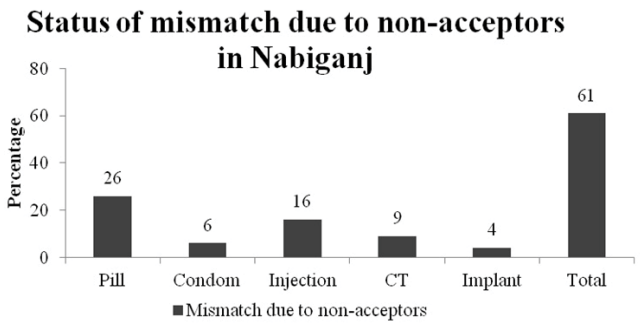

Figure 3: Status of mismatch due to non-acceptors in Nabiganj.

Nabiganj	Sample Number	Match	Mismatch		
			Due to sources of methods	Due to switching	Total
Pill	142	21	32	6	38
Condom	23	2	0	2	2
Injection	76	13	0	12	12
CT	48	3	0	16	16
Implant	31	14	0	5	5
Total	320	53 (17%)	32 (9%)	41(13%)	126 (22%)

Table 3: Cross checking result of registered contraceptive acceptors in Nabiganj.

Findings of re-interview

After the data collection by interviewers, a special team was formed by all implementing partners to re-interview a certain proportion i.e. 5% (randomly selected) of acceptors for re-confirmation of the findings by the interviewers. The team re-interviewed some of the acceptors in both areas. They verified their findings with the findings of interviewers. They did not find any variation between their findings and interviewer's findings.

Discussion

The study findings revealed three types of mismatches: firstly mismatch was due to sources of supply of methods, secondly mismatch was due to switching from one method to another and thirdly mismatch was due to entry of non-acceptors as acceptors. In the family planning program, monthly performance report and contraceptives supply and stock-balance report is prepared based on contraceptive demand and supply among the method acceptors. Any mismatch might be associated with system leakage on contraceptive supply. But third type of mismatch is the most important factor for system leakage on contraceptive supply. However, we can't ignore the first and second types of mismatch for system leakage too. So, data cross check is one of the strong monitoring method to find out data accuracy for contraceptive supply among the acceptors which helps to achieve the actual program performance.

A study conducted in Pakistan, reported that 35% of health workers were correctly recording and reporting the family planning services [17] whereas the present study found only 17% match from our cross checking among pill, condom, injectable, IUD and implant acceptors in Nabiganj sub-district. This result was comparable with our baseline survey. We found from our baseline survey in the same study area under DBRHCP that only 19% of MWRA were currently using those modern contraceptive methods [18] whereas CAR was 49% among those methods according to MIS report of Nabiganj. Correct record keeping and increase in method acceptors is impossible without regular routine household visit by FWAs. The baseline survey also shows that less than 6% of the MWRA reported having been visited by an FWA in the past six months which was much less than 17% found in the national survey [11]. The end-line survey in the same study area revealed that contraceptive prevalence rate for those modern methods increased significantly from baseline to endline in Nabiganj (19% to 26%) while household visit of FWA was higher compared to baseline [19]. We found in the baseline and end-line survey findings in Raipur under DBRHCP that those modern contraceptive method users's rate was 43%. While CAR was 53% among those methods according to MIS report of Raipur. The household visit rate of FWAs was higher in Raipur (14%) compared to Nabiganj (7%) which reflected in our cross checking findings. We found match with record keeping more than three times higher in Raipur compared to Nabiganj (56% *vs.* 17%).

Correct record keeping depends upon several factors like: field workers motivation, regular field visit, regular supply of contraceptive methods, supervision and monitoring. We found from a survey under Chakaria Community Health Project (CCHP) of icddr,b that some factors: irregular field visits, inadequacy of motivational work by field workers, irregular supply of family planning methods, lack of supervision and monitoring were associated with low contraceptive prevalence rate (21.7%) in Chakaria sub-district: [20]. Another study done by BRAC reported in their study that 42% of households were not visited by FWAs in hard-to-reach areas in Nabiganj sub-district [21]. We assume that some factors may possibly be the reason for the high mismatch in Nabiganj; Firstly: The coverage of population by the FWAs is low in Nabiganj. While the Government recommends that each FWA covers a population of 5,000, in Nabiganj 52.5% of FWAs surveyed had to cover larger populations. Likewise, although each FWA is mandated to cover 450 eligible couples, only 6.6% of them do so. And the majority (57.4%) of FWAs covers 451–900 couples, and 36% cover more than 900 couples. Secondly: More than half of the unions (the smallest local government entities in Bangladesh) in Nabiganj are considered hard-to-reach. While more than 10% of the FWAs in the study area had additional workload as they were compelled to cover multiple areas in addition to their own due to the shortage of manpower [22]. Thirdly: Supervision and monitoring system is poor and checking the register in the field level and to see the maintenance of quality recording and reporting is inadequate.

Performance monitoring for family planning, experiences of different countries have been highlighted in a review paper [23]. Indonesia has been one of the most successful developing countries to meet its demographic objectives. It has a strong management-oriented data system, which was created and maintained using a bottomup approach. An effective monitoring and tracking mechanism enables identification of low-reach catchments areas, operational problems in improving coverage, and corrective actions to enhance service-use [24]. In the Philippines, focus was placed on improving maternal and child health and meeting the reproductive intentions of women by improving the national management information system (MIS), making better use of existing data from various sources to produce an annual status report for the family-planning programme, and strengthening the monitoring systems at the local level [25]. There was a need to increase efficiency, decentralize the decision making process, and train health staff in the areas of management, policy, and planning to implement a minimum package of cost-effective public health measures and clinical interventions aiming at improving health conditions in low-income countries.

In conclusion it can be said that program managers should make a plan to cross check a proportion of contraceptive acceptors records in the register to see the data accuracy at household levels at a regular

basis. This would have a positive impact on programme performance and maintain correct record keeping on stock-balance and commodities supply.

Conclusion

The data mismatch issue on basic information gathering by the field health workers needs to be addressed by program managers on priority basis in order to make sure that data is reliable for effective and efficient planning and implementation of Family Planning services. It is recommended that regular data check should be planned from sub-district programme management along with strengthening proper supervision of community based family planning workers. Policy makers should develop a strategy to resolve the associated factors with mismatch record keeping as well as to develop electronic MIS with strong monitoring and supervision system.

Competing Interests

The authors declare that they have no competing interests.

Authors' Contribution

HK drafted the manuscript and was involved in field implementation and data analysis of the study. NC contributed in data management, and statistical analysis. RG was involved in designing of the study and provided overall guidance to prepare the manuscript and acted as a mentor. All authors read and approved the final version of the manuscript.

Acknowledgements

The study was funded by the Global Affairs Canada (GAC) through United Nations Population Fund (UNFPA). icddr,b acknowledges with gratitude the commitment of GAC, UNFPA and National Institute of Population Research and Training (NIPORT) to its research efforts. We express our sincere thanks to the other implementing partners: RTM International and Population Council. The authors gratefully acknowledge Dr. Nafis Al Haque, Sr. Operations Researcher for his comments on an earlier draft of this manuscript. icddr,b is thankful to the Governments of Bangladesh, Canada, Sweden and the UK for providing core/ unrestricted support.

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