

A comprehensive study on the effectiveness of Voucher Scheme on antenatal, delivery and postnatal care among poor women in Bhola District, Bangladesh

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Abstract

Maternal health Voucher Scheme is well-known as demand-side financing (DSF), which was introduced for low income poor pregnant women to increase the utilization of child and maternal health services and remove financial barriers of getting maternal healthcare services. The study is a cross-sectional study with used quantitative and qualitative methods for data collection. The findings of this study are the effects of Voucher Scheme on maternal healthcare among poor women where it is found that Voucher Scheme receivers received 30 times higher rate of taking antenatal care, 6 times higher rate of going for institutional delivery services and 1.5 times higher postnatal care as compared to Voucher Scheme non-receivers. To the sum, it is revealed by this study that Voucher Scheme significantly changed the overall maternal health status and decreased maternal mortality; child mortality as well as malnutrition by accessing more facilities to the Voucher Scheme receivers. (INTERNATIONAL JOURNAL OF HIGHER EDUCATION AND RESEARCH, 5(2), 1-11, 2015).

Keywords: Demand-side financing, Maternal Health, Voucher Scheme, Antenatal Care, Delivery Care, Postnatal Care, Bhola District, Bangladesh

1. Introduction

Voucher Scheme is a part of demand side financing program, which is a form of subsidy and it directly provides purchasing ability to consumers on certain publicly provided goods such as health and nutrition (Midhet and Becker, 2010). It introduced for low-income, pregnant women to increase the utilization of child and maternal health services and also for the highlighted necessities among the poorest women who face financial barriers to access institutional delivery cares with meeting quality standards, which are likely to be important in lowering the number of maternal mortality. On the other hand, Voucher Scheme is a simple mean of payment which ensures the purchasing power of the poor with the freedom of choice and efficiency to reduce administrative burden, reduction of different barriers and quality services. The maternal healthcare voucher scheme covered antenatal care (ANC), delivery and postnatal care (PNC) related cost and also developed healthcare of sick children. The Government of Bangladesh piloted a demand-side financing (DSF) scheme, which is popularly known as the program of maternal health voucher in 21 upazilas (sub-districts)

from 2006 and expanded to 33 upazilas in 2007 (Koehlmoos et al., 2008). The selected poor women under DSF scheme get a package of necessary maternal health care services with the taking cares of pregnancy and delivery related complications. DSF has predominantly focused on millennium development goals (Gopalan et al., 2012). This program also provides supply side financing to service providers. After getting better response, this program has been expanded to another 11 upazilas in 2010 where increasing the demand for maternal health services was one of the principal objectives of the pilot program.

Although Bangladesh has achieved a remarkable success in reducing maternal and child death, then still in rural Bangladesh, around 71% of births take place at home. Home delivery is preferred because of low cost and delivery care at facilities is considered only for emergency obstetric care (EmOC). Many factors contribute to the utilization of health facility in developing countries at the time of obstetric complication and childbirth (Keya et al., 2013). Then maternal mortality remains a major challenge to health systems worldwide and global initiatives to intensify policy intervention for maternal mortality began with the safe Motherhood Initiative in 1987 (Margaret et al., 2010).

Maternal healthcare voucher program has played a significant role in health sector of any country of the world where the voucher mechanism used as a specific demand-side financing mechanism that can be utilized to target essential health services to vulnerable populations such as poor pregnant women and to protect them from catastrophic expenditures like emergency obstetric care (Ahmed and Khan, 2010). Voucher programs are introduced for reducing financial barriers and inequities by making them affordable to the poor and other underserved groups; increasing choice for clients and efficiency in delivery and also increasing the quality of healthcare services (Rob et al., 2011).

Bhatia et al., (2006) showed that voucher scheme could be an option for enhancing the utilization of reproductive and child health services in India. In the Yunnan Province of China, a voucher scheme started for low-income, pregnant women to increase the utilization of maternal and child health services where this scheme covered the cost of ANC, delivery and PNC as well as care of sick children and also the findings pointed that voucher distribution has increased the utilization of treatment for childhood diarrhea among the poor (Kelin et al., 2001).

Voucher Programs increase healthcare facilities and vouchers are distributed to patients entitling them to get proper services where voucher is either heavily subsidized or free for the patient, and the provider is reimbursed for the cost of service provision plus a reasonable profit after service delivery has been verified (Bellows et al., 2013). Progress in the decline of maternal mortality has been disappointingly slow in Pakistan (Midhet & Becker, 2010 and Agha & Carton, 2011). After all, well-funded maternal health projects have failed to increase skilled birth attendance among poor women (Mahmood, 2010). Antenatal health care is a key strategy for reducing maternal and neonatal morbidity and even mortality rate because adequate utilization of ANC services is associated with improved maternal and neonatal health outcomes (Onasoga et al., 2012). A number of studies have identified lack of ANC as a risk factor for maternal mortality (Nisar and White, 2003). At last, financial protection is needed for the poorest to encourage the use of facilities for delivery and prevent families from impoverishment (Hoque et al., 2012). Thus, priority focus should be given on implementing and evaluating multi-sectoral interventions to improve access and quality of care for women who are poorer, less-educated and live in rural areas in the post-MDG health

and development agenda for achieving universal health coverage, as there is considerable potential for improvement among these groups (Van de Poel et al., 2014).

Voucher schemes increased deliveries in health centers and improved antenatal and postnatal care to a lesser extent. However, schemes that targeted poorer women did not appear to be efficient since these women were more likely than less poor women to be encouraged to give birth in a public health-care facility, even with universal voucher schemes (Committee for Development Policy, 2009). On the contrary, Voucher Scheme increases the access of ANC, delivery and PNC services of poor women.

The Objectives of the study:

- To find the effect of Voucher Scheme on antenatal care
- To explore the effect of Voucher Scheme on delivery care services
- To know the effect of Voucher Scheme on postnatal care
- To compare the effect of Voucher Scheme on Maternal Health care in relation to the non-Voucher Scheme receivers

2. Materials and Methods

Study area and Sample size

The study area of this study is in seven Upazilas (sub-districts) of Bhola District; they are Bhola Sadar, Burhanuddin, Charfasson, Daulatkhan, Lalmohan, Monpura and Tazumuddin Upazila and the study was conducted among the 300 married women who are now pregnant or at least have a child. Randomly respondents of the study had selected among voucher scheme receivers and non-voucher scheme receivers.

Study Design

A cross sectional study design applied in this study among age group 15-49. Data collected by a structured face to face interview among the Voucher Scheme receivers and non-Voucher scheme receivers to compare the voucher scheme facilities and services and also the improvement of health status of those health and health conditions of their ANC, delivery and, PNC care period.

Data collection Tools and Techniques

A structured questionnaire with some open-ended questions was developed for data collection which covered the following: socio-demographic, socio-economic and religious variables among the respondents of this study where the quantitative and qualitative techniques were conducted to collect the data.

Data Processing and Data Analysis

After completing data collection, the entire questionnaires were checked and verified to finally analysis. First, it was conducted a descriptive analysis of respondent's sample characteristics. Second, there was conducted bivariate analysis using the Chi-Square test to determine the association with each of the outcome variables by SPSS software (version 16).

3. Findings and Result

The sample characteristics of 300 respondents of the study where 53 respondents were Voucher Scheme receivers and 247 respondents were non-Voucher Scheme receivers. Majority 69.7% of the respondents were 18-25 age group and less than 18 years, respondents were 4.0% but 26.3% of the respondents were above 25 years old. 53.7% of the respondents that means 161 respondents were primary level education receivers. 7.0% respondents had no education. Secondary and Higher education receivers were respectively 30.0% and 9.3% only. Most of the respondents' occupation was housewife counted as 98.0% but others 2.0% of the respondents are involved in agriculture. Others, 87.0 % of the respondents' income level was 0-1000 category but 13.0% respondents' income was in 1001-2000 categories. Most of the respondents 94.0% of this study were Muslims; only 6.0% respondents were from the Hindus.

Table 1 shows the cross tabulation between Antenatal Care Services and Voucher Scheme. In the Table, Voucher Scheme receivers and non-Voucher Scheme Receivers' number of the antenatal care visit is very much distinct where 9.4% voucher scheme receivers took antenatal care visit below <3 and 3-4 antenatal visit receivers 90.6% but on the other hand, Non-Voucher Scheme receivers took 72.1% antenatal care visit below <3 antenatal visits and 3-4 antenatal visit received 27.9%, which is significant at $p < .000$. Physical examination services took by Voucher Scheme receivers 67.9% and did not receive 32.1% but among the non-Voucher Scheme receivers took physical examination services by 18.6% and did not receive by 81.4%. Vitamin Tablet/Syrup Voucher Scheme receivers received 92.5% and did not receive by 7.5% but non-Voucher Scheme receivers received 48.2% and did not receive by 51.8%. Iron Tablet Voucher Scheme receivers received by 88.7% and did not receive 11.3% only but non-Voucher Scheme receivers received 36.8% and did not receive 63.2%, which is significant at $p < .000$. TT Vaccination services received by Voucher Scheme receivers 73.6% and did not receive by 26.4% but non-Voucher Scheme receivers did not receive by 49.8% where received 50.2% and it is significant as $p < .001$. On the other hand, Voucher Scheme receivers received healthy food 83.0% and did not receive 17.0% but non-Voucher Scheme receivers did not receive 87.0% and received only 13.0%, which is significant as $p < .000$ also.

Table 2 represents the cross tabulation between Delivery Care Services and Voucher Scheme where Skilled Birth attendance received by Voucher Scheme receivers 64.2% and did not receive 35.8% but non-Voucher Scheme receivers did not receive by 73.7 and received by 26.3%, which is significant as $p < .000$. Institutional Delivery Services received by Voucher Scheme receivers 86.8% and did not receive 13.2% but non-Voucher Scheme receivers did not receive by 75.3% and received only 24.7%, which is significant at $p < .000$. Transport Cost received by Voucher Scheme receivers 92.5% and did not receive by 7.5% but non-Voucher Scheme receivers did not receive by 76.9% and only received by 23.1% which is significant at $p < .000$. On the other hand, Referral to a doctor or expert services received by Voucher Scheme receivers 86.8% and did not receive 13.2% but non-Voucher Scheme receivers received by 22.3% and did not receive by 77.7%, which is significantly associated at $p < .000$.

Table 3 shows the cross tabulation between Postnatal Care Services and Voucher Scheme where Bleeding Services received by Voucher Scheme receivers 58.5% and did not receive

by 41.5% but non-Voucher Scheme receivers received by 51.0% and did not receive by 49.0%, which is not significantly associated. Fever Service received by Voucher Scheme receivers 81.1% and did not receive by 18.9% but non-Voucher Scheme receivers received by 45.3% and did not receive by 54.7%, which is significant as $p < .000$. Headache or Blurred Vision Services received by Voucher Scheme receivers 47.2% and did not receive by 52.8% but non-Voucher Scheme receivers did not receive by 60.7% and received by 39.3% only, which is not significant. Tiredness or Breathlessness Services received by Voucher Scheme receivers 39.6% and did not receive by 60.4% but non-Voucher Scheme receivers did not receive by 67.6% and received by 32.4%, which is also not significantly associated. On the other hand, Long Time Birth Control and Breastfeeding services respectively received by Voucher Scheme receivers 71.7% and 79.2% but non-Voucher Scheme receivers received respectively by 19.4% and 30.0%, which are significantly associated at $p < .000$.

Logistic Regression Analysis

Table 4 presents odds ratio estimates of the effects of voucher scheme on ANC. The table includes control variables of respondents' age, education, wealth and religion. Model 1 includes control variables of age and education and the main independent variable voucher scheme. The model suggests that voucher scheme receivers take higher level of ANC as compared to those who do not receive voucher scheme. When two other variables of wealth and religion are included in the analysis it is found that voucher scheme receivers have 30 times higher rate of taking ANC care.

On the other hand, odds ratios of skilled birth attendant and facility use where concerning skilled birth attendant it is found that voucher scheme receivers had about six times higher odds of getting skilled birth attendant during delivers as compared to those who were not voucher scheme receivers after adjusting for age, education, wealth and religion. It is interesting to note that respondents' higher education is associated with higher odds of receiving skilled birth attendant (1.3 times). On the other hand, voucher scheme receivers also have 8.3 times higher odds of going to receive institutional facility for their delivery time even after controlling for respondents' age, education, wealth and religion.

The effect of odds ratios on the postnatal care also shows in Table 4 where Model 1 includes control variables of age, education, wealth and religion. This model suggests that respondents have 1.8 times higher odds of getting postnatal care after controlling for age, education, wealth and religion. Finally, Model 2 shows that voucher scheme receivers get 1.5 times higher postnatal care than non-receivers after controlling for the selected characteristics of the respondents.

4. Discussion

The study on 300 respondents, 82.3% was non-Voucher Scheme receivers and the rest 17.7% was Voucher Scheme receivers. The respondents were involved in this study are very poor but they are now pregnant or at least have a child. In this study, it has found that there is significantly difference in Voucher Scheme receivers and non-Voucher Scheme receivers in getting services of their antenatal, delivery and postnatal time. Voucher Scheme receivers were received effective services in their maternal time but Non-Voucher Scheme receivers' health and nutrition quietly lower. By this study, it has also found that voucher scheme

receivers have 30 times higher rate of taking ANC than non-Voucher scheme receivers so that voucher scheme receivers' health status is good as compared to non-Voucher scheme receivers. Rob et al., 2011 found in another study that voucher scheme reduced financial barriers among the poor women so that their antenatal care and health status found very well.

Mahmood, 2010 found by his study that well-funded maternal health projects have failed to increase skilled birth attendance among the poorest women but in this study skilled birth attendant found that voucher scheme receivers had about six times higher odds of getting skilled birth attendant during their delivery time as compared to those who were not voucher scheme receivers and it is interesting to note that respondents' higher education is associated with higher odds of receiving skilled birth attendant (1.3 times). On the other hand, voucher scheme receivers also have 8.3 times higher odds of going for institutional delivery care services even after controlling for respondents' age, education, wealth and religion. Another finding by the study of Margaret et al., 2010 that voucher scheme lessens the number of maternal mortalities, which happened by delivery complexities.

In this study, the effect of odds ratios on the postnatal care also found that respondents have 1.8 times higher odds of getting postnatal care after controlling for age, education, wealth and religion and finally, Model 2 shows that voucher scheme receivers get 1.5 times higher postnatal care than non-receivers after controlling for the selected characteristics of the respondents. By the study of Gopalan et al., 2012, it has found that voucher scheme receivers received a set of essential maternal health care services with the treatment of pregnancy and delivery related complexities, which are reduced delivery complexities mostly. In another study it has found that postnatal cares and services provided by voucher scheme providers resulted among the poor women overall well-being of the maternal health status (Bellows et al., 2013).

5. Conclusion

The overall finding of this study is that Voucher Scheme receivers were more facilitated in their antenatal, delivery and postnatal time than non-Voucher Scheme receivers. Voucher Scheme receivers are advised, counseled and facilitated services to reduce malnutrition or healthcare barriers. Interestingly, it can be said that Bangladesh provided stronger evidence of voucher programs being able to target the poor and the study assessed the impact of demand-side financing strategy on increasing the use of maternal health services among low-income women. In differently, it is pointed that Voucher Scheme played a major role in the Bhola district on controlling or increasing intervention on maternal and child health. The overall health facilities provided by Voucher Scheme providers acclaimed in increasing maternal health care services. On the contrary, Respondent's education, income and occupation had impacted the health status but Voucher Scheme removed many barriers of the poor women's maternal healthcare services they needed or need. So, it is clear that Voucher Scheme significantly changed the overall maternal health status where maternal mortality, child mortality and malnutrition, which were decreased by the maternal health Voucher Scheme of any country.

References

- [1] Agha S, Carton T. (2011). Determinants of institutional delivery in rural Jhang, Pakistan. *International Journal for Equity in Health*, 10:31. doi: 10.1186/1475-9276-10-31
- [2] Ahmed S, Khan MM. (2010). A maternal health voucher scheme: what have we learned from the demand-side financing scheme in Bangladesh? *Health Policy and Planning*.
- [3] Bellows B, Conlon CM, Higgs ES, Townsend JW, Nahed MG, Cavanaugh K, et al. (2013). A taxonomy and results from a comprehensive review of 28 maternal health voucher programmes. *J Health Popul Nutr*. 31(Suppl 2):106–28.
- [4] Bhatia MR, Yesudian CAK, Gorter A, Thankappan KR. (2006). Demand side financing for reproductive and child health services in India. *Economic and Political Weekly*. pp. 279–294.
- [5] Committee for Development Policy.(2009).Implementing the Millennium Development Goals: Health Inequality and the Role of Global Health Partnership. New York: United Nations.
- [6] Gopalan, S. S., & Varatharajan, D. (2012). Addressing maternal healthcare through demand side financial incentives: experience of Janani Suraksha Yojana program in India. *BMC Health Services Research*, 12, 319. doi:10.1186/1472-6963-12-319
- [7] Hoque, M. E., Powell-Jackson, T., Dasgupta, S. K., Chowdhury, M. E., & Koblinsky, M. (2012). Costs of Maternal Health-related Complications in Bangladesh. *Journal of Health, Population, and Nutrition*, 30(2), 205–212.
- [8] Kelin, D., Zhang, K., & Tang, S. (2001). A draft report on a MCHPAF study in China. *Washington, World Bank*.
- [9] Keya K. T., Rahman Md. M., Rob U. and Bellows B. (2013). Barrier of Distance and Transportation Cost to Access Maternity Services in Rural Bangladesh. Paa 2013.princeton.edu/papers/132360
- [10] Koehlmoos TLP, Ashraf A, Kabir H, Islam Z, Gazi R, Saha NC, Khyang J. ICDDR,B (2008), Working Paper 170. Dhaka: ICDDR,B; Rapid Assessment of Demand-side Financing Experiences in Bangladesh.
- [11] Mahmood A. (2010). Improving maternal and Neonatal Health: Measuring the Impact of the PAIMAN Project in Ten Districts in Pakistan. Islamabad: Population Council.
- [12] Margaret C Hogan et al. (2010). Maternal mortality for 181 countries, 1980-2008: a systematic analysis of progress towards Millennium Development Goal 5. Published Online, DOI: 10.1016/S0140-6736(10)60518-1
- [13] Midhet F, Becker S. (2010). Impact of community based interventions on maternal and neonatal health indicators: Results from a community randomized trial in rural Balochistan, Pakistan. *Reproductive Health*, 7:30. doi: 10.1186/1742-4755-7-30.
- [14] Nisar N. and White F. (2003). Factors affecting utilization of Antenatal Care among reproductive age group Women (15-49 years) in an urban squatter settlement of Karachi, *Journal of Pakistan Medical Association*.
- [15] Onasoga, O. A., Afolayan, J. A. and Oladimeij B. D.(2012). Factors influencing utilization of antenatal care services among pregnant women in Ife Central Lga, Osun State Nigeria. *Science Research*, 2012, 3 (3):1
- [16] Rob, U., Rahman, M., & Bellows, B. (2011). Evaluation of the impact of the voucher and accreditation approach on improving reproductive behaviors and RH status: Bangladesh. *BMC Public Health*, 11, 257. doi:10.1186/1471-2458-11-257
- [17] Van de Poel, E., Flores, G., Ir, P., O'Donnell, O., & Van Doorslaer, E. (2014). Can vouchers deliver? An evaluation of subsidies for maternal health care in Cambodia. *Bulletin of the World Health Organization*, 92(5), 331–339. doi:10.2471/BLT.13.129122

Table 1: Antenatal Care Services and Voucher Scheme

Variables	Voucher Scheme		Total N (%)	X ² and P-Value
	Yes (%)	No (%)		
No. of ANC Visit <3 3-4	9.4 90.6	72.1 27.9	300 (100)	X ² = 71.950 P< .000
Physical Examination Yes No	67.9 32.1	18.6 81.4	300 (100)	X ² = 53.399 P< .000
Vitamin Tablet/Syrup Yes No	92.5 7.5	48.2 51.8	300 (100)	X ² = 34.715 P< .000
Iron Tablet Yes No	88.7 11.3	36.8 63.2	300 (100)	X ² = 47.204 P< .000
TT Vaccination Yes No	73.6 26.4	50.2 49.8	300 (100)	X ² = 9.615 P< .001
Healthy Food Yes No	83.0 17.0	13.0 87.0	300 (100)	X ² = 1.132 P< .000

Table 2: Delivery Care Services and Voucher Scheme

Variables	Voucher Scheme		Total N (%)	X ² and P-Value
	Yes (%)	No (%)		
Skilled Birth attendance				
Yes	64.2	26.3	300 (100)	X ² = 28.252 P< .000
No	35.8	73.7		
Institutional Delivery Services				
Yes	86.8	24.7	300 (100)	X ² = 73.330 P< .000
No	13.2	75.3		
Transport Cost				
Yes	92.5	23.1	300 (100)	X ² = 91.919 P< .000
No	7.5	76.9		
Referral				
Yes	86.8	22.3	300 (100)	X ² = 81.354 P< .000
No	13.2	77.7		

Table 3: Postnatal Care Services and Voucher Scheme

Variables	Voucher Scheme		Total N (%)	X ² and P-Value
	Yes (%)	No (%)		
Bleeding				
Yes	58.5	51.0	300 (100)	X ² = .978 P < .323
No	41.5	49.0		
Fever				
Yes	81.1	45.3	300 (100)	X ² = 22.380 P < .000
No	18.9	54.7		
Headache or Blurred Vision				
Yes	47.2	39.3	300 (100)	X ² = 1.128 P < .288
No	52.8	60.7		
Tiredness or Breathlessness				
Yes	39.6	32.4	300 (100)	X ² = 1.203 P < .312
No	60.4	67.6		
Long Time Birth Control				
Yes	71.7	19.4	300 (100)	X ² = 58.291 P < .000
No	28.3	80.6		
Breastfeeding				
Yes	79.2	30.0	300 (100)	X ² = 44.695 P < .000
No	20.8	70.0		

Table 4: Odds Ratios (OR) and Voucher Scheme

Variables	ANC and Voucher Scheme		SBA and Facility Use in Delivery Care		PNC and Voucher Scheme	
	Model 1 (OR and SE)	Model 2 (OR and SE)	Skilled Birth attendance (SBA) (OR and SE)	Facility Use (Institutional Delivery) (OR and SE)	Model 1 (OR and SE)	Model 2 (OR and SE)
Voucher Receiver Yes No (R)	31.223***(.507)	30.314*** (.515)	6.019*** (.349)	8.300*** (.749)	1.800*** (.980)	1.500*** (.053)
Respondent's Age	1.074* (.031)	1.074* (.031)	1.059* (.031)	1.142** (.035)	1.033* (.155)	1.037* (.146)
Respondent's Education	1.156*** (.191)	1.163*** (.191)	1.289*** (.177)	0.829*** (.228)	1.282*** (.984)	1.281*** (.977)
Wealth Rich Poor (R)		0.939** (.327)	0.749 (.313)	1.286*** (.358)		1.200*** (.856)
Religion Islam Other (R)		0.756 (.625)	1.730*** (.521)	2.961*** (.630)		1.100** (.737)
Constant -2 Log	0.056*** (.874) 320.339	0.076*** (1.091) 310.101	0.037*** (1.033) 347.256	0.005** (1.193) 255.086	0.003*** (4.421) 23.159	0.139*** (.738) 21.940
Total (N)	300	300	300	300	300	300

*p<0.10 **p<0.05 ***p<0.01