

The Inaccessibility and Utilization of Antenatal Health-Care Services in Balkh Province of Afghanistan

Inequality in the use of antenatal care persists due to lack of access to health services which can be reduced by expanding outreach health facilities in the remote communities

By Abdullahel Hadi, M. Naeem Mujaddidi, Taufiqur Rahman
and Jalaluddin Ahmed*

More than 500,000 maternal deaths occur worldwide every year, of which a quarter to a third of all deaths is the result of pregnancy-related complications (WHO, 2000). The regional variation in reproductive health outcome is also very wide as

* Abdullahel Hadi, Coordinator, Research and Evaluation Unit, BRAC Afghanistan, Kabul, Afghanistan, e-mail: hadi_a1953@yahoo.com; M. Naeem Mujaddidi, Research Associate, Research and Evaluation Unit, BRAC Afghanistan, Kabul, Afghanistan, e-mail: mnayeem20042000@yahoo.com; Taufiqur Rahman, Programme Manager, BRAC Afghanistan, Kabul, Afghanistan, e-mail: taufique_brac@yahoo.com and Jalaluddin Ahmed, Programme Head, Health Programme, BRAC Bangladesh, Dhaka, Bangladesh, e-mail: jalaluddin_a2003@yahoo.com.

about 99 per cent of maternal deaths occur in developing countries. A woman living in Africa faces 200 times greater risk of dying from complications related to pregnancy than a woman living in an industrialized country (WHO, 2000).

The International Conference on Population and Development (ICPD) in 1994 viewed reproductive health in a broader development context (United Nations, 1995). Under the safe motherhood initiative, all pregnant women are expected to receive basic antenatal care. The package includes monitoring pregnancies for signs of complications, treating concurrent problems of pregnancy, providing iron supplements, tetanus toxoid immunization and counseling on preventive care and related issues. The purposes of providing such services was to identify signs of, or risk factors for, complicated pregnancies and identify the appropriate health provider (Vanneste and others, 2000; Magadi, Madise and Rodrigues, 2000; Matthews and others, 2001). While such care plays a critical role in establishing trust between the pregnant woman and health services provider (WHO, 1996; Matthews and others, 2001), it was suggested that unnecessary antenatal visits should be lowered to reduce the cost of services (Villar and Bergsjö, 1997).

Implementation of the recommendations of ICPD Programme of Action, however, was not simple and easy in most developing countries. The researchers and policy makers realized that the provision of expanded health services alone would not lead to increased utilization of antenatal care (Magadi, Madise and Rodrigues, 2000; Basu, 1990) as some women were more likely to use services than others, the other conditions remaining similar. Social structure and individual traits were found to have considerable influence in receiving antenatal health services (Matsumura and Gubhaju, 2001). Socio-economic factors such as access to the basic services, education, employment and communication also influenced the use of antenatal care (Prasad, 2000; Matsumura and Gubhaju, 2001).

Reproductive health services in Afghanistan

Health-care infrastructure is severely limited in Afghanistan owing to the civil war that spanned over two decades, a lack of awareness of the need for such services, poorly trained medical staff, and inadequate supplies of drugs and equipments in those health facilities (NRVA, 2004). According to an estimate, there was one medical doctor for every 50,000 people and only 29 per cent of the population had had access to health services in 2004 (UNDP, 2004). Maternal mortality rate was highest in the world with 1,600 per 100,000 live births (UNDP, 2004). Less than 15 per cent of deliveries were attended by skilled health workers (World Bank, 2005). Severe poverty, insecurity, inaccessibility to basic services and discrimination against women are widespread in Afghanistan.

Since 2003, the Government of Afghanistan has been implementing the Basic Package of Health Services (BPHS) with non-governmental organizations acting as implementing agencies (Afghanistan, 2005). Important components of this community-based health package include maternal and newborn health, child health and immunization, nutrition, communicable diseases, mental health, disability and the supply of essential drugs. BRAC, an international NGO, has been implementing the basic health services in Balkh province through hospitals, comprehensive health centres, basic health centres, mobile clinics and the health posts since 2004 in order to ensure access to basic health services for the population living in the province (BRAC, 2006).

The Government of Afghanistan and other agencies have already devoted considerable amount of resources for the promotion of reproductive health services in the country. It is not known whether such services were adequately utilized by pregnant women in most of the project communities. This study assesses the levels of and differentials in utilization of antenatal care services in the Balkh province of Afghanistan.

Data and methods

The data for this study came from a randomly selected household survey that provided information on the socio-demographic characteristics of households and utilization of health services during pregnancy. The database maintained by the Central Statistics Office (CSO) of the Government of Afghanistan was used as the sampling frame. Three-stage sampling procedure was employed to select women in the sample. First, six districts were selected at random out of all the districts in the province. Second, five villages (or clusters in urban areas) were chosen randomly from each selected district which constituted 30 villages or clusters distributed throughout the province. Finally, 15 households were selected in each village/cluster by systematic random sampling. Thus, the total sample size from this study was (30x15) or 450 households. All women in the selected households who had given birth during the last two years preceding the survey were considered eligible for the study. Data were collected by a team of female interviewers who were trained in survey research techniques. A total of 497 women were interviewed in August 2006.

The study focuses on the utilization of antenatal care as the outcome variable. The main independent variable was accessibility to health facilities. There were other variables in the analytical framework such as age and education of women, poverty level, participation in economic activities and region of residence.

The utilization of antenatal care was understood at two levels, namely adequate¹ and moderate.² Accessibility³ was categorized into difficult to access and easier to access depending on the access to the health facilities. Age of women was categorized into four groups. Education of women was coded as illiterate, primary and higher. Poverty level was categorized as non-poor and poor. The women's involvement in economic activity was coded as involved and not involved. Residence was coded as urban and rural. This study has followed the cross-sectional approach that might have generated biased estimates. The influence of endogeneity or selection bias was adjusted by employing multivariate analyses (Aldrich and Nelson, 1984).

Table 1. Profile of sample women by their access to health facilities

Study variable	Accessibility ^a		All
	Difficult	Easier	
Percentage of women below 30 years old	42.0	31.9	35.4
Percentage with some education	33.1	31.6	32.1
Percentage living in poverty	76.9	61.3	66.7
Percentage economically active	62.2	27.1	39.0
Percentage living in urban area	..	47.2	31.1
Number	169	326	495

^a Accessibility was categorized into difficult to access and easier to access. If a pregnant woman could reach the nearest health facility in less than three hours, she was categorized as having access to antenatal health-care services.

Findings

Profile of women

The differentials in sociodemographic characteristics of sample women by accessibility to health facilities were considerable (table 1). About a third (35.4 per cent) of the women included in the study were under 30 years, the mean age being 32.8 years. The proportion of younger women was higher in the areas where access was categorized as difficult (42.0 per cent) than in areas where access was found relatively easier (31.9 per cent). Average female literacy rate was 32.1 per cent with a mean of 1.6 years of schooling. The literacy rate was marginally higher in areas that are difficult to access rather than easily accessible areas. Two third of the women studied were poor. The concentration of poverty was higher in areas that are not easily accessible (76.9 per cent) than easily (61.3 per cent). While 39 per cent of women were involved in economic activities other than usual household

chores, most of them (62.2 per cent) were found to live in relatively inaccessible areas. About 31.1 per cent of the women studied resided in urban areas but 47.2 per cent of the women who had easy access to health facilities lived in the urban areas. No urban clusters were found in areas that are not easily accessible.

Table 2. Use of antenatal health-care services by women's access to health facilities

Types of services received	Accessibility		All
	Difficult	Easier	
Weight measurement	20.1	41.1	33.9
Height measurement	8.3	28.8	21.8
Blood pressure measurement	27.8	48.8	41.6
Urine test	4.1	27.0	19.2
Blood test	2.4	25.2	17.4
Information about possible complications	7.7	43.6	31.3
Information about sources of help	10.1	47.9	34.9
Iron tablet/syrup	23.1	44.5	37.2
Tetanus injections	33.7	45.1	41.2
<i>Moderate</i> ^a	22.5	55.5	44.2
<i>Adequate</i> ^b	7.1	39.3	28.3

^a If the woman received at least 3 of the 9 types of antenatal health-care services, she was categorized as "moderately served person".

^b A woman was considered "adequately served" if she had received at least 5 of the 9 types of antenatal health-care services.

Use of antenatal care by accessibility, participation in economic activity and education

The differences in the utilization of antenatal care by accessibility, participation in economic activity and education of women are shown in tables 2 to 4. Of the nine types of services examined, the performance was found highest for monitoring blood pressure (41.6 per cent) and receiving tetanus injections (41.2 per cent) followed by taking iron tablets (37.2 per cent) and getting the information on the sources of potential support (34.9 per cent). Other services such as weight measurement (33.9 per cent) and counselling regarding possible complications (31.3 per cent) were also widely provided. Comparing two areas, the use of the various services was found higher in the easier than in difficult-to-access areas. Only 28.3 per cent of women adequately used (or received at least 5 out of 9 types) antenatal care services. The disparity in receiving adequate services was very wide

as 39.3 per cent of women living in the easily accessible areas compared with only 7.1 per cent of women living in the difficult-to-access areas received such services. The proportion of women who received moderate level of services (at least 3 of the 9 services) was estimated at 44.5 per cent in the areas studied. As expected, the use of services was much higher in the easier (55.5 per cent) than in the difficult-to-access (22.5 per cent) areas. The differences in estimates between the areas are statistically significant at <0.01.

Table 3. Use of antenatal health-care services by women's involvement in economic activities

Types of services received	Economic activity		P-value
	Not involved	Involved	
Weight measurement	39.4	25.4	<0.01
Height measurement	24.8	17.1	<0.05
Blood pressure measurement	46.7	33.7	<0.01
Urine test	21.2	16.1	<0.10
Blood test	19.2	14.5	ns*
Information about possible complications	38.1	20.7	<0.01
Information about sources of help	40.1	26.9	<0.01
Iron tablet/syrup	41.4	30.6	<0.05
Tetanus injections	47.0	32.1	<0.01
<i>Moderate</i>	<i>51.7</i>	<i>32.6</i>	<0.01
<i>Adequate</i>	<i>32.8</i>	<i>21.2</i>	<0.01

* ns = not significant.

The utilization of antenatal care (ANC) services was differentiated by the participation of women in economic activities (table 3). The use of each of the ANC services (except blood test) was significantly lower among women who were involved in economic activities than among those not economically active. This indicates that involvement in such activities might have created extra burden on them and reduced the time they had available for receiving such services. As a result, both the moderate and adequate level of services were significantly higher among women who were not economically active than among those who were involved in economic activities during pregnancy.

In order to gain a better understanding of the relationship between women's economic activity and access to ANC services, table 4 was calculated. It demonstrates that in rural areas, economically active women are

much less likely to access ANC services as compared with non-economically active women. The relationship is the opposite in urban areas, where economically active women are slightly more likely to access ANC services. Thus, the negative relationship between economic activity and use of services found in table 3 is a result solely of the situation in rural areas. It is possible that in rural areas, among women with at least six years of schooling, those who were economically active were more likely to use ANC services. Also among women with little or no education that economic activity is an impediment to the use of ANC services. In the absence of formal employment opportunities in rural areas, it may be postulated that rural women with little education who are working are doing so because they are compelled by low family income. The combination of low income, low education, rural residence and need to work meant that these women were much less likely to use ANC services than were those who were not economically active.

Table 4. Percentage of women economically active, by use of ANC services, educational level and residence

	Moderate		Adequate	
	Economically active	Not economically active	Economically Active	Not economically active
Education				
None	26.0	49.8	15.7	33.0
Grade 1-5	30.0	56.7	17.5	31.7
Grade 6 and beyond	69.2	54.5	53.8	33.3
Residence				
Rural	22.5	40.5	13.9	26.8
Urban	70.5	69.0	47.6	42.9

Education not only strengthened the ability of women to understand the options available to them and modified their attitudes to seek care, but also increased their ability to make good use of health services (World Bank, 1993; Cook and Fathalla, 1996). Although positively associated with the use of antenatal health services, the role of education on the use of services was weak and most of the relationships were not statistically significant (see table 5). The difference in the use of antenatal care by education at both moderate and adequate levels was weakly significant.

Table 5. Use of antenatal health-care services by education of women

Types of services received	Education		P-value
	Illiterate	Literate	
Weight measurement	31.1	37.1	<0.10
Height measurement	21.7	22.0	ns*
Blood pressure measurement	40.2	44.7	ns
Urine test	18.5	20.8	ns
Blood test	17.6	17.0	ns
Information about possible complications	29.8	34.6	ns
Information about sources of help	33.3	38.4	ns
Iron tablet/syrup	36.9	37.7	ns
Tetanus injections	37.2	49.7	<0.01
<i>Moderate</i>	<i>40.8</i>	<i>51.6</i>	<i><0.05</i>
<i>Adequate</i>	<i>26.5</i>	<i>32.1</i>	<i><0.10</i>

* ns = not significant.

Other correlates of the use of antenatal care

The influence of other socio-economic factors on the use of antenatal care is shown in table 6. Age of women appeared to be negatively associated with the use of services. By contrast, years of schooling had a significant positive influence at both moderate and adequate levels of services. While the use of services among the poor was lower than among non-poor, the differences were not statistically significant. The use of services appeared to be negatively associated with the involvement in economic activities. The utilization of antenatal care was much higher among women living in urban than among those living in rural areas. As found earlier, participation in economic activity and difficulty in accessing the health facilities had significant negative consequences on the use of antenatal care services.

Table 6. Socio-economic differentials in the use of antenatal services

Socio-economic factor	Use of services	
	Moderate	Adequate
All	44.2	28.3
Age (year)		
10 – 19	50.0	28.6
20 – 29	50.3	32.9

.../

Table 6. (Continued)

Socio-economic factor	Use of services	
	Moderate	Adequate
30 – 39	45.9	27.6
40 – 49	33.1	23.4
<i>P-value</i>	<0.01	<0.10
Education		
None	40.8	26.5
Grade 1-5	46.0	26.0
Grade 6 and beyond	61.0	42.4
<i>P-value</i>	<0.01	<0.05
Poverty		
Poor	43.3	27.0
Non-poor	46.1	30.9
<i>P-value</i>	<i>ns</i>	<i>ns</i>
Economic activity		
Active	32.6	21.2
Inactive	51.7	32.8
<i>P-value</i>	<0.01	<0.05
Residence		
Rural	32.6	21.1
Urban	70.1	44.2
<i>P-value</i>	<0.01	<0.01
Numbers	495	495

Factors predicting the use of antenatal care: Multivariate analysis

The net effects of the predictors on the use of antenatal care were estimated by using two models for both moderate and adequate levels of use (table 7). In model I, the effects of education of women and their involvement in economic activities were estimated controlling for the effects of age, poverty and residence. In model II, accessibility as a major predictor of use was added to understand the change of the odds ratios of the other predictors. Age of women appears to have negative effects on the use of antenatal care in both models for both levels of services although the effects were not statistically significant. Among other predictor variables, education of women raised the utilization of services after adjusting for the influence of confounding factors. The utilization of services was higher among non-poor respondents than among poor although the differences were not significant. Pregnant women not involved in economic activity were

significantly more likely to use the services than women who took part in such activities. Living in urban areas significantly (except model II of the adequate level) increased the likelihood of receiving services than living in rural areas. The effects of accessibility on health services, as found in the bivariate analysis, were also significant in both moderate and adequate levels as shown in model II of both levels. It should be pointed out that the effects of education and women's involvement in economic activity have remained significant at moderate level, even when the accessibility variable was added to the model.

Table 7. Odds ratios for selected predictors of the use of services

Predictor	Use of services			
	Moderate		Adequate	
	Model I	Model II	Model I	Model II
Age (year)				
10 – 19	1.00	1.00	1.00	1.00
20 – 29	0.90	0.96	1.15	1.29
30 – 39	0.68	0.67	0.83	0.81
40 – 49	0.38	0.36	0.69	0.61
Education				
None	1.00	1.00	1.00	1.00
Grade 1-5	1.36	1.57 ^a	1.06	1.32
Grade 6 and beyond	1.75 ^a	1.53	1.73 ^a	1.40
Poverty				
Poor	1.00	1.00	1.00	1.00
Non-poor	1.23	1.07	1.24	0.97
Economic activity				
Active	1.00	1.00	1.00	1.00
Inactive	1.89 ^c	1.53 ^a	1.59 ^b	1.06
Residence				
Rural	1.00	1.00	1.00	1.00
Urban	4.76 ^c	3.26 ^c	2.71 ^c	1.41
Accessibility				
Difficult		1.00		1.00
Easier		2.51 ^c		7.72 ^c
- 2 Log likelihood	591.2	579.2	550.5	511.4
Pseudo R squared	0.22	0.25	0.11	0.21

^a = p< 0.10;

^b = p< 0.05;

^c = p< 0.01

Discussion

The utilization of antenatal care has remained low and significant accessibility-related inequality has persisted in the Balkh province of Afghanistan. Although it is not certain whether areas with easier access would lead to increased utilization of services in the remote villages (Magadi, Madise and Rodrigues, 2000), there were evidences that suggested that the lack of access not only reduced service utilization but also forced many pregnant women to seek alternative health care, not acceptable by any standard (Whitehead, Dahlgren and Gilson, 2001).

Regardless of the increasing availability of reproductive health services in recent years, poor women in the remote villages of the province continue to suffer from lack of access to services. This study clearly shows that inaccessibility, illiteracy, poverty and involvement of pregnant women in economic activities were major barriers to the use of antenatal care. It should be recognized, however, that the health status of the population could not be improved further without fundamental changes brought about to education, income and quality of life. As short-term measures, it would be appropriate to identify the constraints as well as policy options in connection with the provision of health services in remote communities.

Although poor women living in remote villages face worse reproductive health outcome than others, poverty and remoteness are not insurmountable barriers to the provision of health services if appropriate measures are taken and implemented (Hadi and Gani, 2005). This implies that grassroot development workers stimulate the demand for pregnancy-related care by mobilizing the communities through sustained awareness raising campaign. While the primary target of awareness raising programme should be pregnant women and their family members, other stakeholders and community leaders such as *shura*⁴ members could also be included.

Demand creation should accompany the expansion of services in the outreach communities. BRAC has been running mobile clinic services in some villages with impressive success in other areas of the country. This network can be expanded to remote villages where health coverage has remained low. Given that reaching health facilities to receive antenatal care is often difficult for pregnant women particularly during the very cold season, it is suggested that expanding mobile clinic services would be a viable option to significantly raise the coverage and reduce the accessibility-related inequality in the use of antenatal care services.

Providing incentives to community health workers (CHW) was found to be very effective in raising their productivity in the Afghan context (Hadi and others,

2007). A carefully designed incentive scheme for grassroots community workers in the under-served areas is likely to help promote the antenatal care coverage.

Unlike the experience of other South-East Asian countries, the participation in economic activity significantly reduces the use of antenatal services in Balkh province. Although the use of services among working women was higher than among non-working women, especially better educated women living in urban areas, it is assumed that most of the economically active women were involved in informal sector as unpaid family workers, in addition to carrying out routine household chores. As a result, it may have been difficult for many pregnant women to visit health facilities during specific hours on stipulated days. More flexible timing based on the choice of pregnant women themselves, may have raised the coverage of the ANC services further.

Evidence suggests that the antenatal care could be significantly raised in Afghanistan where the accessibility-related barriers have been reduced (Egmond and others, 2004). The Government has also committed to ensuring health services in 95 per cent of districts in Afghanistan in its pursuit of the Millennium Development Goals (MDGs) while priority has been placed on improving the quality and availability of antenatal care (UNDP, 2005). The study, therefore, concludes that the expanded outreach services, focussing on poor women in inaccessible communities, can significantly improve the utilization of antenatal care in Afghanistan.

Endnotes

1. A woman was considered to be adequately served if she received at least 5 of the 9 types of antenatal health-care services.
2. If the woman received at least 3 of the 9 types of antenatal health services, she was regarded as moderately-well served person.
3. Accessibility was categorized into difficult to access and easier to access. If a pregnant woman could reach the nearest health facility in less than three hours, the woman was considered to have access to antenatal health-care services.
4. *Shura* is a traditional committee set up in each village that has the informal authority to administer the village.

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