

## FINDING FISTULA PATIENTS IN ASIA

Mika Kunieda\*

### ABSTRACT

*In developing countries, the distance to roads and health facilities is said to be a major obstacle in accessing reproductive health care or delivering health care to the household. The access problem is in addition to what are known to be the causes of high maternal mortality and morbidity, which include the problem of obstetric fistula, the low economic and social status of women, poverty, poor nutrition and health, and early pregnancy. However, very little is known about the relationship between the lack of emergency transport and obstetric fistula, a problem that occurs as a result of a lack of access to health services. This study utilizes existing health and transport data, such as the maternal mortality rate, the percentages of stunting and assisted births by health professionals, and the rural population who live within 2 km of a road (the rural access index) in order to identify the countries in Asia in which women may be at a higher risk of obstetric fistula. The analysis finds that access to health services in Afghanistan, Nepal and Timor-Leste among some other countries, may need to be improved further in order to save more mothers' lives and to prevent pregnancy-related injuries. However, because of the limitation of the available data, further investigation into the effect of the physical and mobility problem in accessing health care would be required to reach any definite conclusion.*

### I. OBSTRUCTED LABOUR: BACKGROUND

According to UNFPA, every minute a woman dies somewhere in pregnancy or childbirth. Up to 15 per cent of pregnant women in all population groups experience potentially fatal complications. This adds up to 1,400 women dying each day, or an estimated 529,000 each year, from pregnancy-related causes. For each woman who dies, about 20 women survive but suffer

---

\* Transport and Social Responsibility Consultant, World Bank, Transport and Social Responsibility Thematic Group, 1818 H Street NW Washington DC, 20433, USA; e-mail: mkunieda@worldbank.org, kunieda@iea.att.ne.jp.

from serious disease, disability or physical damage caused by complications from pregnancy or childbirth.

Obstructed labour is a major cause of the deaths (maternal mortality) and disabilities (maternal morbidity) mentioned above. Labour is obstructed when the passage of the fetus is blocked. If obstructed labour is not diagnosed in time or when it is not properly managed, it can lead to the death or disability of the mother or fetus. One of the major disabilities that can occur as a result of obstructed labour is obstetric fistula.

Studies have indicated that 1 to 2 out of every 100 births in Nigeria and three out of every 100 in India are obstructed. However, many of these women, and particularly rural women, in developing countries are without access to emergency obstetric care. The World Health Organization estimates that approximately 2 million women have untreated fistula and that approximately 100,000 women develop fistula each year, most of them living in sub-Saharan Africa and Asia.

Obstetric fistula is prevalent in developing countries due to a lack of adequate health-care delivery services and facilities, including proper diagnosis, as well as poor nutrition, poverty, and other socio-economic and cultural factors, which prevent antenatal care and delivery, or access to such services. Many developed countries have eliminated the problem of obstetric fistula as a result of proper and timely diagnosis and Caesarean section operations when labour is obstructed. However, the relationship between obstructed labour and obstetric fistula in developing countries is unknown as data are available only from tertiary hospitals, which only a fortunate few can reach. Virtually nothing is known about fistula patients in rural areas because they are frequently either unaware that this condition can be repaired or unable to access health-care facilities due to a lack of transport or other factors.

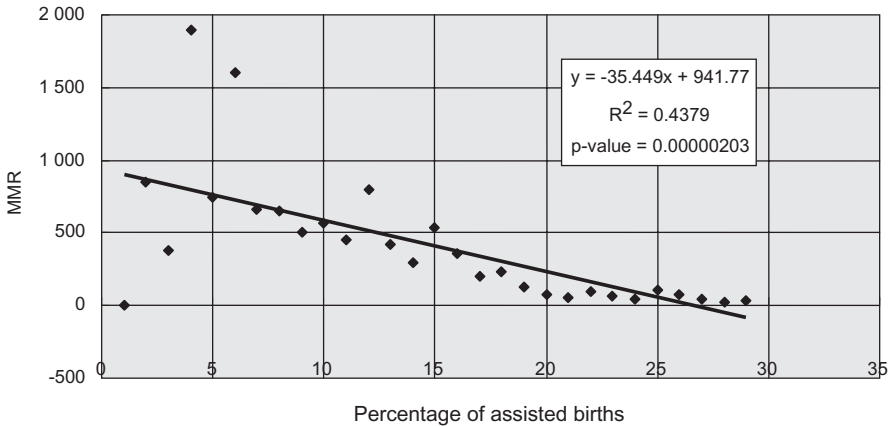
Only 58 per cent of women in developing countries deliver with the assistance of a professional (a midwife or doctor), and only 40 per cent give birth in a hospital or health centre. Ideally, and according to the reproductive health benchmark set by the General Assembly in its resolution 5-21/2 of 2 July 1999<sup>1</sup>, at least 40 per cent of births should be assisted by skilled birth attendants where maternal mortality is very high and 80 per cent globally by 2005. The corresponding targets for the years 2010 and 2015 are 50 and 85 per cent, and 60 and 90 per cent, respectively.

---

<sup>1</sup> Adopted at the Special session of the General Assembly for the overall review and appraisal of the implementation of the Programme of Action of the International Conference on Population and Development, held from 30 June to 2 July 1999.

A cross country regression analysis of 28 countries for which data were available (figure 1) shows that maternal mortality can be reduced by raising the percentage of births assisted by skilled birth attendants. The scatter plot in the figure clearly shows that a higher percentage of assisted births corresponds to a lower MMR.

**Figure 1. Maternal mortality rate versus assisted births (percentage)**



Source: MMR and assisted births statistics for 28 countries from the *UNDP Human Development Report 2005* (New York), available at <<http://hdr.undp.org/reports/global/2005>>; and UNICEF child information online, available at <<http://www.unicef.org/sowc05/english/statistics.html>>.

**Obstetric Fistula: a review of the situation**

There is very little literature on the prevalence of obstetric fistula in developing countries. UNFPA is currently the lead agency in the campaign to end obstetric fistula in developing countries. This campaign has funded the assessment of the situation in some, mostly African, countries. For example, in Kenya, it was estimated that there were 3,000 new cases of fistula per year, with approximately one to two fistulas developing per 1,000 deliveries, meaning that there was a backlog of 300,000 untreated cases. Only 7.5 per cent of women with fistula were able to access treatment. The number of fistula operations performed annually between 1992 and 2001 increased steadily from a low of 36 cases to a high of 479 cases. In the four districts surveyed, there were 113 reported fistula cases, of which 94 were repaired. Most of these repair surgeries were performed at hospitals in West Pokot, Kenya. In Malawi, there were 200 cases in 2003. In Mali, there were 568 cases over 3 years. In the

Niger, approximately 200 fistula cases have been recorded each year since 2003. In Nigeria, 1,100 fistula patients were cured in one year. The Addis Ababa Fistula Hospital also cures 1,200 fistula patients each year. See table 1 for more details.

**Table 1. List of countries where results from a fistula assessment sponsored by UNFPA are available**

Country	Number of cases and year(s)	Average cured per year
Bangladesh	241 cases in 2002	241
Benin	237 cases, 2000-2003	60
Burkina Faso	420 cases, 1997-2002	70
Chad	162 cases, 2002-2003	81
Eritrea	37 cases in 2002	37
Kenya	36 cases in 1992	476
	479 cases in 2001	
Malawi	200 cases in 2003	200
Mali	568 cases in three years	189
Niger	200 cases recorded each year since 2003	200
Nigeria	1 100 cases in one year	1 100
Uganda	283 cases in one year	283
Zambia	244 cases in one year	244

Source: UNFPA Campaign to End Fistula webpage, available at <<http://www.endfistula.org>>.

As can be seen in table 1, Bangladesh is the only country in Asia where a situational analysis was completed. The analysis found that, in 2002, six medical college hospitals saw a total of 241 fistula patients. Among them, 192 women were admitted and 123 were treated. Most of the repair surgeries were performed at the Dhaka and Chittagong medical college hospitals. It was also estimated that, for every 1,000 married women, there were 1.69 fistula cases in Bangladesh.

As mentioned previously, the lack of data on the prevalence of obstetric fistula prevents a rigorous analysis of the relation between obstetric fistula and its causal factors, including the lack of access to health services. However, experience from Africa shows that, for each maternal death due to obstetric fistula, there are 20 girls and women with the condition who were fortunate enough to survive to tell their story, but who were not fortunate enough to

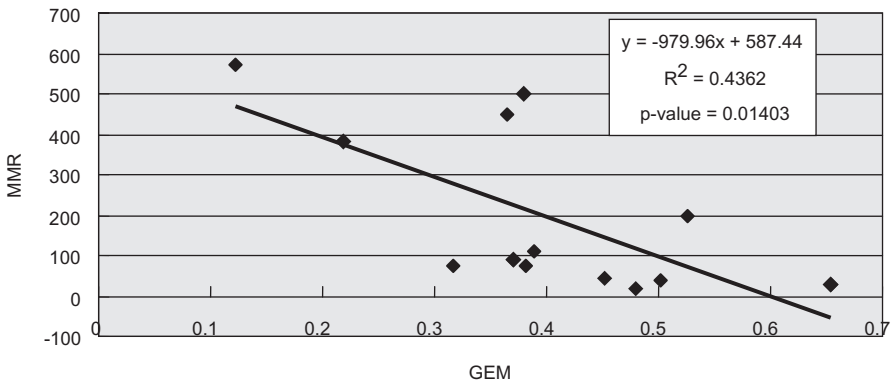
access health care and surgery in time. In the absence of data on fistula prevalence, this paper utilized MMR as a proxy indicator of the problem.

## II. FACTORS LEADING TO OBSTETRIC FISTULA

### *Low economic and social status of women*

The low economic and social status of women is both a cause and a result of poverty. As the social status of women is generally lower than that of men, women are more likely to be malnourished, illiterate and unable to make decisions on reproductive health or on accessing health care. In this study, the GEM index of human development, as defined and measured by UNDP was used in order to get a better picture of women’s lives in developing countries. GEM is a composite index measuring gender inequality on three basic dimensions of empowerment: economic participation and decision-making, political participation and decision-making, and power over economic resources.<sup>2</sup> To understand the effect of women’s empowerment on maternal mortality, a regression analysis was performed between GEM and MMR, taking GEM as the explanatory variable and MMR as the response variable.

**Figure 2. Maternal mortality rate versus gender empowerment measure**



Source: Statistics from the *UNDP Human Development Report 2005* (New York), available at <<http://hdr.undp.org/reports/global/2005>><sup>3</sup>.

<sup>2</sup> More details on GEM can be found at <<http://hdr.undp.org/reports/global/2005>>.

<sup>3</sup> The 13 countries included in the analysis were Bangladesh, Cambodia, Fiji, the Islamic Republic of Iran, Malaysia, Mongolia, Pakistan, the Philippines, the Republic of Korea, Singapore, Sri Lanka, Thailand, and Yemen.

Figure 2 shows the results of the regression analysis. Generally, as the degree of empowerment of women increases, MMR decreases.

What may GEM indicate in terms of mobility? Although data on GEM for many African countries where fistula was known to be prevalent were not available, restricted or low empowerment meant that the women had little say in many of the decisions in their lives, including those on mobility. It is interesting to note that, in predominately Muslim countries such as Bangladesh, the Islamic Republic of Iran and Pakistan, where the mobility of women is known to be restricted, GEM is also quite low. The degree to which the women were allowed to make decisions that affected their access to basic and emergency health care and obstetric care, however, is yet to be fully ascertained.

### ***Poor nutrition and health***

The medical literature reports (see, for example, Konje and Ladipo, 2000) that obstructed labour is directly related to the height of the mother, which is influenced by nutritional status in childhood and adolescence. Women who never grew to their full potential (according to their genetic background) and are on average under 152 cm will most likely have a small frame and a narrow pelvis. This means that an average-sized fetal head will not be able to pass through the mother's small pelvis or narrow birth canal. This disproportion between the fetal head and the maternal pelvis is a major indication for the risk of obstructed labour and the possible need for a Caesarean delivery. The height-for-age indicator, or stunting,<sup>4</sup> can therefore be considered an indicator of the risk of obstructed labour. Low food intake and malnutrition, which are a result of poverty, the low status of women and their lack of education, lead to stunting.

In Ethiopia and Nigeria, the two countries that are known to have a relatively high fistula prevalence rate, the proportion of stunted children under 5 years of age are 52 per cent and 38 per cent, respectively. According to some estimates, three quarters of the world's underweight and stunted children live in Asia. According to UNICEF, the top 10 countries in Asia where children have a high biological risk due to the proportion of their stunted children are the Democratic People's Republic of Korea (42 per cent), Timor-Leste (28 per cent), Afghanistan (25 per cent), India (23 per cent), Nepal (21 per cent), the Lao People's Democratic Republic (21 per cent), Cambodia (21 per cent), Pakistan

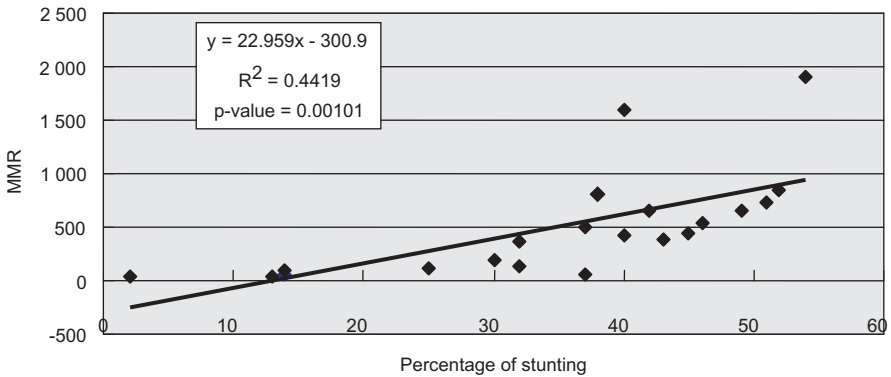
---

<sup>4</sup> The UNICEF definition for moderate and severe stunting is "below minus two standard deviations from median weight for height of reference population" (see [www.unicef.org/infobycountry/stats\\_popup2.html](http://www.unicef.org/infobycountry/stats_popup2.html)).

(18 per cent), Bangladesh (17 per cent) and Bhutan (15 per cent). In of these countries there is a high prevalence of severely to moderately stunted children or a high to medium biological risk. A significant proportion of children in Afghanistan, Nepal, Timor-Leste and India are severely to moderately stunted.<sup>5</sup>

A regression analysis was performed with stunting as the explanatory variable and MMR as the response variable. The results are shown in figure 3. It can be seen that there is a positive relation between stunting and maternal mortality: a higher percentage of stunting corresponds to a higher MMR.

**Figure 3. Maternal mortality rate and stunting**



**Source:** MMR and the percentage of stunted children statistics for 21 countries are from the *UNDP Human Development Report 2005* (New York), available at <<http://hdr.undp.org/reports/global/2005>>. Statistics for stunting were unavailable for 7 of the 28 countries or regions plotted in figure 1.

**Note:** The 21 countries/regions for which statistics were available are Afghanistan, Bangladesh, Bhutan, Cambodia, China, Ethiopia, India, the Democratic People’s Republic of Korea, the Lao People’s Democratic Republic, Mongolia, Myanmar, Nepal, the Niger, Nigeria, northern Pakistan, the Philippines, Singapore, Sri Lanka, Timor-Leste, Thailand and Viet Nam.

**Early marriage, pregnancy and delivery**

Girls who marry early and who are shorter than the average girls of their genetic background and do not get enough calorie intake tend to be at

<sup>5</sup> In different countries, different averages are used as an indicator for a higher risk of obstructed labour. For example, girls under 155 cm in Burkina Faso, 156 cm in Denmark, 150 cm in Kenya, 146 cm in Tanzania and 140 cm in India are considered to be at a higher biological risk when giving birth.

a greater risk of obstructed labour and obstetric fistula. However, early marriage in itself is not a direct cause of obstetric fistula, and this paper does not intend to provoke a debate on this local tradition or extensive discussion on early marriages.

The mean age of women at first delivery may be considered a social risk indicator. This should be a simple figure that takes into account societal norms and that expresses the risk of fistula for a young woman. Unfortunately, no published data on the mean age of girls at first delivery is available.

The health risk indicator was examined next. Delivery at home could be seen as a health risk indicator as those who attend the birth, such as the mother-in-law, sisters-in-law or neighbours, are unlikely to identify problems that would lead to obstructed labour. The community surrounding the woman may also not be able to identify the critical time to help the woman or transfer her to a medically trained professional. However, data on home deliveries were also non-existent. Therefore, a proxy indicator, the percentage of births attended by skilled health personnel, such as a doctor, nurse or midwife, was utilized in this paper.

The 10 countries that have the lowest percentage of births attended by skilled health personnel are Ethiopia (6 per cent), Bangladesh (13 per cent), Afghanistan (14 per cent), Nepal (15 per cent), the Niger (16 per cent), Chad (16 per cent), Timor-Leste (18 per cent), the Lao People's Democratic Republic (19 per cent), Pakistan (23 per cent) and Haiti (24 per cent).

The data in table 2 and in figure 1 clearly show that a high MMR or a high risk of death from maternal causes is a function of a low percentage of attended births.

### ***Access and transportation to health facilities***

Another major causal factor of obstetric fistula is the low utilization of health services, including having a birth attendant at delivery, due to rural women's time and mobility constraints, and particularly due to the lack of emergency transportation to health centres or hospitals.

In a study in the southern region of Ethiopia, Kunieda and Mulu (2006) found that most health facilities were located along the road network. It may be assumed that health facilities in Asia are also situated along a reasonably accessible road. This means that the RAI developed by the World Bank can be used to analyse the effect of physical access to health facilities. Since 2006,

**Table 2. Top 10 countries that have a low percentage of attended births and adjusted maternal mortality rate 2000**

Serial No.	Country	Percentage of attended births	Adjusted maternal mortality rate 2000
1.	Ethiopia	6	850
2.	Bangladesh*	13	380
3.	Afghanistan*	14	1 900
4.	Nepal*	15	740
5.	Niger	16	1 600
6.	Chad	16	1 100
7.	Timor-Leste*	18	660
8.	Lao People's Democratic Republic*	19	650
9.	Pakistan*	23	500
10.	Haiti	24	680

Source: *UNDP Human Development Report 2005* (New York), available at <<http://hdr.undp.org/reports/global/2005>>.

\* Asian country

RAI has been available as one of the world development indicators published by the World Bank.<sup>6</sup>

RAI shows the proportion of the total rural population who live within 2 km or a 20-minute walk from an all-weather road. The reverse of this indicator points to the proportion of the total rural population who live beyond 2 km of an all-weather road. For example, in Nepal, 85 per cent of the rural population live more than 2 km from an all-weather road or a road that is passable during most times of the year. The corresponding figures for Bangladesh and Mongolia are 63 per cent and 64 per cent, respectively. RAIs for Asian countries are listed in annex 1, which includes a short description of the problems women face in accessing reproductive health-care services due to the lack of transportation facilities in some of the Asian countries included in this paper.

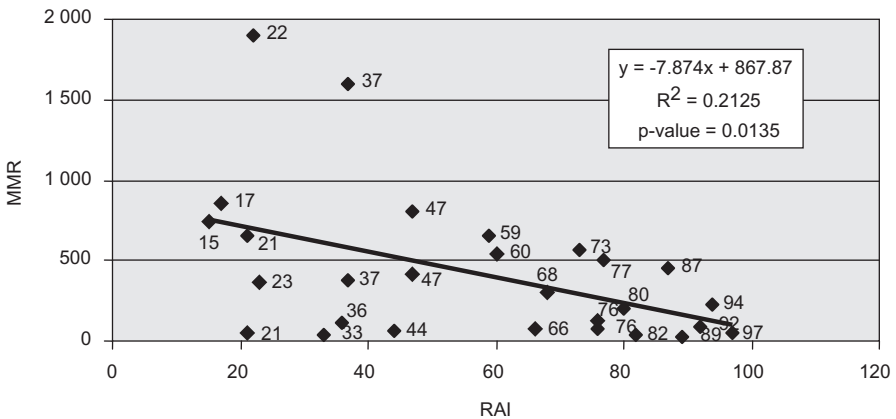
Observations in Africa, notably in an assessment report of fistula in the United Republic of Tanzania (Women's Dignity Project, UNFPA and the Government of the United Republic of Tanzania Ministry of Health 2002) and from the Addis Ababa Fistula Hospital, point to the fact that the further

<sup>6</sup> For more information, see Roberts and others, 2006.

a woman lives from a health centre, the more likely she is to be stunted, continue hard labour throughout her pregnancy, unable to access prenatal care, give birth at home, and, ultimately, be at a higher risk for obstructed labour.

Figure 4 shows the result of a regression analysis, depicting the relationship between MMR and RAI for 28 countries. The p-value was 0.0135, and the correlation was significant at a 1 per cent level. The regression results show that RAI could explain 21 per cent of MMR among the sample countries. However, apparently there were few outliers in the data set. If these outliers were excluded from the analysis, RAI could explain a much higher proportion of MMR.

**Figure 4. Maternal mortality rate and the rural access index**



Source: UNDP Human Development Report 2005 (New York), available at <<http://hdr.undp.org/reports/global/2005>>.

It is also important to note some of the limitations of RAI. A high value of RAI does not necessarily indicate a greater level of accessibility. The linear distance from the road and the topography of the area in which the expectant mother lives are both important factors affecting accessibility. RAI considers only distance and not topography and therefore has limitations in assessing true accessibility.

**Quality of care**

There are said to be three types of delays that lead to maternal mortality and morbidity. The first is the delay in accessing care or making the

decision to seek care. The second is the delay in arranging transport or access to the nearest health centre due to a lack of a vehicle or money. The third is the delay in referral or obtaining care once at the health facility. This paper would not be complete without discussing the quality of care or the “last delay” in being referred properly or in obtaining care.

The quality of care with regard to obstetric fistula varies from one country to another. This is due to the fact that, in most countries, fistula repair surgery is a highly specialized field that is usually not taught as part of medical training. The Addis Ababa Fistula Hospital is the world’s leading teaching hospital specializing in fistula surgery. Obstetrics and gynaecology doctors from Ethiopia and other developing countries spend two months at the Fistula Hospital to receive specialized on-the-job training in fistula repair surgery. Sometimes, the Fistula Hospital must perform surgery on patients whose previous operations had been botched or through which their condition had worsened. According to the medical director of the Fistula Hospital, these surgeries are the most complicated ones. This points to the need to train more doctors who can undertake this specialized surgery. However, constraints have led to a waiting list of one to two years for doctors who would like to be trained in fistula repair surgery.

In Asia, Bangladesh is currently in the process of constructing a national fistula centre. Doctors from Karachi, Pakistan, and New Delhi, India, have also been trained at the Addis Ababa Fistula Hospital. Timely referral and timely transport from the rural area health clinics, centres and hospitals to doctors who have been trained in fistula surgery in each country will help to cure fistula patients. This will also prevent not only further nerve injuries resulting from immobility but also suicide due to the shame of leaking and isolation.

## **CONCLUSION**

This paper finds that, although access to transport is only one part of a complex problem, it is a crucial factor in reducing maternal, as well as child and foetus, deaths and disabilities. UNFPA reports a dearth of explanatory data related to maternal mortality. The author’s hypothesis when beginning this paper was that transport data could fill in this gap of health knowledge. A listing and cross-country analysis of RAI and other key maternal indicators found that, although a correlation between transport and available health statistics could be proved, the statistical significance was not very high. This could possibly be due to the substitution of proxy indicators, such as MMR for

the fistula prevalence rate, and the use of a RAI as an indicator for health facility access. If a gender-disaggregated RAI were available, it might produce different results as women are known to have different travel needs and problems that RAI has clearly not captured.

A further compilation and a greater availability of data on transport and access, disaggregated by gender and geographical area, would help not only to improve the findings of the analysis presented in this paper but also to identify the areas where obstetric fistula may be a problem in Asia. In the meantime, however, the probability of obstetric emergencies, including obstetric fistula, could be preliminarily investigated by using the easy-to-obtain traditional indicators of maternal mortality, the rate of assisted births and RAI.

## Annex 1

### Compilation of data used in this paper

	MMR (UNFPA)	Stunted children (UNICEF)	Assisted births (UNICEF)	RAI (WDI)	GEM (UNDP)
Afghanistan	1 900	54	14	22	
Bangladesh	380	43	13	37	0.218
Bhutan	420	40	37	47	
Cambodia	450	45	32	87	0.364
China	56	14	96	97	
Ethiopia	850	52	6	17	
Fiji	75		99	76	0.381
India	540	46	43	60	
Indonesia	230		72	94	
Iran (Islamic Republic of)	76		90	66	0.316
Democratic People's Republic of Korea	67	37	97	44	
Republic of Korea	20		100	89	0.479
Lao People's Democratic Republic	650	42	19	59	
Malaysia	41		97	82	0.502
Mongolia	110	25	97	36	0.388
Myanmar	360	32	57	23	
Nepal	740	51	15	15	
Niger	1 600	40	16	37	
Nigeria	800	38	35	47	
Pakistan	500	37	23	77	0.379
Papua New Guinea	300		41	68	
Philippines	200	30	60	80	0.526
Singapore	30	2	100	21	0.654
Sri Lanka	92	14	96	92	0.370
Thailand	44	13	99	33	0.452
Timor-Leste	660	49	18	21	
Viet Nam	130	32	85	76	
Yemen	570		27	73	0.123

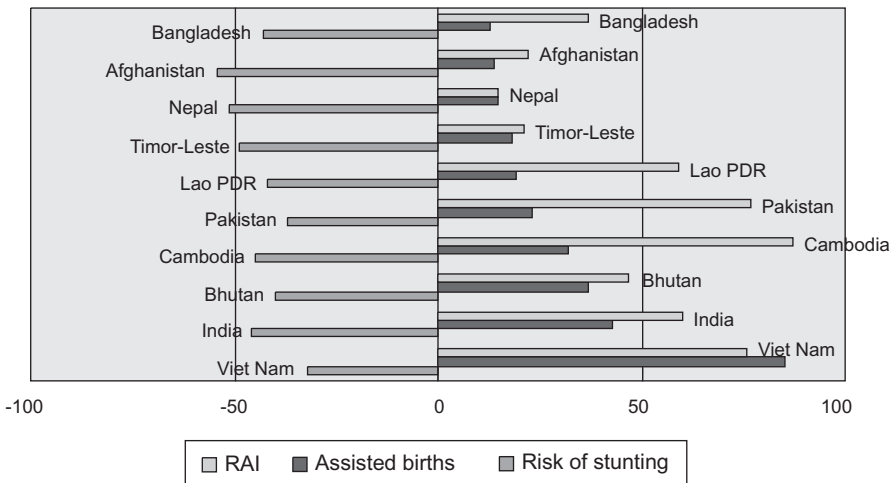
Sources: MMR: *UNDP Human Development Report 2005* (New York), available at <<http://hdr.undp.org/reports/global/2005>>. RAI: Roberts, P., K.C. Shyam and C. Rastogi, *Rural Access Index: a Key Development Indicator*, Transport Papers No.10, Transport Sector Board, Washington DC, World Bank, *World Development Indicators 2007* (not yet published). GEM: *UNDP Human Development Report 2005* (New York), available at <<http://hdr.undp.org/reports/global/2005>>. Stunting: UNICEF child info online database – UNICEF global database on child malnutrition, available at <<http://www.unicef.org/sowc05/english/statistics.html>>. Assisted deliveries: UNICEF child info online database – global database on skilled delivery care, available at <<http://www.unicef.org/sowc05/english/statistics.html>>.

## Annex 2

### Profiles of countries with a possibly high fistula prevalence

This paper finds that women in Afghanistan, Bangladesh, Bhutan, Cambodia, India, the Lao People’s Democratic Republic, Nepal, Pakistan, Timor-Leste and Viet Nam are at a higher risk of obstetric fistula due to economic, social and cultural factors, including RAI. In figure 5 their level of risk is compared to their RAI and proportion of assisted births.

**Figure 5. Country comparison of fistula causal indicators**



Source: Drawn using data sources previously cited (for other figures).

In Timor-Leste, the *Demographic and Health Survey* found that 25 per cent of families, mainly from remote mountain areas, have to travel two hours or more to reach nurses or paramedics in government health-care facilities. A study on travel by the World Bank (2005c) found that village centres are on average 0.7 km from a vehicle-passable road and 4.8 km from a paved road, whereas urban centres are on average 0.3 km from a vehicle-passable road and 0.3 km from a paved road. The road network is quite extensive compared with that of many developing countries, and access to roads and to health facilities would not be difficult if more transport, including intermediate means of transport, were available to carry mothers experiencing difficulties in labour. According to the World Bank study, there were only 19,600 vehicles in

Timor-Leste, including 6,500 motorcycles. A significant number of such vehicles were owned by international organizations.

In Afghanistan, recent surveys (World Bank, 2005a) have revealed that almost half of all deaths among women of reproductive age are a result of pregnancy and childbirth. A range of factors contributes to this situation, such as a lack of access to basic health facilities. Only 40 per cent of the population live in areas covered by basic health facilities, and only 9 per cent of rural households reported having a health facility in their village. Other factors are a lack of female staff at the existing facilities, particularly in rural areas, and marked rural-urban disparities in the quality of health facilities. A lack of infrastructure (roads and transport) and security also reduces mobility and accessibility. Half of the respondents in a Tufts University survey (Mazurana, Stites and Nojumi, 2004) in Badghis, Herat, Kabul, Kandahar and Nangarhar provinces in Afghanistan reported that they were unable to access some form of health care or had to travel on average three hours to reach the health facility.

Since women would normally consult their male family members about seeking medical care and require the assistance of men to travel to a health clinic, the lack of male knowledge and understanding of reproductive health care among men was found to be an obstacle equally as important as the women's own lack of awareness.

In Nepal, ethnicity or caste is an important factor that may help explain why women access emergency obstetric care differently. Neupane (2004) found that, in mountainous areas of the country, high-caste men were unwilling to transport the lowest caste (Dalit) women who were in labour and needed emergency obstetric care. Also, Dalit women could not join emergency transport funds, which could make transportation more affordable to them.

In the Lao People's Democratic Republic, a gender profile (World Bank, 2005b) confirms that women are often forced to walk long distances to seek medical help and supplies because of the dearth of health centres and the lack of roads and transport. Many women do not utilize health services due to the difficulty of reaching a health facility.

In Cambodia, cultural beliefs, the low quality of health care, the poor state of rural roads, a lack of transport and poor access to a clean water supply contribute to a high MMR. The *Demographic and Health Survey 2000* (Cambodia National Institute of Statistics, 2000) found that more than 95 per cent of women had one or more problems in accessing health care. Of the women surveyed, 88 per cent reported that they were unable to pay for health

care or other indirect costs, such as transportation expenses. The survey revealed that, of the people who had recently lost their land, 46 per cent of the cases were related to direct and indirect health expenditures. Of the women surveyed, 40 per cent identified the distance to health facilities and transportation as a constraint (World Bank, 2004).

In Pakistan, a World Bank study (Vishwanath, 2006) found that the utilization of maternal services was low, with only half of expectant mothers receiving antenatal care and tetanus toxoid shots and nearly three quarters giving birth at home. This was due to the inaccessibility of public primary health facilities. Of the people living in rural communities, 42 per cent did not have a primary health facility within 5 km of their homes, and 35 per cent did not have either a public health facility nearby or a female health worker. However, the lack of transport was not the only reason why women did not utilize health services; seclusion practices and the weak enforcement of existing laws resulted in an increased reliance on informal social protection institutions and arrangements.

In Viet Nam, access to hospitals is a major problem. One study found that the poorest women had the least access to safe motherhood services, with some having to travel 20 km from their residence to reach the nearest district hospital. Even on average, women had to travel almost 10 km from their residence to the nearest district hospital (Knowles, date unknown).

## REFERENCES

- Knowles, James (date unknown). "Benefit incidence of safe motherhood services in Viet Nam", presentation for World Bank Institute course "Adapting to Change", available at <<http://info.worldbank.org/etools/docs/library/48458/m1s7knowles2.pdf>>.
- Konje, Justin and Oladapo Ladipo (2000). "Nutrition and obstructed labour" *American Journal of Clinical Nutrition*, vol. 72, No. 1, 291S-297S.
- Kunieda, Mika and Muleta Mulu (2006). "Obstructed transport and obstetric fistula", paper presented at the First International African Conference on Gender, Transport and Development, Port Elizabeth, South Africa, 27-30 August.
- Mazurana, D., E. Stites and N. Nojumi (2004). *Human Security and Livelihoods of Rural Afghans, 2002-2003*, Feinstein International Famine Center, Tufts University, with the United States Agency for International Development, pp. 74-78.

- National Institute of Statistics of Cambodia (2000). *Demographic and Health Survey 2000*, Ministry of Planning, available at <<http://www.nis.gov.kh/SURVEYS/CDHS2000/CDHS2000.htm>>.
- Neupane, S. (2004). *Evaluation of Community Based Safer Motherhood Emergency Funds*, Nepal.
- Roberts, P., K.C. Shyam and C. Rastogi (2006). "Rural Access Index: a Key Development Indicator", Transport Papers No. 10 (Washington DC, World Bank).
- Vishwanath, Tara (2006). "Bridging the gender gap: opportunities and challenges: Pakistan country gender assessment", available at <<http://siteresources.worldbank.org/PAKISTANEXTN/Resources/293051-1146639350561/CGAPAK.pdf>>.
- Women's Dignity Project, UNFPA, Government of the United Republic of Tanzania Ministry of Health (2002). *Tanzania Fistula Survey 2001* (Dar Es Salaam, Tanzania).
- World Bank (2004). "Gender issues in health", in *A Fair Share for Women*, Cambodia Gender Assessment, available at <<http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/EASTASIAPACIFICEXT/CAMBODIAEXTN/0,,contentMDK:20264079~pagePK:141137~piPK:217854~theSitePK:293856,00.html>>.
- World Bank (2005a). Executive summary of National Reconstruction and Poverty Reduction: the Role of Women in Afghanistan's Future (Washington DC, World Bank), available at <<http://siteresources.worldbank.org/AFGHANISTANEXTN/Resources/AfghanistanGenderReport.pdf>>.
- World Bank (2005c). "Timor-Leste Transport Sector: Outline of Priorities and Proposed Sector Investment Program", EASTR Working Paper No. 5, Transport Sector Unit, Infrastructure Department, East Asia and Pacific Region, available at <<http://siteresources.worldbank.org/INTTIMORLESTE/Resources/Timor-Leste-Transport-Sector-Review.pdf>>.
- World Bank and Gender Resource Information and Development Center (2005b). Summary of Lao PDR Gender Profile, available at <<http://siteresources.worldbank.org/INTLAOPRD/Resources/Ex-Summary-Lao-Gender-Report-2005.pdf>>.