

Informal sector providers in Bangladesh: how equipped are they to provide rational health care?

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In Bangladesh, there is a lack of knowledge about the large body of informal sector practitioners, who are the major providers of health care to the poor, especially in rural areas, knowledge which is essential for designing a need-based, pro-poor health system. This paper addresses this gap by presenting descriptive data on their professional background including knowledge and practices on common illnesses and conditions from a nationwide, population-based health-care provider survey undertaken in 2007. The traditional healers (43%), traditional birth attendants (TBAs, 22%), and unqualified allopathic providers (village doctors and drug sellers, 16%) emerged as major providers in the health care scenario of Bangladesh. Community health workers (CHWs) comprised about 7% of the providers. The TBAs/traditional healers had <5 years of schooling on average compared with 10 years for the others. The TBAs/traditional healers were professionally more experienced (average 18 years) than the unqualified allopaths (average 12 years) and CHWs (average 8 years). Their main routes of entry into the profession were apprenticeship and inheritance (traditional healers, TBAs, drug sellers), and short training (village doctors) of few weeks to a few months from semi-formal, unregulated private institutions. Their professional knowledge base was not at a level necessary for providing basic curative services with minimum acceptable quality of care. The CHWs trained by the NGOs (46%) were relatively better in the rational use of drugs (e.g. use of antibiotics) than the unqualified allopathic providers. It is essential that the public sector, instead of ignoring, recognize the importance of the informal providers for the health care of the poor. Consequently, their capacity should be developed through training, supportive supervision and regulatory measures so as to accommodate them in the mainstream health system until constraints on the supply of qualified and motivated health care providers into the system can be alleviated.

Keywords Informal health care providers, traditional healers, village doctors, drug sellers, community health workers, Bangladesh

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KEY MESSAGES

- Informal sector practitioners are the main providers of health care to the poor in Bangladesh, especially in rural areas, but the majority lack requisite training and capacity to provide basic curative services rationally.
- Irrational use of drugs, including antibiotics, is common by these informal sector providers.
- Given their importance in the health the public sector should recognize and develop the capacity of selected informal health care providers (e.g. village doctors, salespeople at drug retail outlets) so as to accommodate them in the mainstream health system with appropriate regulatory measures.

Introduction

Bangladesh is one of the few countries to have a 'severe shortage' of human resources for health (HRH) (WHO 2006). It has a workforce far below the threshold value of 22.8 per 10 000 population estimated by the World Health Organization as necessary for meeting the health-related Millennium Development Goals (MDGs). However, the degree of unemployment and under-employment of trained HRH, e.g. nurses (Bangladesh Health Watch 2007), in the country indicates that economic conditions are a barrier to the absorption of all available HRH. The problem of insufficient numbers of HRH is further complicated by imbalances in the health workforce distribution in terms of geographical location and skills mix, as in other countries of south Asia (Chot 2006).

Given the shortage of qualified health workforce in Bangladesh and the inequity of their distribution, people prefer to seek health care from non-qualified providers in the informal sector, especially the poor and the disadvantaged (Ahmed 2005). On the demand side, various barriers also impede the use of qualified providers such as lack of access to information on available services, lack of health awareness (unfelt need), lack of opportunity due to exclusion from social and health institutions, cultural factors prohibiting females from seeking care outside home from male providers, and inability to pay (Ensor and Cooper 2004). A recent study found that between 1999 and 2003, the proportion of visits to informal health care providers (not trained in formal institutions) rose from 52 to 60% of outpatient visits to health services for treatment in the preceding month (Cockcroft *et al.* 2007). These informal providers are deeply embedded in the local community and culture, easily accessible and provide inexpensive services to villagers with acceptance of deferred payment and payment in kind instead of cash (Ashraf *et al.* 1982). Because of the fatalistic attitude of the villagers, these unqualified providers are rarely blamed or held accountable for their poor practice.

While there have been some small-scale studies on health-seeking behaviour in Bangladesh and the type of informal health-care providers utilized (Killewo *et al.* 2006; Larson *et al.* 2006; Moran *et al.* 2007), nationally representative data on them is absent. Also, there is a gap in knowledge regarding their qualifications and training, services provided, and their quality, motivation and incentives. Thorough knowledge on these issues, including their roles in national health systems, is essential in order to develop policies and design strategies to match the felt needs of the population (Mercer *et al.* 2005; Alam 2007). This paper presents data from a recently conducted

nationwide health-care provider survey in Bangladesh (Ahmed and Hossain 2007) to fill in the above knowledge gaps and address relevant strategic objectives as laid down in the Regional Strategic Plan for SE Asia (WHO/SEARO 2007).

Methods**Study population and sampling**

The study population in this survey comprised all types of health care providers who were currently active in providing health care services to the community in the study areas. The survey used 60 primary sampling units (PSUs), drawn randomly from the 1000 PSUs used by the Bangladesh Bureau of Statistics (BBS) for the Sample Vital Registration System (BBS 2004). Since a PSU (a cluster of 200 households) may not be large enough to have sufficient primary health care providers in terms of number as well as diversity, we used the Union and the Ward containing the selected PSU as the sampling unit for the rural and the urban areas, respectively. These are the lowest level of functional administrative units and have comparable population size (around 25 000). The number of PSUs was conveniently determined given constraints in time and resources, and also getting a sizable number of health care providers (around 3000) for subsequent quantitative survey. The sample PSUs were proportionally allocated based on the probability proportional to size (PPS) sampling technique for the six divisions and types of residence (rural/urban). Thus, the sampling provided representative estimates of density of health care providers for the country as a whole, for the urban and the rural areas separately, and for each of the six administrative divisions.

Data collection

Data collection was done in two stages. First, all the villages, markets and health facilities/centres under each PSU (Union/Ward) were visited by the field enumerators (social science graduates) recruited and trained by the research team. A simple free-listing technique was used for making an inventory of the practicing health care providers in each of the geographical areas visited. Cross-checking with community people was done for proper identification and to avoid duplication, especially in the case of informal sector providers. This exercise yielded a list of different health care providers by Union/Ward. During this process, efforts were made to build rapport with the health care providers when field workers explained the purpose of the

inventory and sought their cooperation for the ensuing quantitative survey.

In the second stage, we selected 50 health care providers per PSU from the inventory list through systematic random sampling. The number of health care providers for different categories was determined according to their proportion in the inventory list. A pre-tested, semi-structured questionnaire was administered in a face-to-face interview with these health care providers by the field enumerators. Information was elicited on their education, training, professional experiences and management of some common illnesses, as well as socio-demographic data.

The study passed the ethical review board of the James P. Grant School of Public Health, BRAC University for ethical approval. Informed consent was taken before interviewing. All enumerators hired for the survey underwent a 5-day training which consisted of didactic lectures followed by practice sessions outside the study areas. The day-to-day field activities of the teams were overseen by a field researcher based in the upazila field office. The whole survey activity was supervised and managed by the authors, who made frequent field visits and provided assistance and guidance when needed. SPSS PC+ ver.12 was used for data analysis.

Categories of informal health care providers

The informal (not-registered with any government regulatory body) health care providers were categorized into the following groups:

- Community health workers (CHWs), who work in both the public and the non-governmental organization (NGO) sectors. The CHWs in the NGO sector outnumber those in the public sector by a ratio of 2:1 (Bangladesh Health Watch 2007). The grassroots workers under the Ministry of Health and Family Welfare—such as Health Assistant (HA), Family Welfare Assistant (FWA), Health Inspector (HI), Family Planning Inspector (FPI), Community-based Skilled Birth Attendant (CSBA) etc.—comprise the CHWs in the public sector. CHWs have variable lengths of basic preventive and curative health care training from various NGOs, as well as the government.
- Unqualified allopathic providers, who include village doctors and drugstore salespeople/drug vendors. The village doctors (also known as rural medical practitioners) mostly received short training (from a few weeks to few months) on common illnesses/conditions from semi-formal private institutions which are unregistered and unregulated and do not follow a standard curriculum. A negligible proportion of them received 12 months training from a short-lived government-sponsored programme in the 1980s (*Palli Chikitsok* training programme after the model of barefoot doctors in Mao's China). Unfortunately, there is no opportunity for continuing education for these providers from the public, private or NGO sectors. Most of the drugstore salespeople have had no training in dispensing, not to mention training in diagnosis and treatment.
- Traditional healers, called *Kabiraj*, whose practice is based on diet, herbs and exercise. They are mostly self-trained, but some may have training from government or private colleges of Ayurvedic medicine. Some of them combine ayurvedic,

unani (traditional muslim medicine originating from Greece) and allopathic medicine to provide *totka*.

- Non-secular faith healers who use sanctified water, oil etc. or chant religious verses for healing.
- Traditional birth attendants, including both trained and non-trained providers who provide home-based delivery services only.
- Homeopaths who are mostly self-educated, but some possess recognized qualifications from government or private homeopathic colleges.

Results

Table 1 presents the density of different types of health care providers as found in the inventory by rural/urban residence. Traditional healers including faith healers, and traditional birth attendants (TBAs) are the two dominant groups, comprising 43% and 22%, respectively of all health care providers. They are followed by the unqualified allopathic providers (village doctors and drug store salespeople, 8% each) and the CHWs (7%). At aggregate level, doctors, nurses, dentists and paraprofessionals together in the formal sector represent only 6% of the total currently active health care providers in Bangladesh. There is also large variation in the rural-urban distribution of providers: only 16% of the total qualified physicians live in rural areas while 92% of the CHWs live in rural areas.

The socio-economic and demographic characteristics of the informal providers are shown in Table 2. The CHWs were youngest among all the different groups of health care providers (33% being <30 years, mean 34 years). There were more elderly people (aged 60 years or more) in the non-allopathic sector such as traditional healers (37%) and TBAs (29%) than in the unqualified allopathic sector. The health care providers were mostly males, except the CHWs and the TBAs. A substantial proportion of the traditional healers (35%) and TBAs (59%) did not have any schooling. Nearly one-quarter of the unqualified allopathic providers were non-Muslims. More than half of the village doctors (61%) and the drugstore salespeople (55%) had a supplementary occupation other than health care practice, mainly agriculture on their own land. As such, average monthly income over Tk 10 000 was more frequently reported by them than others. Also, the majority of the health care providers came from households not in deficit, the unqualified allopathic providers more so than others.

Among these informal sector providers, traditional healers and TBAs had the longest duration of professional experience (around 18 years), while CHWs had the shortest (around 8 years) indicating their relatively late entrance into the profession (Table 3). The findings suggest that formal training facilitated entry into the profession mostly for the village doctors (79%), CHWs (61%) and the homeopaths (52%). For the others, apprenticeship and inheritance were the two important avenues for entry into the profession. The faith healers and salespeople at drugstores did not have any training in health care service provision from any source, unlike the other health care providers. NGOs played an important role in training the CHWs (46.5%) while village doctors and homeopaths were most frequently trained by private institutions (around 60%). The topics covered in the training of the

Table 1 Frequency of different types of health care providers in the study sample by location

	Location		All <i>n</i> (%)
	Rural <i>n</i> (%)	Urban <i>n</i> (%)	
Qualified allopathic professionals			
Physicians	138 (0.7)	697 (22.6)	835 (3.7)
Nurses	97 (0.5)	225 (7.3)	322 (1.4)
Dentists	10 (0.1)	32 (1.0)	42 (0.2)
Semi-qualified allopathic providers			
Allopathic paraprofessionals ^a	121 (0.6)	169 (5.5)	290 (1.3)
Community health workers (CHWs) ^b	1284 (6.5)	239 (7.7)	1523 (6.7)
Unqualified allopathic providers			
Village doctors	1593 (8.1)	340 (11.0)	1933 (8.5)
Drugstore salespeople	1248 (6.4)	505 (16.4)	1753 (7.7)
Traditional birth attendants, untrained and trained (TBAs)	4880 (24.8)	233 (7.6)	5113 (22.5)
Traditional healers (including faith healers)	9557 (48.6)	332 (10.8)	9889 (43.5)
Homeopaths	644 (3.3)	270 (8.7)	914 (4.0)
Others (circumcision practitioners, ear cleaners, tooth extractors etc.)	125 (0.6)	159 (5.2)	284 (1.2)
Total (<i>n</i>)	19 650	3086	22 736

^aComprises Medical Assistants (also called Sub-Assistant Community Medical Officers), Family Welfare Visitors (FWVs) and lab technicians/physiotherapists, all trained at formal institutions in the public or private sector.

^bTrained at formal institutions in the public or NGO sector.

Source: Bangladesh Health Watch (2008).

allopathic providers included communicable diseases commonly prevailing in the country, such as diarrhoeal diseases, fever and common cold and cough, acute respiratory infection/pneumonia, etc. However, the CHWs received training mostly in family planning and issues related to mother and child health, including diarrhoea.

The majority of unqualified allopathic providers (around 80%) and homeopaths (78%) provide services through drug shops, while CHWs and traditional healers provide door-step services in villages (70–80%) (Table 4). The latter usually provide services in their own villages while CHWs move beyond their own villages to cover their designated working areas. Most patients of unqualified allopathic providers (44%), CHWs (46%) and traditional healers (45%) come from within a distance of 2 km only (Table 4). The unqualified allopathic providers such as village doctors and drugstore salespeople attend the most patients per day (around 17). Usually, the patients seen by the health care providers suffer from communicable diseases. Pregnancy-related cases are most frequently seen by CHWs.

The health care providers manage patients mostly with treatment and advice, and sometimes with advice only (Table 4). They rarely advise laboratory investigations. They also usually do not provide written prescriptions except, to some extent, the village doctors (56%) and homeopaths (31%). Reportedly, record-keeping of patient information is most frequently practiced by homeopaths (75%).

Table 5 presents the reported treatment practices of these informal sector health care providers for some common illnesses. Besides analgesics, antibiotics are the most frequently reported drug, used in fever (around 80%), diarrhoea (around 90%) and childhood pneumonia (around 96%) by the

unqualified allopathic providers. The traditional healers did not use any antibiotics for treating childhood pneumonia, and the homeopaths did so only negligibly. The CHWs used antibiotics more frequently while treating children for pneumonia (69%) than when treating fever (30%) or diarrhoea (43%). Oral saline is used almost universally by all types of providers (61–99%) in treating diarrhoea, except for traditional healers (only 40%). Similarly, all types of health care providers advised antacids most frequently for the treatment of hyperacidity/ulcer (around 70%), except traditional healers (only around 26%).

Next, the health care providers were probed to explore their knowledge on risk factors, signs of complication and management related to pregnancy (Table 6). The TBAs were excluded from this inquiry as their profession requires that they have workable knowledge on the complications of pregnancy and its management. Awareness about safe age (20–35 years) for pregnancy was high among all the health care providers (80–90%) except the traditional and faith healers. Awareness about other risk factors such as risks associated with bad obstetric history was varied and lower, especially among the traditional and faith healers and homeopaths (around 40%). In the management of pregnancy, importance of nutritious food was reiterated by all groups but to a lesser degree by traditional healers. Activities regarding management of pregnancy showed a mixed response. Interestingly, regular check-ups and tetanus toxoid (TT) immunization were mentioned much less frequently than expected; the CHWs were a little better than others in this regard.

As reported, patients with sexually transmitted infections (e.g. syphilis, gonorrhoea) most frequently visit unqualified allopathic providers, *Kabiraj* and homeopaths for treatment

Table 2 Demographic and socio-economic characteristics of the health care providers (%)

	Community health workers (n = 240)	Unqualified allopathic providers			Traditional birth attendants (n = 598)	Traditional healers (n = 575)	Faith healers (n = 608)	Homeopaths (n = 121)
		Village doctors (n = 274)	Drugstore salespeople/ drug vendor (n = 222)					
Age (years)								
<30	33.3	23.7	27.9	1.7	3.7	4.4	15.7	
30–39	36.7	32.8	28.8	10.0	13.4	13.7	20.7	
40–49	20.8	19.7	19.8	29.1	22.3	21.1	27.3	
50–59	7.1	14.6	15.3	30.3	24.9	22.2	22.3	
≥60	2.1	9.1	8.1	28.9	35.8	38.7	14.0	
Mean ± sd	34.5 ± 9.8	39.6 ± 12.6	38.6 ± 13.2	51.5 ± 11.7	52.6 ± 14.0	53.6 ± 15.4	44.4 ± 13.9	
Sex								
Male	16.3	94.5	97.3	1.2	75.8	75.3	92.6	
Female	83.8	5.5	2.7	98.8	24.2	24.7	7.4	
Religion								
Muslim	83.3	74.5	77.0	89.5	87.2	87.2	77.7	
Non-Muslim	16.7	25.5	23.0	10.5	12.8	12.8	22.3	
Completed years of schooling								
0	1.7	0.0	1.4	58.9	36.3	34.5	1.7	
1–8	26.3	2.9	10.4	39.0	47.0	46.5	5.0	
9–10	37.5	45.3	50.0	1.8	9.2	9.2	42.1	
11–12	32.5	49.6	34.7	0.3	5.9	5.1	39.7	
>12	2.1	2.2	3.6	0.0	1.6	4.6	11.6	
Mean ± sd	9.1 ± 2.7	10.6 ± 1.2	9.9 ± 2.2	1.6 ± 2.5	4.0 ± 3.9	4.2 ± 4.1	10.5 ± 2.2	
Supplementary occupation								
None	32.6	39.1	45.5	38.5	86.6	93.8	49.6	
Agriculture (self)	17.6	42.7	40.5	14.9	9.6	3.9	33.1	
Trade/service	7.2	15.7	9.5	6.8	2.4	1.3	10.7	
Other	42.5	2.6	4.5	39.9	1.4	1.0	6.6	
Mean monthly income of household in Taka								
≤5000	30.0	24.1	29.7	65.4	57.0	58.2	31.4	
5001–10 000	35.0	44.5	40.1	25.3	30.1	26.8	38.0	
>10 000	35.0	31.4	30.2	9.4	12.9	15.0	30.6	
Self-rated poverty status of households								
Always deficit	5.8	3.3	3.2	20.1	12.9	16.1	5.0	
Occasional deficit	15.8	13.5	15.3	30.8	29.2	28.9	13.2	
No deficit	78.3	83.2	81.5	49.2	57.9	54.9	81.8	

Source: Bangladesh Health Watch (2008).

(around 75–85%), while those with reproductive tract infections (e.g. leucorrhoea) visit CHWs, faith healers and village doctors (around 75%) (Table 7). Antibiotics and antifungal preparations are commonly prescribed by the unqualified allopathic providers (around 90%) to treat these conditions, but not the others. Interestingly, the health care providers reported that they usually advise their clients to use a condom during sex as a preventive measure.

Finally, we wanted to know how satisfied the health care providers are in their professional life (Table 8). They were almost unanimous (>90%) about their professional satisfaction. The most common reason mentioned was that

they considered it as gratifying social work (average 75%, except drugstore salespeople, 55%). The tiny fraction of providers who expressed dissatisfaction with their profession mentioned low income (especially the TBAs, traditional and faith healers) and lack of career prospects (especially the CHWs and the homeopaths) as the two most common reasons. A lower proportion of TBAs and traditional healers (54% each), and faith healers (46%) than other health care providers (around 80%) would like their son or daughter to take up their profession. The felt need for training was substantial among the CHWs, unqualified allopathic providers and TBAs (more than 60%).

Table 3 Mode of induction into the profession, and professional and training experiences of the non-registered health care providers (%)

	Unqualified allopathic providers						
	Community health workers (n = 27)	Village doctors (n = 274)	Drugstore salespeople/ drug vendor (n = 222)	Traditional birth attendants (n = 598)	Traditional healers (n = 575)	Faith healers (n = 608)	Homeopaths (n = 121)
Professional experience in years (mean ± sd)	8.5 ± 9.0	14.2 ± 11.7	11.3 ± 10.3	17.7 ± 10.9	17.9 ± 11.7	18.3 ± 12.8	15.6 ± 11.9
Mode of induction into the profession							
Formal training	61.3	78.8	0.0	11.7	5.0	0.3	52.1
Apprenticeship	2.5	9.1	21.6	36.8	40.5	34.5	23.1
Selling medicine	0.4	5.8	55.9	0.0	1.6	0.3	9.9
Service	35.4	1.8	5.4	1.0	1.0	2.1	0.8
Inheritance	0.4	4.0	14.0	41.6	39.5	42.3	10.7
Others	0.0	0.4	3.2	8.9	12.3	20.4	3.3
Ever received any training	90.8	100.0	0.0	22.4	7.0	0.8	61.2
Received short training (max. 1 month)	50.0	17.7	0.0	0.7	84.0	84.0	5.4
Training institution							
Government	34.6	36.7	0.0	56.5	56.1	16.7	38.7
Private	22.6	61.9	0.0	23.7	43.9	83.3	61.3
NGO	46.5	3.7	0.0	19.8	2.4	0.0	0.0
Topics covered in training							
Diarrhoeal diseases	96.3	92.9	0.0	6.6	66.7	80.0	91.8
Fever/common cold/cough	88.9	88.1	0.0	6.6	66.7	60.0	89.0
ARI/pneumonia	74.1	50.6	0.0	2.9	43.6	0.0	71.2
Skin diseases	66.7	53.9	0.0	2.2	82.1	0.0	68.5
Digestive disturbances	51.9	67.7	0.0	2.2	64.1	20.0	75.3
Family planning	59.3	42.8	0.0	22.1	10.3	20.0	19.2
Anaemia	74.1	52.0	0.0	3.7	56.4	20.0	63.0
Tuberculosis	48.1	21.2	0.0	3.7	30.8	0.0	28.8
Mother and child health	51.9	35.7	0.0	94.9	15.4	20.0	31.5
Others	44.4	35.3	0.0	3.7	59.0	0.0	53.4

Source: Bangladesh Health Watch (2008).

Discussion

This study reiterates the importance of informal sector providers in the health care scenario of Bangladesh, as has also been observed by others (World Bank 2003; Ahmed 2005; Cockcroft *et al.* 2007). However, there is a lack of knowledge about this large body of practitioners (both allopathic and non-allopathic) who are the major providers of health care to the poor, especially in rural areas. This paper addresses this knowledge gap by presenting descriptive data from a population-based, nationally representative survey undertaken in 2007. Findings reveal that the majority of these providers lack the necessary training and capacity to provide basic curative services rationally. The implications of this are discussed below in the context of mitigating the income-erosion consequences of ill-health (Meessen *et al.* 2003).

Existing evidence indicates that providing health services for the poor is more expensive than the average cost in any population for a number of reasons such as cost of targeting, service needs, and acceptable quality of services to attract people to services

(Waddington 2005). However, the high degree of health inequity existing in Bangladesh (Gwatkin *et al.* 2000) demands the restructuring and reorientation of the existing health system to improve its ability to reach the poor and the disadvantaged. Reducing poverty through specific targeting of disadvantaged groups with a pro-poor health system is possible in a country with large out-of-pocket payments for health care (Garg and Karan 2005), and is urgently needed in Bangladesh.

The professional knowledge base of the informal providers in general was found to be poor. Though the majority of the village doctors and the homeopaths had some kind of semi-formal training spanning from a few weeks to a few months, the traditional healers entered the profession mainly through apprenticeship and inheritance, like the salespeople at drug retail outlets. For the latter, experience gained from selling medicines at drug shops also played a role. Topics covered in the short and informal training were mostly on communicable diseases, which is plausible given the nature of disease burden in the country (BBS 2007).

Table 4 Service provision characteristics of the health care providers (%)

	Community health workers (n = 240)	Unqualified allopathic providers				
		Village doctors (n = 274)	Drugstore salespeople/ drug vendor (n = 222)	Traditional healers (n = 575)	Faith healers (n = 608)	Homeopaths (n = 121)
Service delivery point						
Static health facilities	41.6	5.9	0.9	1.7	0.7	4.1
Drug shops	0.8	81.8	83.3	9.4	0.5	77.7
Village, mobile	51.3	2.2	4.1	12.9	12.7	1.7
Village, own	6.3	10.2	11.3	75.8	84.7	16.5
Others	0.0	0.0	0.5	0.2	1.5	0.0
Average no. of patients attended per day	14	18	16	5	4	13
Distance they come from						
<2 km	46.3	36.9	51.4	37.2	53.1	31.4
2–5 km	34.2	44.2	38.3	30.8	30.3	32.2
>5 km	19.6	19.0	10.4	32.0	16.6	36.4
Most common illnesses seen						
Fever	70.0	99.6	99.1	21.6	26.6	95.0
Common cold/cough	66.7	97.1	95.5	14.1	9.0	90.9
Diarrhoea	67.5	95.6	91.4	24.5	18.8	76.9
Digestive disturbances	48.3	89.1	89.6	36.2	45.9	76.9
Headache	3.8	69.0	75.2	23.1	40.8	61.2
Asthma/breathing problems	32.5	53.6	36.0	13.0	9.9	57.0
Physical weakness	20.0	43.4	39.2	12.7	8.6	33.9
Joint pain	7.1	49.3	34.2	23.3	16.8	44.6
Menstrual illnesses	39.6	36.1	20.7	13.9	9.7	48.8
Pregnancy-related illnesses	60.4	34.3	17.1	11.3	13.3	50.4
Sexually transmitted infections	8.8	18.2	10.8	22.6	4.6	36.4
Skin disease	22.5	38.3	29.3	18.1	3.6	42.1
Others	38.8	12.0	6.8	67.5	77.0	16.5
Laboratory investigations ordered	10.0	9.5	2.3	0.7	0.2	2.5
Written prescription given	9.2	55.8	14.4	6.4	0.7	31.4
Patient records kept	50.0	7.7	3.6	4.3	1.2	75.2

Source: Bangladesh Health Watch (2008).

Note: Traditional birth attendants are excluded from this table because they provide very specific services.

Drug retail shops are often the first and only source of health care outside the home for a majority of poor patients in developing countries (Kamat and Nichter 1998), and Bangladesh is no exception. According to an estimate, there are about 80 000 unlicensed drug stores in the country (Drishtipat 2004). Also, 70% of household out-of-pocket expenditure on health care is spent at drug shops in Bangladesh (GoB 2003). As revealed in this study, irrational use of antibiotics and poly pharmacy are the most common problems found with drugstore salespeople (Ashraf *et al.* 1982; Guyon *et al.* 1994; Ronsmans *et al.* 1996; Duong *et al.* 1997).

To increase the knowledge and capacity of these informal allopathic providers in the rational use of drugs (especially antibiotics), education and training can play a key role (Chuc 2002; Syhakhang 2002; Chalker 2003; Sia and Valerin 2004; Goodman *et al.* 2007). Training village doctors to deliver DOTS

services in Bangladesh (Salim *et al.* 2006), drug vendors to improve practice in the Philippines (Sia and Valerin 2004) and informal private practitioners in India (Krishna and Kapoor 2006) has been found effective. Training also helps in overcoming the mis-information and biased information propagated by pharmaceutical companies and reduces expenditure on drugs (Laing *et al.* 2001; Mills *et al.* 2002; Cardarelli *et al.* 2006).

Any concern that there may be abuse and malpractice of the knowledge newly acquired from training by these providers can be contained by managerial and regulatory interventions (Kamat and Nichter 1998; Nyazema *et al.* 2007), supportive supervision (Marquez and Kean 2002), and the establishment of a functional referral mechanism to higher level care for diagnosis and treatment. The latter is especially necessary in the context of very low referral and laboratory investigations reported in this study.

Table 5 Reported treatment practices for fever, diarrhoea and pneumonia, hyperacidity (multiple responses, %)

	Community health workers (n = 240)	Unqualified allopathic providers				
		Village doctors (n = 274)	Drugstore salespeople/ drug vendor (n = 222)	Traditional healers (n = 575)	Faith healers (n = 608)	Homeopaths (n = 121)
Fever						
Analgesics	85.6	98.5	96.7	4.3	4.7	2.5
Antihistamines	29.9	47.6	38.5	2.9	2.6	0.0
Antibiotics	29.9	88.6	82.6	2.9	2.1	1.7
Homeopathic	0.6	0.0	0.5	4.3	0.5	95.0
Others	16.8	3.7	4.2	92.1	94.2	4.2
Mean days of medication	4.2 ± 1.7	5.6 ± 3.2	5.1 ± 2.0	6.2 ± 5.2	3.4 ± 2.2	4.4 ± 2.4
Diarrhoea						
Amoebicide	48.7	77.6	82.1	4.9	2.0	1.1
Antibiotics	43.0	93.3	88.0	4.9	3.0	3.4
Anti-motility	3.8	25.4	20.7	0.0	1.0	1.1
ORS	91.9	99.3	99.5	39.9	39.9	60.9
Zinc	37.3	37.3	30.4	1.2	2.0	0.0
Homeopathic	0.6	0.4	1.1	3.7	0.0	86.4
Others	25.3	2.6	3.3	92.6	97.0	27.3
Mean days of medication	4.5 ± 2.0	5.2 ± 2.0	5.0 ± 2.7	4.7 ± 3.9	3.1 ± 1.7	4.4 ± 5.2
Pneumonia (children)						
Antibiotics	69.4	97.2	96.1	2.5	0.0	3.5
Bronchodilator	19.4	48.9	51.9	2.5	0.0	2.4
Analgesics	30.6	29.5	35.1	0.0	0.0	0.0
Antihistamines	11.3	28.4	22.1	0.0	0.0	0.0
Homeopathic	0.0	0.0	1.3	0.0	0.0	92.9
Others	33.9	26.7	26.0	100.0	100.0	22.4
Mean days of medication	7.0 ± 2.5	4.1 ± 3.5	2.3 ± 3.3	0.4 ± 2.4	0.1 ± 0.7	3.4 ± 9.0
Ulcer/hyperacidity						
Antacid	70.3	72.4	68.9	27.9	23.5	53.2
Ranitidine-like	7.7	15.6	14.6	5.5	2.2	26.6
Omeprazole-like	23.4	23.7	22.8	14.5	12.1	26.6
Homeopathic	4.8	3.1	4.4	26.2	28.8	6.4
Others	4.3	1.6	2.4	28.1	35.0	0.9
Mean days of medication	15.9 ± 10.7	25.5 ± 18.5	17.6 ± 18.2	2.7 ± 10.0	0.6 ± 4.1	11.3 ± 24.4

Source: Bangladesh Health Watch (2008).

The CHWs were found to be relatively better in the rational use of drugs, such as using antibiotics more frequently in case of childhood pneumonia and less frequently for other conditions such as fever and diarrhoea. This is consistent with other findings where trained CHWs have been found to be useful in the management of childhood pneumonia (Winch *et al.* 2005), screening childhood hearing impairment (Berg *et al.* 2005), treating acute respiratory infections of children (Hadi 2003), reducing neonatal mortality at home (Bang *et al.* 1999), and in DOTS treatment of tuberculosis (Chowdhury *et al.* 1997). This cadre of health workers has been increasing in size since the 1990s, with the expansion of both the government health system as well as the NGO network in the country. They

are cost-effective (Khan *et al.* 2002) and can serve as a bridge between the community and the curative health providers (Nemcek and Sabatier 2003), taking the role of a 'mobiliser or facilitator' in the formal system (Standing and Chowdhury 2008).

As observed in this and other studies (Ahmed 2005; Cockcroft *et al.* 2007), the importance of the traditional system of medicine is declining in Bangladesh unlike in other Asian countries such as Laos, India and Vietnam (Ladinsky *et al.* 1987; Gogtay *et al.* 2002; Sydara *et al.* 2005). To avoid losing patients, many of the traditional practitioners in Bangladesh also use allopathic medicine to supplement their treatment and maintain practice (World Bank 2003). However, improving the

Table 6 Reported pregnancy-related knowledge and practices, multiple responses (%)

	Community health workers (n = 240)	Unqualified allopathic providers				
		Village doctors (n = 274)	Drugstore salespeople/ drug vendor (n = 222)	Traditional healers (n = 575)	Faith healers (n = 608)	Homeopaths (n = 121)
Risk factors for unsafe pregnancy						
Pregnancy <20 years or >35 years	87.0	86.4	80.6	59.5	50.9	93.4
No child or >4 children	29.4	19.5	8.3	7.1	10.5	19.7
Birth interval <2 yrs	33.9	28.0	33.3	7.1	5.3	19.7
Height less than 145cm	27.7	19.5	25.0	11.9	5.3	14.8
Past history of operation/surgery during delivery	29.4	36.4	30.6	16.7	10.5	29.5
Bad obstetric history	62.1	58.5	63.9	45.2	35.1	47.5
Don't know	1.7	1.7	0.0	26.2	33.3	0.0
Others	9.6	13.6	2.8	14.3	12.3	14.8
Signs of complication during pregnancy						
Anaemia	83.4	86.4	80.6	51.2	44.8	76.7
Moderate/severe swelling of the feet/legs	62.9	65.3	55.6	58.1	34.5	51.7
Bleeding at any stage of pregnancy	62.9	64.4	66.7	51.2	32.8	60.0
Breathing problems	26.3	30.5	30.6	9.3	12.1	26.7
Abnormal position of foetus	30.3	25.4	27.8	23.3	25.9	33.3
Albumen in urine/blood pressure (>140/90 mm Hg)	30.9	10.1	25.0	9.3	5.2	25.0
Don't know	2.9	1.7	0.0	25.6	37.9	3.3
Others	15.4	24.6	22.2	9.3	5.2	23.3
Management of pregnancy						
Nutritious food	65.9	69.7	81.6	58.5	34.5	66.7
Not to do heavy work	52.3	48.7	57.9	31.7	27.6	46.7
Keep rest/careful movement	47.2	41.2	52.6	53.7	36.2	60.0
Regular checkup	45.5	37.0	18.4	4.9	12.1	28.3
Maintain cleanliness	10.2	11.8	5.3	7.3	15.5	10.0
TT immunization	23.3	10.9	7.9	7.3	1.7	6.7
Others	44.9	45.4	36.8	58.5	56.9	43.3

Source: Bangladesh Health Watch (2008).

quality of traditional medicine through institutional training, registration and licensing so that practitioners are dependable may reduce the cost of therapeutic care and the pressure on the formal health care system (APTMNET 2004).

Regarding folk practitioners (faith healers of different types), it can be said that their strength lies in 'healing' patients rather than 'curing' them, i.e. giving meaning for bio-medical events rather than controlling them (Helman 1995). As such, under certain circumstances, they may be used to complement the 'curing' services of the official medical sector. Otherwise, they should be discouraged from practicing or re-trained as CHWs, keeping in mind the long-term interest of the health of patients' who exclusively resort to such treatment.

This study used a population-based survey with a nationally representative sample, involving currently active practitioners. The focus of analysis is mainly on the allopathic sector and, as such, the traditional and homeopathic sector is not explored in-depth with respect to knowledge and practices. The information on knowledge and practice is based on reported

response and not actual practice, which may differ. Even if we accept respondents' reported knowledge and practice at face value, it was found to be superficial and unsatisfactory.

Policy options for improving and integrating the large informal sector in low-income countries (such as Bangladesh) have been a matter of concern in recent years (Mills *et al.* 2002). In order for the poor to benefit from the poverty-alleviation effects of health interventions, the performance of 'unorganized' health systems needs to be improved, besides extending coverage of organized health services at an affordable cost and reducing the financial burden of major illnesses (Bloom 2005). Thus, it is time that the formal sector took into cognizance the size and importance of the informal health care sector in Bangladesh and designed a strategy to accommodate them in the mainstream health system. This will help to ease pressure on the overburdened formal system in resource-poor settings like Bangladesh, until supply-side constraints of qualified health care providers can be alleviated.

Table 7 Reported treatment practices for sexually transmitted infections (STIs) and reproductive tract infections (RTIs), multiple responses (%)

	Community health workers (n = 240)	Unqualified allopathic providers				
		Village doctors (n = 274)	Drugstore salespeople/ drug vendor (n = 222)	Traditional healers (n = 575)	Faith healers (n = 608)	Homeopaths (n = 121)
Common types of STI/RTI illnesses seen						
Syphilis	48.6	71.2	76.6	54.0	31.6	85.4
Gonorrhea	51.4	73.5	79.7	63.2	36.8	84.3
Leucorrhoea/white discharge	81.1	74.2	62.5	73.0	75.4	68.5
Pelvic inflammatory disease	54.1	27.3	31.3	11.0	15.8	29.2
Others	43.2	30.3	23.4	35.6	28.1	25.8
Most frequent types of medicine prescribed						
Antibiotics	68.8	96.2	89.4	2.4	0.0	4.5
Amoebicides	31.3	50.0	48.5	1.8	0.0	2.3
Antifungals/Antiprotozoa	31.3	53.1	51.5	1.2	0.0	1.1
Homeopathic	0.0	2.3	3.0	1.8	0.0	75.0
Others	31.3	10.0	12.1	97.0	100.0	38.6
Mean days of medication	8.2 ± 5.4	11.5 ± 16.9	10.8 ± 12.1	10.0 ± 4.7	0	12.3 ± 4.9
Advise clients to use condom during sex	100.0	98.5	97.0	73.8	59.1	92.0

Source: Bangladesh Health Watch (2008).

Table 8 Professional satisfaction of the health care providers (%)

	Community health workers (n = 240)	Unqualified allopathic providers					
		Village doctors (n = 274)	Drugstore salespeople/ drug vendor (n = 222)	Traditional birth attendants (n = 598)	Traditional healers (n = 575)	Faith healers (n = 608)	Homeopaths (n = 121)
Satisfied with the profession	90.4	94.9	94.1	94.8	95.1	93.1	95.9
Reasons							
Social work	61.9	73.4	55.2	89.1	85.3	87.6	80.2
Means of income	36.4	37.6	37.1	6.0	9.4	2.5	24.8
People honour	10.5	19.6	21.7	3.7	4.5	6.0	12.4
Others	13.4	9.2	12.7	7.9	6.8	8.3	10.7
Not satisfied with the profession	6.4	5.1	5.9	5.2	4.9	6.9	4.1
Reasons							
Less income	65.2	50.0	46.2	25.8	21.4	23.8	60.0
No progress in the profession	26.1	42.9	53.8	41.9	57.1	54.8	40.0
Risky profession	8.7	7.1	0.0	12.9	3.6	11.9	0.0
Can't give medicine	0.0	0.0	15.4	6.5	7.1	0.0	20.0
Others	0.0	0.0	0.0	22.6	10.7	16.7	0.0
Like to see offspring in the profession	82.1	88.0	80.6	54.0	54.6	46.1	78.5
Suggested training for improvement of the profession	61.3	67.9	64.0	62.7	21.9	21.9	47.9

Source: Bangladesh Health Watch (2008).

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