Disease Patterns, Treatment Practices and Drug Requirements in Rural Bangladesh:

A Review of Five Studies

Shameem Ahmed
Hélène Wirzba
Jafar Ahmad Hakim
Barkat-e-Khuda
Rabeya Khatoon

ICDDR,B: Centre for Health and Population Research
Mohakhali, Dhaka 1212, Bangladesh

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Acronyms

ANC	Antenatal Care
EPI	Expanded Programme of Immunisation
ESP	Essential Services Package
FP	Family Planning
FWA	Family Welfare Assistant
FWV	Family Welfare Visitor
H&FWC	Health and Family Welfare Centre
HPSP	Health and Population Sector Programme
ICDDR,B	International Centre for Diarrhoeal Disease Research, Bangladesh
MA	Medical Assistant
MCH	Mother and Child Health
MCWC	Maternal and Child Welfare Centre
MDU	Management Development Unit
MOMCH	Ministry of Health and Family Welfare
MR	Menstrual Regulation
ORS	Oral Rehydration Salt
PNC	Postnatal Care
RD	Rural Dispensaries
SACMO	Sub-Assistant Community Medical Officer
SC	Satellite Clinic
TFPO	Thana Family Planning Officer
THC	Thana Health Complex
URC	University Research Corporation

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Abstract

Several studies have been conducted to examine the number of and types of patients who visited the H&FWC and the SC and to assess the knowledge of the service providers about diagnoses and treatment. The present paper has reviewed five of these studies with the aim of providing information for a more rational use of drugs. It is also hoped that this paper will be a reference for disease patterns and treatment practices in rural MCH-FP government facilities of Bangladesh.

Two of the five studies reviewed were conducted by the Operations Research Project (formerly the Rural MCH-FP Extension Project), ICDDR,B. The other three studies were conducted by the Management Development Unit (MDU) of the MOHFW, the Directorate of Family Planning and by the URC,B for CARE International, Bangladesh.

Information on services was available from four of the five studies reviewed. The two ICDDR,B studies observed the monthly variation in the number of clients attending the SC and the H&FWC whereas the other two studies (MDU & URC) did not reflect any seasonal or other temporal variations regarding clients.

Information on the distribution of clients between the providers was available from the two ICDDR,B studies and the MDU study. One, out of the two ICDDR,B studies and the study conducted by the Directorate of Family Planning collected information on the disease patterns. Since source of the data being register-based, their validity could not be checked. Broad categories of diseases are, however, reflected giving a reasonable picture of disease patterns in rural Bangladesh. Information on treatments by location and service provider was available from both ICDDR,B study and the MDU study. In both these studies, it was seen that while there was seasonal variation in the number of clients and diseases, the supply of drugs was constant and might not, therefore, always be appropriate.

The analysis indicates that the disease profiles are different at the H&FWCs and at the SCs. The service providers have limited knowledge about diagnoses of common diseases and their treatment practices do not follow any accepted guidelines.

Introduction

In Bangladesh, the Ministry of Health and Family Welfare (MOHFW) offers mother and child health (MCH) and family planning (FP) services through a cadre of health and family planning workers. These workers provide MCH-FP services either through home visits or from mobile clinics or static centres. The MCH programme launched in the 1950s, provides obstetrical care at urban hospitals which are called Maternal and Child Welfare Centres (MCWCs). At present, there are 90 MCWCs in the country, of which 55 are located in districts, 12 in thanas, and 23 in unions. The government established the MCH-FP service centres in rural areas, which are known as the Health and Family Welfare Centres (H&FWC) at the union level and the Thana Health Complexes (THC) at the thana level.

At the union level, the H&FWC is the fixed point for provision of several types of MCH-FP services. Two paramedics -- one female family welfare visitor (FWV) and one sub-assistant community medical officer (SACMO) -- formerly known as medical assistant (MA) who is usually a male (sometimes female) are posted at the H&FWC. They treat patients, irrespective of their age or sex, provide surgical first aid, and refer serious cases. Some of the H&FWCs have been provided with one medical officer (Family Welfare Medical Officer). Due to the large catchment area of the H&FWC and problems associated with women's mobility, the FWV is required to organise eight Satellite Clinics (SCs) each month in her union (ICDDR,B, 1991). The SACMO treats patients at the H&FWCs and at the rural dispensaries (RD) situated in the village and is required to conduct eight health education sessions per month in schools and in other institutional facilities. The FWV is required to provide health education, antenatal and postnatal care for women and to treat minor ailments of mothers and their children. She is also responsible for IUD insertion and menstrual regulation (MR) at the H&FWC and for treating contraceptive-related side-effects at the H&FWC and SC. Cases which cannot be handled at the H&FWC are referred to the THC (Rahman, 1987; Family Planning Directorate, 1992).

Although FWVs and SACMOs have similar working conditions, their clientele is slightly different, therefore, the diseases they treat are also different. Diarrhoeal and skin diseases, intestinal parasites and anaemia are among the five major groups of diseases treated by SACMOs and FWVs (Wirzba, Juncker, 1995). At the SCs, all the clients are seen by FWVs. A large proportion of SC clients come for specific women’s health problems, such as anaemia, gynae-obstetrical diseases and FP side-effects. Acute problems are treated mainly at H&FWCs while routine check-ups of children, pregnant and post-partum women are more frequent at SCs than at H&FWCs.

The MOHFW supplies drug kits to the MCH-FP service centres. Before April 1998, the following types of kits were used: (a) drug and dietary supplementary kit (D&DS kit) at the H&FWCs, the THCs and the MCWCs, and (b) satellite clinic kit (SC kit) at the SCs. Paramedics are expected to treat 1,000 patients with each kit (Rahman, 1993). Since April 1998, a single kit, known as combined DDS kit is being used at all service centres under the Directorate of Family Planning for better utilisation of drugs in the MCH-FP programme.

It is essential to ensure an adequate and regular supply of drugs for the successful operation of a healthcare facility. But this alone cannot ensure the delivery of appropriate, good quality services. Ensuring that paramedics have appropriate knowledge of the most commonly occurring diseases and their treatments is also an essential component of any healthcare system. It is, therefore, important to assess the disease profile of the clients receiving services from the facilities, the number of clients visiting each facility, and the type of treatment given to them by the different health personnel.

Purpose of the Review

Several studies have recently been conducted to examine the number and types of patients who visited the H&FWC and the SC and to assess the knowledge of the paramedics about diagnoses and treatment. The present paper has reviewed five of these studies with the aim of providing information for a more rational use of drugs. It is also hoped that this paper will be a reference for disease patterns and treatment practices before the new Health and Population Sector Programme (HPSP) takes off nation-wide.

Objectives of the Five Studies Reviewed

This section briefly describes the objectives of the following five studies considered for analysis and review.

$ The study on **"Disease patterns, treatment practices and drug requirements in rural MCH-FP government facilities of south-west Bangladesh"** was conducted by Hélène Wirzba and Thérèse Juncker of the Operations Research Project (formerly the Rural MCH-FP Extension Project), ICDDR,B.

The objective of the study was to provide information on the disease and treatment patterns at the H&FWC and at the SC in selected areas of Bangladesh in order to be able to estimate the drug requirements and provide information for a more rational use of drugs.

- The work on the **"Observational study on client characteristics, drug availability and drug utilisation at H&FWCs and outreach sites of the Directorate of Family Planning"** was conducted by the Management Development Unit (MDU) of the MOHFW in collaboration with the former Urban MCH-FP Extension Project of ICDDR,B.

  The objective of the study was to compare the characteristics of the clients as well as the types of drugs dispensed at the H&FWC and at the SC; and to see if there was any difference in the dispensing of drugs between the FWV and the SACMO.

- The third source of data, **"Information on disease ptterns at the FP Directorate"**, was compiled from the reports of the service centres by the Directorate of Family Planning.

  The objective of this investigation was to establish the disease profile of clients receiving services from the fixed sites upto the thana level to plan future drug requirements for those sites.

- The fourth study, **"Clientele and types of services at the Family Welfare Centres and Satellite Clinics in rural areas of Bangladesh,"** was conducted by Thérèse Juncker of the Operations Research Project (formerly the Rural MCH-FP Extension Project), ICDDR,B.

  The objective of the study was to provide information on the number and categories of clients attending the H&FWCs and the SCs and the types of services provided by the paramedics in those facilities. It also, provided information on the monthly variation in the number of clients attending the H&FWCs and the SCs.

- The fifth study, "**Literature review and situation analysis of Satellite Clinics in Bangladesh**", was conducted by Barkat-e-Khuda, Abul Barkat and Javed Helali of the University Research Corporation (URC) for the CARE International, Bangladesh.

  The primary objective of the study was to obtain insights about SC activities both by reviewing available literature and by undertaking a situation analysis. The study addressed the following major areas, such as management, supportive services including logistics, record-keeping and evaluation, services including types and extent of services, the profile and number of clients and the quality of services. This study is different from other studies in that, it has focused only on the SCs. But it is a much more in-depth study compared to the other four.

Methodologies of the Studies Reviewed

This section briefly describes the methodologies followed in the five studies referred to in the previous section.

The first study was conducted in three H&FWCs and 24 SCs in three unions of Abhoynagar thana in Jessore district. Data for this retrospective study were collected over a period of one-year in 1992, from four-month records for each union from the General Patient Registers used in the H&FWCs and in the SCs. Information was obtained for a total of 10,192 clients -- 7,968 at the H&FWCs and 2,224 at the SCs.

Data for the second study, which was observational in nature, were collected over a two-week period between December 1993 and January 1994 from 48 H&FWCs and 24 SCs (11 of these were merged with EPI sites) of 12 unions in four divisions (Dhaka, Rajshahi, Khulna and Chittagong). The number of client contacts was 3,266 -- 1,768 at the H&FWCs, 774 at the SCs, and 724 at the merged centres.

Data for the third study were collected from the General Patients' Registers used at the H&FWCs, MCH Units at the THCs and the MCWCs. Data collection forms were designed by the Directorate of Family Planning, with technical assistance from the World Bank. Forty thanas selected from five divisions (Dhaka, Rajshahi, Khulna, Chittagong and Barisal) were included in this investigation. Quarterly reports on disease profiles were collected from January to December, 1993. In each of the thanas, data were collected from the two best-performing H&FWCs, the MCH Unit at the THC and the MCWC, when applicable. The Thana Family Planning Officers (TFPO) were advised to assess H&FWC performance by observing antenatal/postnatal care (ANC/PNC) and care given to under-five children to evaluate their performance, so that the best performing ones could be identified. No specific data were collected from the SCs. All records were compiled by the Medical Officer, Maternal Child Health (MO-MCH), TFPO, and the Senior FWV at the thana level. As like the Wirzba and Juncker study, data were collected from the existing registers, and therefore, the diagnosis of diseases could not be verified. Moreover, only broad categories of diseases were considered.

The fourth study was conducted in eight unions of Abhoynagar and Sirajganj thanas over a one-year period in1992. Data were collected from the registers used at the H&FWC, as well as from the monthly reporting forms filled out by the SACMOs and the FWVs. A total of 77,454 records were included in the study. The methodology was quite similar to the one used in the Wirzba and Juncker study, except that the sample was much larger. Data for this were compiled from two thanas only. Therefore, they may not be representative of the entire country. The study does not provide information on the disease patterns or treatment practices.

The fifth study comprised of a literature review and situation analysis of 16 SCs, in Khulna and Rajshahi divisions, was conducted in July 1993. It consisted of taking an inventory of SC facilities, observation, client exit interviews and interviews of FWVs and the Family Welfare Assistants (FWAs). Checklists, observation guidelines and questionnaires were used for data collection. Small sample size and study duration (study consisted of a single day's observation only in each facility) are two limitations of this study. Finally, the presence of observers may have resulted in bias.

Findings of the Studies Reviewed

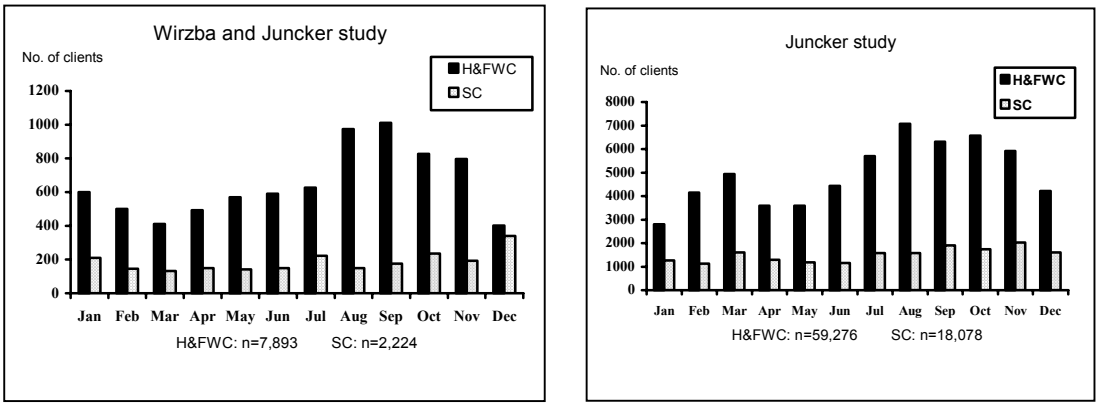
General information on services provided

Information on services was available from four of the five studies reviewed. In both the ICDDR,B studies, there were an average of 24-26 clients per day, both at H&FWC and SC. The MDU study reported the visit of 37 and 60 clients per day, respectively, at the H&FWC and the SC. Such high figures could be explained by the limited number of study days, and a possible bias resulting from the presence of observers. This study also showed that the mean number of clients coming to the merged SC and EPI session was 56. The URC study observed on average, 49 patients per day, at the SCs. The range was from 14 to 99.

The two ICDDR,B studies observed the monthly variation in the number of clients attending the SC and the H&FWC. The number of SC patients remained relatively stable at a level between 150 and 250 clients per month, while there was a great fluctuation in the monthly attendance at the H&FWCs. In the Wirzba and Juncker study, the lowest attendance was observed in March with about 450 clients and the highest in September with 1,100 clients. Whereas in the Juncker study, attendance was low during January-June with a small peak in March, and then began to increase in June to reach its maximum in August. Fig. 1 shows the monthly attendance of clients from the two studies.

The MDU study, in which data were collected over a limited time, in contrast, does not reflect any seasonal or other temporal variations regarding clients. Also the number of clients attending the H&FWCs and the SCs may have been higher than usual due to the presence of observers.

Fig. 1. Monthly attendance by location



The information on the distribution of clients at the H&FWC and at the SC, available in the two ICDDR,B studies, is in agreement. In total, 77 percent of the clients received services from the H&FWCs and 23 percent from the SC spots. The URC study found that the attendance of clients was higher where SC spots were coordinated with EPI and where all sanctioned posts of FWVs and SACMOs were filled.

Information on the distribution of clients between the FWV and the SACMO was available from the two ICDDR,B studies and from the MDU study (Fig. 2). The two ICDDR,B studies had similar findings: 57 percent of the clients were treated by the FWV and 43 percent by the SACMO. Of the patients treated by the FWV, 60 percent consulted at the H&FWCs and 40 percent at the SCs.

The four categories of clients considered in the studies included under-five children, 5-14-year- old children, adult male clients, and adult female clients. The MDU study differentiated between clients of the female and the male SACMOs. In the Wirzba and Juncker study, all the SACMOs were males; in the Juncker study, some were males and some were females, but no differentiation was made in the analysis.

Data of the three studies conducted by Wirzba and Juncker, Juncker and the MDU, presented in Fig. 2, suggest comparable findings: adult females represent over 50 percent of the clients of female service providers, and 35-45 percent of the male providers. Male clients were mainly seen by the SACMOs. Children aged 5-14 years represent a larger percentage in the MDU study than in the two other studies. The URC study did not separate the clients by service provider and, thus, could not be presented in Fig. 2.

Fig. 2. Distribution of clients by service provider

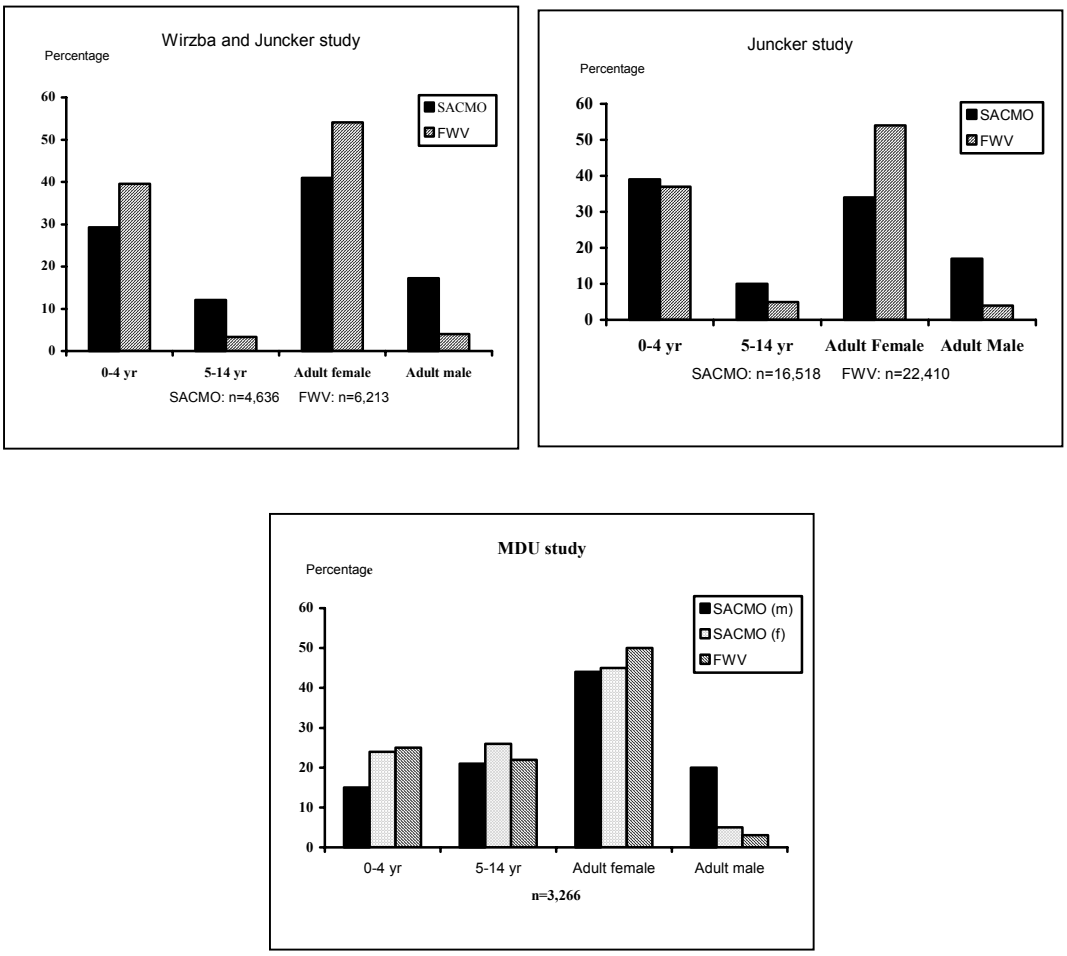
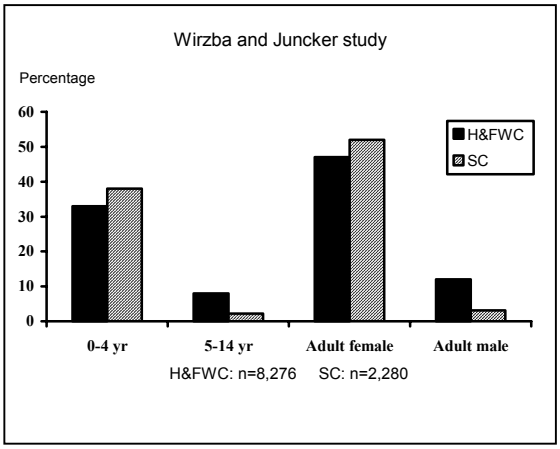
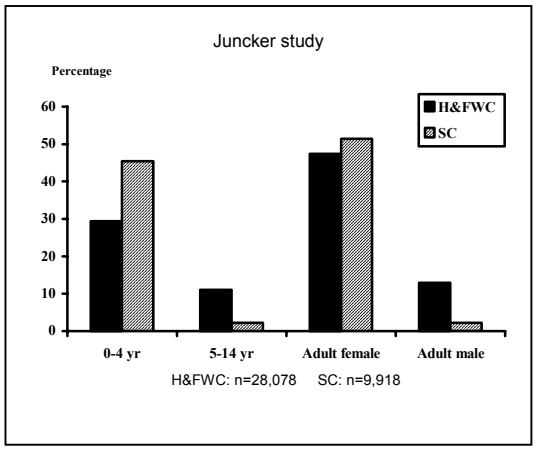
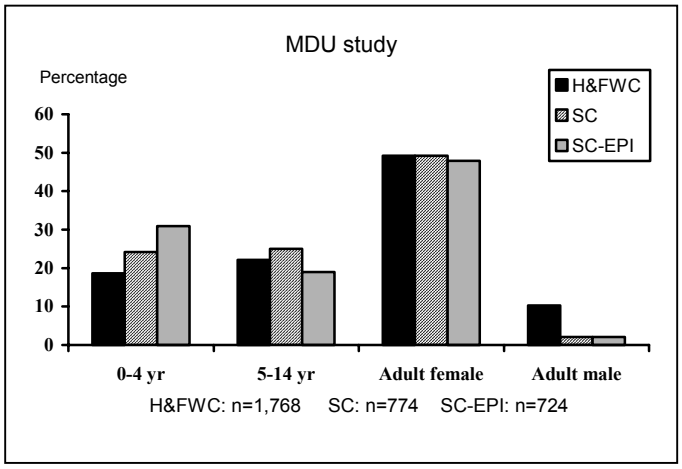


Fig. 3 shows data on categories of clients by location. The MDU study differentiated between the SCs merged with EPI spots, and the non-merged sites. Such a difference was not, however, made in the two ICDDR,B studies. Although, the SCs merged with EPI spots were covered in the URC study, it was not shown separately in their analysis.

Fig. 3. Categories of clients by location





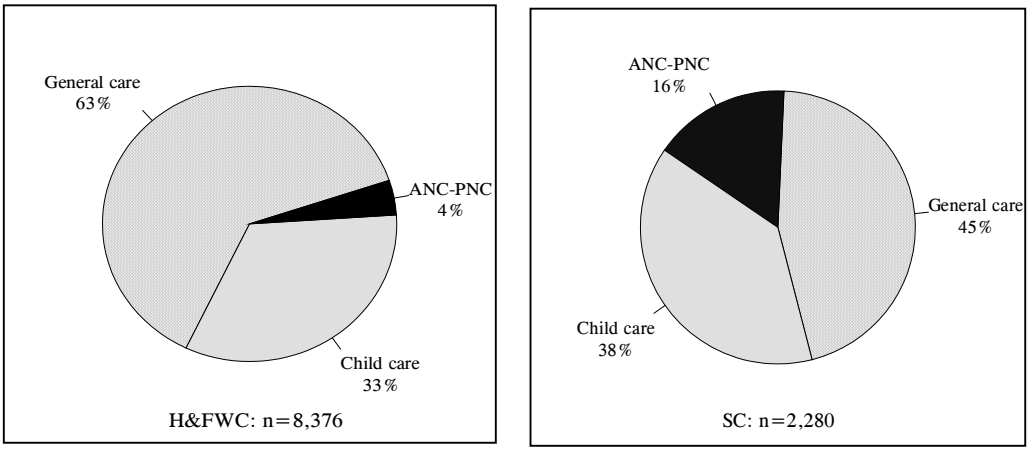


The percentage of the adult male and the female clients is similar between the two ICDDR,B studies and the MDU study. Older children represented a higher percentage in the MDU study than in the ICDDR,B studies. This was because the ICDDR,B studies did not include clients at the merged SCs and the EPI spots.

Information on services by location is available from the two ICDDR,B studies, and the results are comparable. It is striking that only two and four percent of the H&FWC and the SC clients (Juncker study) respectively came for FP supplies (Fig. 4). Whereas the URC study showed that about 10 percent of the clients came to the SC for FP services (Fig. 5).

Fig. 4: Services by location

Wirzba and Juncker study



Juncker study

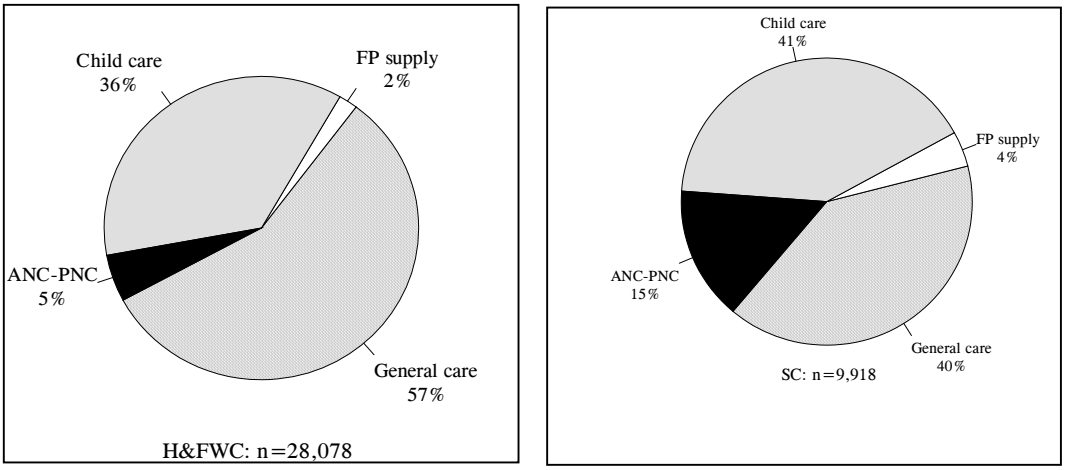
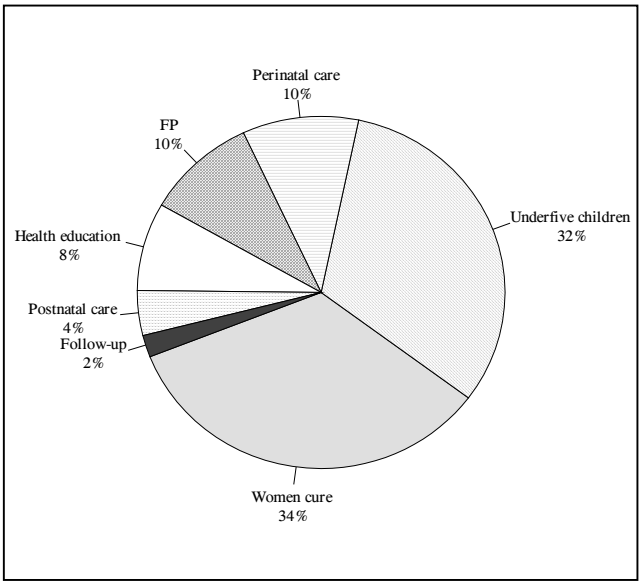


Fig. 5. Types of services available at the Satellite Clinics (URC study)



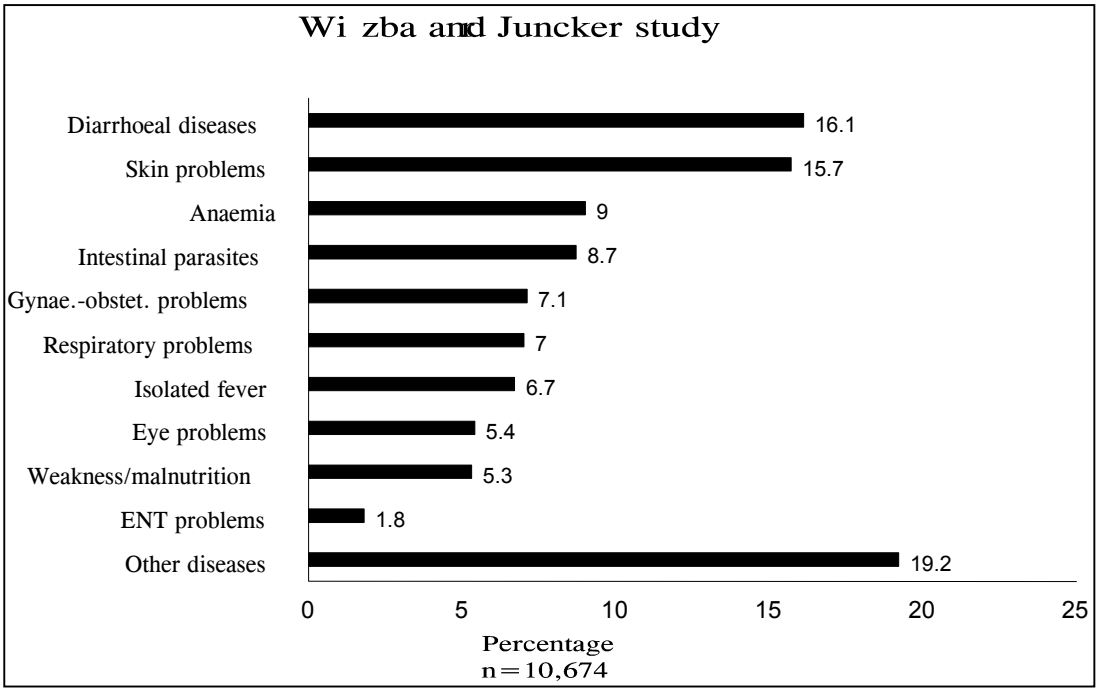
Disease patterns

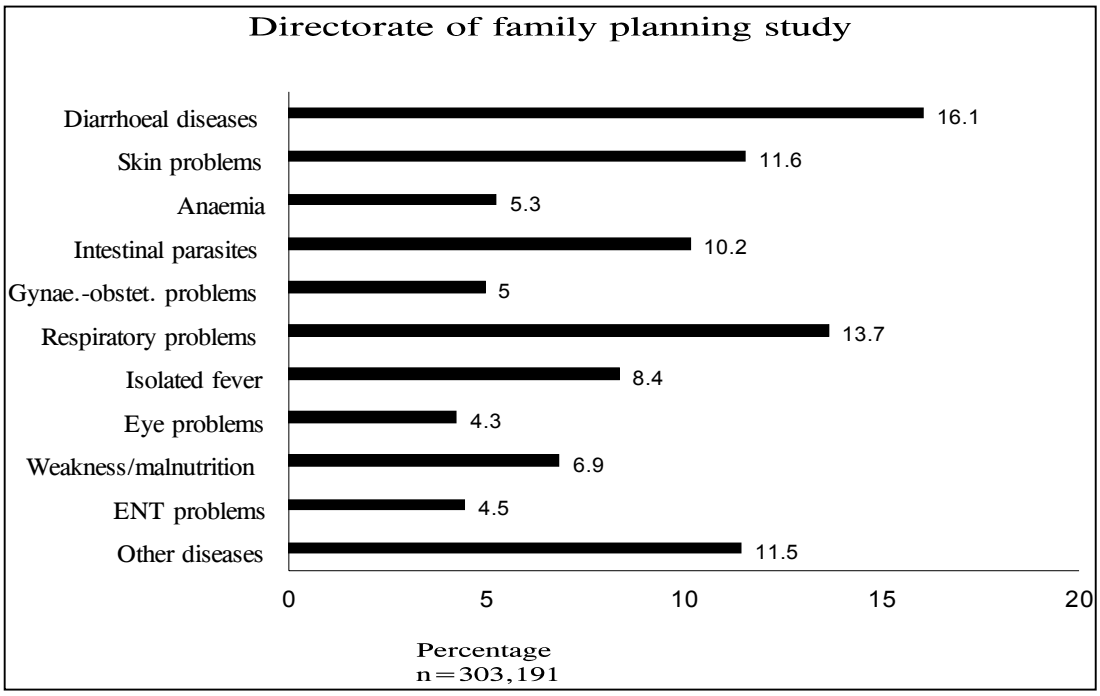
Only the Wirzba and Juncker study and the study conducted by the Directorate of Family Planning collected information on the disease patterns. Since source of the data being register-based, their validity could not be checked. Broad categories of diseases are, however, reflected giving a reasonable picture of the disease patterns in rural Bangladesh. Only one study (Wirzba and Juncker) gave information on the prevalence of diarrhoeal diseases by types and age groups and discussed the drugs required for their treatment.

It is important to note that the differences in the results presented in Fig. 6 are not striking, indicating that the overall disease pattern prevailing in the country is almost uniform. Details of the disease patterns from the Directorate of Family Planning are given in Annex 1.

Weakness and malnutrition have been grouped together, because the Wirzba and Juncker study did not find many records of malnutrition. This could be explained by the fact that malnutrition, being common in Bangladesh is often unnoticed until the child has acquired an associated illness.

Fig. 6. Disease patterns





Treatments provided

Information on treatments by location (H&FWC/SC) and service provider (FWV/SACMO) is available from both Wirzba and Juncker study and MDU study (Table 1). The Juncker and URC studies did not collect this type of information. Most drugs used at the union level were supplied from the D&DS kits. At the time when the Wirzba and Juncker study was conducted, the contents of the D&DS kit were divided into three equal portions: one-third for the SACMO's clients, one-third for the FWV's clients at the H&FWC, and one-third for the SC clients. At the time of the MDU study, the contents of the D&DS kit were divided into two portions: one part used by the SACMO and the other part by the FWV at the H&FWC. Separate specific kits were available for the SC clients. Nystatin vaginal tablets were not included in the drug kits in 1992, but were available only in the SC kits.

The drugs for use prescribed at the H&FWCs were the same at the MDU and both the ICDDR,B studies. These were: metronidazole, paracetamol, penicillin, ferrous sulphate tablets, and mebendazole. However, clients each may have received more than one drug.

At the SCs, the most prescribed drugs in the MDU study was: ferrous sulphate tablets, mebendazole, paracetamol, metronidazole, and cotrimoxazole. The Wirzba and Juncker study found that ampicillin was prescribed instead of cotrimoxazole, reflecting the fact that the drugs used in the SCs in 1992 was supplied from the D&DS kit, while in 1993-1994, specially-prepared kits were used specifically for the SCs.

Table 1. Treatment patterns by location (in percentage of patients receiving drugs)

Treatments	Wirzba & Juncker study		MDU study		
	H&FWC (n=7838)	SC (n=2263)	H&FWC	SC	SC-EPI
Ampicillin cap	10.9	6.4	6.9	2.0	3.8
Ampicillin syr	1.4	2.1	3.7	5.3	4.1
Benzyl benzoate	5.1	3.8	8.4	8.5	9.0
Cotrimoxazole tab	2.4	2.6	3.7	12.6	5.4
Eye/ear drops	0.6	0.6	1.4	0.8	1.5
Ephedrine tab	0.8	0.3	0.8	0.1	0.8
Ergometrine tab	0.6	0.6	0.4	0.5	0.4
Ferrous sulphate tab	13.6	23.2	14.7	27.0	26.0
Hyoscine tab	3.7	1.6	3.5	0.6	1.0
Mebendazole tab	9.3	10.0	12.4	20.3	10.2
Metronidazole tab	19.8	16.6	22.3	15.0	12.9
Eye ointment	5.3	6.1	3.7	4.5	5.9
ORS	3.6	1.5	1.0	0.0	1.1
Paracetamol tab	17.6	11.3	19.1	19.2	19.8
Paracetamol syr	1.8	1.6	2.0	4.4	2.6
Penicillin tab	13.9	9.3	17.9	5.1	6.9
Vitamin A cap	1.6	0.9	2.1	3.6	10.4
Whitfield ointment	3.6	0.9	5.9	3.0	1.6
Nystatin tablets	-	-	0.0	0.5	0.0

The five drugs most commonly prescribed by the FWV were the same in the MDU study and in both the ICDDR,B studies. Whereas the SACMOs, as observed in the MDU study, prescribed more mebendazole and less ampicillin.

Findings on drug prescriptions are, whereas, difficult to compare, since the Wirzba and Juncker study was spread over a whole year, while the MDU study was limited to only two weeks. Moreover, it seems that there is no standard classification of diseases in the

recording system at the union level. This could, perhaps, explain the limited diagnostic ability of the paramedics. Paramedics also made no distinction between mild and severe respiratory infections. In case of diarrhoeal diseases, treatment with ORS is missing in the records. The Wirzba and Juncker study showed that antibiotics were over-dispensed for skin problems and were not used for the treatment of dysentery. Metronidazole was also over-dispensed, especially for cases of diarrhoea and dysentery. Vitamin A and ergometrine were dispensed inappropriately in more than 60 percent of the cases. Serious and/or chronic illnesses were not recognised by the paramedics, and very few cases were referred to.

None of the studies provided adequate information about the rational use of drugs at the H&FWC and SCs or regarding the quality of services provided by the paramedics. In most cases, the paramedics did not follow the treatment guidelines currently in use in Bangladesh. In other words, the treatment practices did not comply with treatment recommendations.

Drug kit contents

In both Wirzba and Juncker study and MDU study, it was seen that while there were seasonal variations in the number of clients and diseases, the supply of drugs was constant, and might not, therefore, always be appropriate. Some important items, such as ORS sachets, gentian violet and nystatin pessaries, were missing in the DDS kits and ORS sachets were also missing in the SC kits. However, there was an excess of metronidazole, mebendazole, ergometrine and vitamin A in both the kits. The FWVs and the SACMOs prescribed antibiotics for only three days or less, resulting in incomplete treatment courses. Thus, more antibiotics may be needed in the kits, especially in the SC kits, which had a very small allotment of antibiotics. Nystatin vaginal tablets, not included in the drug kits in 1992, were available only in the SC kits.

Recommendations

Based on the findings of this study, the following recommendations are made:

- Since the number of patients and the disease profiles are different at the H&FWC and at the SC, separate drug kits should be kept in the two facilities for the time-being. In case of preference for one single drug kit for managerial advantage in the programme, the kit should contain all the essential items needed for the static centres as well as for the SCs. The quantity of individual items should be calculated based on the estimated number of cases in the static centres/SCs.

- Since the paramedics have limited knowledge about diagnosis of common diseases and their treatment practices do not follow the accepted guidelines, it is essential that, in addition to adequate drug kits, they should also have reference manuals and training to improve their diagnostic skills and treatment practices. Besides, supervisory tools should be developed to monitor the general quality of services offered to clients at the H&FWCs and at the SCs.
- The contents of the kits should be revised, reflecting the actual needs of the clientele population at both H&FWC and SC. This should be done through an operations research, where paramedics would be trained and provided guidelines on diagnosis and treatment of common diseases. Additional drugs, needed to follow the guidelines can be provided in addition to the combined DDS kits. Monitoring of operations research will provide reliable and accurate information on the disease patterns and drug requirements. It can also help design diagnostic and treatment tools for paramedics, as well as guidelines for supervision which can, then, be used on a larger scale.

Conclusion

The new five-year programme, namely the Health and Population Sector Programme (HPSP), initiated in July 1998, has underscored the delivery of a package of essential health and family planning services, i.e. Essential Services Package (ESP), from a system of fixed-site clinic facilities ranging from the first-level community clinics to the union-level H&FWCs and sub-district level THCs. The recommendations made above, therefore, need to be considered in the context of the HPSP-proposed health service-delivery strategies.

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Annex 1

Disease pattern by division
(From the Directorate of Family Planning)

Sl. No	Disease	Dhaka 1	Rajshahi 2	Chittagong 3	Khulna 4	Barisal 5	Total Cases (n=296,011)	%
1	No. of thanas	10	10	10	5	5	40	
2	Diarrhoea	2,105	3,405	5,023	1,598	2,403	14,534	4.9%
3	Fever	6,091	6,728	7,016	2,796	2,887	25,518	8.6%
4	Fever and cough	6,281	6,983	5,736	2,242	2,364	23,606	8%
5	Cough	4,295	4,752	4,813	2,720	1,373	17,953	6.1%
6	Cold	2,508	1,560	2,266	691	754	7,779	2.7%
7	Dysentery	8,598	78,748	8,647	4,844	3,364	34,201	11.6 %
8	Conjunctivitis	2,434	2,647	2,482	1,114	1,096	9,773	3.3%
9	Otitis	1,274	1,349	1,803	683	739	5848	1.9%
10	Worms	7,551	7,858	7,972	4,104	3,475	23,780	8%
11	Scabies	11,388	5,752	9,827	5,266	2,979	35,212	11.9 %
12	Malnutrition	1,431	1,881	2,354	722	868	7,256	2.5%
13	Night blindness	620	793	1,222	344	335	3,314	1.2%
14	General weakness	5,036	4,881	5,993	2,766	2,311	20,987	7%
15	Anaemia	3,670	3,395	5,813	1,603	1,552	16,033	5.4%
16	Vaginal discharge	2,600	1,866	3,394	1,675	1,152	10,687	3.6%
17	Vaginal bleeding	1,395	672	1,534	621	348	4,570	1.5%
18	Others	6,575	10,797	7,884	4,124	5,580	34,960	11.8 %