AN ASSESSMENT on COVERAGE of BASIC SOCIAL SERVICES in BANGLADESH

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Foreword

We are very pleased to see the assessment report on the coverage of basic social services in the areas of health, education, nutrition, child protection, HIV/AIDS awareness, improved drinking water supply, sanitation and hygiene in Bangladesh. This report represents an important contribution to knowledge; having the potential to achieve twin objectives, in line with the equity approach that is being proposed in the Sustainable Development Goals. First, it represents a shift of paradigm, in which the performance of social services is not measured by the amount of services that are reaching the community, but rather by the capacity/willingness of communities in availing the services that are being delivered. Second, initiating policy dialogue helping to reform and refocus relevant policies and programs, towards a more equitable access and utilization of basic social services in Bangladesh.

The approach taken to collect the data for this report on the effective coverage of basic social services is an innovation in itself. Household information has been gathered from over 200,000 heads of households/mothers/caregivers by female registrars of BBS Sample Vital Registration System (SVRS) using tablets from 2,012 sample areas, each with about 100 households.

This data has been transferred directly to servers, reducing margins of manual data entry errors and results are available on web-based dashboard arranged thematically and geographically by division. Scaling-up and strengthening existing government systems, by adding an additional layer of information on the current SVRS system; maximizing its 'value for money' and contribution to the national monitoring and evaluation systems. This report also provides a new set of information that is otherwise unavailable in Bangladesh, particularly those that address the drivers and bottlenecks in the use of social services. These elements will inform actions at central and local level to provide improved services that will in turn lead to improved social outcomes.

The indicators analyzed in this report address the specific vulnerabilities that children face in different stages of their development. An important focus of the analysis centers on children before the age of five pregnant women and lactating mothers. The report also provides key information on youth as defined by the demographic and international standards. It presents important observations about the remarkable achievements in Bangladesh, while the equity focus unearths the prejudice that still exists.

There are several advantages and dimensions to the evidence generated in this assessment. The report powerfully displays gaps in effective coverage of social services in each district of the country. Further, this data is complemented by a holistic picture of how children, youth pregnant women and lactating mothers are able to access basic services, allowing for further analysis on how these patterns correlate with the key socio-demographic outcomes.

We have taken note of the limited scope of some indicators in the short questionnaire, such as the lack of economic information e.g. income, assets etc. Despite the limitations, this report shows added value of a meticulous analysis of the data and the presentation of results in a user friendly way. This publication demonstrates the commitment of our institutions in promoting equity within the confines of the basic social services of the country.

We expect that the report will be useful to the public and private sector duty-bearers, policymakers, development partners and researchers to understand the coverage and pockets of deprivation existent in the basic social services experienced in Bangladesh.

Finally, we invite the partners to continue working towards consolidating this system as a permanent instrument and input for analyzing the performance of the delivery of social services. The future rounds of analysis should put a stronger emphasis on closing the data gaps of SDGs, as well as setting localized targets for basic social services. We look forward to a continuous dialogue on this publication while boldly and collectively renewing the call for evidence-based policy actions to steer Bangladesh's socio-economic development towards a more inclusive and equity focused investment helping to achieve the SGDs.

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Acronyms and Abbreviations

ADP	Annual Development Program
AIDS	Acquired Immune Deficiency Syndrome
ANC	Antenatal Care
ARI	Acute Respiratory Infection
BBS	Bangladesh Bureau of Statistics
BDHS	Bangladesh Demographic and Health Survey
CC	Community Clinic
DTW	Deep Tube-Well
HIES	Household Income and Expenditure Survey
IFA	Iron and Folic Acid
IYCF	Infant and Young Child Feeding
MDG	Millennium Development Goal
MICS	Multiple Indicator Cluster Survey
MORES	Monitoring Results for Equity System
PLW	Pregnant and Lactating Women
PNC	Post-natal Care
SDG	Sustainable Development Goals
SSF	Solid, semi-solid, and Soft Food
STW	Shallow Tube-Well
WHO	World Health Organization

EXECUTIVE SUMMARY

Bangladesh, in pursuit of its own development trajectory and commitment to fulfill the SDGs, continuously invests in social services projects including health, nutrition, education and child protection. The success of these interventions depends on effective coverage of the targeted beneficiaries. If an intervention fails to provide effective coverage, the related population remains deprived of the intended benefits. To shed light on the reasons for bottlenecks and failure in addition to finding possible solutions; a nationwide assessment has been conducted on the efficacy of basic social services with regard to breastfeeding complementary feeding of infants, iron and folic acid supplementation during pregnancy, maternal diet, management of illness, antenatal care, birth registration within 45 days of birth, early marriage, schooling for children aged between five and six years, comprehensive knowledge about HIV/AIDS, safe water supply, sanitation and hygiene etc.

The modified Tanahashi approach and UNICEF Global MoRES were used to assess barriers to equitable access to basic social services at national and divisional levels in Bangladesh to specifically address outreach and effectiveness. Rigorous analysis of the data from spatial (divisions), sex, location (rural and urban) and human capital (educational attainment) perspectives entails the following observations.

Although Bangladesh has made significant progress in reducing poverty and improving food security, the overall nutrition status is not satisfactory. Malnutrition is more prevalent among children, adolescent girls and women. Almost 35% of children under age five are stunted, 31% are underweight and 10% are wasted. Under the broad theme of nutrition, four different issues on child and mother's nutrition are discussed in this report. Child nutrition areas include early breastfeeding, exclusive breastfeeding and complementary feeding. While mother's nutrition includes maternal diet.

Early initiation of breastfeeding: Breastfeeding is the best start in life. It is a natural, renewable food that needs no packaging or cooking. It provides infants with their ideal nutrition for their survival and early development. A comprehensive set of data/information on breastfeeding practices including initiation of breastfeeding was collected from mothers/caregivers of children under the age of two. At the national level 36% of the lactating mothers in rural and 23% in urban areas do not have access to trained health workers at the IYCF within 30 minutes. However, about 43% of the rural and 54% of the urban mothers who have access do not avail the advice from trained health workers at the IYCF facilities.

Of those mothers with access to breastfeeding counseling within 30 minutes of walking distance, 70% started breastfeeding their infants within one hour after birth, 22% within the first day and 4% within the first month. The remaining 4% do not remember when they started to breastfeed at all.

Exclusive breastfeeding among children 0-5 months: A review of evidence has shown that, on a population basis, exclusive breastfeeding for 6 months is the optimal way of feeding infants. Exclusive breastfeeding reduces infant mortality due to common childhood illnesses such as diarrhoea or pneumonia, and helps for a quicker recovery during illness. At the national level, only 18% of the rural and 24% of the urban children under the age of six months are exclusively breastfed. Children who are not exclusively breastfed are fed with other food items besides breast milk including water, dairy milk, infant formula, yogurt, fruit juice, clear soup and other liquid foods amongst others. Exclusive breastfeeding is higher in rural areas compared to urban areas. Further, the proportion of breastfed children who are not exclusively

breastfed is notably higher in urban areas of Dhaka (69.6%) and rural areas of Khulna (72.3%) and Barisal (70.4%). In contrast, the proportion of exclusively breastfed children is higher in urban areas of Rangpur and Chittagong.

Complementary feeding: After six months of age, infants should receive complementary foods with continued breastfeeding up to 2 years or beyond. A rich set of data/information was collected on issues related to child feeding practices from the caregivers of children in the age group of 6-23 months. In general, the knowledge about child feeding practices was not satisfactory, as only around 45% could correctly mention the correct moment in time for children to begin their solids. The knowledge gap is worse in Rangpur, Barisal, Chittagong and Sylhet, where 42-52% don't know the right time to start complementary food.

Accessibility in urban areas is better, in general, although 16.5-29% of caregivers for children aged between (6-23 months) do not have access to trained health workers at the IYCF facilities, within 30 minutes of walking distance. Most of the caregivers however did not seek advice from the IYCF facilities on complementary feeding issues. In the same age group for children the, caregivers who had accessibility to IYCF facility, (approximately only one-fourth in rural areas and one-third in urban areas) met the 'minimum acceptable standard' of meal frequency. The scenario is particularly worse in rural areas of Rajshahi (20%) and Dhaka (22.6%) and in urban areas of Chittagong (28.1%) and Rajshahi (28.3%).

Dietary diversity considers, whether the children are provided with balanced diet, fulfilling the minimum requirement of carbohydrate, protein, fat, vitamins and minerals coming from 7 types of food items (grains, roots and tubers; legumes and nuts; dairy products such as milk, yogurt, cheese; flesh foods such as meat, fish, poultry and liver/organ meats; eggs; vitamin-A rich fruits and vegetables; and other fruits and vegetables). The data suggest that less than one-fifth of the children in rural areas and less than one-fourth in the urban areas received a balanced diet with adequate diversity.

A mother's nutrition status and health; before and during pregnancy, have significant effects on the outcome of her offspring. A baby's birth weight, rate of postnatal growth and chances of survival are all influenced by the mother's health and dietary intake. Good nutritional status before, during and after pregnancy optimizes maternal health and reduces the risk of pregnancy complications, birth defects and chronic disease in her children at adulthood. A healthy, well-nourished woman is more likely to have a healthy pregnancy, which increases her chances of having a healthy baby. A healthy baby has a better chance of growing into a healthy child and then growing into a healthy adult.

Maternal diet is critical for both the child and mother's health. Maternal nutrition includes pre-pregnancy diet, adequate micronutrients intake, treatment for deficiency and food supplementation during pregnancy and lactation. 34% of the PLWs in urban areas and 38.5% in rural areas did not increase their dietary intake during pregnancy or lactation period. Worse yet, 15-16% of the PLWs actually reduced their food intake during pregnancy and lactation. Such degenerative food intakes are highly prevalent in Chittagong and rural areas of Dhaka and Rajshahi. Although it is recommended that PLWs consume daily at least five of the nine food items from rice, bean, seed, dairy milk, meat, eggs, vegetables, vitamins and fruits only approximately 35% of the PLWs in rural areas and 47% in urban areas meet such minimum requirement of standard dietary diversity. The situation is particularly worse in rural areas of Dhaka, Chittagong and Rajshahi. The dietary diversity analysis suggests that the PLWs in both the rural and urban areas could achieve only medium dietary diversity. Maternal education is found to be positively associated with the maternal diet pattern in the recommended manner. The age specific analysis shows that late age PLWs are not changing their dietary habits during pregnancy and lactation in an optimum manner.

Ante natal care (ANC) is critical for the health of both mother and the unborn child. In practice, four or more antenatal care visits during the course of the pregnancy are recommended. About 32% of pregnant and lactating women (PLW) in rural and 19% in urban areas do not have access to ANC/PNC service and a trained health worker within 30 minutes of walking distance. At the national level, access to ANC facilities in urban areas is 19 percentage points higher compared to the rural areas (87% vis-à-vis 68%). The overall utilization rate of ANC services

however is rather poor. The urban residents utilize the ANC facilities at a much higher rate compared to the rural residents. The majority of women did not visit the ANC service facilities as frequently as required. The percentage of women with four or more ANC visits lies in the range of 10%-17% in rural areas whereas the average in the urban areas is 30.7%. There is a positive relationship between the mothers' education and ANC service utilization levels; both in the rural and urban areas.

In general, the frequency of ANC visits is lower for teen-age mothers (aged less than 18) and mothers in the late age group (40 and above). Respondents with access to ANC facilities within 2 kilometers of residence use various types of health facilities for ANC related health services but most of the ANC visits were made to government healthcare facilities.

Iron and folic acid supplements among pregnant and lactating mothers enhance production of haemoglobin and red blood cells in body and is particularly critical for pregnant women to meet their own nutritional needs as well as for the development of the fetus. Iron and Folic Acid (IFA) is given to pregnant women during ANC visits, and complemented at the community level as needed. Information collected from women who delivered within the last six months reveals that less than 50% of the women received IFA supplements during their last pregnancy (40% in rural areas vs 57% in urban areas). Only 44% of the rural women and 58% of the urban women have access to facilities that provide IFA supplements within 30 minutes of walking distance. The situation is particularly worse in rural areas of Dhaka, Sylhet, Chittagong and Rajshahi. However, only 3 in every 10 women in rural areas and 4 in 10 in the urban areas actually visit the healthcare facilities for ANC services and IFA supplements. In addition, only one-tenth of the rural women and one-fifth of the urban women received at least 100 IFA tablets, as recommended, during their last pregnancy. The compliance on IFA is very low, where only 6.4% and 2.5% women in the rural and urban areas respectively consume all the 100 IFA tablets. The major reasons for not taking the tablets are bad taste or smell (41%) and oblivious of taking the supplement (37%), side-effects from the supplements (22%), long course of the tablets (14%) and lacking information on correct dosage (10%). Higher level of education of mothers is positively associated with utilization of ANC facilities and receiving IFA tablets but not with consumption of IFA tablets. Mothers who are over the age of 40 exhibit lower accessibility and utilization compared to teenage mothers (15-18 years) and mothers in the age range of 19-39 years.

Acute respiratory infection (ARI) is a leading cause of deaths among children 5 years of age. ARI related data reveal that 3.2% of the total 0-59 month age children were affected by ARI. The prevalence is relatively higher in Barisal and Rangpur. Among the children with symptoms of ARI, 61% of the children in rural and 76% in urban areas had access to health facility within 2 kilometres. The accessibility is relatively better in rural areas of Sylhet and urban areas of Dhaka and Rangpur. At the national level, only 33% of the children treated for ARI actually completed the medication course as recommended by the healthcare professionals. The scenario is better in urban areas compared to the rural areas. It is evident that the sex of the child did not matter in utilization pattern and medication behavior at the national level.

Birth registration provides a legal recognition to the child which is a permanent record of existence. Estimates show that although about 60% of the children have access to birth registration facilities, only 15% in urban and 13% in rural areas have utilized the facilities. For those who registered birth of their children, only one-fourth of them had their children registered within 45 days after birth. Two major reasons for not completing the birth registration within 45 days are the following: First, parents do not realize the importance of child birth registration within the allotted time (48% in the rural and 39% in the urban areas) and second, the parents/family members could not decide about the name of the new-born (about 40% in rural and 26% in urban areas). When the time horizon is expanded beyond 45 days, the decision about the name of the infant is resolved and then it is found that the primary reason for not registering the child is not realizing the importance of the process.

Grade 5 Completion: Bangladesh has achieved Universal Primary Education in line with the targets of the MDGs. It was found that children in rural areas start grade1 at the age of 6 compared to 5.9 years in the urban areas. Earliest age for starting grade 1 is found in urban

areas of Barisal (5.6 years) and the delayed starters are found in rural areas of Chittagong, Rangpur and Rajshahi. Not all of the students who are enrolled in grades 1-4 complete grade 5. The drop-out rates are consistently higher in rural areas compared to urban areas. While the drop-out rate varies between 10 and 17% in rural areas, it is between 7 and 13% in the urban areas. The major reasons for non-completion of grade 5 are child labor (41%), inability to afford high educational expenses (about 1 in 3) and not realizing the importance of completing primary education (1 in 4).

Knowledge of HIV/AIDS: The HIV/ AIDS issue was raised amongst the youth in the age group of (15-24) years to assess the knowledge and information on HIV/AIDS, as this group is most susceptible to risky sexual behavior and drug injection. At the national level, only 24% of the rural and 35% of the urban population have comprehensive knowledge about HIV/AIDS. There is a clear association between education level and the existent knowledge on HIV/AIDS among the young population. Those with no education have zero knowledge about HIV/AIDS. At the national level, almost 80% of the population with at least Secondary School Certificate (SSC) level education has comprehensive knowledge about HIV/AIDS. Relatively higher proportions of the population in the latter age group (20-24) years have comprehensive knowledge about HIV/AIDS compared to the population in adolescent (15-19) age group (24% vis-à-vis 27%).

Drinking water: Safe drinking water is a prerequisite for health and well-being. In general, the households collect drinking water from improved sources. The share of shallow tube-well (STW) (57%) is higher in rural areas while that of deep tube-well (DTW) (55%) is more prevalent in urban areas. About 4% of the household in rural areas and 3% in urban areas use unimproved sources of drinking water. The data shows that one-tenth of the household with accessibility actually do not have continuous water supply throughout the year. In addition, approximately two-thirds of the households use less than 20 litres of water/person/day. The situation is relatively worse in Chittagong, Khulna and Sylhet.

Sanitation: A comprehensive set of data were collected from households on their sanitation usage and practices. At the national level, almost three-fourths of the household use improved latrines, one-fifth use unimproved latrines, and less than 5% defecate in an open space. There is notable spatial variation in the types of latrine usage: 28% in Rajshahi and 33.5% in Sylhet use unimproved latrine, 16% of the household in Rangpur defecate in an open space. Only 6%of the household in rural and 13% in urban areas have access to clean, round the year suitable latrines with handwashing facilities inside or within 5 meters of the latrine. The data reveal that the majority of the households who reported utilization of improved sanitation are actually using shared latrines.

Handwashing is recommended at several critical times, e.g. after defecation, after cleaning the baby's bottom or disposing feces, before preparing food, before serving food and before eating. Around four-fifths of the households have handwash facilities within 5 metres of the latrine. Only little more than half of the caregivers are found to be knowledgeable on washing both hands with soap, which is critically low. The knowledge level is worse in Khulna and Rajshahi, where around one-fifth of the household seem to use mud for handwashing. Around 88% of the households have handwashing facilities and know when handwashing is necessary. About two-thirds of the rural household and four-fifths of the urban household have an accessible latrine with handwashing facilities with soap and water within 5 metres. Approximately three-fifths of the rural and four fifths of the urban households wash their hands with both water and soap at critical times.

The analysis reveals that modified Tanahashi model or UNICEF global MoRES model alone cannot be applied to assess the length and breadth of the problems of basic social service provisions in Bangladesh. Further, from this data, sex-specific targeting does not appear to be required, as there are no apparent disparities based on the sex of the child, but targeting based on residences and regions need particular attention as there are disparities between residences (rural and urban) and across regions (both divisions and districts) in the provision and usage of basic services.

CHAPTER 1: INTRODUCTION

1.1. Background

Early childhood is a crucial stage of life in terms of a child's physical, intellectual, emotional and social development. Early life nutrition is critical to health and productive life. The first 1,000 days start at conception and end at around 2 years of age of the child. During the early years of life an infant's nutritional health critically depends on how the family, especially the caregivers, act. Parents must have knowledge of the changing food requirements of the child. Equally important are parents creating the cultural and psychological environment that influences the development of food habits, setting patterns for later years. Appropriate nutrition has a positive effect on the development of the children. Even though infants vary widely in their growth patterns, there is value in being familiar with typical patterns of growth and development. One of the preconditions for a healthy baby is antenatal care, – an essential part of pregnancy, which should start as soon as conception. Having a healthy pregnancy is one of the best ways to promote a healthy birth. Antenatal care provides caregivers with an opportunity to explain the importance of proper nutrition during pregnancy and breastfeeding to expectant mothers.

In the last decade, the health, nutrition, and population sector program of Bangladesh has adopted a national strategy for maternal health focusing on emergency obstetric care for reducing maternal mortality, focusing especially on early detection and appropriate referral of complications, and improvement of quality care. Since 2001, the government embarked on the program to retrain existing government community healthcare workers as community skilled birth attendants to meet the primary operational strategy for achieving the 2015 target of 50% skilled attendance at birth. Besides, the latest health sector program, coordinated by the Ministry of Health and Family Welfare has focused on targeting areas with high maternal mortality ratios and establishing e-health in all community clinics. Other policies with similar objectives include the National Health Policy 2011 and the National Population Policy 2012.

The outcomes of these efforts are: (i) decline in the maternal mortality ratio from 472 per 100,000 live births in 1991 to 181 per 100,000 live births in 2015 (GoB, 2016), (ii) increase of the number of births attended by skilled health personnel from a mere 5% in 1991 to over 40% in 2014 (iii) increase in antenatal care coverage (at least one visit) from 27.50% in 1993-94 to 78.6% (BDHS 2014), and (iv) increase in antenatal care coverage (at least four visits) from 5.50% in 1993-4 to 31.20% (BDHS 2014). The above statistics testify that Bangladesh needs to put substantial physical and financial resources and efforts to achieve two Sustainable Development Goals: **SDG-2**[1] and **SDG-3**[2] by 2030.

Early childhood is a time when children particularly need high quality personal care and learning experiences. Primary education enables a child to learn, read and write. As of 2015, there were about 64 thousand primary schools (including existing primary schools, newly established and nationalized ones, and experimental primary schools) that house around 22 million students under 323 thousand teachers. Even though there are on average 5 teachers per school, the student-teacher ratio is still high at 68:1. A major milestone in the education sector is the adoption of National Education Policy 2010, a forward looking, comprehensive policy, which the government is implementing. The Government has adopted policies and programs to encourage enrolment and completion of school cycle, to address problems of drop-out children, child labor, hard-to-reach children in hard-to-reach areas and to improve quality, a deficiency of education. Besides, Bangladesh is also a signatory to the World Declaration on Education for All.

[1] SeeIndicators 2.2.1 and 2.2.2 under Target 2.2 of Goal 2
[2] SeeIndicators 3.1.1, 3.1.2, and 3.2.2 under Targets 3.1 and 3.2 of Goal 3.

The outcomes of these efforts are (i) increase in primary level net enrolment rate at 97.94% in 2015 from 60.50% in 1991-92 (ii) decline in drop-out rate from 47.20% in 2005 to 20.40% in 2015 (ii) and primary completion rate at 81.30% (APSC, 2015). Besides, gender parity index in primary education was 1.04 in 2015. The faster and relatively consistent growth in girls' enrolment vis-à-vis boys has been an important driver of the observed improvement in net enrolment and gender parity. The present challenges under **SDG-4**[3] include attaining the targets of primary education completion rate, improving quality of education and ensuring gender parity in education.

Despite Bangladesh being a low HIV-prevalence country,the government, with support from development partners, implemented numerous prevention efforts targeting the high-risk populations as well as migrant workers. Although these activities have helped keep the incidence of HIV down, the number of HIV-positive individuals has increased steadily since the first case was detected in 1989.

Although still considered to be a low prevalence country, Bangladesh remains extremely vulnerable to an HIV epidemic, given its dire poverty, overpopulation, gender inequality and high levels of transactional sex. It is estimated that without any intervention the prevalence in the general adult population could be as high as 8% by 2025 (GOB, 2008). Very few people, especially those who are at risk, are aware of their HIV status due to the limited access to voluntary counseling and testing services. The country therefore needs an HIV/AIDS awareness campaign to maintain the target of less than 1% as stipulated in the 7th Five Year Plan. In addition, the country needs to establish testing and treatment services to keep it at near elimination level as mandated in **SDG-3**[4].

Access to safe drinking water, good sanitation and hygiene (WASH) are vital for family well-being and these 3 pillars play important role in maintaining health. Contaminated water causes many water-borne infections such as diarrhea and also serves as a carrier for vectors such as mosquitoes spreading epidemics.

Open defecation and use of open or unsealed latrines mean no sanitation. Sanitation makes a positive contribution in family literacy and contributes to social and economic development of the society. Improved sanitation also helps the environment. Clean drinking water and good sanitation would not prevent infections without practicing good hygiene. A simple habit of washing hands goes a long way towards preventing diseases. A combined success in each of these 3 areas result in control of enteric diseases and boosts health of the household members, especially maternal and child health. Ensuring the use of safe drinking water still remains a challenge, as 41% of the population drink water from sources with fecal contamination and 25% drink water with a level of arsenic above international standards. Only 61% of the population use improved toilet facilities and 59% have a specific place for handwashing, equipped with soap and water (UNICEF, 2016).

Ensuring provisions of these basic services requires substantial amount of direct, indirect physical and financial resources from the government and the society. Besides, as a signatory of the new sustainable development agenda, 2030, the government is committed to achieving **SDG-6**[5] by ensuring universal and equitable access to safe and affordable drinking water for all; adequate and equitable access to sanitation, hygiene and end of open defecation. Besides, the government has made commitment in its 7th Five Year Plan to ensure availability of safe drinking water and improved availability of sanitary facilities by the end of the plan period (GOB, 2015).

In pursuit of its own development trajectory and commitment to the fulfillment of the SDGs, Bangladesh continuously invests in social sectors including health and education apart from undertaking numerous policies for poverty eradication and social protection. Concurrently, the country also initiates and revises policies to suit the changing needs of health and education. Fulfillment of these commitments will command substantial amount of physical and financial resources. It is thus, imperative to assess how effective these interventions are with regard to their levels and reach.

[3] See Indictors 4.1.1 and 4.5.1 under Targets 4.1 and 4.5 of Goal 4
[4] See Indicator 3.3.1 under Target 3.3 of Goal 3
[5] See Indicators 6.1.1and 6.2.1 under Targets 6.1 and 6.2 of Goal 6

1.2. Objectives and Research Questions

A range of public services provided by the government for its residents including healthcare, public housing, social care and social security, are known as social services. With its own resources and together with the development partners, government implements numerous social service projects. The success of these interventions depends on the effective coverage of the targeted beneficiaries. If an intervention fails to provide effective coverage then the related population is deprived of the intended benefits.

To that end some fundamental issues in the management of social service arise: (a) Are the services reaching the people they should serve? (b) Have the services been effective in meeting the people's needs? To that end, a nation-wide assessment was made on the efficacy of basic social services with regard to breastfeeding, and complementary feeding of infants, iron and folic acid supplementation during pregnancy, maternal diet, management of illness, antenatal care, birth registration within 45 days of delivery, schooling for children aged between 6 and 14 years, comprehensive knowledge about HIV/AIDS, safe water supply and sanitation and hygiene.

The specific objectives of the study are to:

- Assess barriers to equitable access of basic social services at national and divisional levels in Bangladesh; and to
- Understand whether it generates actionable evidence helpful for decision makers in order to identify, prioritize and then solve barriers to utilization of basic social services across different tiers of the government.

1.3. Survey Design and Data

The survey was designed to assess the benchmark of the relevant indicators and targets of **SDGs2, 3, 4, 5, and 6** and to enhance understanding of the factors that contribute to nutrition, health, water and sanitation and child development, especially in rural areas. The major objectives were to provide a national and divisional level as well as rural and urban male-female estimates of availability, access, utilization and effective coverage of some basic social services.

A sample size large enough is required to derive estimates of different levels of coverage with acceptable statistical precision. To that end, the sample frame of the Sample Vital Registration System (SVRS) of the Bangladesh Bureau of Statistics (BBS)-that provides national, divisional and district level estimates on vital events of mortality, fertility, marriage, migration, disability and other indicators-have been used.

The survey employed 13 modules in the questionnaire to catch the levels of reach and utilization of different government intervention aimed at providing social services to children, mothers and households. The questionnaire also gathered information on the age, sex and education among all usual household members, as well as the environmental circumstances of the household (water sources, sanitation etc.). Together, these modules provide extremely detailed information regarding maternal and child wellbeing related activities and experiences of respondent women.

Survey data were collected by the local female registrars of the SVRS of the BBS between May and July, 2016 after completion of a 3-day training. Data was gathered using Tablet PCs and sent to the main server via internet. Among others, the training familiarized them with the usage of Tablets. In each selected household, pregnant and lactating mothers were interviewed about breastfeeding, antenatal care, maternal diets, as well as health.

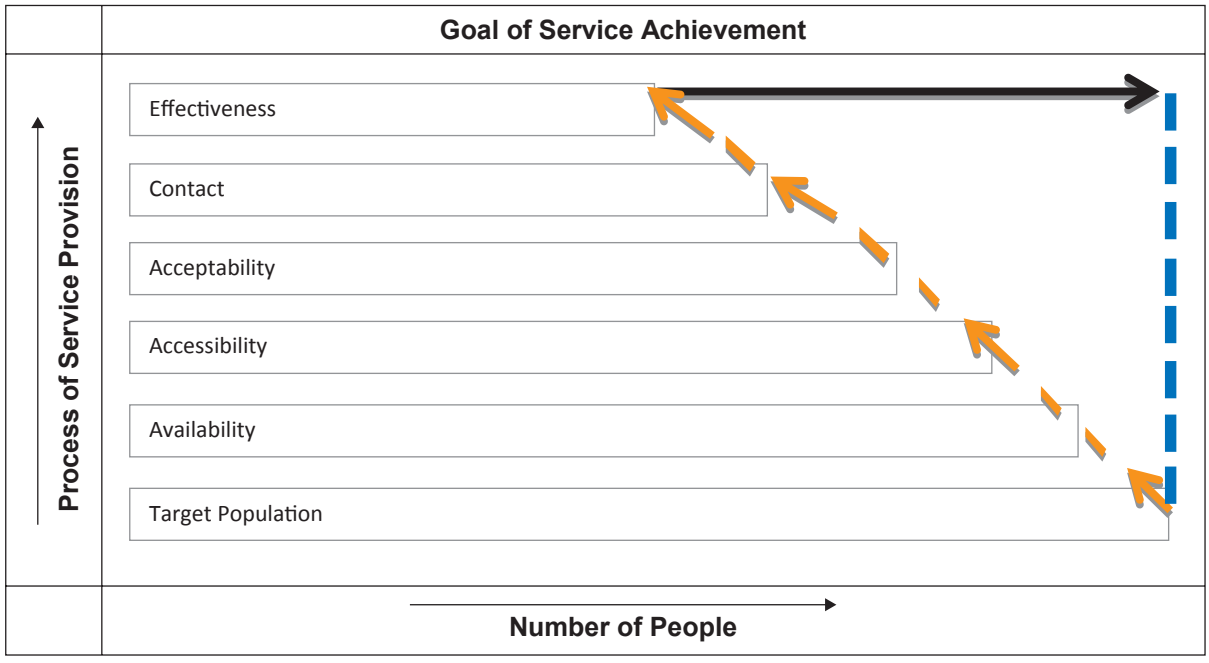
Data on hygiene and sanitation practices of the households were collected from the heads of the household. As the size of the reference population is different, the sample size differs across different modules. The sample size of each of the 13 modules has been presented in Table A1; Appendix-A.

1.4. Methodology and Analytical Framework

There are different approaches to assess the efficacy of an intervention. Approaches that focus on the process of intervention during its implementation are known as monitoring and evaluation. Approaches that focus on the outcomes of the intervention are known as impact

evaluation. These 2 types of approach however fail to assess both the intensive and extensive margins of the intervention. To that end, coverage evaluation approaches that focus on the outreach of an intervention to the targeted population come as a rescue. To analyze bottlenecks in coverage of an intervention, Tanahashi (1978) outlined 5 different stages from resource allocation to achievement of a desired result (Figure 1.1):

Figure 1.1: Tanahashi Process of Service Provision and Coverage Measurements



Source: Tanahashi (1978)

a. **Availability:** The relationship of the volume and type of existing services to the volume of clients and their needs;

b. **Accessibility:** The relationship between the location of services and the location of clients;

c. **Acceptability:** The relationship between the accessibility of services and the willingness of clients to use them;

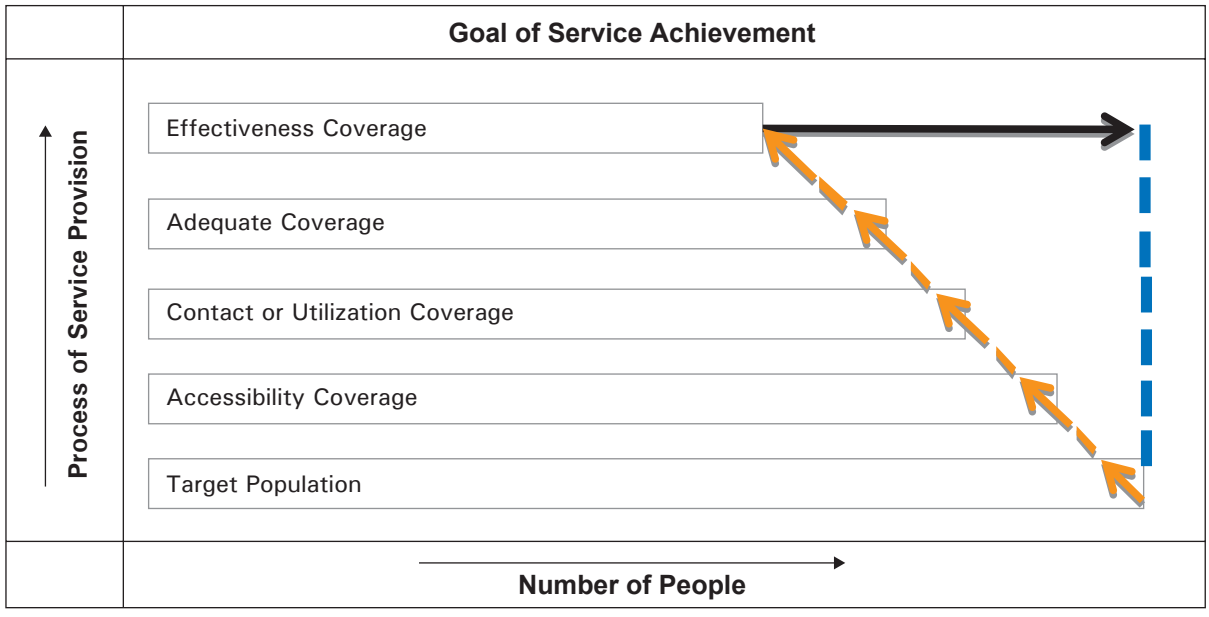
d. **Utilization or Contact:** The relationship between the volume of initial contacts with the service and number of clients;

e. **Effective Coverage:** The relationship between the volumes of full services provided with quality and the number of clients

A large difference between an adjacent pair of the coverage measurement implies that for a significant proportion of the target population, the service is failing to meet the requirement for progress in service provision. In other words, a large difference implies the existence of a problem or a bottleneck in the service provision.

In so far as the basic social services are universally and often ubiquitously made available (at least according to the providing agencies' claim) for all concerned clients, and there are different potential sources of information for determining availability coverage (for example, surveys of a sample of facilities can provide more detailed and reliable information on the availability of key inputs instead of consumer surveys as done here), the issue of 'Availability' is defined when it (a) is beyond the scope of the present study given the type of data available.

Figure 1.2: Modified Process of Service Provision and Coverage Measurements



Sources: Tanahashi {1978), WHO {2001) and UNICEF Bangladesh {2013)

Acceptability includes both affordability as well as non-pecuniary factors such as cultural acceptability, beliefs, religion, gender, type of facility, neighbourhood of facility etc. (Penchansky and Thomas, 1981). Information about acceptability coverage is very important for policymakers in order to better understand some of the predisposing and enabling factors that affect the use of services. As acceptability in consumer surveys, like the present one, is a subjective issue, the verifiability is very much in question. Therefore, the issue of acceptability as defined when it (c) is also beyond the scope of the present study given the type of data available.

Besides, one may visualize another stage between utilization and effective coverage. This stage dubbed as adequate coverage shows the relationship between the volume of full services provided and the volume of clients without taking the quality of the service into consideration (UNICEF Bangladesh, 2013). To visualize the domains of effective coverage, one can propose a modified coverage structure where the base represents the population in need (Figure 1.2). Every additional level represents the domain of coverage and shows how well the process of delivery of a health intervention is carried out. The space outside the coverage structure represents the size of the population in need who have been left out at each level due to either insufficient resources, poor physical access to services, cultural unacceptability, or insufficient knowledge and motivation to contact a healthcare provider, comply to the regimen etc.

Unlike Tanahashi (1978) the relationship between the different domains of coverage are not always hierarchical as presented in the structure. Like Tanahashi (1978), a large difference implies the existence of a problem or a bottleneck in the service provision. The identification itself cannot point out factors responsible for the bottlenecks. Thus, the UNICEF global MoRES is utilized along with the above framework to classify bottlenecks into one of the four domains under ten determinants (UNICEF, 2014).

1.5. Organization of the Report

The report is organized as follows. After this introductory chapter, demographic characteristics of the households are presented in Chapter Two. Issues related to nutrition such as breastfeeding, and maternal diet are presented in Chapter Three. The next chapter, Chapter Four, covers the issues related to maternal and child health such as antenatal care iron and folic acid supplementation and pneumonia/respiratory tract infection of the child. Issues related to child birth registration and completion of grade 5 primary is presented in Chapter Five. Knowledge about life threatening communicable disease-HIV/AIDS is presented in Chapter Six. Chapter Seven assesses the facility of safe water supply and sanitation in the household as well as the hygiene practice with regard to handwashing. Chapter Eight presents a summary and conclusions.

CHAPTER 2: DEMOGRAPHICS OF THE HOUSEHOLDS

This chapter presents a discussion on the characteristics of the household. The estimates derived from the survey results have been compared with the BDHS 2014, MICS 2012-13, and HIES 2010, whichever is applicable. The variables are chosen for broad socio-demographics including age, sex, rural-urban location, marital status, household size, demographic dependency ratio, and education etc. All these characteristics are reported both at the national and division levels. Together the variables capture most of the important characteristics that define household demographics. It may be noted that the target of the basic social services are women and children. So, particular focus has been given to these two types of household members.

2.1. Distribution of Households by Division, Location and Sex

The distribution of the population[6] by sex and administrative division is presented in Figure 2.1. Proportions of male and female are almost equal across divisions, which implies sex ratio of 1.0 similar to the sex-ratio obtained in the Population and Housing Census, 2011 (BBS, 2011) but different from the sex ratio of 0.95 which was obtained in BDHS (2014). However, sex ratio varies not only from one division to another, but also from one population subgroup to another within the same division. The female populations is slightly higher in Chittagong (51%) and Sylhet (50.7%) but slightly lower in Rajshahi (49.6%) and Rangpur (49.3%). Such regional difference however is not likely to be statistically significant.

Figure 2.2 presents the divide of the population based on their place of residence. At the national level, approximately 74% of the population resides in rural areas. Compared to the national level estimate, proportions of the rural population are relatively higher in Rangpur (86.2%), Sylhet (82.4%), Khulna (80.7%) Rajshahi (80%) while they are lower in Barisal (69.2% and Dhaka (67.4%).

2.2. Age Structure of the Household Members

The age-sex structure of the population is shown by the population pyramid in Figure 2.3 where the horizontal bars present the percentages of males and females in each age group. The age distribution shows that less than one third of the population (30.8%) is less than 15 years of age. People aged 65 years and over constitute 4.7% of the total population; the corresponding proportions are 3.4% and 5.6% in BDHS (2014) and 35.5% and 5.1% in Population and Housing Census, 2011. The pyramid is wider at the base than the top and narrows gradually at the older-age groups, implying that the majority of the population is young. Age heaping is prominent at specific age-groups, such as (5-9 and10-14) years for both males and females. This pattern is typical of a historically high-fertility regime that has recently started to stabilize or decline.

[6] The statistics are population weighted figures to make them representative.

Figure 2.1: Distribution of Population by Sex

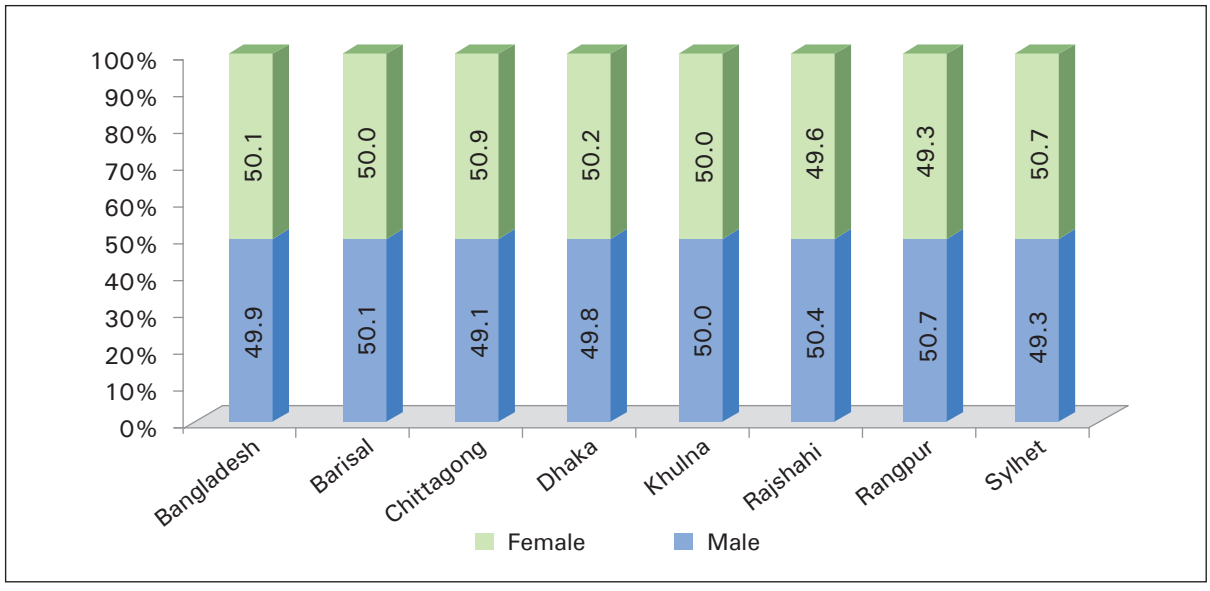
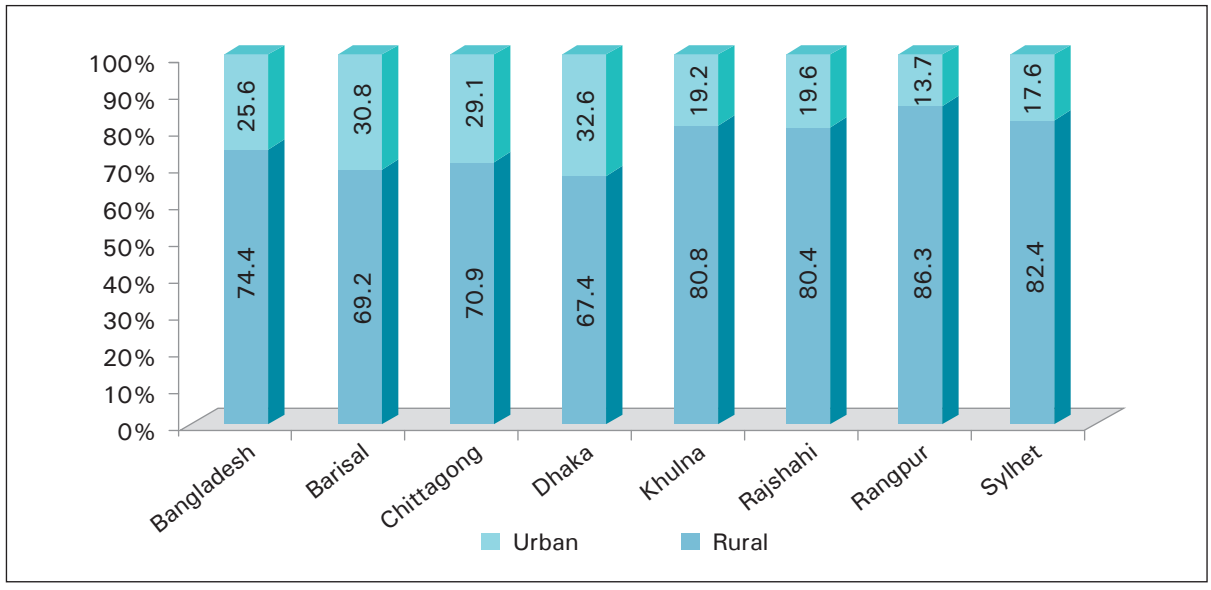
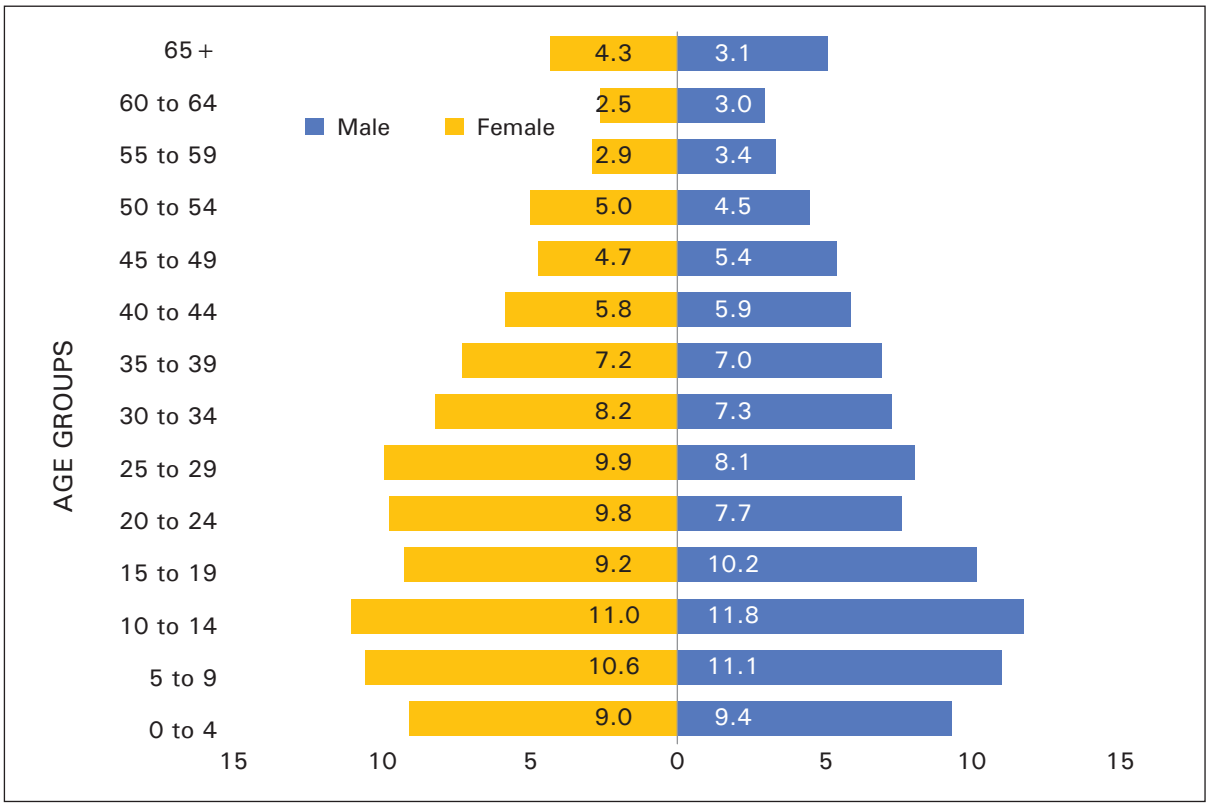


Figure 2.2: Distribution of Population by Residence



Approximately 31% (16% for males and 15% for females) of the population falls in the age range 0-14 years. These percentages are marginally lower than those reported in BDHS (2014). About 55% of the female population (28% of the total population) falls in the fertile age-group (age15-49), an estimate closely comparable to the one reported in the BDHS (2014) but higher than the 51.2% reported in the MICS (2012-13). The average age of the household members is relatively low at 28 years, which implies potential for reaping high demographic dividends. In the early years (age less than 20), the male-female ratio is greater than 1. The ratio gets smaller for all the age-groups in the age range of 20-39. Except for the age group 50-54, in all other age groups for age above 40, the male-female ratio is again greater than 1.

Figure 2.3: Population Pyramid (Age-Sex Structure of the Population)

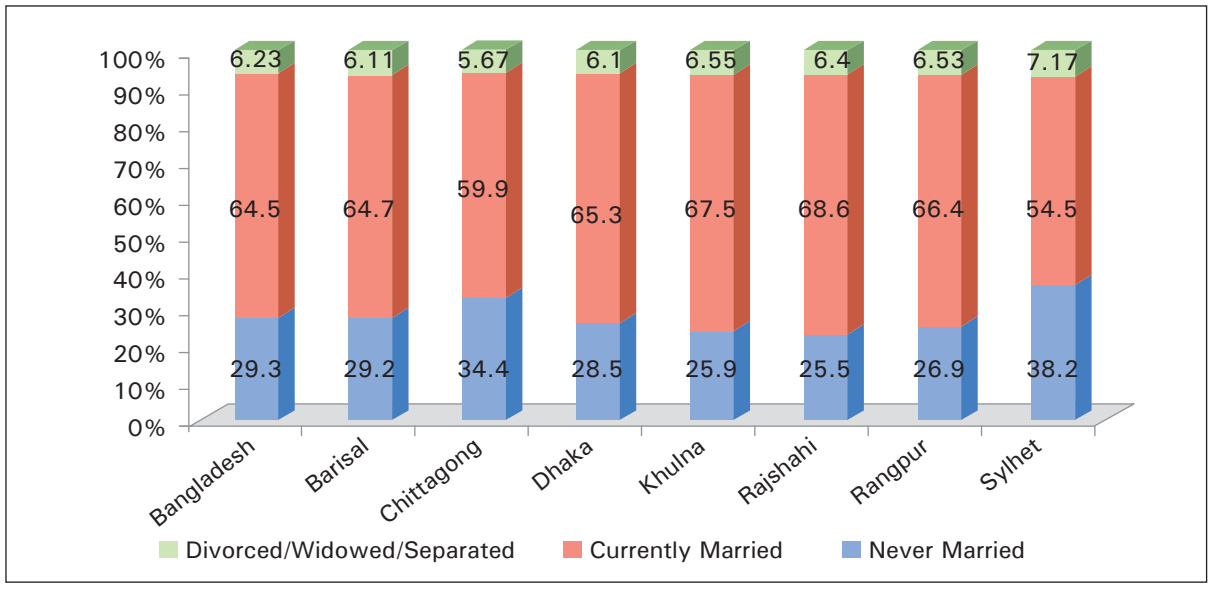


2.3. Marital Status of the Household Members and Marital Age

Figure 2.4 depicts the marital status of the household members. The numbers suggest that the majority of the household members are currently married (64%) while 29% of the household members are unmarried. The share of married population is 4 % higher than that reported in HIES, 2010. A comparison across the divisions shows that Rajshahi (68.6%) and Khulna (67.5%) have higher proportion of married population. In contrast, Sylhet (38.2%) and Chittagong (34.4%) have comparatively the higher proportion of unmarried population across the divisions.

When asked about the age of marriage, the respondents reported that 47% of women aged 20 to 49 married before the age of 18 and 10.7% of the women aged 15-49 years married before 15. For both cases Rajshahi presents the highest rates (58.2% and 17.6% respectively) and Sylhet the lowest (24.3% and 2.8% respectively). About one-third of the women between the age 20-24 years reported getting married before 18 years (34.7%) and about 1 in 16 reported marrying before the age of 15. It is important to note that this information should not be utilized as an estimation of the current prevalence of child-marriage, as the questionnaire did not include a complete module on early marriage, with probing questions that would allow for a reliable estimation. The rates should also not be compared with other surveys that follow the robustness checks including deeper probing using a thorough set of questions used for cross-checks.

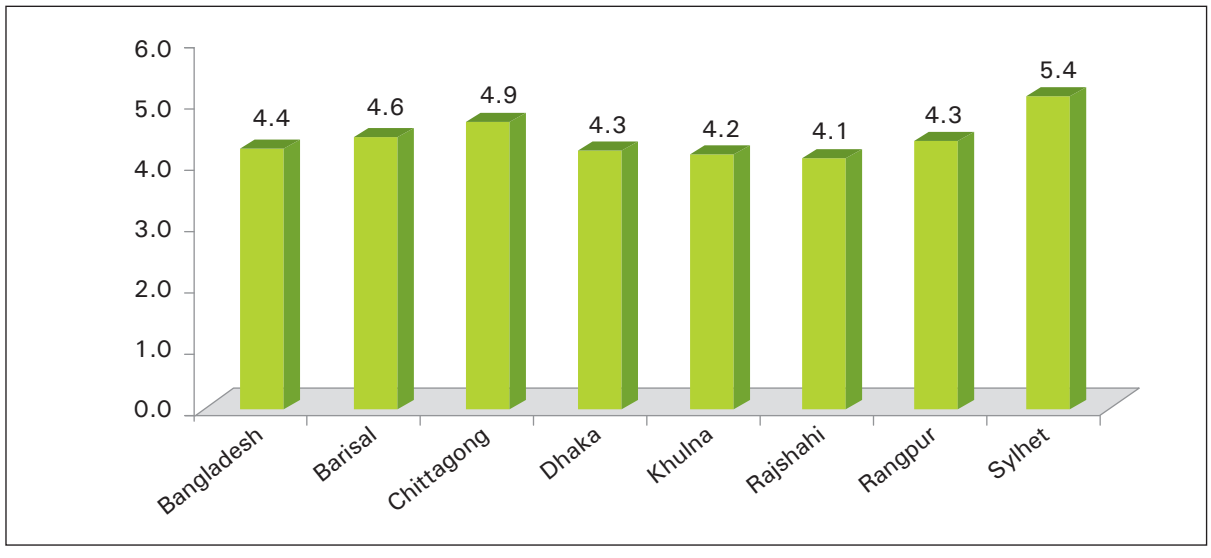
Figure 2.4: Marital Status of the Population by Division



2.4. Household Size and Demographic Dependency

Figure 2.5 presents average size of the households. On average there are 4.4 members per household, which is comparable to the estimate of 4.4 from the Population and Housing Census 2011 but slightly lower than the BDHS (2014) estimate of 4.5 and MICS (2012-13) estimate of 4.6. Divisional level analysis suggests that the average household size is relatively higher in Sylhet (5.4) and Chittagong (4.9) compared to the national estimate. In contrast the estimates are marginally lower for Khulna (4.2) and Rajshahi (4.1). This variation in household size across divisions is comparable to that obtained from Population and Housing Census, 2011.

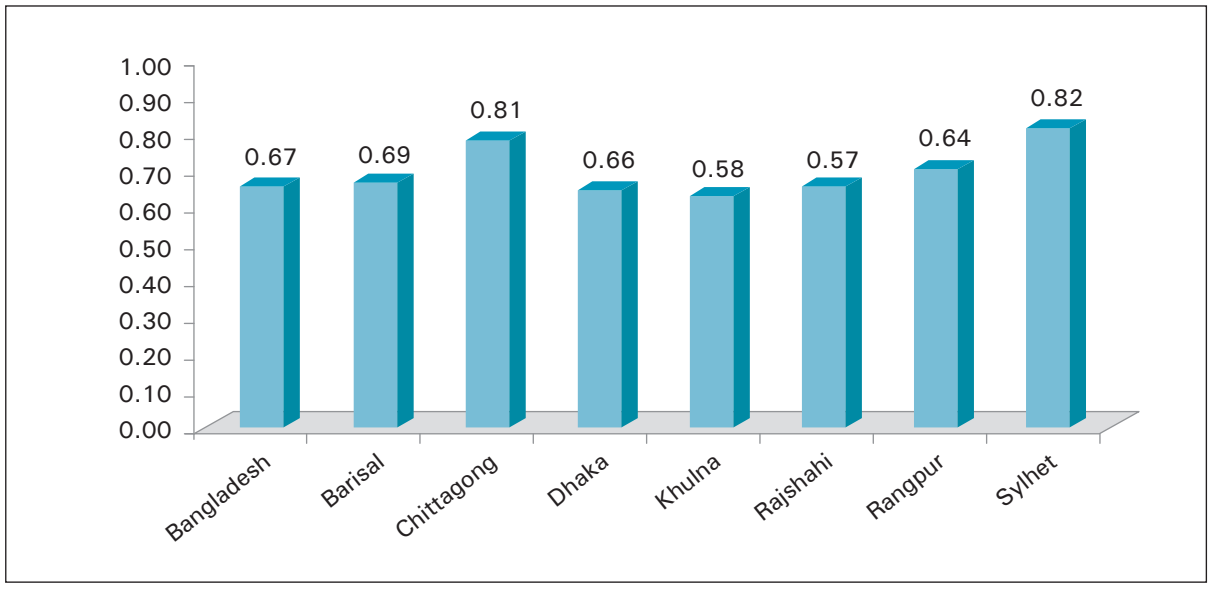
Figure 2.5: Average Household Size



The demographic dependency ratio[7], presented in Figure 2.6, reveals that for each of the working age member there are 0.67 members in the dependent age. This ratio is higher than the estimates of 55% as reported in the SVRS (2015) even though the current survey uses the same sample frame as SVRS (2015). Compared to the national estimates, the dependency ratios are higher in Sylhet (0.82) and Chittagong (0.81) but lower in Rajshahi (0.57) and Khulna (0.58).

[7] The demographic dependency ratio is defined in this report as the ratio of population aged 0–14 years and 65 years and over to the population aged 15–64 years old multiplied by 100. It may be noted that SVRS used the same methodology and reported a lower ratio.

Figure 2.6: Average Demographic Dependency Ratio

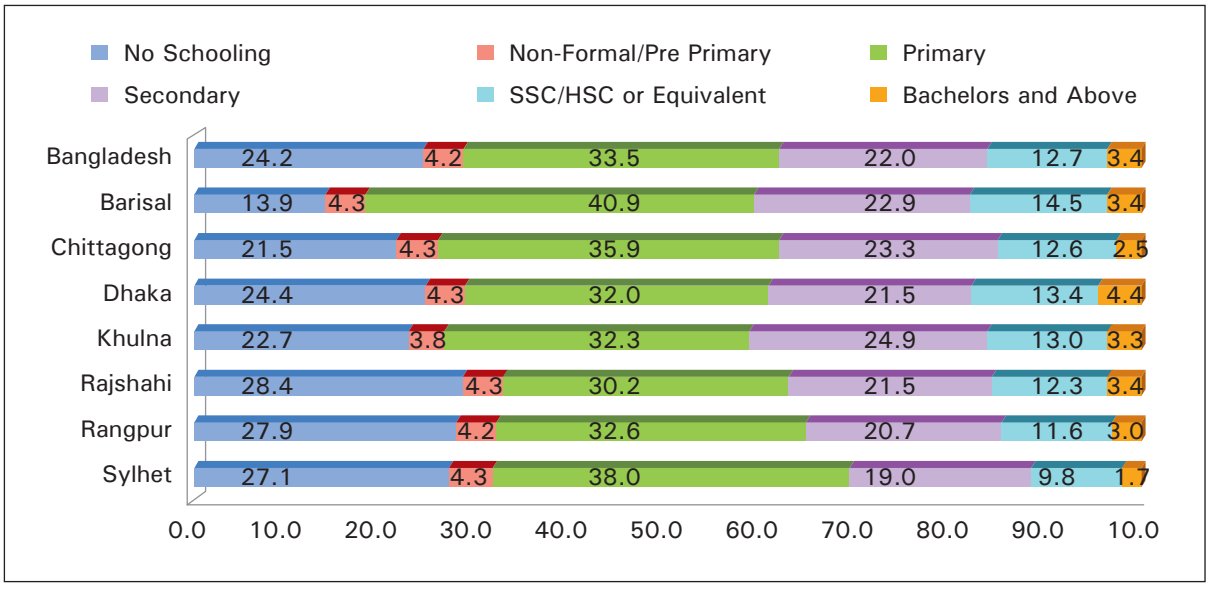


2.5. Educational Attainment of the Households

Education level of the household members collected in the survey is summarized in Figure2.7. The findings show that around 24% of the respondents' have never attended school or completed any grade at school. The rate of 'no schooling' is slightly higher for Rajshahi (28.4%), Rangpur (27.9%) and Sylhet (27.1%) but lower in Barisal (14%) and Chittagong (21.5%). Approximately 34% of the total population has completed primary education, with the incidence higher in Barisal, Sylhet and Chittagong. Approximately 12.7% of the population has completed SSC/HSC level education; the attainments are higher in Barisal, Dhaka, and Khulna.

The proportion of the population with higher education (graduate or postgraduate-level) is the highest in Dhaka (4.4%) and the lowest in Chittagong (2.5%) and Sylhet (1.7%).

Figure 2.7: Education Attainment by Division



Comparing the characteristics of the population with that of the BDHS (2014) or MICS (2012- or the Population and Housing Census, 2011, it is evident that the sample households are representative; especially, the rural population of Bangladesh. Thus, the coverage indicators estimated for different basic social services across administrative divisions, rural and urban residences and other personal attributes such as age, sex and education maybe considered as representative for that particular type.

CHAPTER 3: CHILD AND MATERNAL NUTRITION

Although Bangladesh has made significant progress in reducing poverty and improving food security, the overall nutrition status is not satisfactory. Malnutrition among young children, adolescent girls and women is still prevalent. Almost 35% of the children under the age of 5 are stunted, 31% are underweight and 10% wasted (DGHS, 2015). Child malnutrition is mainly caused by sub-optimal breastfeeding and complementary feeding, poor-dietary diversity and improper hygiene. Maternal malnutrition results from inadequate diet, poor-dietary diversity and gender/culture related practices. Few determinants including food in security, low birth weight, recurrent infections and environmental hazards are common to both types of malnutrition (GOB, 2015).

About 45% of the mothers in the country do not practice exclusive breastfeeding (BDHS, 2014). Instead, children of age 6 months and below are fed with varieties of food, such as fruits, formula, water, juice, etc. About 77% of the children under the age of 2 do not get adequate food with quality and diversity.

Around 46% of the pregnant women are anemic; a factor associated with low birth weight, child and maternal mortality.[8] There are rural urban disparities in nutritional status of children. Child nutrition is particularly worse in urban slums. Approximately 50% of the children are stunted, 43% underweight and only less than 25% children below the age of 5 in Dhaka city slums follow meal frequency and diet practices recommended by trained health workers, at the infant and young child feeding facilities (IYCF). (NIPORT, ICDDR,B and Measure Evaluation, 2015).

Poor nutrition status during adolescence and pregnancy has significant effect on the outcome of a woman's offspring. A baby's birth weight, rate of postnatal growth and chances of survival are all influenced by the mother's health and dietary intake. A healthy, well-nourished woman is more likely to have a healthy pregnancy, which increases her chances of having a healthy baby. A healthy baby has a better chance of growing into a healthy child and then growing into a healthy adult.

Under-nutrition during the early life or childhood has repercussions in terms of several adult outcomes including low physical and cognitive ability, high morbidity due to low levels of immunity and lower life time income (Gawatkin et. al., 2000, Glewwe and King, 2001 and World Bank, 2005). Based on cross-country data; Osmani and Sen (2003) showed that the fetal nexus between mother's health and child malnutrition persists as a bad equilibrium in the economy.

Under the broad theme of nutrition, 4 different issues on child and mother's nutrition are discussed in this chapter. Child nutrition areas include early breastfeeding, exclusive breastfeeding and complementary feeding while mother's nutrition includes maternal diet.

3.1. Early Initiation Breastfeeding

Provision of mother's breast milk to infants within one hour of birth ensures that the infant receives the colostrum, or "first milk", which is the best establishment in the life of a newborn. Skin-to-skin contact between mother and infant shortly after birth helps to initiate early breastfeeding and increases the likelihood of exclusive breastfeeding as well as the overall duration of breastfeeding. Medical literature has established a number of health benefits from early initiation of breastfeeding for the infant which includes reduced incidence of infection and child mortality (Horton, 2006). A comprehensive set of data/information on the breastfeeding practices including initiation of breastfeeding was collected from mothers/ caregivers of children under the age of 2. The coverage indicators are summarized by division

[8] https://www.unicef.org/bangladesh/Fact_sheet_CIDA_Nutrition_14_Jan.pdf

and location in Table3.1 and the operational definitions are provided below. Different coverage indicators of early breastfeeding by districts are presented in Table B1 in the Appendix-B.[9]

Accessibility: Proportion of children 0-23 months whose caregivers have access to trained health workers at the IYCF facilities within 30 minutes of walking distance.

Utilization: Proportion of children 0-23 months whose caregivers received counseling from trained health workers at the IYCF facilities during pregnancy.

Adequate Coverage: Proportion of children 0-23 months whose caregivers received counseling from trained health workers at the IYCF facilities during pregnancy and are breastfed within 24 hours after birth.

Effective Coverage: Proportion of children 0-23 months whose caregivers received counseling from trained health workers at the IYCF facilities during pregnancy and are breastfed within first hour after birth.

Table 3.1: Coverage of Early Breastfeeding by Residence

(In%)

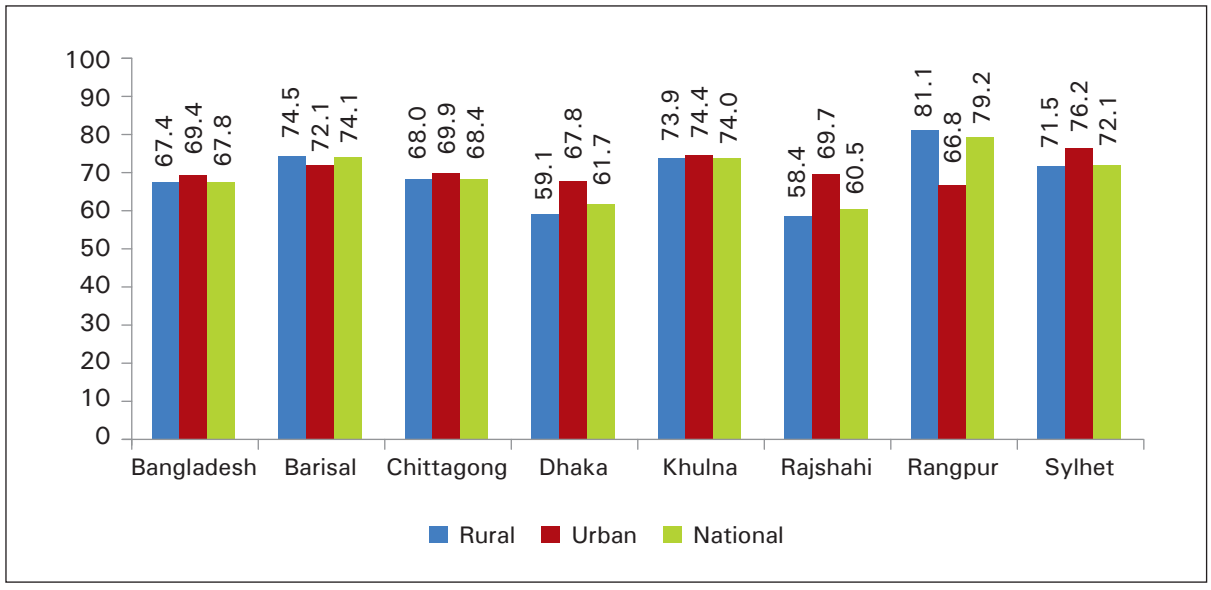
Division	Accessibility		Utilization		Adequate Coverage		Effective Coverage	
	Mean	Std. Error	Mean	Std. Error	Mean	Std. Error	Mean	Std. Error
National								
Bangladesh	66.3	0.27	44.9	0.28	40.9	0.28	35.6	0.27
Barisal	65.3	0.83	48.3	0.87	45.5	0.87	42.3	0.86
Chittagong	62.1	0.64	42.5	0.66	38.8	0.65	33.4	0.63
Dhaka	70.5	0.54	43.5	0.59	39.4	0.58	31.9	0.55
Khulna	71.1	0.76	52.6	0.83	46.6	0.83	40.2	0.82
Rajshahi	57.5	0.79	34.8	0.76	31.2	0.74	28.5	0.72
Rangpur	69.7	0.71	55.2	0.76	51.2	0.77	47.9	0.77
Sylhet	63.2	0.80	45.6	0.83	42.0	0.82	39.3	0.81
Rural								
Bangladesh	63.8	0.35	43.0	0.36	39.3	0.36	34.8	0.35
Barisal	62.7	1.32	46.7	1.36	44.5	1.35	41.9	1.34
Chittagong	60.7	0.80	41.3	0.80	37.7	0.79	32.6	0.77
Dhaka	66.7	0.68	39.4	0.70	35.8	0.69	29.5	0.65
Khulna	69.7	1.01	51.6	1.10	46.3	1.10	40.5	1.08
Rajshahi	55.0	1.02	32.1	0.96	28.7	0.93	26.6	0.91
Rangpur	68.0	0.95	55.1	1.01	51.4	1.02	48.4	1.02
Sylhet	61.4	1.11	43.9	1.13	40.3	1.12	38.0	1.11
Urban								
Bangladesh	77.1	0.37	53.5	0.44	48.1	0.44	39.3	0.43
Barisal	80.0	0.90	57.7	1.12	51.4	1.13	44.6	1.12
Chittagong	68.4	1.06	47.8	1.13	43.5	1.13	36.8	1.09
Dhaka	80.7	0.83	54.7	1.04	49.3	1.05	38.5	1.02
Khulna	78.4	1.05	58.3	1.26	48.5	1.28	38.8	1.25
Rajshahi	71.4	1.14	49.7	1.26	45.5	1.26	38.9	1.23
Rangpur	83.2	0.87	55.6	1.16	49.5	1.17	43.8	1.16
Sylhet	77.9	1.00	59.4	1.19	55.5	1.20	49.3	1.21

At the national level, 36% of the lactating mothers in rural and 23% in urban areas do not have access to trained health workers at the IYCF within 30 minutes of walking distance. Among the rural areas, the accessibility scenario is particularly worse in Rajshahi (58%). About 42% of the mothers with accessibility do not avail the advice from trained health workers at the IYCF facilities in Rajshahi. Urban mothers are utilizing the service at a higher rate (by 11%) compared to rural mothers. Only less than two-fifths of the rural mothers in Dhaka and Rajshahi seek advice from trained health workers at the IYCF facilities. Comparing utilization rates among those who have access to trained health workers at the nearby IYCF facility; the findings are that mothers in Dhaka and Rajshahi perform worse (Figure 3.1).

[9]Indicators at district level were sometimes estimated with a few observations and hence may not be reliable. This caveat should be kept in mind while referring to the district level results provided in Appendix B.

Figure 3.1: Mothers Utilizing IYCF Advisory Service by Residence

(In%)



Note: Only mothers with access to the IYCF services within 30 minutes of walking distance are included.

The adequate coverage indicator emphasizes on the fraction of mothers, who have breastfed or have initiated the breastfeeding process within the first day (i.e. within 24 hours). There is a marginal decline as one moves from utilization to adequate coverage. The slide in coverage is however higher among urban mothers in Khulna and Barisal. The effective coverage indicator includes only those children who were breastfed within the first hour of birth. The effective coverage in urban areas drop markedly from the level of adequate coverage. The estimates of effective coverage indicate that approximately 29.5% of rural mothers in Dhaka and 26.6% in Rajshahi initiated breastfeeding within the first hour of birth. Urban mothers in Chittagong also performed worse in terms of initiation of breastfeeding within the first hour. Despite being the poorest division[10] with regard to economic indicators, the performance of lactating mothers in rural Rangpur is striking; across all coverage measures of early breastfeeding.

Table 3.2: Initiation of Breastfeeding

(In%)

Divisions	Immediately after birth (< 1 hour)	Within the first day (1-23 hours)	After > 1 day (1-30 days)	Do not know/ Cannot recall
Bangladesh	69.5	21.6	4.3	4.6
Barisal	80.5	13.7	3.2	2.7
Chittagong	63.7	27.6	2.2	6.5
Dhaka	65.2	25.4	5.3	4.2
Khulna	69.3	19.3	7.2	4.2
Rajshahi	72.2	17.5	7.0	3.2
Rangpur	75.7	17.0	2.4	4.9
Sylhet	79.0	13.1	3.2	4.7

Note: Mothers who are saying to have utilized the IYCF services are included.

As Table 3.2 reveals, approximately 70% of mothers who have breastfed and have access to an IYCF facility within 30 minutes of walking distance, initiated breastfeeding within the first hour, another 22% within the first day, while the remaining 4% within the first month. Comparisons across divisions indicate that the first hour initiation rate is higher in Barisal (80.5%), Sylhet (79%) and Rangpur (75.7%) but low in Chittagong (63.7%) and Dhaka (65.2%).

[10] Estimates in the HIES, 2010 show poverty rates in Rangpur division are persistently high: about 30% (46%) of the population in Rangpur live below lower (upper) poverty line based on costs of basic needs approach.

Table 3.3: Coverage of Early Breastfeeding by Sex of the Child

(In%)

Division	Accessibility	Utilization	Adequate Coverage	Effective Coverage
		Baby Girl		
Bangladesh	66.7	45.0	41.2	36.0
Barisal	65.2	49.4	46.0	43.0
Chittagong	62.2	42.5	38.8	33.7
Dhaka	70.9	43.3	39.4	31.8
Khulna	71.5	52.3	46.9	40.5
Rajshahi	58.0	35.6	32.4	29.6
Rangpur	70.9	55.4	52.1	49.1
Sylhet	63.7	46.2	41.9	39.0
		Baby Boy		
Bangladesh	65.8	44.8	40.6	35.3
Barisal	65.4	47.3	45.0	41.7
Chittagong	62.0	42.5	38.8	33.1
Dhaka	70.0	43.7	39.4	32.0
Khulna	70.7	52.9	46.4	39.9
Rajshahi	57.0	34.1	30.1	27.5
Rangpur	68.5	55.0	50.3	46.7
Sylhet	62.8	45.1	42.1	39.5

Extension of the coverage analysis by sex of the child, as reported in Table 3.3, does not reveal any systematic difference in any of the coverage indicators between male and female children across the divisions. Despite both overt and covert preferences among parents, there is no evidence of gender discrimination in the case of early breastfeeding.

3.2. Exclusive Breastfeeding

Exclusive breastfeeding for 6 months is the optimal way of feeding infants. Exclusive breastfeeding reduces infant mortality due to common childhood illnesses such as diarrhea or pneumonia, and helps for a quicker recovery during illness. In order to assess the situation data were collected from mothers on breastfeeding practices for children under the age of 6months. The information reveals whether the children in this age group are fed on exclusive breastmilk or other food items except breast milk.

The coverage indicators are summarized in Table 3.4 and the operational definitions are provided below. Accessibility and effective coverage Indicators of exclusive breastfeeding by districts are presented in Table B2 in the Appendix-B.

Accessibility: Proportion of children 0-5 months, whose caregivers have access to trained health workers at the IYCF facilities within 30 minutes of walking distance.

Utilization: Proportion of children 0-5 months, whose caregivers have access to trained health workers at the IYCF facilities within 30 minutes of walking distance and who breastfed the last baby.

Adequate Coverage: Proportion of exclusively breastfed (only breast milk and nothing else, not even water) children 0-3 months, whose caregivers have access to trained health workers at the IYCF facilities within 30 minutes of walking distance and who breastfed the last baby.

Effective Coverage: Proportion of exclusively breastfed (only breast milk and nothing else, not even water) children 0-5 months, whose caregivers have access to trained health workers at the IYCF facilities within 30 minutes of walking distance and who breastfed the last baby.

Table 3.4: Coverage of Exclusive Breastfeeding of Children 0-5 months by Residence

(In%)

Division	Accessibility		Utilization		Adequate Coverage		Effective Coverage	
	Mean	Std. Error	Mean	Std. Error	Mean	Std. Error	Mean	Std. Error
National								
Bangladesh	67.9	0.60	67.0	0.60	22.0	0.50	18.8	0.50
Barisal	65.6	1.75	64.8	1.76	16.6	1.37	16.0	1.35
Chittagong	63.5	1.41	62.7	1.41	24.8	1.26	21.6	1.20
Dhaka	72.9	1.14	71.9	1.16	20.3	1.04	16.7	0.96
Khulna	74.8	1.57	74.1	1.58	21.5	1.49	16.5	1.34
Rajshahi	59.5	1.67	57.6	1.68	20.0	1.36	17.6	1.29
Rangpur	68.5	1.58	68.4	1.58	29.5	1.55	26.7	1.50
Sylhet	64.3	1.72	63.3	1.73	19.0	1.41	15.0	1.28
Rural								
Bangladesh	65.1	0.76	64.2	0.77	20.6	0.65	17.6	0.61
Barisal	63.1	2.82	62.8	2.83	15.1	2.10	14.8	2.08
Chittagong	61.0	1.76	60.3	1.77	23.5	1.53	20.0	1.45
Dhaka	68.5	1.44	67.5	1.46	18.1	1.20	15.4	1.12
Khulna	73.9	2.08	73.0	2.10	20.4	1.91	15.5	1.72
Rajshahi	57.4	2.22	55.8	2.23	20.0	1.79	17.5	1.70
Rangpur	66.5	2.13	66.3	2.14	27.8	2.02	25.1	1.96
Sylhet	62.8	2.48	61.8	2.49	17.5	1.95	13.5	1.75
Urban								
Bangladesh	80.0	0.76	78.8	0.77	27.9	0.85	23.5	0.80
Barisal	79.0	1.93	75.4	2.04	25.5	2.07	22.5	1.98
Chittagong	74.0	2.17	73.4	2.18	30.4	2.27	28.6	2.23
Dhaka	85.4	1.63	84.1	1.68	26.8	2.04	20.5	1.86
Khulna	80.1	2.23	79.9	2.24	27.7	2.50	22.2	2.32
Rajshahi	69.7	2.39	66.7	2.45	20.4	2.09	17.7	1.98
Rangpur	84.9	1.85	84.7	1.86	41.5	2.54	38.7	2.51
Sylhet	74.1	2.20	73.7	2.21	27.8	2.25	25.1	2.17

At the national level, only 65% of the rural mothers with children under the age of 6 months have access to trained health workers at the IYCF facilities within 30 minutes of walking distance.

The accessibility situation is worse in rural Rajshahi (57.4%) but better in rural Khulna (73.9%) and Dhaka (68.5%). There is little difference between accessibility and utilization across divisions, probably due to the fact that the majority of the mothers of the newborn children, who have access to the nearby IYCF facilities actually breastfed their last child.

The coverage indicators reveal that there is a sharp fall in adequate and effective coverage compared to the utilization. At the national level the drop in adequate coverage is more than 70% which further increases to more than 80% for effective coverage. The drop in adequate or effective coverage suggests that children are not exclusively breastfed; rather they are fed with other food items besides breast milk including water, dairy milk, infant formula, yogurt, fruit juice, clear soup and other liquid food etc. It may be noted that the proportion of children exclusively breastfed is reported to be 55% in BDHS (2014), which is much higher compared to the estimates obtained under current survey although both of the surveys elicit breastfeeding responses based on a 24-hour recall method. Comparisons across the divisions reveal that the drop is more pronounced in both rural and urban areas of Barisal, Dhaka and Khulna and urban areas of Sylhet division. Notably the drop in exclusive or adequate coverage indicator is relatively lower in urban Rajshahi and Rangpur divisions.

Table 3.5 : Coverage of Exclusive Breastfeeding of Children (0-5 months) by Sex

(In%)

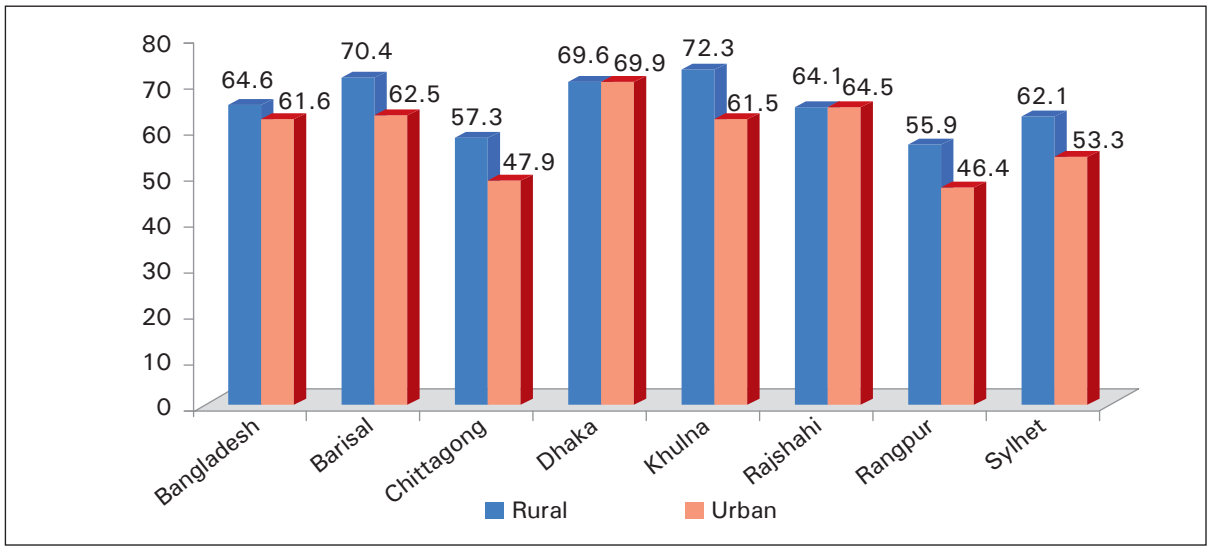
Divisions	Accessibility	Utilization	Adequate Coverage	Effective Coverage
			Baby Girl	
Bangladesh	67.8	66.9	21.9	19.2
Barisal	66.0	65.5	16.9	15.0
Chittagong	62.1	61.6	24.7	22.5
Dhaka	75.2	74.0	20.3	16.8
Khulna	75.3	75.2	22.5	18.7
Rajshahi	57.7	55.2	18.1	16.6
Rangpur	66.5	66.5	30.3	28.6
Sylhet	62.2	61.3	18.6	14.8
			Baby Boy	
Bangladesh	68.1	67.1	22.1	18.4
Barisal	65.3	64.0	16.3	17.1
Chittagong	64.7	63.8	24.9	20.8
Dhaka	70.6	69.7	20.3	16.7
Khulna	74.4	73.2	20.7	14.8
Rajshahi	61.4	60.1	22.1	18.6
Rangpur	70.9	70.4	28.6	24.5
Sylhet	66.5	65.6	19.4	15.2

The analysis was extended to examine if female children are discriminated against males in exclusive breastfeeding ostensibly due to overt and covert preferences. As the results in Table 3.5 show, there is no clear gender discriminatory pattern between male and female children across the divisions. In Chittagong, Khulna and Rangpur, baby girls exhibit relatively increased exclusive breastfeeding compared to their male counterparts. The discussion is true in the case of other administrative divisions.

What comes up next is the question of the exact fraction of breastfed children reliant on non-breast milk items i.e.: what fraction of the children is not on exclusive breastfeeding. It was found that approximately two-thirds of the children in the age group below 6 months are exposed to non-breast milk items (Figure 3.2). The deviation from exclusive breastfeeding is consistently higher in rural areas compared to urban areas. Further, the proportion of non-exclusive breast fed children is notably higher in urban areas of Dhaka (69.6%) and rural areas of Khulna (72.3%) and Barisal (70.4%). In contrast, the proportion of exclusively breast fed children is higher in urban areas of Rangpur and Chittagong divisions.

Figure 3.2: Ever Breastfed Children Not on Exclusive Breastfeeding

(In%)



Note: Only children under 6 months of age who are ever breastfed and have access to trained health workers at the IYCF facilities are included. Non breast milk items include water, dairy milk (for example, cow milk), infant formula, yogurt, fruit juice, clear soup, and other liquid food.

Table 3.6: Ever Breastfed Children (0-5 months) Taking Non-Breast Milk Items

(In%)

Division	Infant Formula	Dairy Milk	Fruit Juice	Infant Formula	Dairy Products	Fruit Juice
		Rural			Urban	
Bangladesh	13.6	38.3	13.5	16.2	39.6	12.0
Barisal	8.9	35.8	12.6	10.3	36.8	9.6
Chittagong	12.5	32.6	15.3	13.7	26.3	12.8
Dhaka	15.5	42.6	10.7	19.9	49.9	10.7
Khulna	12.7	41.6	17.6	14.3	39.6	13.7
Rajshahi	12.8	40.2	13.1	10.0	31.5	16.2
Rangpur	10.1	36.5	16.2	11.6	27.5	14.4
Sylhet	19.9	32.9	11.6	16.0	25.1	9.6

Note: Only children under 6 months of age who are ever breastfed are included.

The non-breastmilk food items were disaggregated to investigate if the target infants are consuming breastmilk substitutes. Table 3.6 show that almost two-fifth of the infants are dairy milk fed, 8.9-19.9% are formula fed while 9.6-17.6% take fruit juices. There is variation across divisions. Almost 50% of the breastfed infants in urban areas of Dhaka are also dairy milk fed. Similarly, relatively higher share of children from Khulna, Dhaka and rural areas of Rajshahi are found to be dairy milk fed. Finally, percentages of children fed on infant formula are higher in Sylhet and Dhaka. Besides, the incidences of infant formula fed children are higher in urban areas except for Rajshahi and Sylhet.

3.3 Complementary Feeding

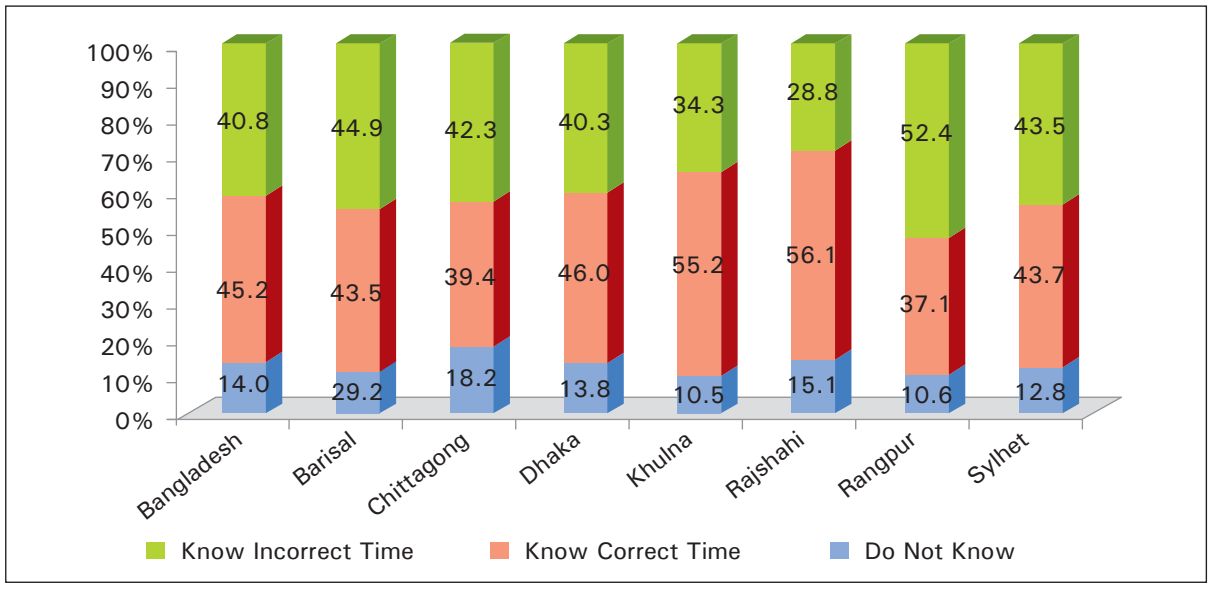
When infants reach 6 months of age, breast milk alone is no longer enough to meet her/his nutritional needs. Thus, complementary foods should be introduced and added to the diet of the child. Complementary feeding should be *timely*, meaning that all infants should start receiving foods in addition to breast milk from 6 months onwards. It should be *adequate*, meaning that the complementary foods should be given in amounts, frequency, and consistency using a variety of foods to cover the nutritional needs of the growing child while maintaining breastfeeding. Foods should be prepared and given in a safe manner, meaning that measures are taken to minimize the risk of contamination with pathogens. And they should be given in a way that is *appropriate*, meaning that foods are of appropriate texture for the age of the child and applying responsive feeding following the principles of psycho-social care. The adequacy of complementary feeding (adequacy in short for timely, adequate, safe and appropriate) not only depends on the availability of a variety of foods in the household, but also on the feeding practices of caregivers. Feeding young infants requires active care and stimulation, where the caregiver is responsive to the child providing clues for hunger and is also actively encouraging the child to eat. This is also referred to as active or responsive feeding. In Bangladesh, some health facilities or community clinics offer IYCF counseling through dedicated trained workers on issues related to child food at different ages. A rich set of data/information was collected on various issues related to child food and feeding practices from the caregivers of children in the age group of 6-23 months to assess the situation.

In general, the knowledge about child feeding practices is not satisfactory. About 86% of the caregivers claim that they have the proper knowledge on when to initiate solid food to the children. However, only around 45% could correctly mention the correct time for the children to start solids. The knowledge gap is worse in Rangpur, Barisal, Chittagong and Sylhet, where 42-52% do not know the right time to start complementary food (Figure 3.3).

[11]See https://www.unicef.org/nutrition/index_24826.html for details.

Figure 3.3: Knowledge on Right Initiation Timing of SSF for Children

(In %)



Note: Caregivers who claimed to know the correct timing for starting solid food were asked to state the correct time. It may be recalled that the correct initiation time for children to start solid food is 6 months of age.

The coverage indicators are summarized in Table 3.7 and the operational definitions followed are as given below Accessibility and Effective coverage indicators of complementary feeding by districts are presented in Table B3 in the Appendix-B.

Accessibility: Proportion of 6-23 months children whose caregivers have access to trained health workers at the IYCF facilities within 30 minutes of walking distance.

Utilization: Proportion of 6-23 months children whose caregivers received at least one promotion/counseling session on complementary feeding in the past 3 months from trained health-workers at the IYCF facilities within 30 minutes of walking distance.

Adequate Coverage: Proportion of children with minimum dietary frequency in the past 24 hours.

Effective Coverage: Proportion of children with minimum acceptable diet in the past 24 hours.

Accessibility in urban are better, in general, although 15.5-28.5% of caregivers of children (6-23 months) do not have access to trained health workers at the IYCF counseling services within 30 minutes of walking distance, at the national and divisional levels. In rural areas, 30-44% of care givers have similar problem, with situation getting worse in Rajshahi and Sylhet divisions. Accessibility benefits if caregivers do not utilize the IYCF facilities. The drop in utilization rate, 28% in rural and 34% in urban areas, suggests that most of the caregivers did not seek advice from the IYCF counseling services on complementary feeding issues during the last three months. The utilization rates are particularly worse in both rural and urban areas of Rajshahi, Dhaka and Chittagong.

Table 3.7: Coverage of Complementary Feeding by Residence

(In%)

Division	Accessibility		Utilization		Adequate Coverage		Effective Coverage	
	Mean	Std. Error	Mean	Std. Error	Mean	Std. Error	Mean	Std. Error
				National				
Bangladesh	67.4	0.30	38.6	0.31	27.1	0.28	20.0	0.25
Barisal	65.6	0.94	44.8	0.99	32.9	0.93	25.3	0.86
Chittagong	65.1	0.71	38.4	0.72	25.8	0.65	20.0	0.59
Dhaka	70.7	0.61	34.9	0.63	25.2	0.58	17.5	0.51
Khulna	71.8	0.85	46.2	0.94	33.3	0.89	24.8	0.81
Rajshahi	58.0	0.89	28.8	0.82	21.3	0.74	15.1	0.65
Rangpur	70.9	0.78	47.7	0.86	32.3	0.80	26.1	0.76
Sylhet	64.4	0.90	41.0	0.92	27.9	0.84	18.7	0.73
				Rural				
Bangladesh	64.9	0.39	37.3	0.40	26.1	0.36	19.1	0.32
Barisal	63.0	1.50	44.3	1.55	32.7	1.46	25.5	1.36
Chittagong	63.8	0.88	38.2	0.89	25.3	0.79	19.6	0.73
Dhaka	67.0	0.76	31.7	0.75	22.6	0.68	15.1	0.58
Khulna	70.4	1.13	45.7	1.23	32.9	1.16	24.4	1.06
Rajshahi	55.7	1.15	26.2	1.01	20.1	0.92	14.3	0.81
Rangpur	69.2	1.06	47.7	1.14	32.0	1.07	25.7	1.00
Sylhet	62.3	1.24	39.8	1.25	27.1	1.13	18.0	0.98
				Urban				
Bangladesh	78.2	0.41	44.1	0.50	31.7	0.46	23.7	0.42
Barisal	80.8	1.01	48.0	1.28	34.6	1.22	24.3	1.10
Chittagong	71.5	1.15	39.7	1.25	28.1	1.15	21.6	1.05
Dhaka	80.8	0.93	43.9	1.17	32.4	1.10	24.0	1.00
Khulna	79.4	1.17	49.1	1.44	35.4	1.38	26.5	1.27
Rajshahi	71.4	1.31	43.7	1.43	28.3	1.30	19.9	1.15
Rangpur	84.5	0.95	47.1	1.31	34.7	1.24	29.4	1.19
Sylhet	81.8	1.06	50.7	1.38	33.8	1.30	24.2	1.18

The adequate and effective coverage indicators for complementary feeding assess if children in the age group of 6-23 months are fed the right amount of food with minimum acceptable quality. Among the children of age 6-23 months, whose caregivers have accessibility to IYCF counseling services, approximately only one-fourth in rural and one-third in urban areas meet the 'minimum acceptable standard' of meal frequency (Table 3.7). The scenario is particularly worse in rural areas of Rajshahi (20%) and Dhaka (22.6%) and in urban areas of Chittagong (28.1%) and Rajshahi (28.3%). The effective coverage incorporated the dietary diversity– whether children are provided with a balanced diet fulfilling the minimum requirement of carbohydrate, protein, fat, vitamins and minerals. The effective coverage indicator reveals that less than one-fifth of the children in rural and less than one-fourth in urban areas received a balanced diet with adequate diversity. The situation is particularly worse in rural Rajshahi (14.3%), Dhaka (15%), and Sylhet (18%).

Table 3.8: Coverage of Complementary Feeding by Sex of the Child

(In%)

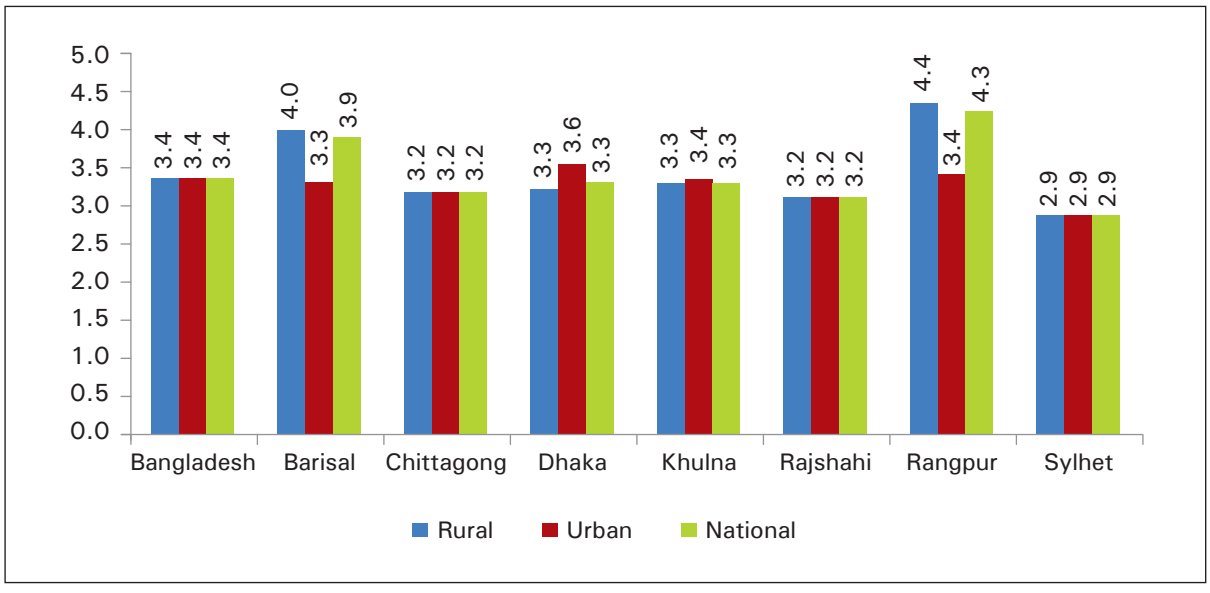
Division	Accessibility	Utilization	Adequate Coverage	Effective Coverage
		Baby Girl		
Bangladesh	67.9	38.5	27.4	20.1
Barisal	65.1	44.2	32.7	27.1
Chittagong	66.1	37.8	26.1	20.3
Dhaka	70.1	33.7	24.8	16.8
Khulna	71.9	46.7	32.4	22.8
Rajshahi	59.4	30.6	22.5	16.0
Rangpur	72.8	49.3	34.0	27.4
Sylhet	65.4	42.3	29.6	20.4

Division	Accessibility	Utilization	Adequate Coverage	Effective Coverage
			Baby Boy	
Bangladesh	66.9	38.6	26.9	19.8
Barisal	66.1	45.5	33.2	23.5
Chittagong	64.3	39.0	25.5	19.7
Dhaka	71.4	36.2	25.7	18.1
Khulna	71.6	45.7	34.1	26.5
Rajshahi	56.8	27.1	20.2	14.4
Rangpur	69.1	46.1	30.7	24.8
Sylhet	63.5	39.7	26.1	17.1

As Table 3.8 reflects, there is no marked difference between male and female children in terms of accessibility and utilization of IYCF counseling services for advice on complementary feeding practices. However, baby girls seemed to outperform baby boys moderately, in meeting minimum standard on frequency of meal per day and minimum dietary diversity in divisions such as Barisal, Rangpur and Sylhet. In contrast, the statistics are in favor of baby boys in Khulna.

Figure 3.4: Intake of SSF by Residence

(Frequency)

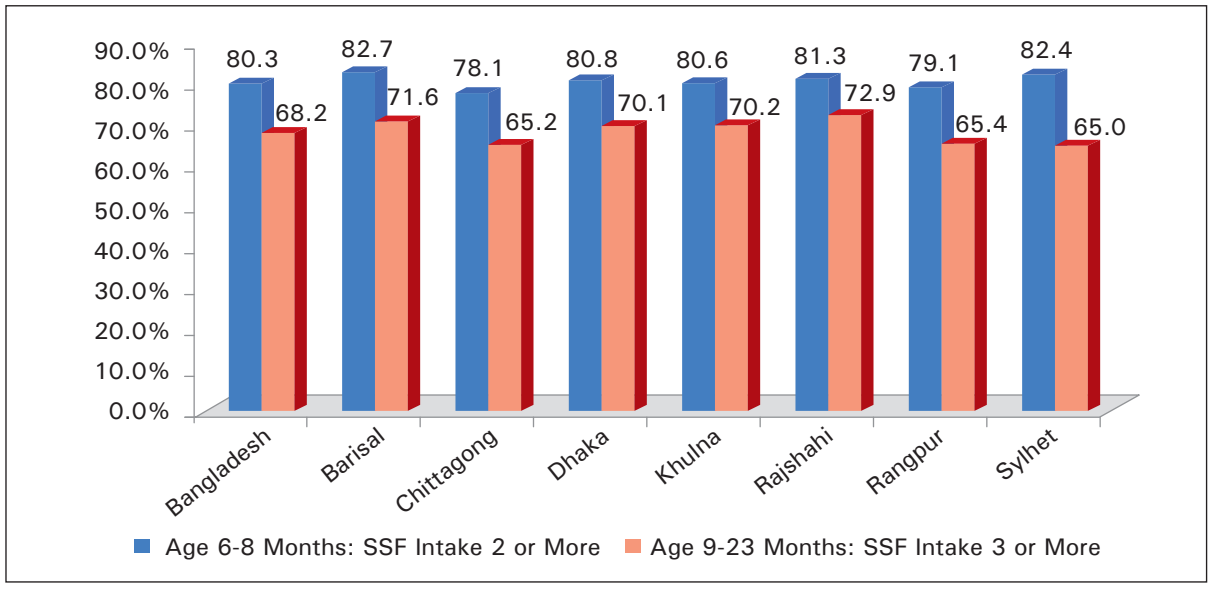


The low level of adequate coverage implies that children in the 6-23 months age group are not getting an appropriate amount of food. The average frequency of solid, semi-solid and soft food (SSF) intake, as presented in Figure 3.4, is around 3.4 times at the national level. There are mild variations across the divisions. The average frequencies are low in Sylhet, Rajshahi and Chittagong but notably higher in rural areas of Rangpur (4.4) and Barisal (4).

Average meal frequency might also vary across the age groups. Figure 3.5 shows that among the children in the age group 6-8 months whose caregivers have utilized the IYCF facility during the last three months, approximately four-fifths met the minimum requirement of twice a day intake of SSF meals. However, only 68% of the children in the age group 9-23 months met the minimum requirement of at least 3 semi solid and solid food meals a day.

Figure 3.5: Children Meeting Minimum Daily Requirement of SSF Intake

(In %)



Note: For children in the age group 6-8months at least 2SSF meals whereas for those in the age group 9-23 months at least 3SSF meals are recommended daily. The percent of children in each of these age groups that fulfill this minimum requirement is reported here. Proportion of children whose caregivers received at least one promotion/ counseling session on complementary feeding in the past 3 months is included.

The quality aspect of food intake, as captured by the effective coverage indicator, invokes an analysis on types of food that the children actually consume. As Table 3.9 presents, children in the age group of 6-8 months consume on average 3.8 different food items daily while those in the age group of 9-23 months consumed 4.7 items. For the former age group the dietary diversity is below the recommended level of 4 food items; for the latter age-group, it is above the recommended level of 4 food items (WHO, 2010). In the former age-group, the diversity is found to be particularly low in Dhaka, Rajshahi and Sylhet. In both of the age groups, the diversity scenarios are relatively better in Rangpur, Barisal, and Chittagong.

It is recommended that children in the 6-23 months age-group consume at least 4 of the following items daily including cereal, tubers and root crops, beans, peas, flesh foods, eggs, dairy, vitamin A, fruits and vegetables (WHO, 2010). A food item specific analysis reveals that children in the age group 6-8 months are less likely to consume each of the food items compared to those in the age group 9-23 months. Across the age-groups, children are more likely to consume foods daily from the food groups of cereal, tubers, root crops, eggs and dairy milk.[12] In contrast, the likelihood of bean and peas consumption is extremely low across the age groups. Similarly, flesh foods as well as vegetables and fruits consumption is low in the nether age-group. The share of 6-8 months old children consuming flesh food is lower in Dhaka and Sylhet. Children in the age group 9-23 months exhibit similar pattern in Sylhet as well.

[12]It was observed that 31% of the children in the age group 6-8 months and 16% in the age group 9-23 months did not consume any cereals and root crops type of food. Given that rice is the staple food of the country and available in abundance across the regions and seasons, this raises a serious concern. However, BDHS (2014) reported that 81.6% of the non-breastfeeding children in the age group 6-23 months consume daily cereals whereas similar statistics for Breastfeeding children stood around 74%.

Table 3.9: Dietary Diversity of Children by Age Group

Division	Average Number of Items during last 24 hours	Food Items (%)						
		Cereals, tubers and root crops	Beans and peas	Flesh foods	Egg	Dairy products	Vitamin A-rich food	Any other fruits or vegetables
Age 6 to 8 months								
Bangladesh	3.8	69.2	22.5	45.5	64.3	73.2	55.3	53.3
Barisal	4.4	74.1	29.3	53.3	73.0	80.6	57.9	68.7
Chittagong	4.2	66.9	32.8	49.2	71.9	81.5	59.4	w55.8
Dhaka	3.5	66.7	17.5	37.1	56.6	77.6	50.9	45.5
Khulna	3.8	69.1	21.4	51.8	66.0	67.6	56.2	50.1
Rajshahi	3.6	69.8	14.9	44.9	61.1	62.0	48.7	54.4
Rangpur	4.1	75.9	21.3	53.5	71.2	67.4	61.5	62.3
Sylhet	3.6	67.7	23.2	39.8	57.2	60.5	55.3	51.6
Age 9 to 23 months								
Bangladesh	4.7	84.9	32.3	63.7	75.6	79.8	70.7	66.7
Barisal	5.0	87.6	32.7	68.4	82.0	80.9	73.2	73.3
Chittagong	5.0	84.0	41.4	62.8	79.4	85.2	72.7	69.8
Dhaka	4.6	82.5	28.6	63.0	72.6	84.0	69.5	61.7
Khulna	4.6	83.3	27.4	65.9	76.2	73.3	66.1	65.5
Rajshahi	4.4	89.3	22.2	60.7	69.5	73.4	62.6	60.3
Rangpur	5.1	90.0	35.8	70.9	82.0	79.9	75.9	74.2
Sylhet	4.4	82.1	31.3	53.8	66.2	65.7	73.1	65.5

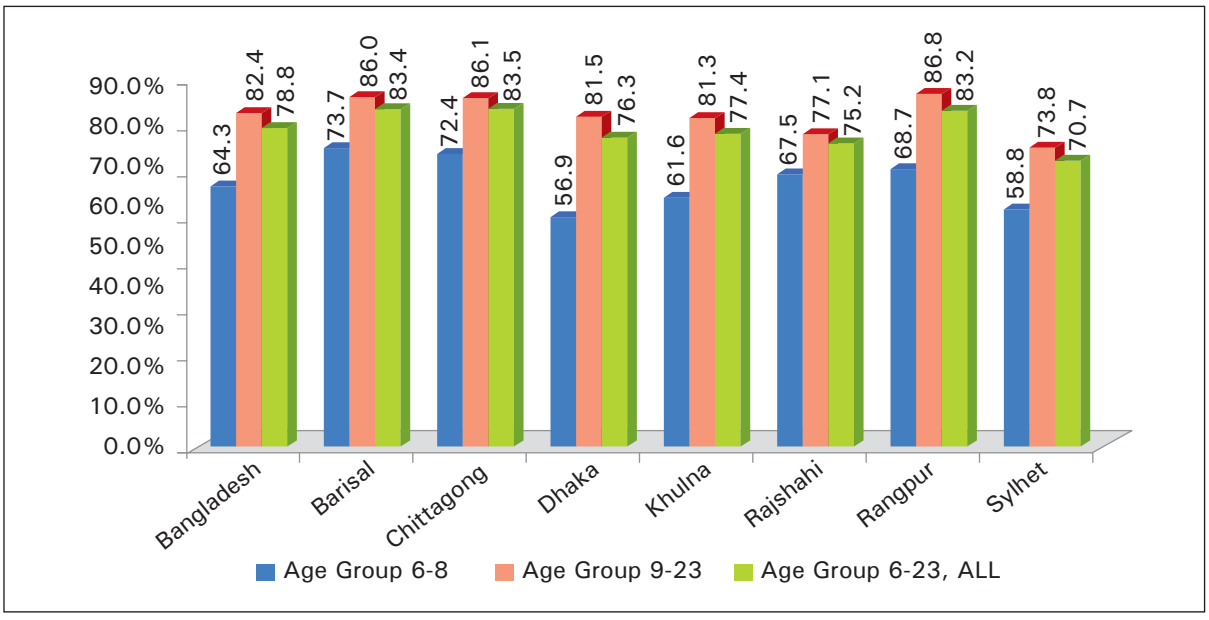
Notes: 1 Only those caregivers who have utilized the IYCF facilities are included.

2. Cereals, tubers and root crops include porridge, bread, rice, noodles, or other foods made from grains, potato, or any other foods made from roots, etc. Beans and Peas include any foods made from beans, peas, lentils, nuts, or seeds etc. Flesh Foods include any meat, such as beef, lamb, goat, chicken or duck, liver, kidney, heart, or other organ meats, fresh or dried fish, shellfish or seafood, etc. Dairy products include cheese, yogurt or other milk products. Vitamin A rich food include pumpkin, carrots, squash, or sweet potatoes that are yellow or orange inside, any dark green leafy vegetables, ripe mangoes, ripe papayas or other local vitamin A rich fruits.

Whether the children fulfilling the adequate coverage criterion i.e. meeting minimum standard in the frequency of meals, also have adequate dietary diversity score is presented in Figure 3.6. At the national level 78.8% of the children in the age-range (6-23) months consume at least four items daily; the situation is relatively worse in Rajshahi, Sylhet and Dhaka. Once children in the age group (6-8) months are included in the analysis, the overall scenario turns out to be worse. At the national level, 64.3% children consume daily from four different food groups. The situation is particularly worse in Dhaka (57%) and Sylhet (59%). In comparison, almost four-fifths of the children in the age-group (9-23) months consume at least four of the food items to meet the minimum standard of food diversity. While the situation is relatively worse in Sylhet (73.8%) and Rajshahi (77%), performance of the children in Rangpur (86.8%) is noticeably better.

Figure 3.6: Children Consuming at least 4 Items Daily by Age Group

(In %)



Note: Children who meet the minimum standard of daily meal frequencies, in other words adequately covered, are included in the analysis. Two different samples are considered here. First, all of the children in the age group 6-23 are included. Next, they are split into two sub-groups-(6-8) month's age group and 9-23 month age group.

3.4. Maternal Nutrition

A mother's nutrition status and health both before and during pregnancy have significant effects on the outcome of her offspring. Good nutritional status before, during and after pregnancy optimizes maternal health and reduces the risk of pregnancy complications, birth defects and chronic disease in her children in later adulthood. A healthy, well-nourished woman is more likely to have a healthy pregnancy, which increases her chances of having a healthy baby. A healthy baby has a better chance of growing into a healthy child and then growing into a healthy adult. It was found that effective antenatal care along with adequate maternal diet can reduce the incidence of pre-term deliveries (Shahetal. 2014).

The nexus between maternal health, productivity and adult outcome of the child is well established in the literature (Ray,1999; Glewwe and King, 2000; Baulch and Hoddinott, 2003). Maternal nutrition includes pre-pregnancy diet, adequate micronutrients intake, treatment for deficiency, food supplementation during pregnancy and lactation. A comprehensive set of data/ information related to maternal diets were collected from currently pregnant or (and) lactating mothers to assess the situation. The coverage indicators on maternal diets are summarized in Table 3.10 and the operational definitions are provided below. Accessibility and effective coverage indicators of maternal diets by district are presented in Table B4 in the Appendix-B.

Accessibility: Proportion of pregnant and lactating women (PLW) who have access to ANC/ PNC services and trained health-worker within 30 minutes of walking distance.

Utilization: Proportion of PLWs who have access to ANC/PNC services and trained health worker within 30 minutes of walking distance and who increased diet intakes during pregnancy and lactation.

Adequate Coverage: Proportion of PLWs who have access to ANC/PNC services and trained health worker within 30 minutes of walking distance and who increased diet intakes during pregnancy and lactation and are consuming at least 5 food groups.

Effective Coverage: Proportion of PLWs consuming an adequate diet (one extra fistful of food daily for pregnant women, two extra fistfuls of food daily for lactating women), from at least five food groups.

Table 3.10: Coverage of Maternal Diet by Residence

(In%)

Division	Accessibility		Utilization		Adequate Coverage		Effective Coverage	
	Mean	Std. Error	Mean	Std. Error	Mean	Std. Error	Mean	Std. Error
National								
Bangladesh	69.9	0.22	43.6	0.24	37.4	0.24	35.4	0.23
Barisal	66.7	0.69	45.2	0.73	40.1	0.72	37.6	0.71
Chittagong	65.8	0.59	39.1	0.61	34.7	0.59	33.4	0.59
Dhaka	72.2	0.47	41.2	0.51	35.4	0.50	33.5	0.49
Khulna	72.9	0.61	49.2	0.68	41.5	0.67	37.3	0.66
Rajshahi	65.5	0.64	40.5	0.66	31.5	0.63	29.4	0.61
Rangpur	75.6	0.56	52.9	0.65	45.8	0.64	44.4	0.64
Sylhet	66.4	0.70	45.4	0.74	39.5	0.73	38.2	0.72
Rural								
Bangladesh	67.6	0.30	41.6	0.31	35.4	0.30	33.4	0.30
Barisal	64.5	1.08	44.0	1.12	39.7	1.11	37.6	1.10
Chittagong	64.1	0.74	37.5	0.74	33.3	0.72	31.9	0.72
Dhaka	68.3	0.58	37.1	0.60	31.2	0.58	29.2	0.57
Khulna	71.6	0.80	47.8	0.89	39.9	0.87	35.9	0.85
Rajshahi	63.6	0.82	38.3	0.83	29.4	0.78	27.3	0.76
Rangpur	74.3	0.74	52.0	0.85	45.0	0.85	43.7	0.84
Sylhet	64.6	0.99	43.8	1.03	38.5	1.01	37.4	1.00
Urban								
Bangladesh	80.7	0.31	53.0	0.39	46.6	0.39	44.4	0.38
Barisal	81.0	0.76	53.1	0.96	42.7	0.96	37.2	0.93
Chittagong	73.3	0.94	46.1	1.06	41.5	1.05	40.1	1.05
Dhaka	83.6	0.69	53.1	0.93	47.6	0.93	45.9	0.93
Khulna	80.2	0.86	57.5	1.06	50.8	1.07	45.8	1.07
Rajshahi	77.3	0.92	53.9	1.09	44.6	1.09	42.5	1.09
Rangpur	86.8	0.68	60.3	0.98	53.0	1.00	51.0	1.00
Sylhet	80.0	0.86	57.1	1.06	47.0	1.07	44.8	1.06

About 32% of pregnant and lactating women (PLW) in rural and 19% in urban areas do not have access to ANC/PNC service and trained health worker within 30 minutes of walking distance.

The accessibility is notably poor in rural areas compared to urban areas, particularly in Chittagong, and Rajshahi.

The difference between utilization and accessibility indicators suggest that not all PLWs with accessibility have changed their food habit by increased food intake during their pregnancy or lactation period. Despite accessibility, 34% of the PLWs in urban areas in contrast to 38.5% in rural areas did not increase their dietary intake during pregnancy or lactation. Worse yet, as high as1 5-16% of the PLWs actually reduced their food intakes during pregnancy and lactation. Such degenerative food intakes are highly prevalent in Chittagong and rural areas of Dhaka and Rajshahi.

About 57% of the PLWs received information and advice on the appropriate types of food and quantity recommendation during pregnancy or lactation period. PLWs with information and advice are 37% more likely to change their food habit and 35% more likely to increase food intake during lactation or pregnancy compared to PLWs who did not receive any such information.[13]

Whether the PLWs meet the dietary diversity requirement is reflected by their adequate coverage levels. It is recommended that PLWs consume daily at least 5 of the 9 food items from rice, bean, seed, dairy milk, meat, eggs, vegetables, vitamins and fruits. About 77% of the PLWs in rural areas and 81% in urban areas meet such minimum requirement of standard dietary diversity (see Figure 3.7). The situation is particularly worse in rural areas of Rajshahi.

[13]A simple OLS regression of "change in food habit during pregnancy" and "food intake increase" on information receiving status are found to be positive and statistically significant even after controlling education, age of mother and rural urban status etc.

The dietary diversity analysis is extended to assess if there is any pattern across divisions and locations. An average PLW in urban areas consumes 6.5 items compared to 6 .2 items in rural areas from the recommended 9 key food groups mentioned above. It may be concluded that the PLWs in both rural and urban areas could achieve only medium dietary diversity (see Kennedy, Ballard and Dop, 2013, Table 6). A comparison across divisions reveal that PLWs in rural areas of Rajshahi, Sylhet, Khulna and Dhaka consume on average lesser number of food items. Similar pattern follows for PLWs in urban areas of Barisal, Rajshahi and Sylhet. In contrast; PLWs in rural areas of Barisal and Rangpur consume food items from a relatively diversified basket.

The effective coverage indicator modifies the adequate coverage indicator by including whether the PLWs consume extra fistfuls of food from the recommended groups. Approximately 95% PLWs meeting adequate coverage status stated that they took adequate food and had adjusted their intake in recommended ways.[14] This perhaps explains why no sharp changes between the adequate and effective coverage indicators across the divisions are discernible.

Figure 3.7: Percentage of pregnant or lactating mothers who consume at least 5 key food groups

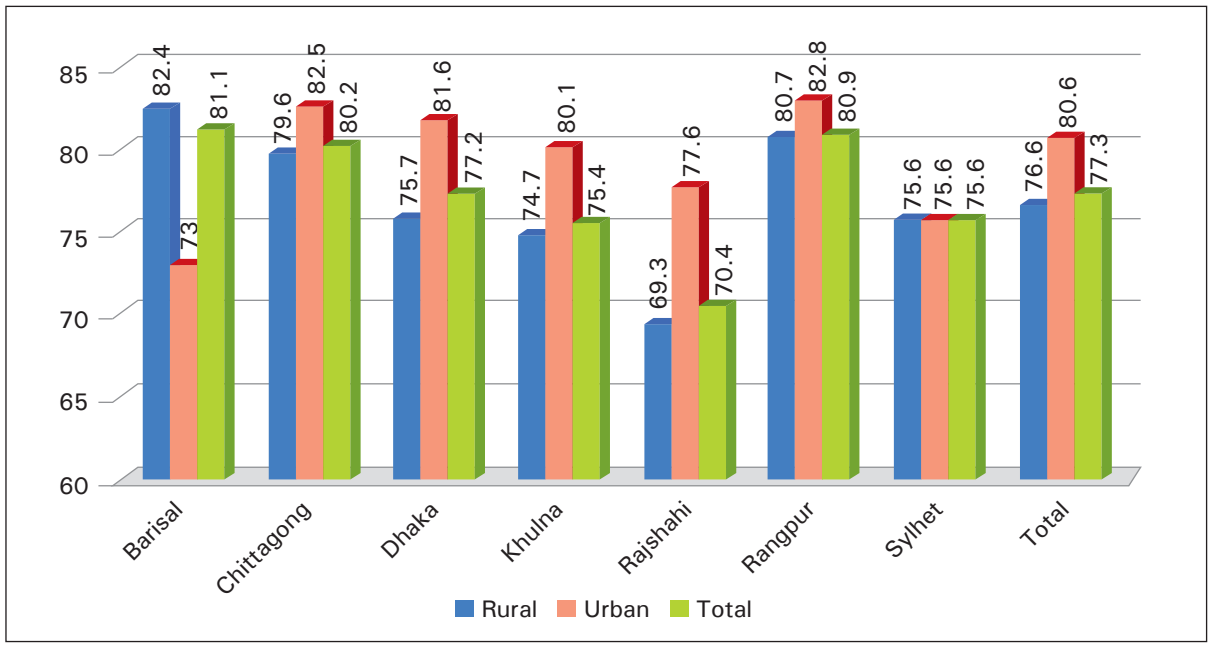
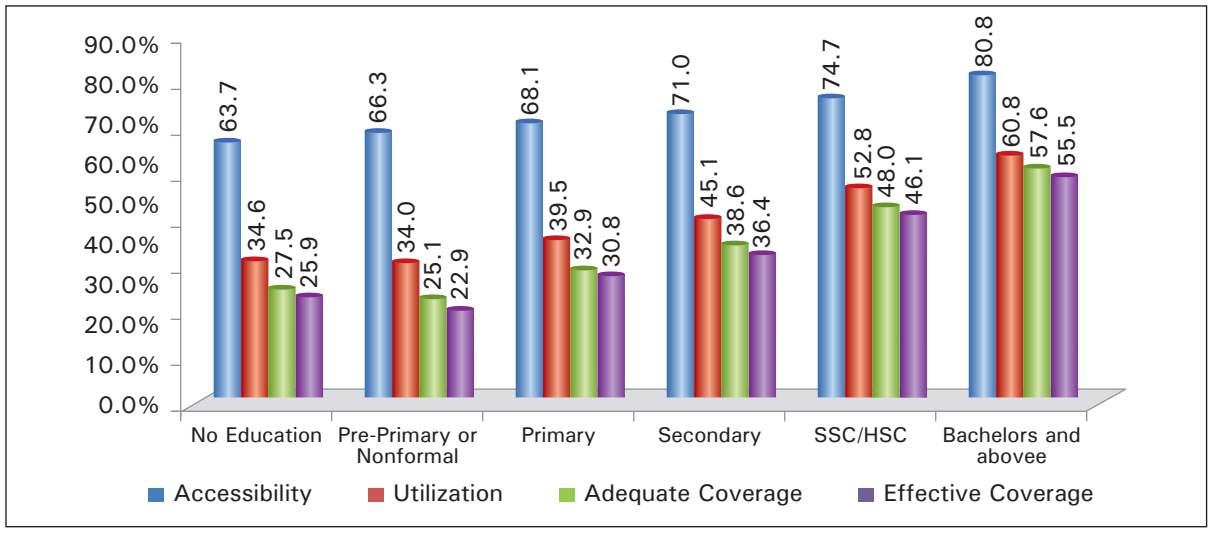


Figure 3.8: Coverage of Maternal Diets by Education Level of PLWs

(In %)



[14]When all PLWs in the survey are considered, 75% in rural areas and 82% in the urban areas think that they are getting adequate food.

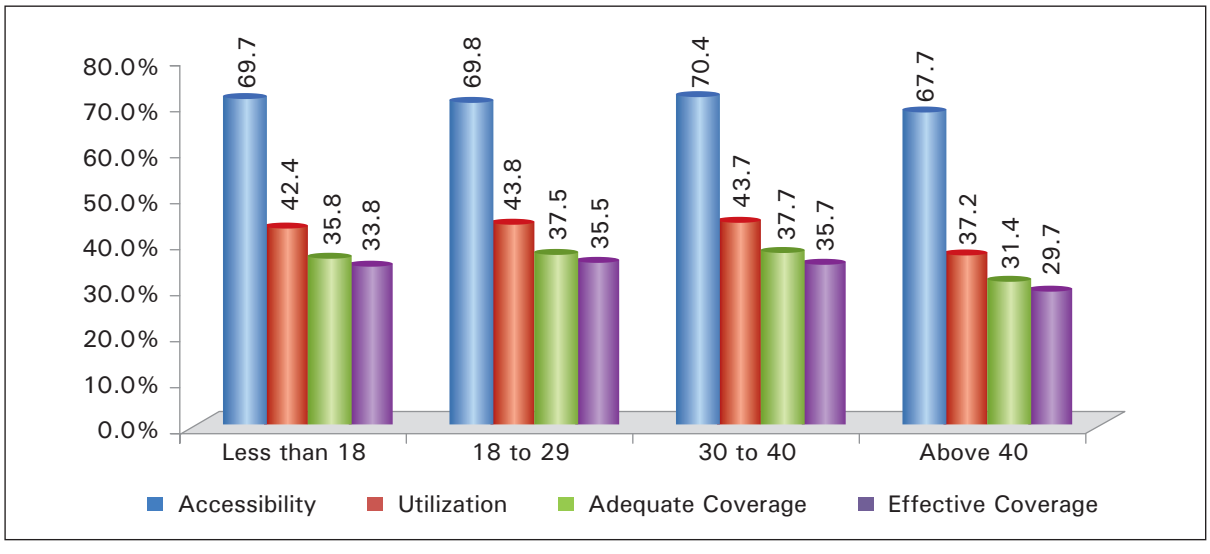
Education may be an important determinant for optimum healthcare utilization. When the coverage indicators on maternal diets are organized against education level of the PLWs, as presented in Figure 3.8, a strong positive association is observed. The pattern is more pronounced as one goes up the education ladder. Compared to PLWs with no schooling, those with SSC/HSC levels of education are 18% points more likely to change dietary pattern during pregnancy and lactation, 20% points more likely to ensure adequate food consumption and 20% points more likely to consume at least 5 items a day from the 9 key food groups. PLWs with bachelors and above education level are 10% points more likely to consume diverse and adequate food compared to SSC/HSC level educated mothers. Even if the analysis is extended further by residence (rural-urban location and urban location) of the household, as summarized in Table 3.11, the pattern remains resilient. The rural-urban gap however does remains at the higher education level.

Table 3.11: Coverage of Maternal Diet by Education Level of PLWs and Residence

(In%)

PLW's education	Accessibility	Utilization	Adequate coverage	Effective coverage	Accessibility	Utilization	Adequate coverage	Effective coverage
	Rural				Urban			
No education	61.9	33.5	26.5	25.0	77.0	43.3	34.5	32.6
Pre-primary or non-formal	64.6	34.8	25.0	23.3	73.5	30.8	25.3	21.5
Primary	66.3	38.5	32.0	29.9	79.2	46.0	38.3	36.1
Secondary	69.2	43.8	37.4	35.2	80.2	51.5	44.8	42.3
SSC/HSC	71.3	49.7	44.9	43.0	83.6	61.0	56.2	54.3
Bachelors and above	76.9	55.8	52.5	50.6	85.0	66.0	62.9	60.7

Figure 3.9: Coverage of Maternal Diets by Age of PLWs



Following the same argument, whether PLW's age has played any role in shaping their dietary behavior is assessed. As Figure 3.9 shows, utilization patterns of late-age (40+) PLWs are relatively lower compared to those in the (18-40) years age group. The implication is that late-age PLWs are not changing their dietary habits during pregnancy and lactation. Similar patterns exist in the case of adequate and effective coverage which also suggests that late age PLWs are not even taking adequate food in the recommended manner, at least 5 from the 9 key types of food items. It may be noted that the teenage PLWs (age less than 18) do not exhibit a different pattern compared to other PLWs in the age group 18-40 in choosing maternal diets with adequate amount and diversity.[15]

[15]However, contrary to popular belief, indicators of utilization, adequate and effective coverage for teenage PLWs are not sizably different from that of PLWs in the 18-40 age group.

CHAPTER 4 : MATERNAL AND CHILD HEALTH

Although maternal and child mortality in Bangladesh have decreased over time, there is still a high chance of death for children and mothers compared to other middle income countries. The maternal mortality ratio is 176 per 100,000 live births while neonatal[16] and under 5 mortality rates are respectively 28 and 46 per 1000 live births (MMEIG, 2013; BDHS, 2014), which implies that there exists a significant gap in terms of child and maternal health. Maternal health is an important determinant of neonatal and child health. Two important components of maternal healthcare are antenatal care (ANC) and iron-folic acid (IFA) supplementation. Epidemiological studies find that low birth weight, which is primarily caused by poor nutrition, micro nutrient deficiency, and inadequate monitoring during pregnancy, is associated with pre-term delivery (Barrosetal, 2011; Shahetal, 2014). For example, based on cross-country data, Barros et. al. (2011) find that 50% of pre-term babies are under-weight in low and middle income countries. Besides, pre-term delivery also increases the likelihood of neonatal death.

Shahetal. (2014) have shown that effective utilization of ANC and proper intake of IFA during pregnancy can reduce the incidence of pre-term deliveries in Bangladesh. As a result, decreased rates of low birth weight babies are expected, as well as less stunting among the children. Empirical evidence suggests that improving iron deficiency in adult mothers increases adult productivity by 5 to17% (Horton,1999). Low birth weight is an adverse implication for the child and adult outcome (Hoddinott et. al., 2013).[17] The chance of survival in the absence of skilled birth attendance is 42%. A decreased ratio of maternal mortality in the parents' generation is found to raise human capital accumulation and life time earnings of the female children in Sri Lanka (Jayachandran and Lleras-Muney, 2009). One of the leading causes of child death in Bangladesh is Acute Respiratory Infection (ARI). Even though Bangladesh has largely succeeded in containing child mortality due to ARI, early intervention and proper medication would further reduce such mortality to a significant level

4.1. Antenatal Care

Antenatal care (ANC) during pregnancy is critical for the health of both the mother and the child. Social taboos, lack of information, and poor empowerment lead to low utilization of ANC services. Although 4 or more antenatal care visits during the course of the pregnancy are recommended, only 26% of pregnant women in rural areas of the country avail the required service and hence expose both the mother and the fetus to high risk pregnancy (BDHS, 2014).[18] Information on ANC was collected for assessing-accessibility to, utilization of and adequacy of ANC service coverage across the country. Mothers in the age-range of 15-49 are included in the analysis. The coverage indicators are summarized in Table 4.1 and the operational definitions are provided below: Accessibility and adequate coverage indicators of ANC by districts are presented in Table B5 in the Appendix-B.

[16]Neonatal deaths take place within the first six days of birth.

[17]Grantham-McGregoretal (2007) showed that one extra cm of adult height corresponds to a 4.5% increase in wage rates.

[18]https://www.unicef.org/bangladesh/Antenatal_Care.pdf reference

Accessibility: Proportion of mothers of age 15-49 years who have access to ANC health facilities within two kilometres.

Utilization: Proportion of mothers of age15-49 years who have access to ANC health facilities within two kilometres and received ANC services from a skilled health service provider.

Adequate Coverage: Proportion of mothers of age15-49 years who have access to ANC health facilities within two kilometers and received ANC from a skilled health service provider for four or more times.

As Table 4.1 shows, nationally, access to ANC services in urban areas are 19 percentage points higher compared to the rural areas (87.3% vis-à-vis 68%). Among the rural regions across the divisions, residents in Khulna have higher access (78%) to ANC services within a distance of two kilometers. These findings on accessibility of ANC are in contrast to 59% reported in BBS-UNICEF (2015).[19]

Table 4.1: Coverage of Antenatal Care by Location

(In%)

Division	Accessibility		Utilization		Adequate Coverage	
	Mean	Std. Error	Mean	Std. Error	Mean	Std. Error
			National			
Bangladesh	71.6	0.32	46.7	0.35	17.4	0.27
Barisal	69.2	0.95	50.8	1.02	18.4	0.79
Chittagong	66.8	0.79	41.5	0.83	17.7	0.64
Dhaka	76.6	0.63	47.2	0.74	17.9	0.57
Khulna	80.2	0.86	58.8	1.06	19.9	0.86
Rajshahi	63.8	1.02	41.9	1.04	15.2	0.76
Rangpur	70.7	0.86	47.1	0.95	18.4	0.73
Sylhet	67.0	0.99	45.4	1.05	11.9	0.68
			Rural			
Bangladesh	68.0	0.42	42.7	0.45	14.4	0.32
Barisal	66.7	1.41	48.8	1.49	17.3	1.13
Chittagong	62.7	1.02	36.9	1.01	15.1	0.75
Dhaka	72.0	0.81	40.3	0.89	12.7	0.60
Khulna	79.0	1.11	56.8	1.35	17.4	1.03
Rajshahi	60.7	1.30	38.3	1.29	12.5	0.88
Rangpur	68.4	1.12	45.7	1.20	17.3	0.91
Sylhet	64.6	1.36	43.0	1.41	10.0	0.86
			Urban			
Bangladesh	87.3	0.38	64.5	0.54	30.7	0.52
Barisal	87.4	0.93	65.6	1.34	26.4	1.24
Chittagong	84.2	1.02	60.8	1.36	28.3	1.26
Dhaka	88.7	0.82	65.5	1.23	31.5	1.20
Khulna	88.2	1.15	72.7	1.59	37.5	1.72
Rajshahi	83.3	1.30	64.6	1.67	32.7	1.64
Rangpur	91.1	0.87	60.4	1.49	28.7	1.38
Sylhet	87.3	1.04	65.4	1.49	27.9	1.40

However, the overall utilization rate of ANC services is rather poor. The urban residents utilize the ANC services at a much higher rate compared to the rural residents, except for Khulna where rural-urban gap in utilization is minimum. Utilization rate is the lowest in both urban and rural areas of Chittagong. When information on the frequency of ANC visit is considered, adequate coverage estimates imply that the majority of the women did not visit the ANC service facilities as frequently as required. Full series of 4 ANC visits is required for the best

[19]Percentage of women aged 15-49 years with at least one live birth in the last 2 years who were attended during their last pregnancy by skilled healthcare personnel.

prevention of pregnancy related complications, yet on average in the country only 1 out of 6 mothers received four visits and 1 out of 3 in urban areas. The adequate coverage rate lies in the range of 10%-17% in rural areas, being the highest in Khulna (17.4%) and lowest in Sylhet (10%). The coverage rates in urban areas are relatively higher; 30.7% at the national level with the highest in Khulna (37.5%) followed by Rajshahi (32.7%).

Table 4.2: Antenatal Care by Mother's Education and Location

(In%)

Location	Coverage Indicators	No Education	Pre-Primary or Non-formal	Primary	Secondary	SSC/ HSC	Bachelors and above
Bangladesh	Accessibility	65.4	72.8	67.9	73.7	77.1	86.8
	Utilization	33.2	44.2	41.2	49.9	57.3	74.5
	Adequate Coverage	9.9	6.1	12.7	18.6	26.7	42.1
Rural	Accessibility	62.2	70.3	65.4	71.0	72.1	80.2
	Utilization	30.0	40.0	38.6	47.1	52.1	64.1
	Adequate Coverage	8.3	3.4	11.2	16.5	21.7	29.8
Urban	Accessibility	84.6	81.5	83.8	87.8	89.5	93.4
	Utilization	52.6	58.6	57.5	64.6	70.2	85.0
	Adequate Coverage	19.3	15.3	21.6	29.2	39.0	54.6

In order to assess if socio-demographic factors play any role, the association between schooling, age of mother and ANC coverage indicators are examined. As reported in Table 4.2, there is a tendency between mothers' schooling and utilization level both in the rural and urban areas to be positively associated. For example, a mother with SSC/HSC equivalent level of schooling utilizes ANC facilities 22 and 18% points more compared to a mother with no schooling in rural and urban areas, respectively. As the adequate coverage indicators reveal, mothers with Bachelors/Masters and above level of education visit ANC facilities at higher frequency.

Table 4.3: Coverage of Antenatal Care by Mother's Age and Location

(In %)

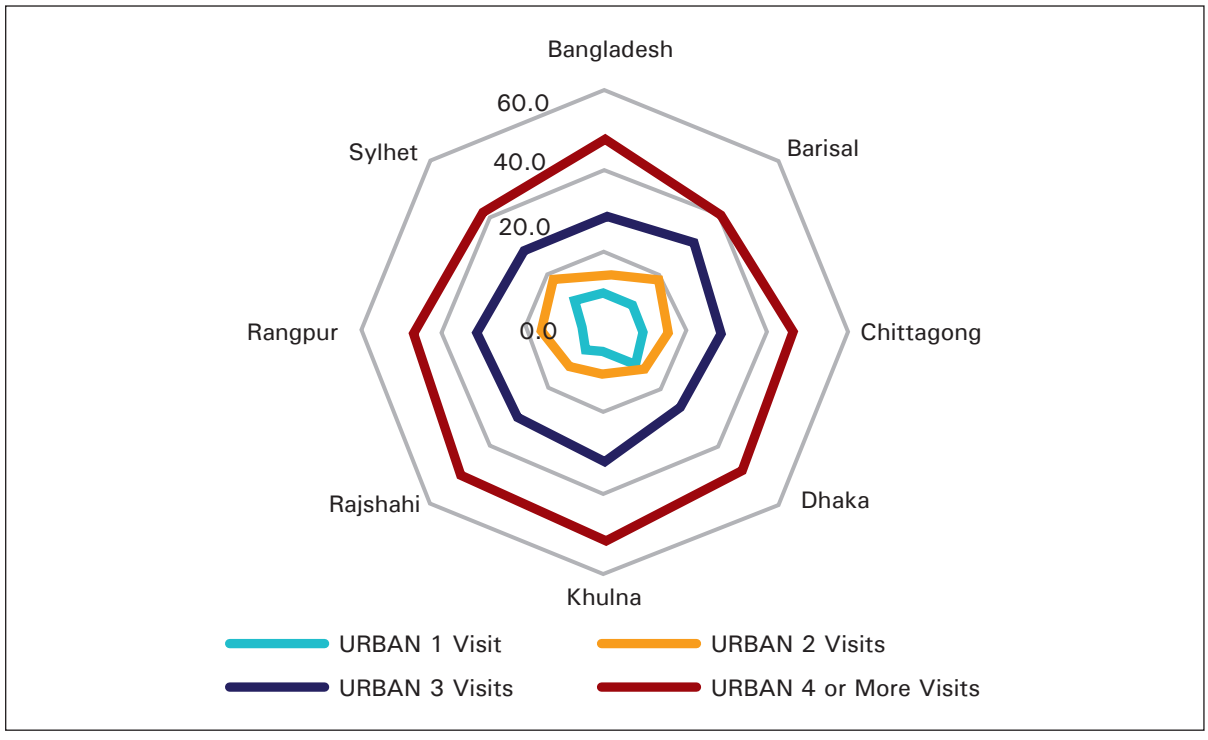
Location	Coverage Indicators	Less than 18	Age 18 to 29	Age 30 to 40	Age 40 above
Bangladesh	Accessibility	66.7	71.8	71.4	70.2
	Utilization	45.9	48.2	44.8	29.4
	Adequate Coverage	11.9	17.9	17.6	9.8
Rural	Accessibility	63.7	68.5	67.3	66.6
	Utilization	42.2	44.2	40.4	25.6
	Adequate Coverage	10.5	14.9	14.2	7.4
Urban	Accessibility	83.2	87.5	88.2	82.2
	Utilization	65.9	66.7	62.5	42.2
	Adequate Coverage	19.9	31.6	31.5	18.1

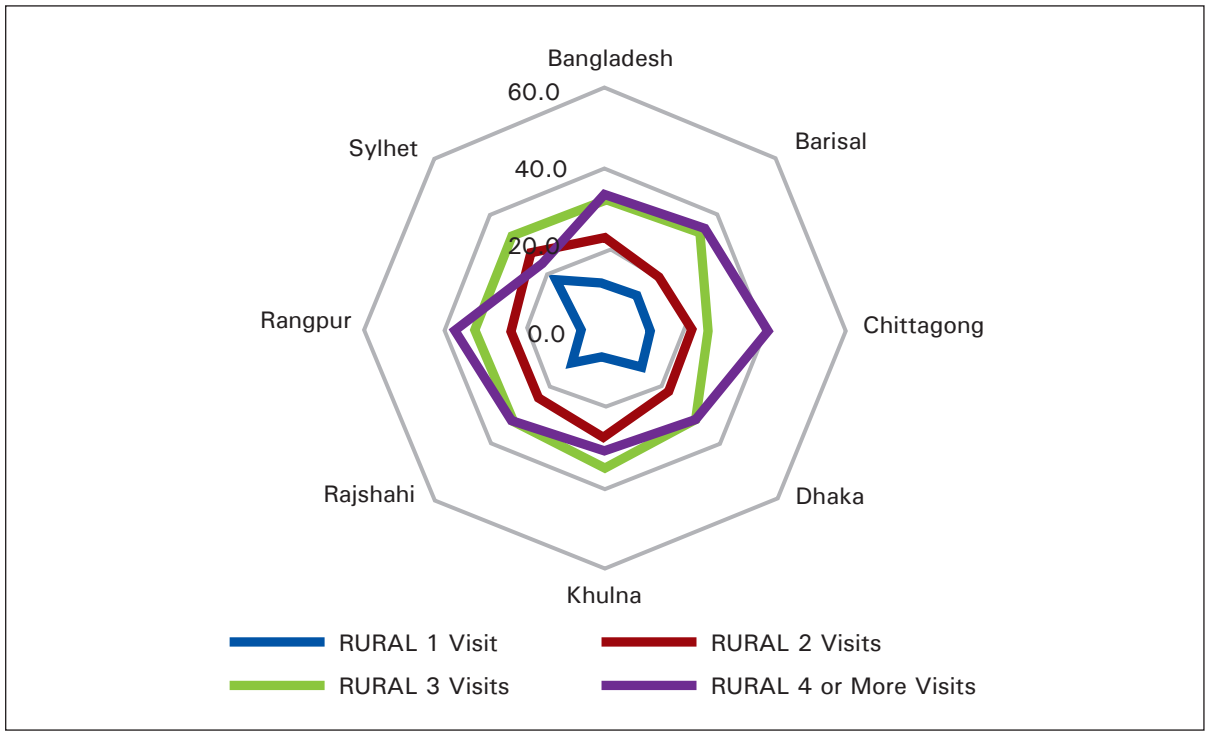
The association between age and coverage indicators is evident for certain age groups (Table 4.3). Mothers in the high-age group, both in urban and rural areas, utilize ANC facilities to a lesser extent. The frequency of ANC visits is however lower for teenage mothers (age less than 18) and mothers in the high-age group (41 and above). The evidence of low frequency ANC visit is examined by division and location of the respondents utilizing various ANC services (Figure 4.1). Across the divisions, 66% of rural mothers, who have access to and utilize the ANC facilities, make less than 4 visits during their pregnancy. The percentage is high in Sylhet (77%) and Khulna (69.4%). A similar comparison across urban residents reveals that Barisal (59.8%), Sylhet (57.3%) and Dhaka (52%) perform the worst in terms of recommended frequency of ANC visits. In Dhaka division, 14% of the rural residents and 12 % of the urban residents, while in Sylhet division 18% of the rural residents made only 1 ANC visit.

Respondents with access to ANC facilities within 2 kilometres of residence utilize various types of health facilities for ANC related health services. Most of the ANC visits were made to government healthcare facilities. The percentages are relatively higher in Khulna (55%), Barisal (49.5%) and Sylhet (50.6%) (Figure 4.2). Across the divisions, the utilization of private healthcare facilities is relatively higher in Dhaka (23.6%) and Chittagong (21.7%) while the utilization of NGO facilities is higher in Barisal (15.8%), Chittagong (14.5%) and Rangpur (12.7%). Approximately, one-fourth of the mothers with access to ANC facilities do not utilize any of the 3 types of facilities, with the highest incidence of non-utilization in Dhaka (30%) and the lowest in Khulna (18%).

Figure 4.1: Utilization of Antenatal Care by Residence

(In%)

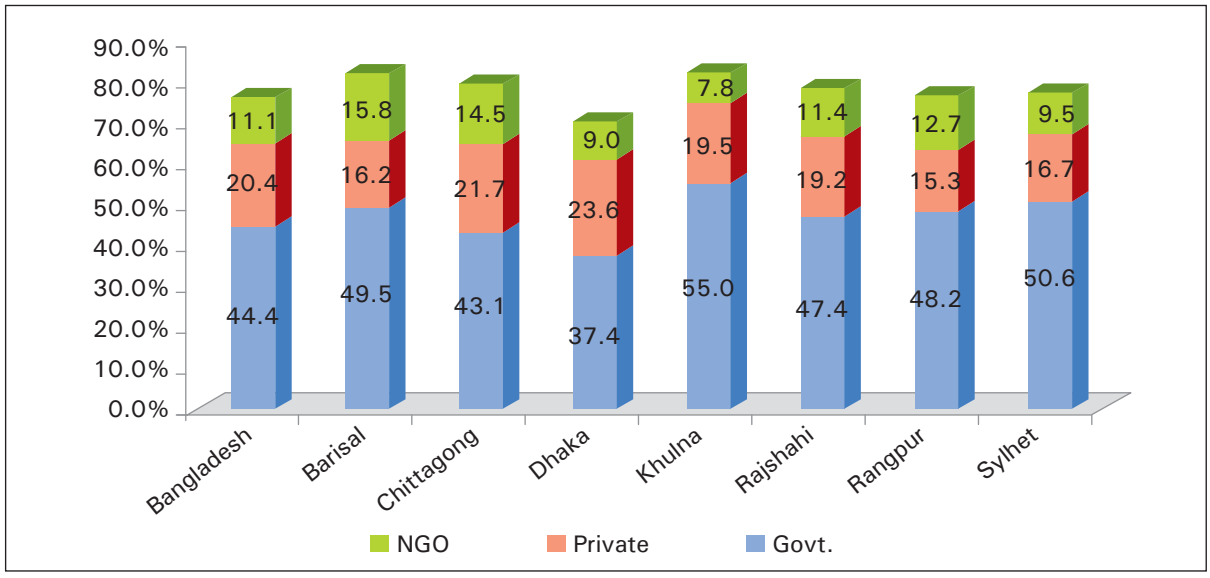




Analysis by location of residence reveals that rural residents in Khulna and urban residents in Barisal and Sylhet utilize the government health facilities more (Table 4.4). In addition, rural residents in Chittagong, Khulna, Dhaka and urban residents in Dhaka, Sylhet and Rajshahi utilize the private facilities more. Finally, rural residents in Barisal, Chittagong and Rangpur and urban residents of Barisal and Chittagong appear to display a higher utilization of NGO facilities.

Figure 4.2: Utilization of ANC by Type of Healthcare Facility

(In %)



Note: Only those who said to have access are included

Table 4.4: Utilization of ANC by Type of Healthcare Facility and Residence

(In%)

Division	Government	Private	NGO	Government	Private	NGO
	Rural			Urban		
Bangladesh	44.6	18.6	10.4	43.9	26.5	13.7
Barisal	49.1	15.0	15.4	52.4	23.2	17.9
Chittagong	41.7	21.8	13.2	47.5	21.4	18.7
Dhaka	36.9	20.1	7.8	38.3	31.2	11.5
Khulna	55.9	18.9	6.8	49.3	22.7	14.3
Rajshahi	47.0	17.4	10.9	49.5	27.4	13.7
Rangpur	47.9	15.6	13.0	49.5	13.8	11.0
Sylhet	50.5	15.2	8.7	51.4	26.2	14.4

4.2. Iron and Folic Acid Supplementation

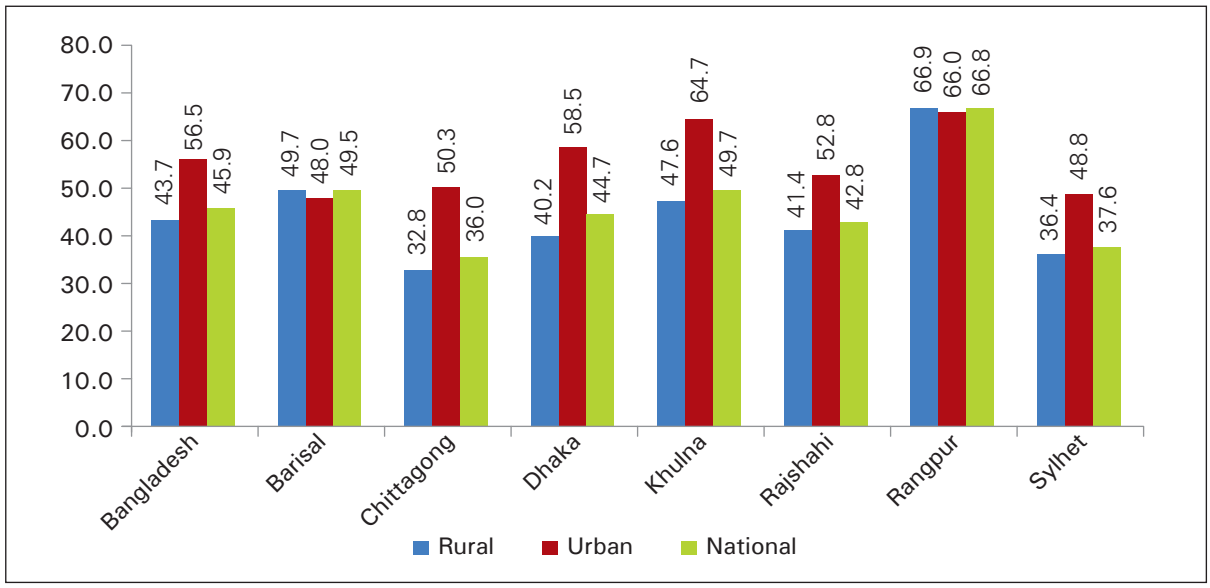
Iron and Folic Acid (IFA) is provided during ANC visits and prevents anemia, and is critical for good development of the fetus. Iron and folic acid (IFA) is vital to produce hemoglobin and red blood cells in body. IFA deficiencies during pregnancy can potentially negatively impact the health of the mother, her pregnancy, as well as fetal development. Therefore, child-bearing women should maintain adequate amount of IFA either through diet or as supplements. However, the minimum recommendation of IFA consumption is not met in Bangladesh, where UNICEF finds that: *"while three out of four local clinics have a sufficient supply of IFA tablets, the percentage of women who consumed the recommended quantity of at least 100 IFA tablets during the last pregnancy was less than 5 percent"*.[20] Data/information regarding IFA intake and related issues during the last pregnancy was collected from women who delivered within last six months. Although it is important, especially during pregnancy, IFA supplements did not reach all pregnant women; less than 50% of the women received IFA supplements during their

[20]https://www.unicef.org/bangladesh/Antenatal_Care.pdf

last pregnancy (Figure 4.3).The rural-urban disparity is clear as more than 40% of the women in rural areas received IFA supplements during their last pregnancy compared to 57% of the women in the urban areas. Besides, there is also moderate regional disparity; only 36% of women in Chittagong received the IFA supplements compared to 67% in Rangpur.

Figure 4.3: Women Receiving IFA Supplement by Residence

(In%)



The coverage indicators are summarized in Table 4. 5 and the operational definitions are provided below. Accessibility and effective coverage indicators of IFA supplements by districts are presented in Table B6 in the Appendix-B.

Accessibility: Proportion of women (who delivered within last six months) with access to Union Health and Family Welfare Center (UHFWC) or Communality Clinic (CC) providing IFA supplement within 30 minutes of walking distance.

Utilization: Proportion of women (who delivered within last six months) with access to UHFWC or CC providing IFA supplement within 30 minutes of walking distance, who attended atleast one ANC visit and received IFA tablets.

Adequate Coverage: Proportion of women (who delivered within last six months) who received at least 100 IFA tablets from four ANC visits at the UHFWC or CC.

Effective Coverage: Proportion of women (who delivered within last six months) who consumed 100 IFA tablets received from four ANC visits at the UHFWC or CC.

Table 4.5: Coverage of IFA Supplements by Residence

(In%)

Division	Accessibility		Utilization		Adequate Coverage		Effective Coverage	
	Mean	Std. Error	Mean	Std. Error	Mean	Std. Error	Mean	Std. Error
				National				
Bangladesh	46.5	0.50	31.4	0.47	12.3	0.33	3.2	0.18
Barisal	50.4	1.43	36.2	1.37	16.6	1.06	5.7	0.66
Chittagong	42.1	1.23	25.5	1.08	10.0	0.75	2.6	0.40
Dhaka	45.7	1.07	30.1	0.98	13.7	0.74	3.6	0.40
Khulna	50.1	1.48	35.0	1.41	14.9	1.06	4.2	0.59
Rajshahi	40.1	1.44	26.9	1.30	10.1	0.89	2.0	0.41
Rangpur	60.2	1.31	46.3	1.33	15.3	0.96	3.2	0.47
Sylhet	39.6	1.51	24.3	1.33	3.4	0.56	0.7	0.26

Division	Accessibility		Utilization		Adequate Coverage		Effective Coverage	
	Mean	Std. Error	Mean	Std. Error	Mean	Std. Error	Mean	Std. Error
				Rural				
Bangladesh	44.2	0.64	28.9	0.58	10.7	0.40	2.5	0.20
Barisal	50.0	2.06	36.3	1.98	16.6	1.53	5.4	0.93
Chittagong	39.6	1.50	22.7	1.29	9.3	0.89	2.1	0.44
Dhaka	41.0	1.26	24.8	1.10	8.9	0.73	1.9	0.35
Khulna	49.0	1.86	33.2	1.75	14.7	1.32	4.2	0.75
Rajshahi	38.5	1.78	25.1	1.59	9.7	1.08	1.6	0.46
Rangpur	59.0	1.72	45.4	1.75	15.4	1.27	3.3	0.63
Sylhet	37.9	2.00	23.0	1.74	2.5	0.64	0.5	0.29
				Urban				
Bangladesh	58.1	0.81	43.8	0.81	20.5	0.66	6.4	0.40
Barisal	53.9	1.98	34.8	1.89	16.8	1.48	8.2	1.09
Chittagong	53.4	2.11	38.5	2.06	12.9	1.42	4.6	0.89
Dhaka	60.1	1.92	46.2	1.95	28.5	1.77	8.9	1.12
Khulna	57.9	2.43	48.7	2.46	16.1	1.81	3.7	0.93
Rajshahi	51.5	2.47	38.8	2.40	12.6	1.64	4.8	1.05
Rangpur	69.6	1.90	52.7	2.07	13.9	1.43	2.0	0.58
Sylhet	54.9	2.33	36.3	2.25	10.9	1.46	2.1	0.67

The accessibility construct reveals that only 44% of the rural women and 58% of the urban women have access to facilities that provide IFA supplements within 30 minutes of walking distance. The situation is particularly worse in rural areas of Dhaka, Sylhet, Chittagong and Rajshahi. There is a sharp drop from accessibility to utilization. The utilization indicator suggests that 29% of the women in rural areas and 44% in the urban areas actually visit the healthcare facilities for ANC services and IFA supplements. Women in the Sylhet and rural areas of Chittagong, Dhaka and Rajshahi exploit the IFA facilities to a lesser extent.

The adequate coverage indicator shows that only 1 out of 10 rural women and 1 out of 5 of the urban women received at least 100 IFA tablets during their last pregnancy. The adequate coverage situation is relatively worse in Sylhet and rural areas of Chittagong and Dhaka. The effective coverage indicators reflect whether the IFA recipient women consumed all of the tablets during their pregnancy. It is observed that only 6 .4% women in urban and 2.5% in rural areas consume all the 100 IFA tablets.

The pertinent question that stems from the low rate of effective coverage is why the women are reluctant to take IFA supplements during pregnancy. The major reasons for not taking the tablets are summarized in Table 4.6. It turned out that majority of the women who received the IFA supplements from ANC visit(s) during their last pregnancy but did not consume adequately is mainly because of bad taste or smell (41%), oblivious of taking the supplement (37%), side effects from the supplements (22%), long course of the tablets (14%) and lacking information on correct dosage (10%).

Table 4.6: Reasons for Not Taking the IFA Supplements

(In%)

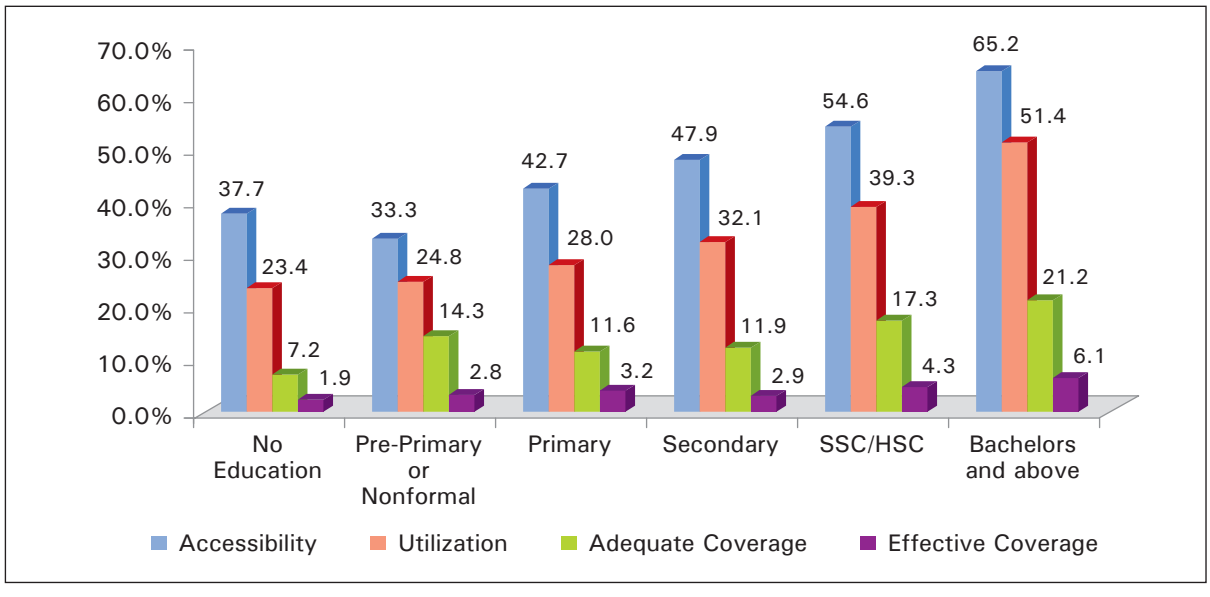
Division	Did not like taste or smell	Side effects (nausea, constipation)	Forget to take	Lost tablets	Too many to consume	Do not know the correct dose	Family members (e.g. husband) did not allow	Others
Bangladesh	40.6	21.5	37.0	8.9	13.8	9.8	6.6	2.9
Barisal	52.3	13.5	35.8	5.3	7.9	4.4	0.0	1.4
Chittagong	26.5	13.5	47.8	17.4	23.4	14.5	14.3	4.5
Dhaka	43.8	17.1	39.3	8.2	13.3	5.3	4.1	1.3
Khulna	54.2	40.1	25.1	8.4	8.6	14.4	9.3	6.8
Rajshahi	42.7	17.5	42.9	4.0	8.8	20.9	10.6	3.3
Rangpur	28.9	29.0	24.2	3.8	17.0	6.7	0.2	0.4
Sylhet	29.8	38.5	35.3	3.4	8.6	3.7	4.7	0.5

Note: Women who received IFA supplements but consumed less than 100 tablets during last pregnancy are included.

There are regional variations: around 50% of the women in Khulna, Dhaka and Barisal complained about the bad smell or taste, 40% women in Khulna and 39% in Sylhet complained about side-effects from the supplements and more than two-fifth of the women in Chittagong, Rajshahi and Dhaka mentioned forgetting to take the supplement and around one-fifth of the women in Rajshahi, Chittagong and Rangpur complained about either length of the course or dosage of the supplement.

Figure 4.4: Coverage of IFA Supplements by Education Level of Mothers

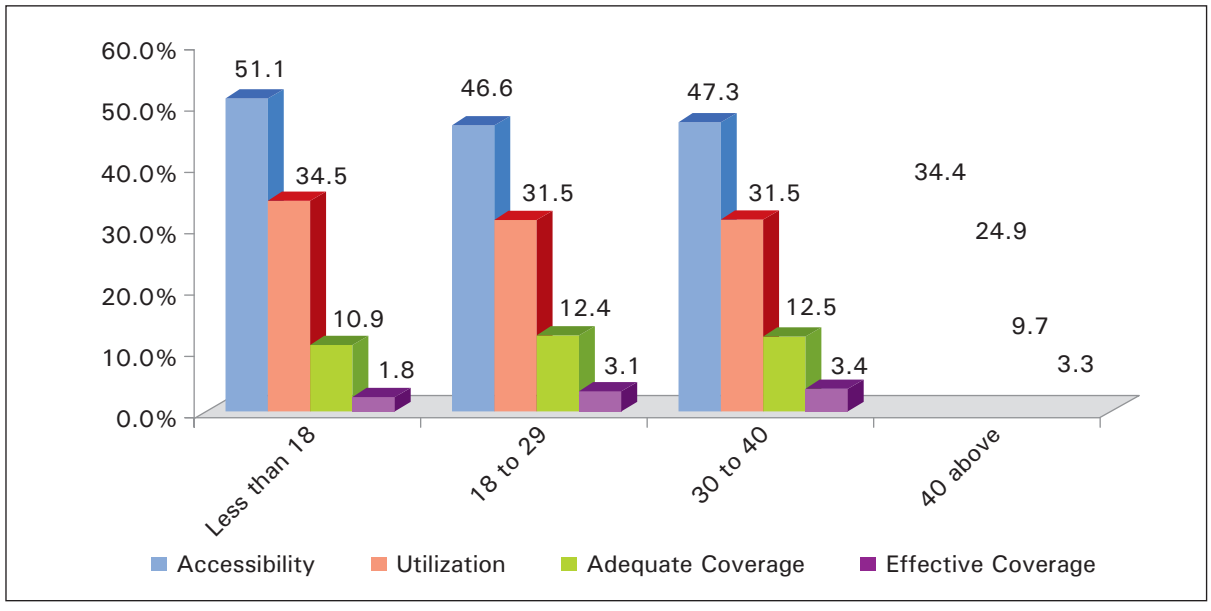
(In%)



As Figure 4.4 suggests, higher level of education is positively associated with utilization of ANC facilities and receiving IFA tablets. Consumption of IFA tablets or effective coverage indicator however does not seem to be influenced much by education level. For illustration, compared to women with secondary level of schooling, a woman with bachelors or higher degree is 19% more likely to visit ANC facilities and 9% more likely to receive required IFA tablets but only 3% more likely to consume all the tablets.

Figure 4.5: Coverage of IFA Supplements by Age of Mothers

(In %)



Similarly, Figure 4.5 reveals that age of the mother does not seem to be systematically associated with IFA coverage indicators. Mothers in the teenage group and late age group exhibit similar behavior with respect to receiving and consumption of IFA tablets. However, there is no clear explanation why mothers aged 40 or above reported lower rates for all determinants than their younger peers.

4.3. Acute Respiratory Infection

Acute Respiratory Infection (ARI) is one of the leading causes of death among children under the age of 5. Timely diagnosis and treatment with antibiotics can reduce the death caused by the disease (BDHS, 2014). In 2015, 16% of child deaths worldwide were due to pneumonia. Children under the age of 2 are more at risk of ARI and related deaths (WHO, 2016).[21] Poor nutrition, indoor air pollution and several pre-existing conditions are associated with ARI. In line with the MDG Goal 5, although Bangladesh has made marked success in reducing child mortality by two-thirds in 2015, the ARI situation of children in Bangladesh is not much different than the global trend, especially in the bottom income quintile. UNICEF (2010) reports that ARI and related diseases account for the 20% of the deaths of the under 5 aged children in Bangladesh. Utilization of healthcare services for treating ARI remains poor.[22] In rural areas, only one-third of the children were taken to a health facility to treat for ARI complaints.

ARI related data/information was collected from caregivers or mothers of children under 5 years old from all 64 districts in Bangladesh. The data reveals that 3.2% of the total 0-59 months age children were affected by ARI. These findings are similar to BBS-UNICEF (2014) findings on ARI prevalence.[23] The prevalence is relatively higher in Barisal and Rangpur (Figure 4.6). However, there is no clear discernible pattern of the prevalence of ARI between rural and urban areas.

[21]http://www.who.int/mediacentre/factsheets/fs331/en/
[22]https://www.unicef.org/bangladesh/Child_Surviva_in_Bangladesh.pdf
[23]Percentage of children under the age of 5 with ARI symptoms in the last 2 weeks are included.

Figure 4.6: ARI Affected Under 5 Children by Residence

(In %)

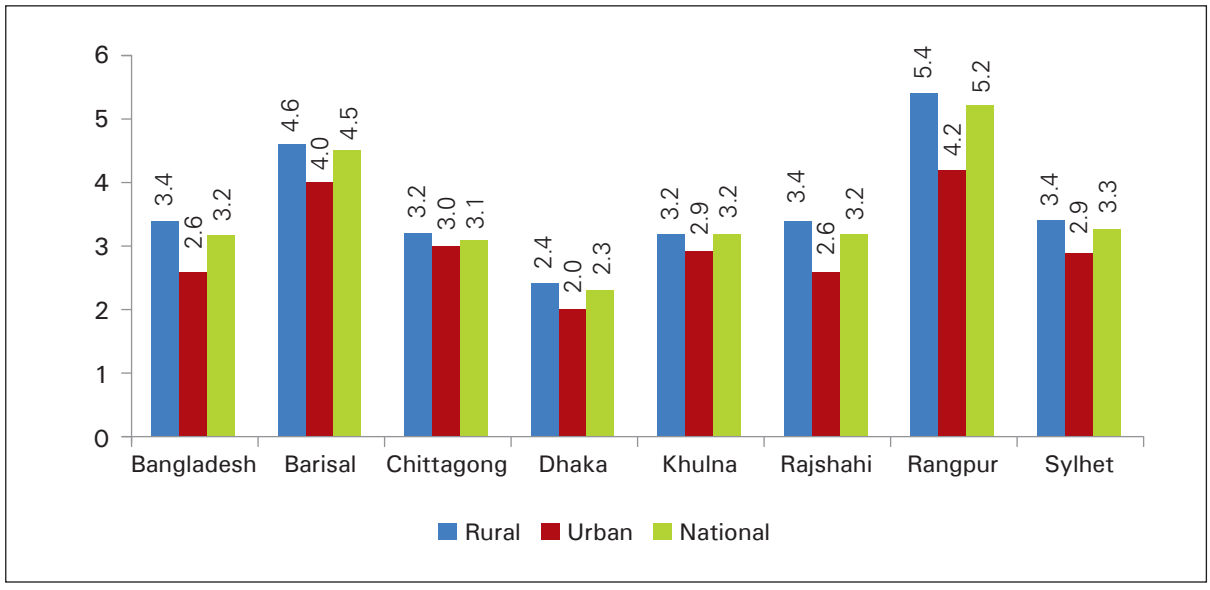


Figure 4.7: Accessibility to Healthcare Facility for ARI Affected Children by Division

(In%)

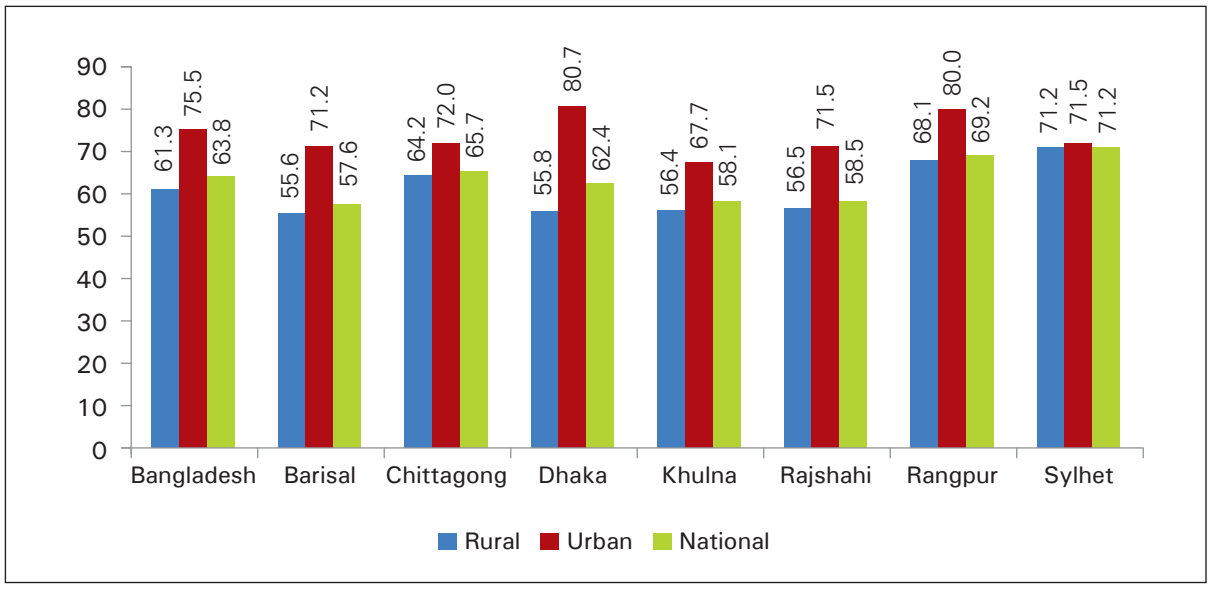


Figure 4.7 presents the accessibility to a clinic or hospital for those 3.2% of the children with complains of ARI, who sought advice regarding the sickness. One observes that 61% of the children in rural and 76% in urban areas had access to health facility within 2 kilometers. The accessibility is relatively higher in rural areas of Sylhet and urban areas of Dhaka and Rangpur.

The patterns of utilization of healthcare facilities by ARI-affected children are summarized in Table 4.7, where utilization denotes proportion of ARI-affected children who visited healthcare facility and took medication. The numbers reveal that utilization rate is around 47% at the aggregate level with variations across divisions and between rural-urban locations (44% in rural areas against 62% in urban areas). The drop in utilization rate to 47% from 54% of accessibility implies that 7% of the affected children with accessibility did not seek health treatment or take medication. Among the rural residents, utilization rate is highest in Sylhet (56%) but the rates are very low in Khulna (36.4%) and Rajshahi (38.6%). The affected children in urban areas utilized healthcare facilities relatively more in Dhaka (65%), Chittagong (64.4%) and Rangpur (64%) but less in Khulna (57%), Rajshahi (53.7%) and Sylhet (53.3%).

Table 4.7: ARI Children's Visits to Healthcare Facility and Medication by Residence

(In%)

Division	Rural	Urban	National
Bangladesh	44.3	62.2	47.4
Barisal	42.6	59.6	44.8
Chittagong	48.5	64.4	51.7
Dhaka	41.1	65.1	47.4
Khulna	36.4	57.0	39.5
Rajshahi	38.6	53.7	40.6
Rangpur	46.8	64.1	48.3
Sylhet	56.4	53.3	56.0

Completion of prescribed antibiotics course is important for full cure from ARI and to prevent micro-bacterial resistance development. Table 4.8 presents the percent of the children under 5 who utilized the healthcare facilities and were prescribed medication to treat ARI by healthcare providers, and who actually completed the course for medication. At the national level, only 33% of the children treated for ARI actually completed the medication course as recommended by the healthcare professionals. In other words, a large number of affected children did not complete antibiotics course for ARI infection.

The scenario is better in urban areas compared to the rural areas. A comparison across the divisions reveal that such non-completion of antibiotics course is particularly prominent in rural areas of Khulna (22.3%), Rajshahi (24%) and Barisal (26.8%).

Table 4.8: Completion of Medication Course by ARI affected Children by Residence

(In%)

Division	Rural	Urban	National
Bangladesh	31.2	42.4	33.1
Barisal	26.8	41.2	28.7
Chittagong	36.3	44.0	37.9
Dhaka	33.8	45.7	37.0
Khulna	22.3	39.7	24.9
Rajshahi	24.0	33.3	25.2
Rangpur	33.0	38.6	33.4
Sylhet	33.4	39.5	34.1

The sex of the child does not matter in utilization pattern and medication behavior at the national level (Table 4.9). In Barisal the utilization rate of ARI affected female children are higher compared to males (50.0% vis-à-vis 40.4%). Further, there is some evidence that male children completed the antibiotics course at a relatively higher rate compared to female children in Chittagong (40.8% vis-à-vis 34.6%), Khulna (27.8% vis-à-vis 21.2%) and Sylhet (37.9% vis-à-vis 30%) divisions.

Table 4.9: Healthcare Utilization and Medicine Use by ARI Affected Children by Sex

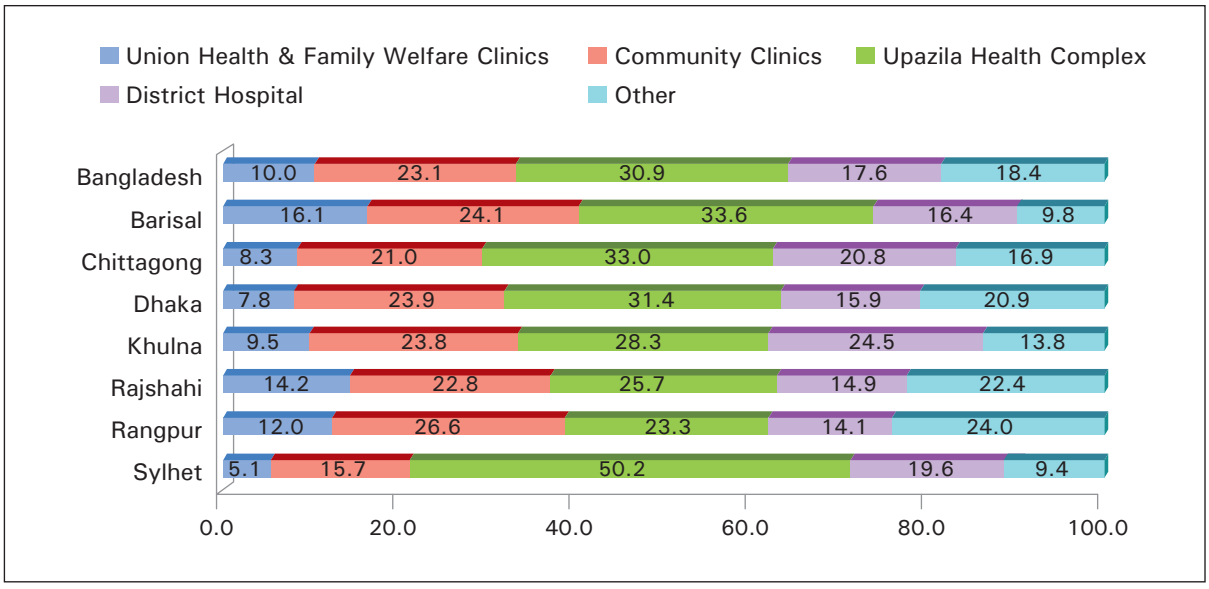
(In%)

Division	Visited Healthcare Facility and Took Medication		Completed Medication Course	
	Male	Female	Male	Female
Bangladesh	47.4	47.3	33.9	32.1
Barisal	40.4	50.0	27.3	30.3
Chittagong	51.7	51.8	40.8	34.6
Dhaka	46.9	48.3	36.7	37.4
Khulna	42.2	36.1	27.8	21.2
Rajshahi	40.8	40.2	25.3	25.0
Rangpur	51.0	45.1	33.0	34.0
Sylhet	54.8	57.4	37.9	30.0

The affected children attended different types of healthcare facilities. Figure 4.8 shows that at the national level, the majority of the affected children availed healthcare services from Community Clinics (23.1%) and Upazila Health Centers (30.9%).

Figure 4.8: Types of Healthcare Facilities Utilized by ARI Affected Children

(In%)



There is variation across divisions in the utilization pattern. Children with complains of ARI in Sylhet (50.2%), Barisal (33.6%) and Chittagong (33%) went to Upazila Health Centers more compared to other divisions. Similarly ARI affected children in Rangpur (26.6%), Dhaka (23.9%) and Khulna (23.8%) utilized Community Clinics more. Utilization of district level health facilities is higher among ARI affected children in Khulna (24.5%), Chittagong (20.8%) and Sylhet (19.6%). Approximately 12%-16% of the ARI affected children in Barisal, Rangpur, and Rajshahi seek healthcare advice and medication from Union Health and Family Welfare Centers.

CHAPTER 5: BIRTH REGISTRATION AND CHILD EDUCATION

Following the UN Convention, all individuals under the age of 18 are treated as children. They constitute about 44% of the total population in Bangladesh (BDHS 2014). In 1990, Bangladesh is one of the countries that signed and ratified the Convention on the Rights of the Child, 1989. The first National Child Policy was formulated in 1994. The Section 4 of Article 28 of the Constitution ensures that children are not discriminated and where necessary priority is given.[24] The National Child Policy, 2011 calls for elimination of all forms of child abuse and discrimination. Two important aspects of child protection are birth registration and enrolling the child into school. These two aspects are only a sub-group of all child protection services available, which are not covered in the current report. While implementation of the first one helps detect the exact age of the child, the second one at least delays, if not protects, the child from different forms of abuse outlined in the National Child Policy, 2011. Finally, the National Child Act, 2013 is a land mark for the development of children in Bangladesh. The Act has directed the provisions of institutional care for the disadvantaged children to ensure welfare and protection of the vulnerable children.

5.1. Birth Registration of Child

Birth registration provides a legal recognition to the child which is a permanent record of existence. It is also essential for receiving health facilities, enrolling informal education system, allowing inheritance, preventing child exploitation and receiving any legal documents to access their rights. It is vital that a registered child receives a birth certificate, as it provides permanent, official and visible evidence of legal recognition from the state of a child's existence as a member of the society.

According to the latest estimates available about 37% of children aged less than 5 have birth registration (BBS-UNICEF, 2014), a decline from 54% reported in BBS-UNICEF (2009). The present report shows that the situation is dire at the very beginning of a child's life, as in the present study only 15% of children under the age of 1 have applied for or already have a birth certificate. Against this back drop, the coverage of child birth registration is assessed. Table 5.1 summarizes the coverage indicators by division and the operational definitions are provided below. Accessibility and effective coverage indicators of child birth registration by districts are presented in Table B7 in the Appendix-B.

Accessibility: Proportion of parents of children born in the last one year who know where/ how / who, can help them report and obtain birth registration certificate.

Utilization: Proportion of children whose birth registration has been applied for (including those who already have birth certificates).

Adequate Coverage: Proportion of children who had registered and have been provided birth registration certificate.

Effective Coverage: Proportion of children who had registered and have been provided birth registration certificate within 45 days of birth.

The coverage estimates show that about 60% of the children have access to birth registration facilities with little variation between rural and urban areas as well as across divisions.

Amongst those with accessibility, only 15% in the urban areas and 13% in rural areas have utilized the facilities; thus, a large segment of the population has access to child birth registration facilities but somehow has not applied. One-third of those who have utilized facilities in rural areas and half of those who have utilized facilities in urban areas have had adequate coverage, i.e., birth certificates have been provided to these children. Finally, birth

[24] Section 4 of Article 28 reads as follows: Nothing in this article shall prevent the State from making special provision in favor of women or children or for the advancement of any backward section of citizens.

certificates have been provided to only 1% of the children within 45 days of their birth. There is hardly any variation across the divisions, with the highest utilization rate recorded for Sylhet (21% for rural areas vis-à-vis 23% for urban areas) and the lowest utilization recorded for Dhaka (8.8% for rural areas vis-à-vis 13.5% for urban areas).

Table 5.1: Coverage of Child Birth Registration by Residence

(In%)

Division	Accessibility		Utilization		Adequate Coverage		Effective Coverage	
	Mean	Std. Error	Mean	Std. Error	Mean	Std. Error	Mean	Std. Error
National								
Bangladesh	58.9	0.39	13.5	0.27	5.4	0.18	1.2	0.09
Barisal	54.6	1.22	16.8	0.92	7.4	0.64	1.1	0.26
Chittagong	56.3	0.92	17.0	0.70	6.6	0.46	1.0	0.18
Dhaka	56.9	0.81	10.0	0.49	4.4	0.34	0.8	0.15
Khulna	65.3	1.13	14.0	0.82	3.7	0.45	0.5	0.17
Rajshahi	56.4	1.11	9.8	0.66	4.3	0.45	1.6	0.28
Rangpur	65.5	1.05	13.0	0.74	5.3	0.49	1.7	0.29
Sylhet	64.2	1.11	21.1	0.94	8.2	0.63	2.5	0.36
Rural								
Bangladesh	58.7	0.51	13.2	0.35	4.9	0.22	1.1	0.11
Barisal	53.8	1.97	16.8	1.47	7.3	1.03	1.1	0.41
Chittagong	55.0	1.14	16.9	0.86	6.1	0.55	1.0	0.23
Dhaka	56.6	0.98	8.8	0.56	3.3	0.35	0.5	0.14
Khulna	65.1	1.46	14.1	1.07	3.5	0.56	0.4	0.19
Rajshahi	56.4	1.45	9.3	0.85	3.9	0.57	1.6	0.37
Rangpur	65.5	1.37	13.2	0.98	5.4	0.65	1.6	0.36
Sylhet	64.9	1.55	20.8	1.32	7.9	0.87	2.5	0.51
Urban								
Bangladesh	59.9	0.61	14.8	0.44	7.5	0.33	1.6	0.16
Barisal	58.9	1.54	16.4	1.16	7.7	0.83	1.4	0.37
Chittagong	62.5	1.52	17.8	1.20	9.0	0.90	1.2	0.34
Dhaka	57.7	1.45	13.5	1.00	7.6	0.78	1.7	0.38
Khulna	66.5	1.75	13.3	1.26	4.9	0.80	0.8	0.33
Rajshahi	56.8	1.71	12.7	1.15	6.0	0.82	1.9	0.47
Rangpur	64.9	1.63	10.5	1.05	4.5	0.71	1.9	0.47
Sylhet	59.6	1.61	23.4	1.39	9.8	0.97	2.4	0.50

In order to assess if gender discrimination underlies the low coverage of child birth registration, a sex disaggregated analysis has been conducted (Table 5.2). The findings do not reveal any specific gender preference among parents in registering their children for birth certificates.

Table 5.2: Coverage of Child Birth Registration by Sex of the Child

(In%)

Division	Accessibility	Utilization	Adequate Coverage	Effective Coverage
Female				
Bangladesh	59.4	13.1	5.4	1.4
Barisal	56.5	15.2	6.5	1.2
Chittagong	58.5	15.7	6.3	1.2
Dhaka	56.5	10.2	4.6	1.0
Khulna	66.0	12.7	3.8	0.4
Rajshahi	55.6	10.0	3.9	1.7
Rangpur	65.4	13.1	5.3	1.5
Sylhet	65.3	21.1	8.7	3.3
Male				
Bangladesh	58.5	13.8	5.3	1.0
Barisal	52.9	18.3	8.1	1.0
Chittagong	54.4	18.1	6.8	0.8
Dhaka	57.3	9.8	4.2	0.6
Khulna	64.8	15.2	3.6	0.5
Rajshahi	57.3	9.6	4.7	1.6
Rangpur	65.5	12.8	5.2	1.8
Sylhet	63.1	21.1	7.6	1.7

Only a small proportion of the respondents answered to the question of child birth registration within 45 days. For those who registered the birth of their children, it was found that only one-fourth of them had their children registered within 45 days. The remaining three-fourths who did not complete the birth registration within 45 days cited two major reasons (Table5.3) : First, about 48% of the residents in rural and 39% in the urban areas do not realize the importance of child birth registration within 45 days. Second, about 40% of the residents in rural and 26% in urban areas, failed to complete the registration within 45 days as the parents/family members could not decide on the name of the newborn.

Table 5.3: Reasons for not Having the Birth Certificate within 45 Days by Residence

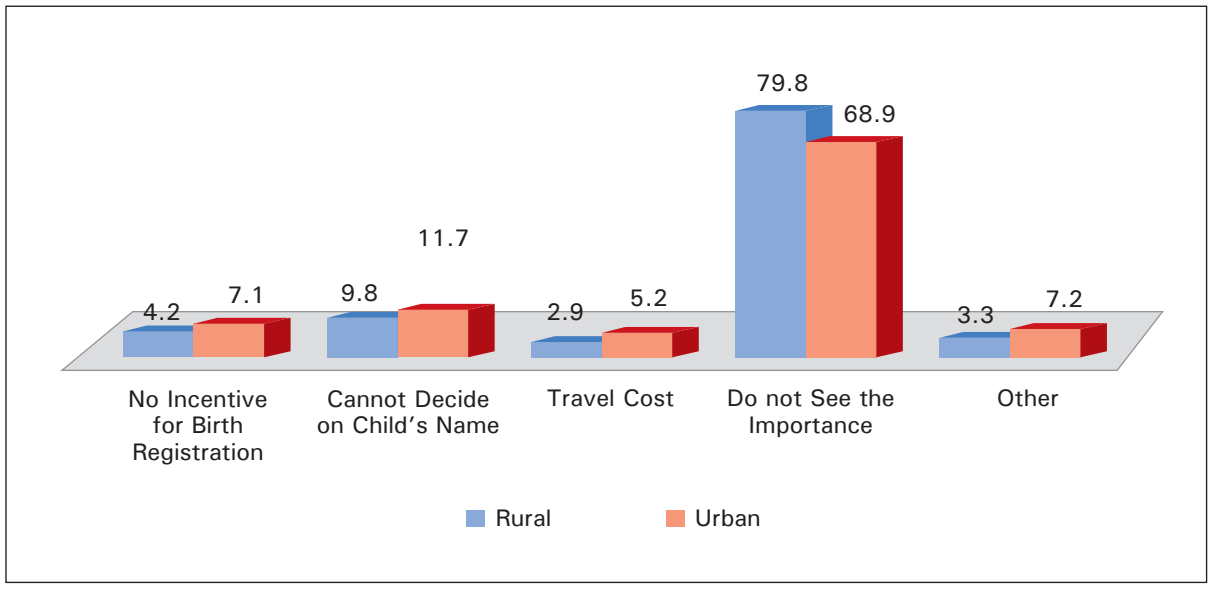
(In%)

Reason for Delay	Rural	Urban	Male	Female	National
No Incentive	0.0	24.7	4.9	2.0	3.6
Cannot Decide on Child's Name	39.9	25.8	34.3	42.4	37.9
Travel Cost	0.0	1.4	0.0	0.5	0.2
Do not See the Importance	48.1	38.7	46.9	46.6	46.8
Other	11.9	9.4	13.9	8.6	11.6

When the time horizon is expanded, the decision on the name of the infant is resolved. It is found that the first reason, i.e.: not realizing the importance of birth registration, becomes pronounced both across rural and urban areas (Figure5.1). The reason accounts for 80% in rural and almost 69% in urban areas. A sex-disaggregated analysis shows no discrimination between boys and girls; for boys it accounts for 79% compared to 76% for girls.

Figure 5.1: Reasons for Not Having Birth Registration Certificate by Residence

(In%)



There is thus a huge gap between access to birth registration and effective coverage of birth registration across the board. Hence, there exists a scope for policy intervention to raise public awareness through media campaigns, local level meetings and gathering, distribution of leaflets, booklets etc. Besides, the idea of tagging availability of birth certificate to pre-school admission may also be an effective method.

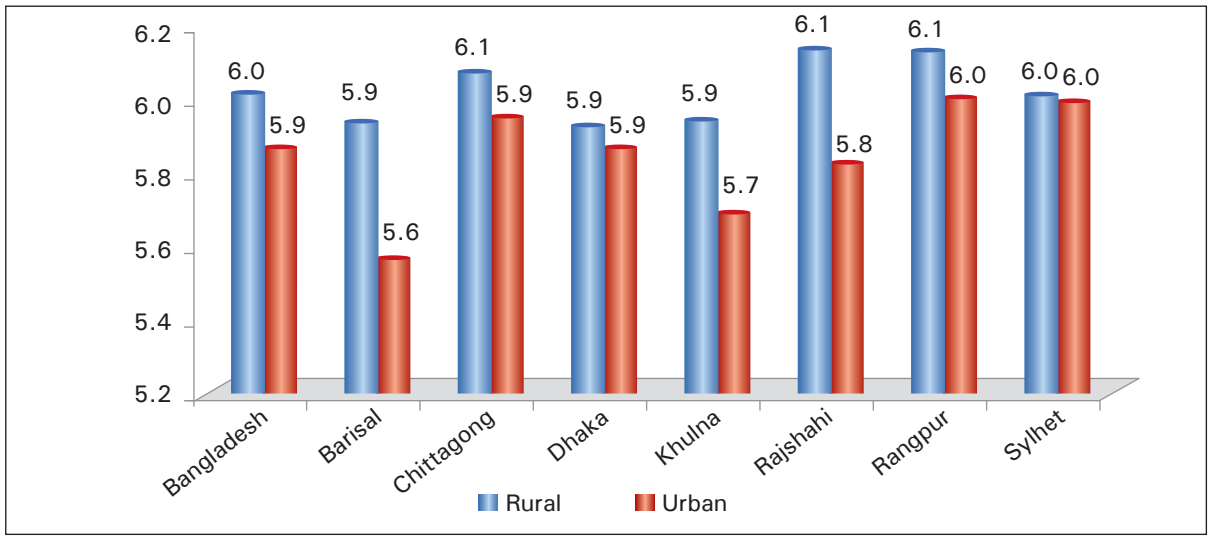
5.2. Grade 5 Completion

Bangladesh has one of the largest primary education systems in the world. The country has achieved Universal Primary Education in line with the targets of the MDGs. Besides, the Government of Bangladesh recognizes education as a means of reducing poverty and improving the quality of life for children. The primary education system in Bangladesh therefore aims to maximize the enrolment of all primary school age (6-10 years) children of the country. Despite many achievements during the past decade, major improvements are still

needed in order for children to receive the benefit of quality education. The major challenges include: poor quality of teaching and learning; high dropout rates, etc. The survey has gathered comprehensive set of information on the initiation age of grade 1 for the children, time to reach school, age of grade 5 completion, the dropout rate and the associated reasons behind each decision making process. This information has been collected from the mothers or caregivers of the children.

Figure 5.2: Starting Age of Grade1 by Residence

(In Years)



Parents send their children for early learning at pre-primary schools where they adapt to the school environment and get prepared for formal education from grade 1 onwards. Figure 5.2 shows the average age of the children when they started grade1 in primary schools. It is found that children in rural areas start grade1 at the age of 6 compared to the age of 5.9 in urban areas. This minor difference between the rural and urban areas is persistent across the divisions. The earliest age of starting grade1 is set up mostly in the urban areas of Barisal (5.6 years) and the initiation of delay are found mostly in rural areas of Chittagong, Rangpur and Rajshahi. The same pattern of five year cycle follows in grade 5 completion (Figure 5.5). It usually takes less than half an hour for the children to reach school with little variation between rural and urban areas as well as across the divisions.

Figure 5.3: Grade 5 Completion Age by Residence

(In Years)

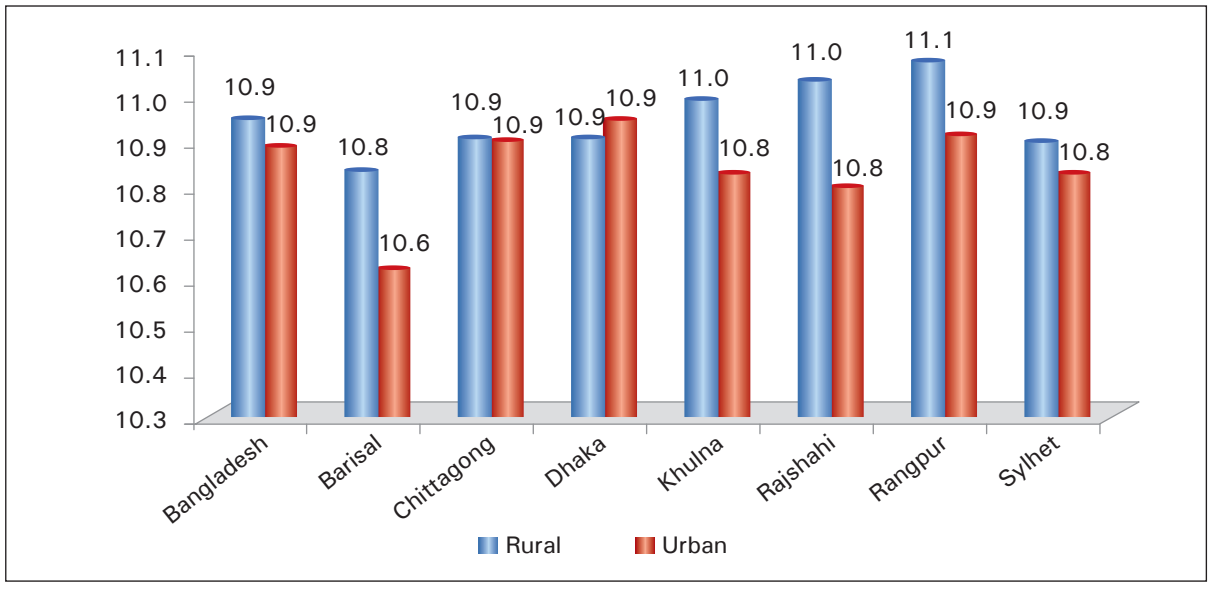


Table 5.4: Non-completion Rate at Primary School by Residence

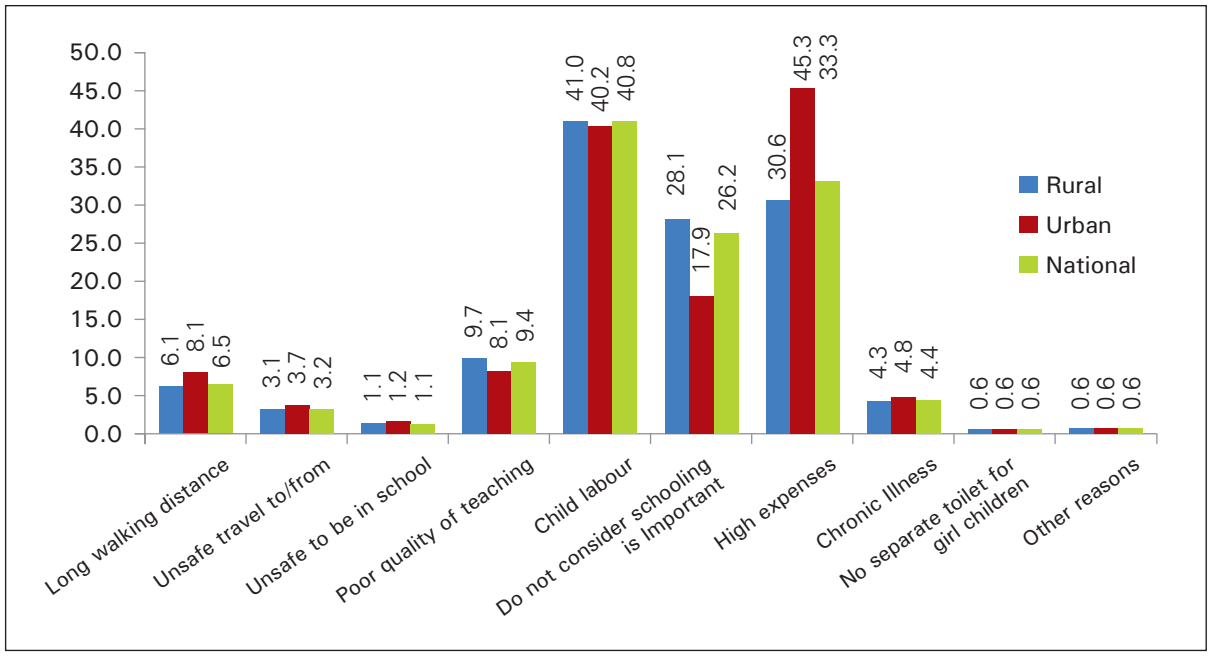
(In%)

Division	Mean	Std. Error	Mean	Std. Error	Mean	Std. Error
	Rural		Urban		National	
Bangladesh	13.7	0.14	11.9	0.15	13.3	0.10
Barisal	14.2	0.48	8.6	0.33	13.4	0.30
Chittagong	14.6	0.32	13.4	0.40	14.4	0.25
Dhaka	14.4	0.28	13.0	0.40	14.0	0.23
Khulna	10.6	0.36	9.5	0.39	10.4	0.27
Rajshahi	11.1	0.36	7.4	0.34	10.5	0.26
Rangpur	13.5	0.39	10.5	0.38	13.1	0.28
Sylhet	17.1	0.50	13.1	0.42	16.5	0.34

Not all of the students who are enrolled in grades1-4 could complete grade 5 due to repetition[25], child labor, financial stress, among others. The non-completion rates[26] are consistently higher in rural compared to urban areas (Table 5.5). While the dropout rate varies between 10.6 and 17.1% in rural areas, it is somewhat muted between 7.4 and 13.4% in urban areas. Across the divisions, the dropout rate is lower in Khulna and Rajshahi divisions but higher in Sylhet and Chittagong divisions.

Since the national repetition rate was 6.4% in 2014 (DPE, 2014), it is important to look for other reasons behind the lack of grade 5 completion. Figure 5.6 shows that 41% of students do not complete grade 5 due to child labor, about one-third because they cannot afford high educational expenses and one-quarter because they do not realize the importance of completing primary education.

Figure 5.4: Reasons for Non Completion of Grade 5 by Residence



Note: Only those who were dropped out or did not complete grade 5 are included.

[25] Repetition rate is measured as the proportion of pupils from a cohort enrolled in a given grade in a given school year to those studying in the same grade in the following school year.

[26] Non-completion rates are close to dropout rate defined as the proportion of pupils from a cohort enrolled in a given grade in a given school year that is no longer enrolled in the following school year.

CHAPTER 6: KNOWLEDGE ABOUT HIV/AIDS

Existence of commercial sex, injecting drug use, cross border mobility and high population mobility due to internal and international migration, along with high poverty and gender inequality, make the young and adult population of Bangladesh susceptible to HIV infection. This issue was raised to the young age population in the age group15-24 to

assess their knowledge and information on HIV/AIDS as this group is most susceptible to risky sexual behavior and affected by sexually transmitted diseases .The set of questions included the causes of HIV/AIDS, how the virus transmits across human bodies and existent knowledge on several local misconceptions. All the sets of information are combined into a composite indicator-comprehensive knowledge.[27]

6.1 Rural Urban Divide in HIV/AIDS Knowledge

The urban population, both at the national and divisional levels are more knowledgeable about HIV/AIDS compared to the rural population. As Table 6.1 shows, at the national level, only 24% of the rural population and 35% of the urban population have comprehensive knowledge about HIV/AIDS. Comprehensive knowledge about HIV/AIDS by district is presented in Table B9 in the Appendix-B. The comprehensive knowledge indicator suggests that among the divisions, the rural population in Khulna and Dhaka are more knowledgeable about HIV/AIDS. In contrast, the rural populations in Chittagong and Barisal are less knowledgeable. Among the urban residents, the population of Dhaka, Rajshahi and Khulna are most knowledgeable while the populations of Barisal and Sylhet are less knowledgeable.

Table 6.1: Comprehensive Knowledge about HIV/AIDS by Residence

(In %)

Division	Mean	Std. Error	Mean	Std. Error	Mean	Std. Error
	Rural		Urban		National	
Bangladesh	23.6	0.16	34.9	0.20	26.0	0.12
Barisal	19.3	0.55	28.6	0.51	20.7	0.36
Chittagong	17.8	0.33	30.4	0.47	20.6	0.26
Dhaka	26.9	0.33	37.1	0.48	30.0	0.28
Khulna	30.1	0.51	36.9	0.59	31.2	0.38
Rajshahi	24.5	0.45	39.3	0.57	27.0	0.35
Rangpur	23.6	0.45	35.8	0.55	25.1	0.34
Sylhet	20.9	0.48	28.5	0.50	21.9	0.33

Table 6.2 presents the comparison by sex of the population showing that around 26% of the male and female population have comprehensive knowledge about HIV/AIDS. These findings imply that almost three-fourths of the population in the age group 15-24 do not pass the comprehensive knowledge test on HIV/AIDS. There are not any notable differences in knowledge between male and female population in any of the divisions.

[27] Comprehensive knowledge means knowing that consistent use of condoms during sexual intercourse and having just one uninfected faithful partner can reduce the chance of getting the AIDS virus, knowing that even a healthy-Looking person can have the AIDS virus rejecting the two most common local misconceptions about AIDS transmission or prevention.

Table 6.2 : Comprehensive Knowledge about HIV/AIDS by Sex

(In%)

Division	Male	Female
Bangladesh	26.0	26.0
Barisal	20.5	20.8
Chittagong	19.9	21.2
Dhaka	30.3	29.7
Khulna	31.6	30.9
Rajshahi	28.1	26.0
Rangpur	24.7	25.5
Sylhet	22.2	21.6

6.2. Age, Education and HIV/AIDS Knowledge

Education usually enhances knowledge and information. Figure 6.1 reveals that there is clear association between education level and knowledge on HIV/AIDS among the young population–the higher educated segment of the population is more knowledgeable about HIV issues. The younger population with no education has almost zero knowledge about HIV/AIDS. At the national level, only 10.7% of the population with no schooling and only 15.4% of the population with primary level education has comprehensive knowledge about HIV/AIDS. However, almost 80% of the population with at least SSC level education has comprehensive knowledge about HIV/AIDS. The pattern is almost similar across divisions. Only 8-9% of the population with no schooling has comprehensive knowledge about HIV/AIDS in Sylhet and Barisal. Among the SSC plus education group, the comprehensive knowledge is relatively lower in Barisal (36.5%), Chittagong (37%) and Rangpur (41%) but higher in Dhaka (52%) and Rajshahi (51%) compared to the national level.

The target population was split into two age groups, age15-19 and age 20-24, to assess if there is any variation in knowledge level due to age. Figure 6.2 shows that both at the national level and across divisions, relatively higher proportion of the population in the latter age-group (19-24) have comprehensive knowledge about HIV/AIDS compared to the population in adolescent age group (24% vis-à-vis 27%). The difference among the two age groups in comprehensive knowledge is highest in Dhaka (26.9% vis-à-vis 31.6%) and lowest in Barisal (19.7% vis-à-vis 21.2%).

Figure 6.1: Comprehensive Knowledge about HIV/AIDS by Education

(In%)

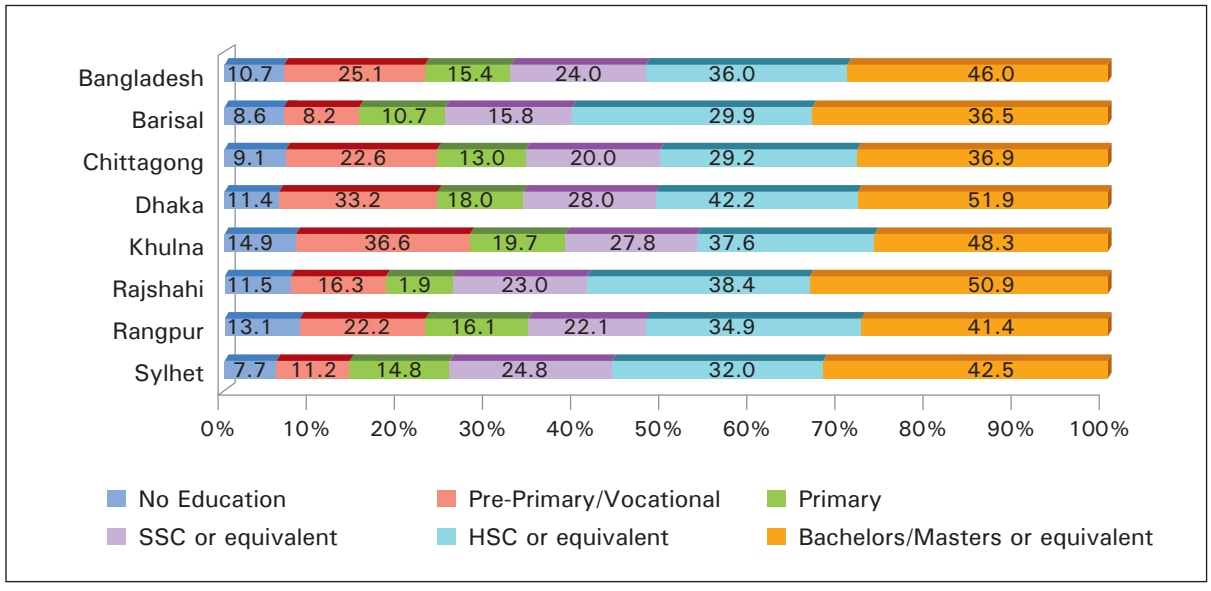
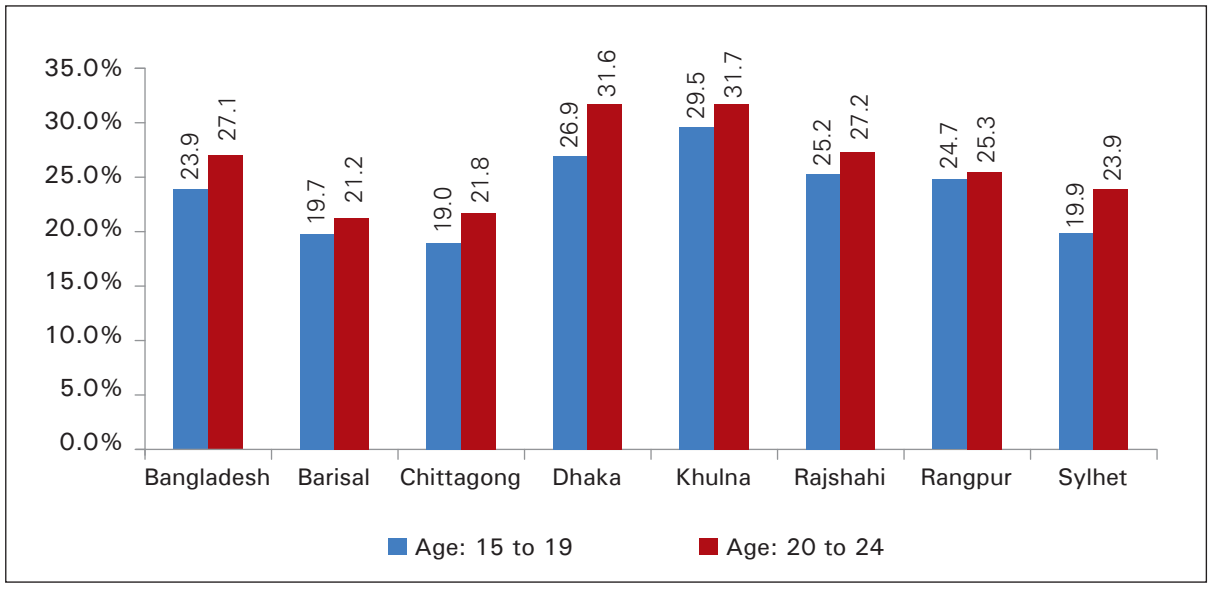


Figure 6.2: Comprehensive Knowledge about HIV/AIDS by Age Group



CHAPTER 7: WATER SUPPLY, SANITATION AND HYGIENE

Even before 1848, with the appearance of the first Public Health Act for England and Wales, the inextricable link between water, sanitation and hygiene has been established, calling for an improvement in global health and human development. The association between poverty and drinking water, sanitation and hygiene is transmitted through the health channel. Unsafe water usage, unimproved sanitation and improper handwashing practices, together result in stunting as well as in impairment of physical and cognitive development among children, mainly through repeated diarrhea infection, reduced immunity, nutrient loss and decreased nutrient absorption (Schmidt, 2014; Petri, Naylorand Huque, 2014; Dangouretal, 2013). It has been reported that almost half of the global health burdens related to malnutrition are attributable to water, sanitation and hygiene sanitation (Pruss-Ustun and Corvalan, 2006). A large proportion of the global population however are deprived of safe water and improved sanitation, 884 million people still lack access to safe drinking water supply while 2.6 billion (40%) do not have access to basic sanitation.[28] The situation is particularly worse in South Asia and sub-Saharan African region, resulting in 1.8 million deaths per year due to water-borne diseases such as diarrhea, typhoid and cholera. To emphasize the importance, United Nations declared safe and clean drinking water and sanitation "*a human right essential to the full enjoyment of life and all other human rights*".[29]

Although safe water is a fundamental human need[30], availability of and accessibility to safe drinking water is still lacking for a large section of the population, especially in the rural areas. The majority of the population have water from improved sources (tube-well, borehole, piped-water and public tap or stand pipe) though are not certain about the quality. Only 4.3% of the population (13.7% of urban) have access to piped water into their dwelling units and more than 4% of the population have to spend more than 30 minutes to fetch water (BDHS, 2014). The sanitation statistics suggests a serious gap; approximately 31% of the population do not have access to improved latrine while 24% of the households share an improved latrine (BDHS, 2014). The handwashing counts provided in BDHS (2014) also indicate huge lack of knowledge and practice-only 37% of households have a dedicated place for washing hands with water and an available cleansing agent. The situation is worse in rural areas (21%) and for the population in the bottom wealth quintiles (less than 8%). The practice of washing hands before feeding the child or serving food is scant: only 3% of the caregivers reported washing hands before feeding a child (FSNSP, 2012). To improve the situation, the Government of Bangladesh made a number of commitments and targets in the 7th, Five Year Plan related to WASH: (i) 100% of the population, both in rural and urban areas, will have access to safe drinking water, (ii) 100% of the urban population will come under the coverage of sanitary latrine and (iii) the proportion of population with access to sanitary latrines will increase to 90%.

7.1. Household Water Supply

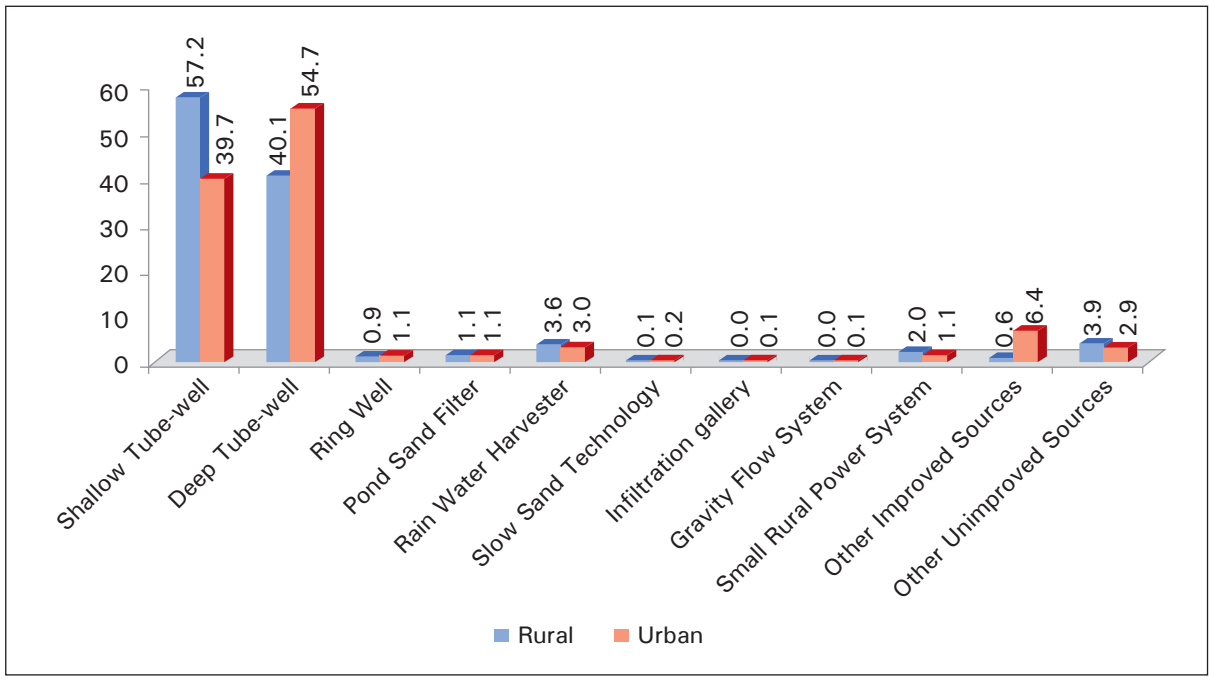
Safe drinking water is a prerequisite for health and wellbeing. Detailed information was collected from households on their sources of drinking water and associated issues. The

[28] http://www.un.org/waterforlifedecade/pdf/human_right_to_water_and_sanitation_media_brief.pdf.
[29] The United Nations General Assembly through Resolution A/RES/64/292, on 28 July 2010.
[30] An average person requires about 20 liters of safewater per day to meet their metabolic, hygienic and domestic needs which are drinking, cooking and simply keeping themselves clean.

households, in general, collect drinking water from safe and improved sources, mostly from deep tube-well (DTW) and shallow tube-well (STW). The sources of drinking water that households use are presented in Figure 7.1. As expected, the share of STW (57%) is higher in rural areas while that of DTW (55%) is higher in urban areas. Approximately 4% of the households in rural areas and 3% in urban areas use unimproved sources (open and unprotected sources, such as lake, river, unprotected well etc.) for collecting drinking water.

Figure 7.1: Sources of Household Water Supply by Residence

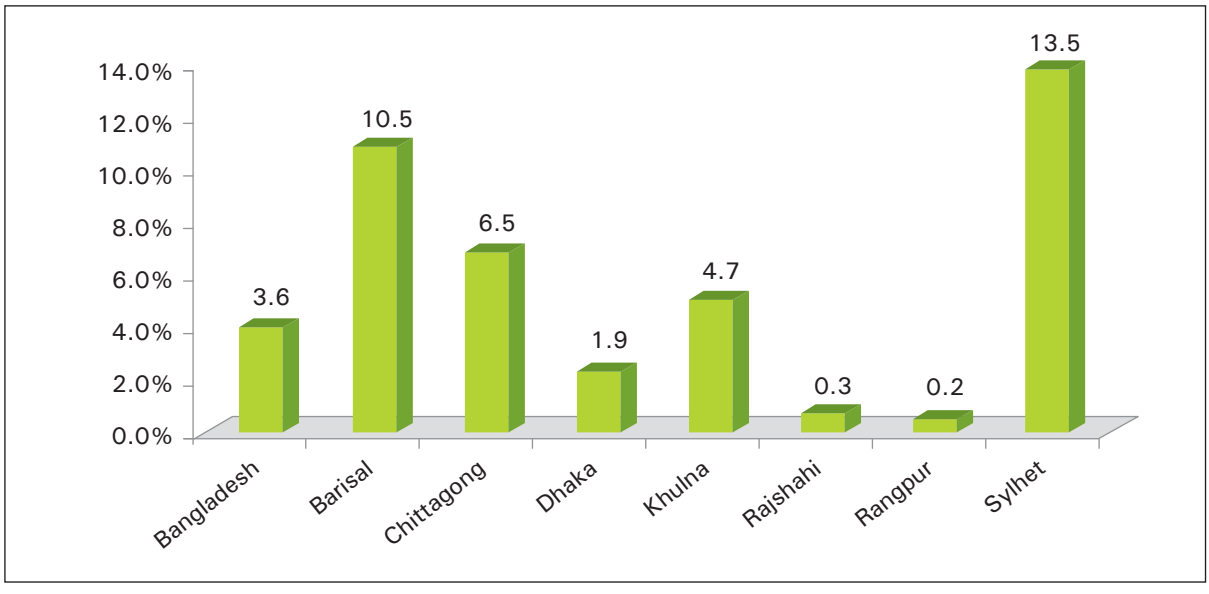
(In %)



Only 3.6% of households use unimproved drinking water at the national level; with notable regional variation (Figure 7.2). Approximately 14% of households in Sylhet, 10.5% in Barisal and 6.7% in Chittagong source drinking water from several unimproved sources.

Figure 7.2: Household Water Supply from Unimproved Sources

(In %)



Note: Unimproved sources include open and unprotected sources, such as lake, river, unprotected well etc.

The coverage indicators are summarized in Table 7.1 and the operational definitions are provided below. Accessibility and adequate coverage indicators of safe water supply by districts are presented in Table B10 in the Appendix-B.

Accessibility: Proportion of households with functional and improved water source within the house or within 150meters/492 feet from home.

Utilization: Proportion of households using water (within last two days) from the functional and improved water source located within the house or within 150 meters/492feet from home.

Adequate Coverage: Proportion of households using a minimum of 20liters/person/day of water round the year from functional and improved water source located within the house or within 150 meters/492 feet from home and collected water within last two days.

At the national level, 87% of the households (86% in rural and 91% in urban areas) have access to improved functional water sources within 150 meters of distance. There is rural-urban disparity in that one-fifth of the rural households in Barisal, Khulna and Sylhet do not have access to safe drinking water. The situation is better for urban households; more than four-fifths of the households in each of the divisions have access to safe drinking water. The utilization rate exactly matches the accessibility figures across the divisions and suggests that all of the households who have access to safe drinking water sources are actually using those particular sources.

Table 7.1: Coverage of Household Water Supply by Residence

(In %)

Divisions	Accessibility		Utilization		Adequate Coverage	
	Mean	Std. Error	Mean	Std. Error	Mean	Std. Error
National						
Bangladesh	87.3	0.07	87.3	0.07	32.0	0.10
Barisal	81.2	0.26	81.2	0.26	36.7	0.32
Chittagong	84.9	0.20	84.9	0.20	19.0	0.22
Dhaka	90.0	0.14	90.0	0.14	35.5	0.22
Khulna	82.0	0.23	82.0	0.23	18.2	0.23
Rajshahi	89.1	0.18	89.1	0.18	43.8	0.28
Rangpur	91.0	0.17	91.0	0.17	41.7	0.29
Sylhet	80.1	0.29	80.1	0.29	21.3	0.30
Rural						
Bangladesh	85.8	0.10	85.8	0.10	32.0	0.14
Barisal	77.6	0.45	77.6	0.45	33.5	0.50
Chittagong	85.4	0.26	85.4	0.26	16.1	0.27
Dhaka	87.4	0.19	87.4	0.19	39.4	0.28
Khulna	80.5	0.32	80.5	0.32	15.7	0.29
Rajshahi	88.7	0.24	88.7	0.24	41.9	0.37
Rangpur	90.6	0.23	90.6	0.23	41.3	0.39
Sylhet	77.9	0.45	77.9	0.45	19.9	0.43
Urban						
Bangladesh	91.2	0.09	91.2	0.09	32.1	0.15
Barisal	89.1	0.27	89.1	0.27	43.8	0.43
Chittagong	83.8	0.32	83.8	0.32	25.7	0.38
Dhaka	95.1	0.17	95.1	0.17	27.9	0.34
Khulna	88.1	0.29	88.1	0.29	28.6	0.40
Rajshahi	90.7	0.25	90.7	0.25	51.8	0.44
Rangpur	93.8	0.21	93.8	0.21	44.1	0.44
Sylhet	90.2	0.29	90.2	0.29	27.9	0.44

The adequate coverage indicator incorporates the information whether the household members are getting enough water and have continuous supply of water throughout the year including the dry season (November-May). In comparison to the national utilization rate, the adequate coverage rate drops by 59% in the urban areas and 54% in rural areas. The adequate coverage scenario is worse in rural areas of Chittagong, Khulna and Sylhet. For example, only

15.7% of the households in rural areas of Khulna, who had access to improved and functional water sources within 150 meters of the household, could collect water throughout the year and household members were daily using at least 19 liters of water.

The drop in adequate coverage indicator may be attributed to two factors: either in adequate water supply throughout the year, or in adequate amount of water use per person, or both. As Figure 7.3 reveals, around one –tenth of the households do not have continuous water supply throughout the year.[31] The scenario is relatively worse in urban areas of Chittagong, Sylhet and rural areas of Dhaka and Rangpur.

Figure 7.3: Households without Continuous Water Supply by Residence

(In%)

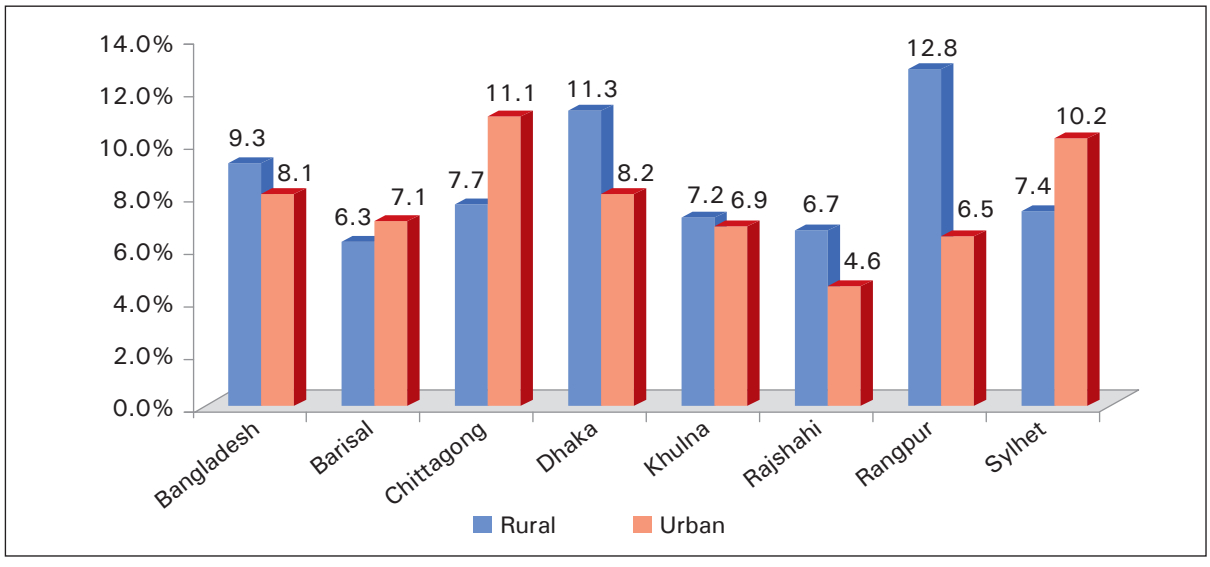
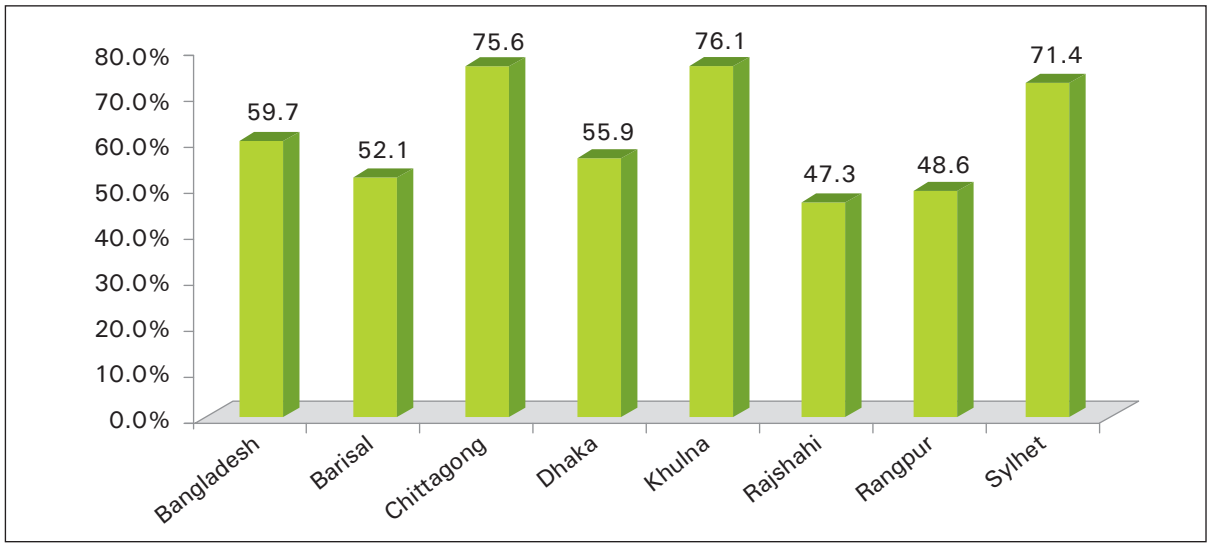


Figure 7.4 shows that a large segment of the households suffer from inadequate water availability throughout the year almost two-third of the households use less than 20 liters of water/person/day. The situation is relatively worse in Chittagong, Khulna and Sylhet. Approximately three quarters of the households in Chittagong and Khulna do not meet theminimum daily water use requirement. Splitting the water usage information by residence of the households, as presented in Figure 7.5, shows that average domestic water use in the rural areas of these three divisions lies in the range of 15.5-18.8 liters/person/day. The average domestic water use in the urban areas of Chittagong barely exceeds the threshold of 20 liters/person/day.

Figure 7.4: Households with Domestic Water Use Less than 20Liters/Person/Day

(In%)

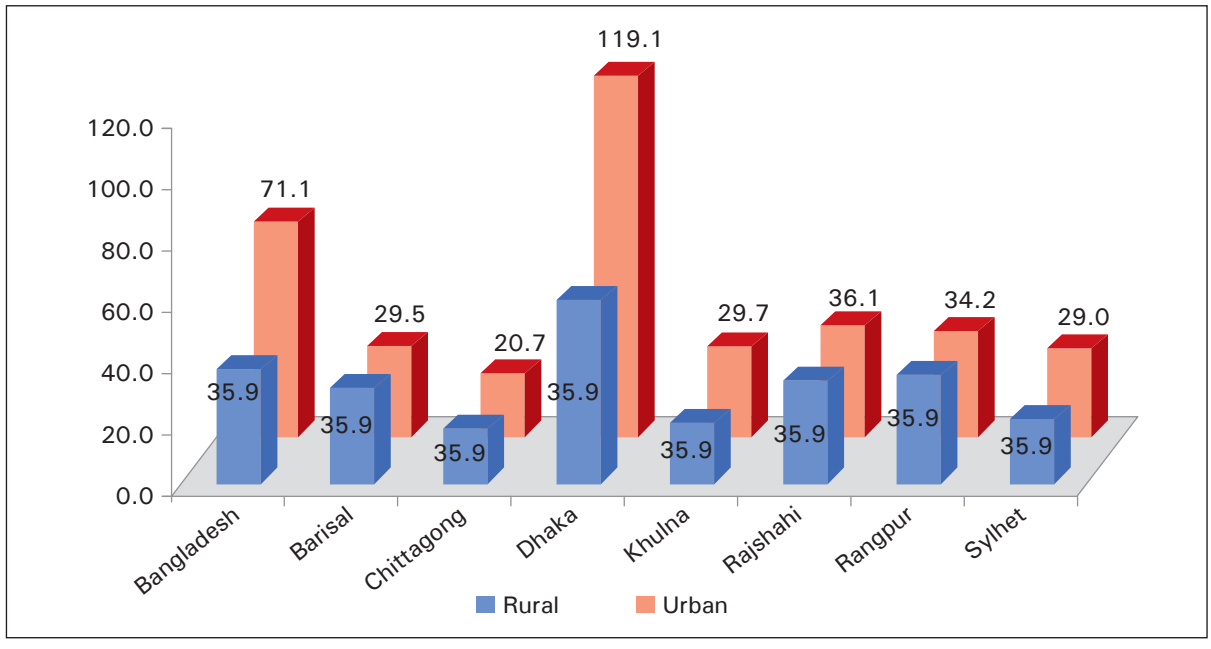


Note: Only households collecting water from improved functional water sources within 150 meters are included.

[31] Only households who meet the utilization criterion for safe water supply are considered in the analysis.

Figure 7.5: Average Water Use by Residence

(Liter/Person/Day)

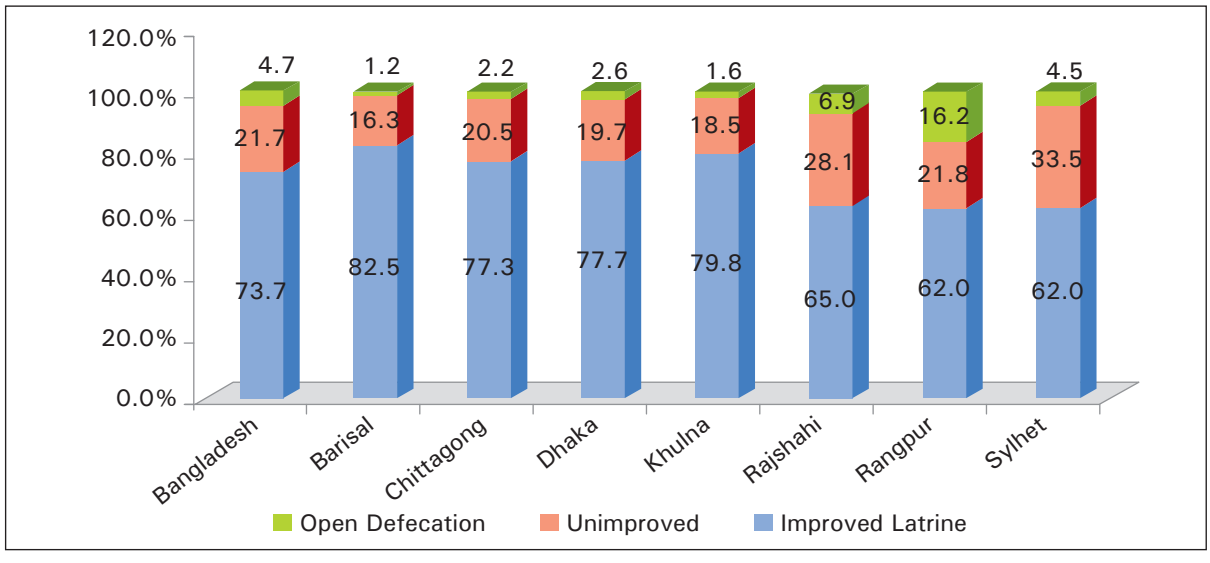


7.2. Sanitation

A comprehensive set of data/information were collected from households on their sanitation usage and practices. The majority of the households practice improved sanitation.[32] At the national level, as presented in Figure 7.6, almost three-fourths of the households use an improved latrine, one-fifth use unimproved latrines, and less than 5% defecate in open space. There is notable spatial variation in the types of latrine usage; 28% of the households in Rajshahi and 33.5% in Sylhet use unimproved latrines. Although national statistics reveal a lower share of open defecation; the regional statistics show that 16 % of the households in Rangpur and 7% in Rajshahi defecate in open space.

Figure 7.6: Types of Latrines Households Used

(In%)



The coverage indicators are summarized in Table 7.2 and the operational definitions are provided below. Accessibility and effective coverage indicators of sanitation by districts are presented in Table B11 in the Appendix-B.

[32] Improved sanitation means access to strictly sanitary latrine in the sense of protected disposal human feces, for example, flush to pipe water system, flush to septic tank, flush to pit (latrine), ventilated improved pit latrine, pit latrine with slab and water sealed, improved peat latrine with slab but not water sealed and compost toilet. Unimproved latrine types include pit latrine without slab or open pit, hanging toilet, bucket latrine and flush to other/ unknown place.

Accessibility: Proportion of households which use an improved latrine within 20 meters of the household.

Utilization: Proportion of households which use an improved latrine within 20 meters of the Household by all members of the household (over five years of age).

Adequate Coverage: Proportion of households which use an improved latrine within 20 meters of the household by all members of the household (over five years of age) and which is clean and can be used all year round.

Effective Coverage: Proportion of households which use an improved latrine which is within 20 meters of the household accessible by all members of the household (over five years of age) and which is clean all year round and has handwashing facilities(water and soap) available inside or within 5m of the latrine.

The accessibility indicator illustrates that three-fifths of the households in rural and four-fifths in urban areas have access to improved latrine within 20 meters of the house. The accessibility statistics in Rajshahi, Rangpur and Sylhet are worse–approximately half of the households do not have access to improved latrine. The utilization indicator shows that even if a household has access to an improved latrine, not all five years and older members of the household use the facility. The utilization rate at the national level is 15%, with 12% in rural areas and 22% in urban areas. Further, non-utilization is widespread across the divisions.

Table 7.2: Coverage of Household Sanitation by Residence

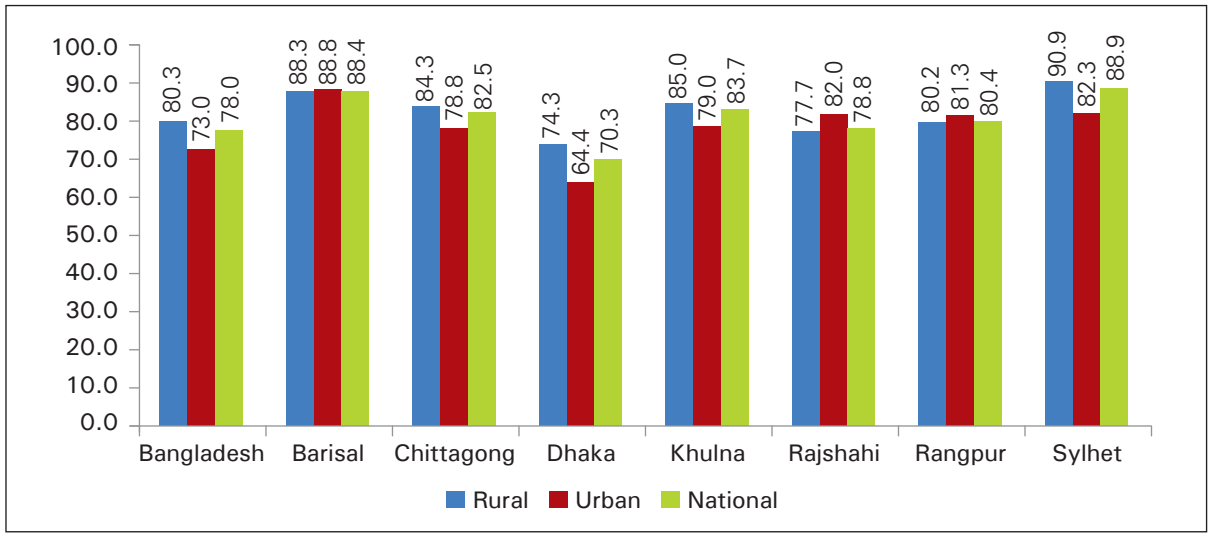
(In %)

Division	Accessibility		Utilization		Adequate Coverage		Effective Coverage	
	Mean	Std. Error	Mean	Std. Error	Mean	Std. Error	Mean	Std. Error
National								
Bangladesh	66.5	0.10	14.6	0.08	11.3	0.07	7.8	0.06
Barisal	72.0	0.30	8.3	0.18	6.5	0.17	4.7	0.14
Chittagong	68.7	0.26	12.0	0.18	9.3	0.16	6.6	0.14
Dhaka	71.6	0.21	21.3	0.19	16.8	0.17	11.5	0.15
Khulna	71.5	0.27	11.7	0.19	8.3	0.16	4.9	0.13
Rajshahi	58.2	0.28	12.3	0.19	8.9	0.16	6.2	0.14
Rangpur	55.1	0.29	10.8	0.18	8.2	0.16	6.4	0.14
Sylhet	56.2	0.36	6.2	0.17	5.2	0.16	3.3	0.13
Rural								
Bangladesh	61.5	0.14	12.1	0.10	9.1	0.08	6.1	0.07
Barisal	72.0	0.48	8.4	0.30	6.8	0.27	4.7	0.23
Chittagong	65.8	0.35	10.3	0.22	8.2	0.20	5.9	0.17
Dhaka	64.3	0.27	16.5	0.21	12.5	0.19	8.2	0.16
Khulna	69.4	0.37	10.4	0.24	7.5	0.21	4.2	0.16
Rajshahi	53.1	0.38	11.8	0.24	8.5	0.21	5.5	0.17
Rangpur	52.1	0.40	10.3	0.24	7.9	0.21	6.1	0.19
Sylhet	52.7	0.54	4.8	0.23	4.0	0.21	2.4	0.16
Urban								
Bangladesh	80.5	0.13	21.7	0.14	17.2	0.12	12.4	0.11
Barisal	71.9	0.39	8.1	0.23	5.9	0.20	4.7	0.18
Chittagong	75.3	0.37	15.9	0.32	11.8	0.28	8.0	0.24
Dhaka	85.8	0.27	30.6	0.35	25.2	0.33	18.0	0.29
Khulna	80.2	0.35	16.8	0.33	11.6	0.28	7.9	0.24
Rajshahi	79.6	0.35	14.3	0.31	10.9	0.27	9.1	0.25
Rangpur	73.8	0.39	13.8	0.30	10.5	0.27	8.1	0.24
Sylhet	71.7	0.44	12.7	0.33	10.6	0.30	7.4	0.26

The non-utilization rate by members of households with access to improved latrines is compared across divisions and rural-urban residence (Figure 7.7). It is evident that not all household members with accessibility use the improved latrines across divisions. Such non-utilization rates are relatively higher in Sylhet, Khulna, and Barisal. The adequate coverage indicator focuses on the cleanliness of the latrine and suitability throughout the year, especially, during the rainy season. The moderate drop in adequate coverage indicator implies that a fraction of the improved toilets utilized do not meet the cleanliness criterion. As Figure 7.8 shows, those who have latrines and utilize them, around 80% are well maintained and clean. The cleanliness conditions of the toilets are comparatively poor in Khulna and Rajshahi.

Figure 7.7: Households with 5+ aged Members Not Using Improved Latrine

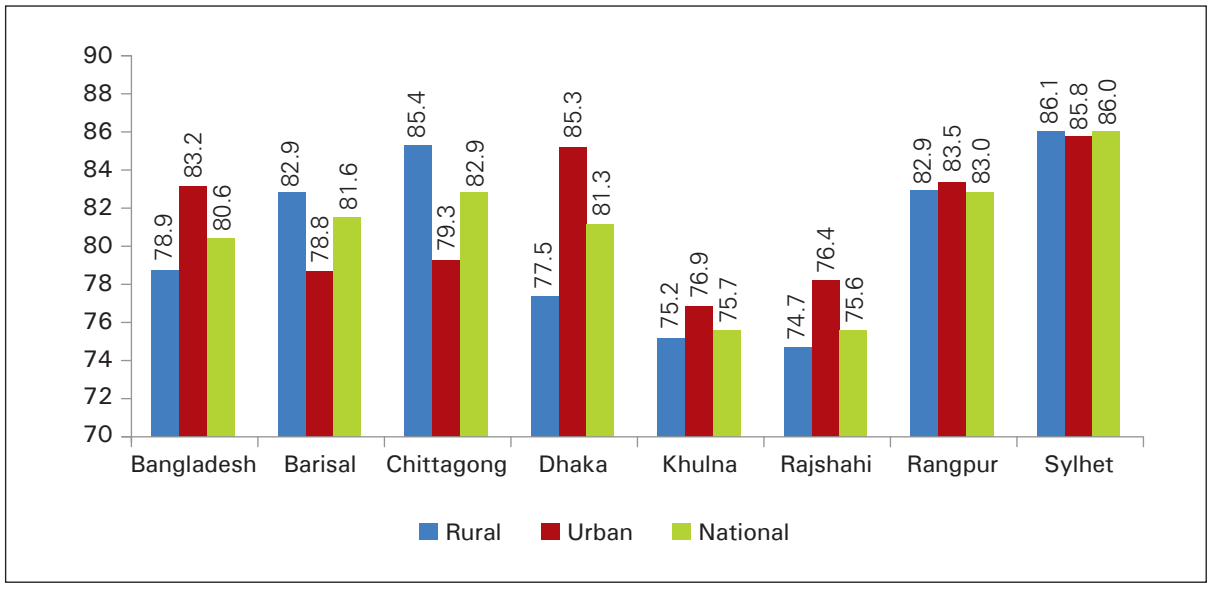
(In%)



Note: Only households who have access to improved latrine within 20 meters are included.

Figure 7.8: Households Use of Clean Latrine by Residence

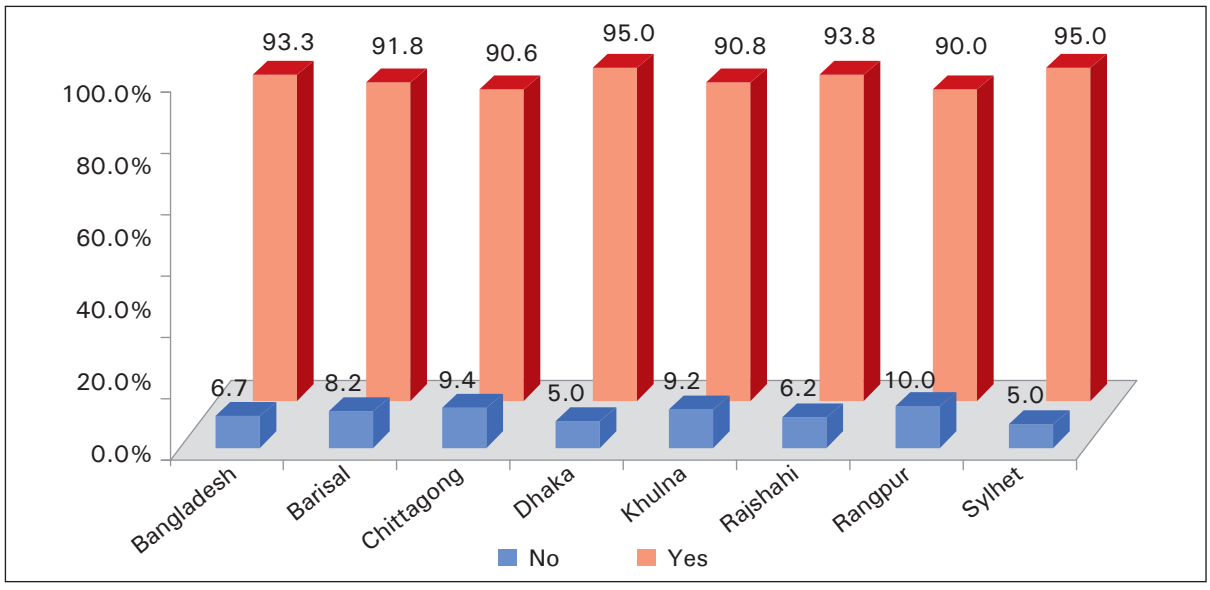
(In%)



Note: Only households where all 5 year and older members are utilizing the latrines are included.

Figure 7.9: Suitability of Latrines during Rainy Season by Division

(In%)



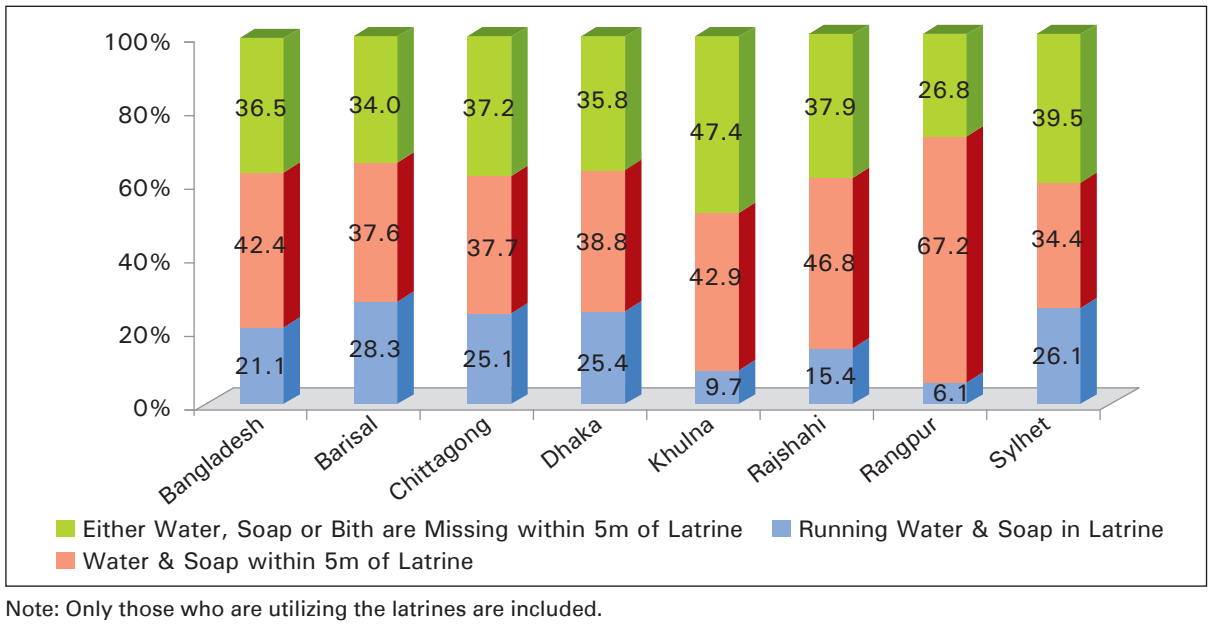
Note: Only those who are utilizing the latrines are Included.

The suitability of the latrines during rainy season is presented in Figure 7.9. That seasonality does not affect the latrine suitability is evident across the divisions. The effective coverage indicator imposes an additional layer on adequate coverage indicator-if the households have handwashing facilities (water and soap) available inside or within 5 meters of the latrine. The effective coverage indicators suggest that only 6% of the households in rural areas and 12.8% in urban areas have access to clean, round-the-year suitable latrines with handwashing facilities inside or within 5 meters of the latrine. Only 5% of the households in Khulna and Barisal and 3% in Sylhet have such coverage.

The availability of handwashing facilities (water and soap) in or close to the toilets is summarized in Figure 7.10. About 21% of the latrines have running water and soap available within the facilities. In contrast, 42% of the households use latrines with water and soap available within 5 meters of the facilities. More than one-third of the households do not have such handwashing facilities close to the latrines. Absence of such facilities is more prevalent in Khulna (47%), Sylhet (40%), Rajshahi (38%) and Chittagong (37%).

Figure 7.10: Availability of Handwashing Facilities within or near the Latrines

(In%)

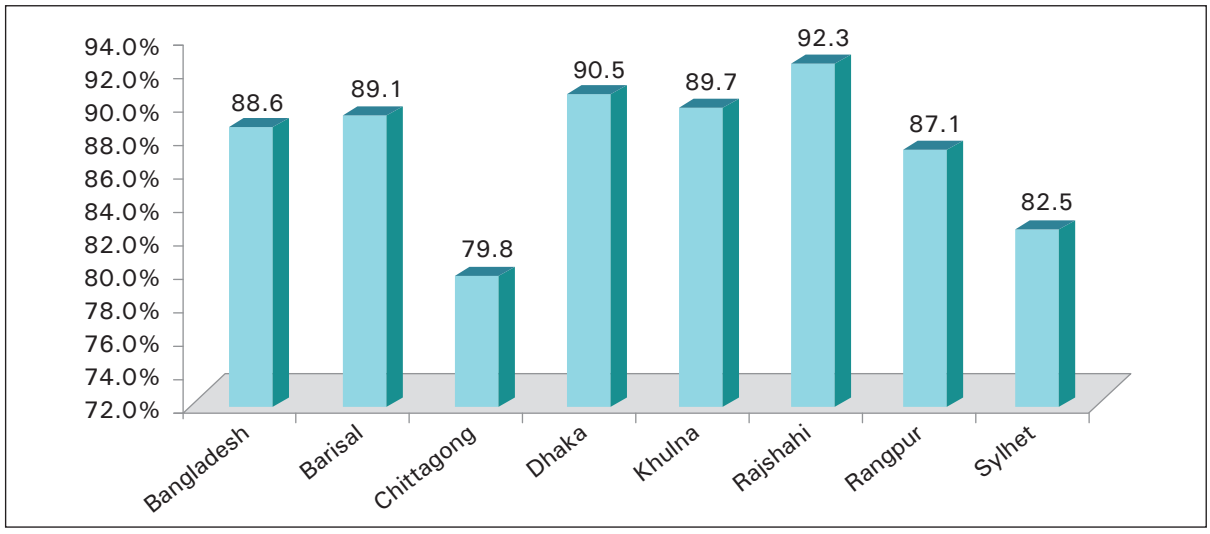


Note: Only those who are utilizing the latrines are included.

Although not related to the coverage indicators, the quality of latrines may be associated with their shared status and the number of households that are actually sharing the facilities. Figure 7.11 reveals that 89% of the households who reported to have effective coverage to improved sanitation are actually using shared latrines. Such shared latrine scenario is relatively high in Dhaka, Rajshahi and Khulna. Further, households who have effective sanitation coverage share the latrines on average with four other households.

Figure 7.11: Households Using Shared Latrines

(In %)



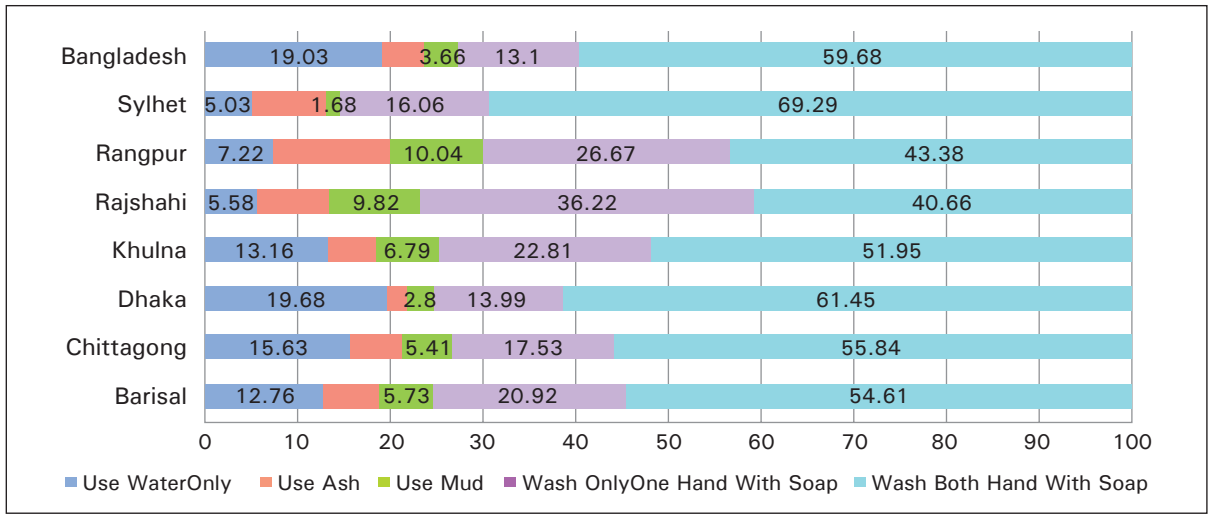
7.3. Handwashing

Handwashing is a critical component of good hygiene. Handwashing is a must at several critical times e.g. –after defecation, after cleaning the baby's bottom or disposing feces, before preparing food, before serving food, before eating, and before feeding the child. In order to assess these issues a comprehensive set of data/information was collected on handwashing practices and knowledge from households with children under age 5. Around four-fifths of the households have handwash facilities within 5 meters of the latrine. However, 21% of the rural households do not have any such handwash facilities.[33]

The knowledge level on how to wash hand is not satisfactory either. As Figure 7.12 shows, at the national level, only little more than half of the caregivers are found to be knowledgeable on washing both hands with soap. The knowledge level is worse in Khulna and Rajshahi, where around one-fifth of the households seem to use mud for handwashing.

Figure 7.12: Knowledge of Households on How to Wash Hands

(In%)



[33] The corresponding figure for urban household is 9%.

The coverage indicators on handwashing are presented in Table 7.3 and the operational definitions are provided below. Accessibility and effective coverage indicators of handwashing by districts are presented in Table B12 in the Appendix-B.

Accessibility: Proportion of mothers/caregivers of children under five who have knowledge of the critical times to wash hands with soap; i) after defecation, ii) before preparing food, iii) before eating, iv) after cleaning a baby's bottom, v) disposing of feces vi) before feeding a child.

Utilization: Proportion of households with soap and water available inside the latrine or within five meters of the latrine.

Adequate Coverage: Proportion of observed latrine visits which were followed by handwashing with soap.

Effective Coverage: Proportion of observed latrine visits which were followed by effective handwashing (with both hands, with soap for at least six seconds).

The accessibility indicator suggests that around 88% of the households have handwash facilities and know when handwashing is necessary. The utilization indicator incorporates whether the households with accessibility have soap and water available within 5 meters of the latrine. The utilization construct exhibits a 17 percentage points drop. At the national level, two-thirds of the rural and four-fifths of the urban households have accessible latrine with handwashing facilities with both soap and water; within 5 meters of the latrine.

Table 7.3: Coverage of Handwashing by Residence

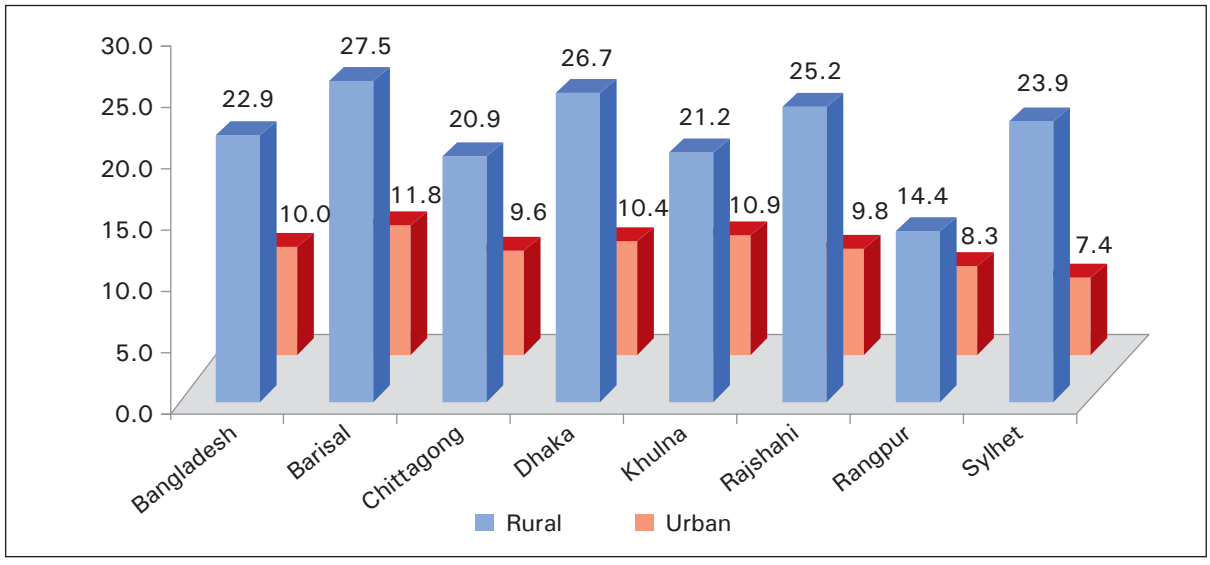
(In %)

Division	Accessibility		Utilization		Adequate Coverage		Effective Coverage	
	Mean	Std. Error	Mean	Std. Error	Mean	Std. Error	Mean	Std. Error
National								
Bangladesh	87.6	0.11	70.3	0.16	65.5	0.16	50.1	0.17
Barisal	89.3	0.33	66.9	0.50	61.4	0.52	50.4	0.53
Chittagong	87.3	0.26	71.4	0.35	65.1	0.37	55.3	0.39
Dhaka	87.2	0.24	69.0	0.33	64.4	0.34	47.5	0.36
Khulna	89.5	0.31	72.2	0.46	69.0	0.47	40.6	0.50
Rajshahi	85.3	0.35	66.5	0.46	60.4	0.48	40.4	0.48
Rangpur	90.2	0.28	77.8	0.40	75.6	0.41	64.2	0.46
Sylhet	85.9	0.35	67.6	0.47	62.7	0.49	53.1	0.50
Rural								
Bangladesh	86.3	0.15	66.5	0.21	61.2	0.22	45.7	0.22
Barisal	89.4	0.51	64.8	0.79	58.6	0.82	48	0.83
Chittagong	86.7	0.33	68.6	0.46	61.4	0.48	52.3	0.49
Dhaka	84.3	0.32	61.8	0.42	56.7	0.43	37.8	0.42
Khulna	88.5	0.43	69.7	0.62	66.2	0.64	37.7	0.66
Rajshahi	83.3	0.48	62.3	0.62	55.4	0.64	37.5	0.62
Rangpur	90.4	0.37	77.3	0.53	75.0	0.55	63.6	0.61
Sylhet	85.5	0.50	65.1	0.68	59.7	0.70	49.6	0.71
Urban								
Bangladesh	91.7	0.15	82.5	0.20	79.5	0.21	64.5	0.25
Barisal	88.4	0.45	78.0	0.58	76.8	0.59	63.0	0.67
Chittagong	89.5	0.40	80.9	0.51	77.8	0.54	65.6	0.61
Dhaka	92.8	0.32	83.1	0.47	79.6	0.50	66.6	0.59
Khulna	93.8	0.38	83.6	0.58	82.0	0.60	54.3	0.78
Rajshahi	93.6	0.37	84.4	0.55	81.8	0.59	52.8	0.76
Rangpur	89.0	0.45	81.7	0.56	79.8	0.58	68.6	0.67
Sylhet	88.4	0.45	81.9	0.55	79.7	0.57	73.1	0.63

The handwashing statistics reveal wide regional and rural-urban disparities. As Figure7.13 shows, approximately one-fourth of the rural households with children under 5 do not have handwashing facilities with both soap and water within five meters of latrine. The adequate coverage indicator emphasizes on whether the households satisfying the utilization criterion know how to wash hands. The decline from utilization to adequate coverage is not discernible. Approximately three-fifths of the rural households and four-fifth of the urban households meet the utilization criterion and wash hands with both water and soap at the recommended occasions.

Figure 7.13: Households without Access to Water and Soap

(In %)

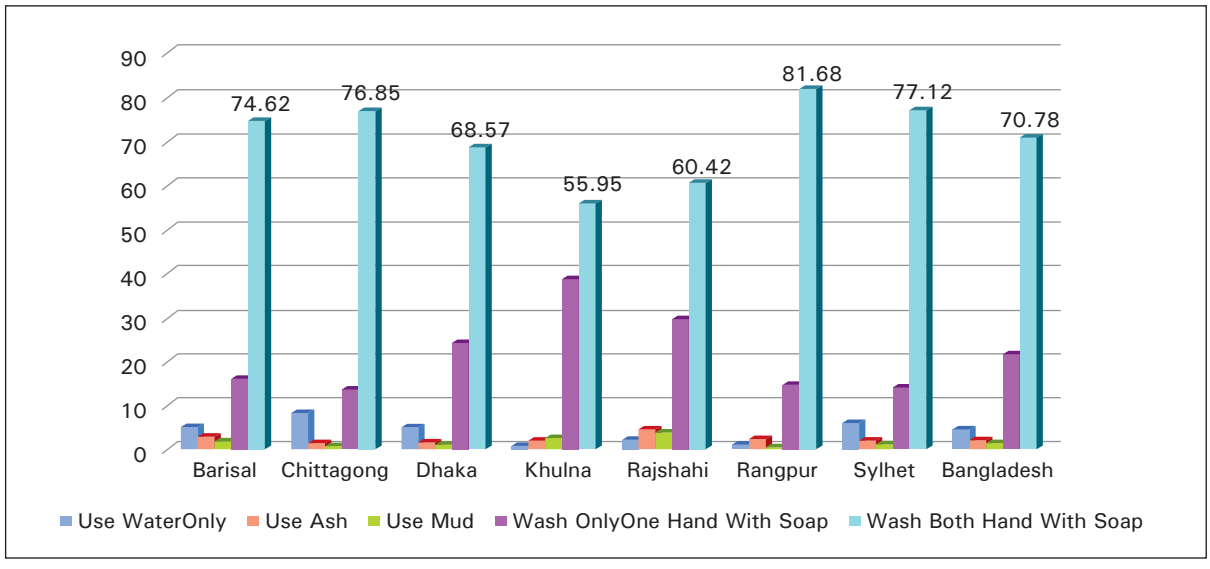


The effective coverage indicator re-emphasizes on washing both hands with soap and water at the recommended occasions. The effective coverage indicator drops from the level of adequate coverage, which suggests that a significant number of households wash only one

hand with soap and water instead of both hands. At the national level, 46% of rural and 65% of urban households meet the criterion for effective coverage. The effective coverage levels are particularly poor in Dhaka, Khulna and Rajshahi, which is consistent with the pattern, revealed in Figure 7.12, that a high proportion of households in these three divisions consider washing one hand with soap and water is adequate.

Figure 7.14: Handwashing Practice after Defecation

(In%)



Note: Households with children under 5 who satisfy the utilization criterion are included.

The reason behind the drop in effective coverage from the level of adequate coverage is also reflected in Figure 7.14 which demonstrates that 21.5% of the households meet the utilization criterion but wash only one hand with soap. Such pattern is highly prevalent in Khulna (39%), Rajshahi (30%) and Dhaka (24%).

A comparison of coverage indicators between male and female children, as presented in Table 7.4, confirms that household handwashing behavior does not exhibit any discrimination on the basis of the sex of the child. This is consistent across the divisions.

Table 7.4: Coverage of Handwashing by Sex of the Child

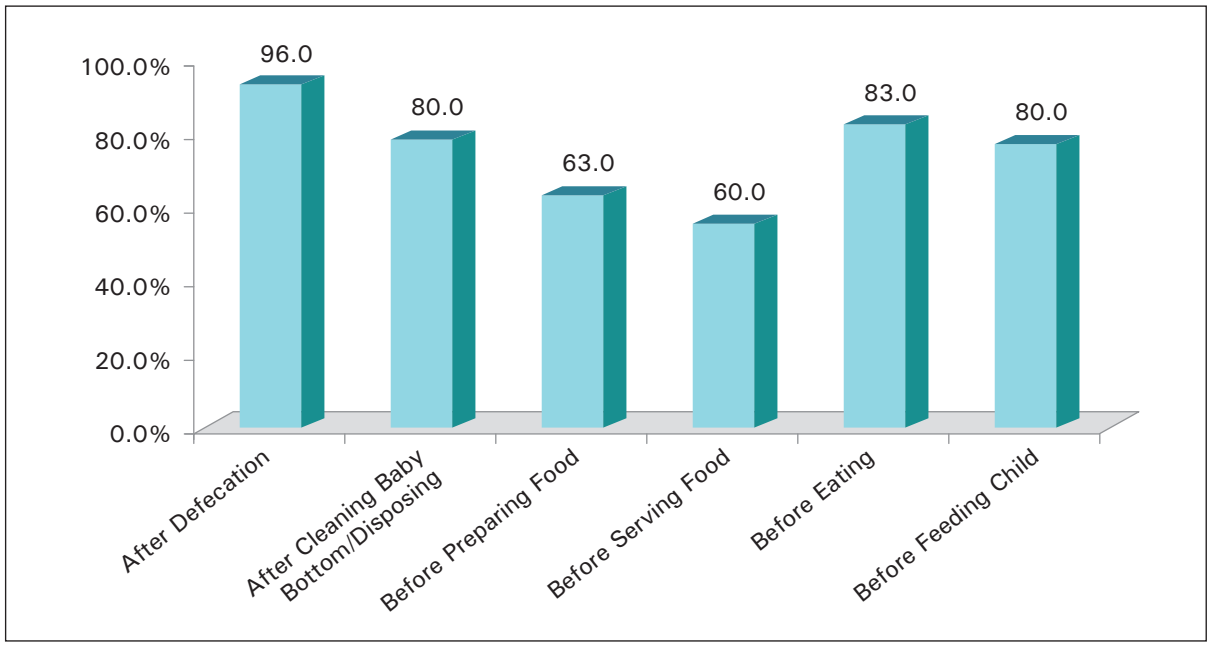
(In%)

Division	Accessibility	Utilization	Adequate Coverage	Effective Coverage
			Female	
Bangladesh	87.4	70.2	65.4	50.0
Barisal	89.5	66.8	61.6	50.7
Chittagong	86.7	70.8	64.4	54.5
Dhaka	87.2	69.1	64.5	47.6
Khulna	89.3	72.5	69.4	41.1
Rajshahi	85.6	67.0	61.0	40.3
Rangpur	89.4	77.0	74.7	63.2
Sylhet	85.8	68.0	63.7	54.2
			Male	
Bangladesh	87.8	70.4	65.6	50.2
Barisal	89.0	67.0	61.3	50.0
Chittagong	88.0	71.9	65.7	56.1
Dhaka	87.2	68.8	64.3	47.4
Khulna	89.5	71.9	68.6	40.1
Rajshahi	84.9	66.1	59.9	40.5
Rangpur	91.0	78.7	76.5	65.2
Sylhet	86.0	67.1	61.6	52.0

The knowledge level of households, utilizing the handwashing facilities; when to wash hands, may give an impression about the correct timing for handwashing. As Figure 7.15 suggests, almost all of the households know correctly that handwashing is critical after defecation. Further, the majority of the households also know that handwashing is necessary after cleaning a baby's bottom, before eating and before feeding the child. However, two-fifths of the households with handwashing facilities (both soap and water) within five meters of latrine are not aware of handwashing requirement before preparing food and also before serving it.

Figure 7.15: Households with Knowledge on When Handwashing is Critical

(In %)



Note: Households with children under 5 who satisfy the utilization criterion are included.

Table 7.5: Knowledge on When Handwashing is Necessary by Residence

(In%)

When is Needed	Barisal	Chittagong	Dhaka	Khulna	Rajshahi	Rangpur	Sylhet	Bangladesh
Rural								
After Defecation	96.0	93.0	98.0	97.0	97.0	98.0	94.0	96.0
After Cleaning Baby Bottom/ Disposing of Feces	77.0	73.0	80.0	87.0	78.0	85.0	69.0	79.0
Before Preparing Food	62.0	58.0	62.0	65.0	52.0	64.0	66.0	61.0
Before Serving Food	61.0	59.0	58.0	64.0	49.0	60.0	65.0	59.0
Before Eating	82.0	77.0	87.0	87.0	81.0	83.0	79.0	82.0
Before Feeding Child	81.0	75.0	82.0	82.0	74.0	81.0	78.0	79.0
Urban								
After Defecation	96.0	97.0	97.0	98.0	95.0	99.0	95.0	97.0
After Cleaning Baby Bottom/ Disposing of Feces	83.0	81.0	81.0	92.0	81.0	83.0	80.0	82.0
Before Preparing Food	71.0	66.0	69.0	79.0	55.0	67.0	75.0	68.0
Before Serving Food	68.0	64.0	63.0	77.0	48.0	63.0	71.0	64.0
Before Eating	86.0	79.0	85.0	89.0	82.0	89.0	84.0	84.0
Before Feeding Child	87.0	83.0	82.0	90.0	80.0	88.0	85.0	83.0

Note: Only households who meet the utilization criterion of handwashing are included.

The analysis disaggregated by division and residence is presented in Table 7.5. The patterns observed in knowledge level on critical timing of handwashing are persistent across divisions.

CHAPTER 8: SUMMARY AND CONCLUSIONS

This report has assessed the coverage of several basic social services that have direct bearings on health and human development in Bangladesh based on data from 211,385 household interviews across 64 districts. In doing so, measurements for levels of coverage of services based on the modified Tanahashi approach and UNICEF Global MoRES have been derived. The drop in coverage of services at different levels reflects existence of barriers and bottlenecks that restrict the access and utilization of the services. Such 'drops' or decreases in coverage estimates call for a deeper look into the situation and carry out bottleneck analysis to find out issues that are impeding universal coverage of the interventions in terms of access and utilization ensuring quality. It is also required to specifically address outreach and effectiveness of the services. Rigorous analysis of the data from spatial (divisions), sex, location (rural and urban) and human capital (educational attainment) perspectives entail the following summary and conclusion across the broad areas.

8.1. Summary

Accessibility to services is a concern for almost all of the services as shown in the summary Table 8.1. Most of the basic services are not easily accessible. In the case of child and maternal nutrition, about one-third of the target population is missed; in the case of maternal and child health 30-50% target is missed; the situation is similar in the case of child development and ostensibly better in the case of water supply, sanitation and hygiene.

Table 8.1: Summary of Coverage across Areas of Basic Social Services

Areas	Basic Social Services	Coverage Constructs (%)			
		Accessibility	Utilization	Adequate Coverage	Effective Coverage
Child and Maternal Nutrition	Early Breastfeeding	66	45	41	36
	Exclusive Breastfeeding	68	67	22	19
	Complementary Feeing	67	39	27	20
	Maternal Diets	70	44	37	35
Child and MaternalHealth	Antenatal Care	72	47	17	-
	IFA Supplement	47	31	12	3
Child Development	Birth Registration of Child	59	14	5	1
WASH	Water Supply	87	87	32	
	Sanitation	67	15	11	8
	Handwashing	88	70	66	50

Even when the services are accessible to a section of the target groups, not everybody utilizes or avails the service. This concern is particularly severe in the case of child and maternal health where utilization rates drop by about a quarter (39-67%), followed by child and maternal nutrition (31-47%), and a sharp drop is witnessed in the case of child protection (14%). The situation is better for water supply and handwashing. However, a severe dent is evident in sanitation.

Even when the target population utilizes the services, they do not properly complete the requisite course of a particular procedure. Thus, adequate coverage drops once again. The plummet is noticeable in the case of child birth registration (5%) followed by child

and maternal health (12-17%) and child and maternal nutrition (22-41%). The situation is particularly severe in the case of water supply, though Bangladesh claims to have ensured safe drinking water.

What matters most is the effective coverage. When this criterion is invoked, coverage in almost all broad areas fall drastically; handwashing; between two-thirds (early breastfeeding and maternal diets) and 99% (child birth registration within 45 days).

8.2. Conclusions

It is important and relevant to focus on equity when making basic social services accessible to the target population. It is also required to understand the nature of the barriers to and solutions for equitable access in order to build enhanced efforts to reach the target population living beyond the margins of development.

The issue of less than100% accessibility for all of the basic social services needs to be addressed. For certain services, it may be due to the location. This could be the case for maternal and child health centre's at the union parishad, upazila, and district levels. For most of these facilities even if physical facilities are available, human resources are inadequate. If physical facilities and human resources are made available on demand, the accessibility would increase.

The utilization issue should be addressed by focusing on the continuity and dissemination information about services through electronic, print media and other modes of awareness campaign.

The adequate utilization issue can be improved through management and coordination in the provision of the services. This could be the case for services such as provision of safe water for household usage.

Even though there is no apparent gender discrimination from the sex-disaggregation there are disparities both between residences (rural and urban) and across regions (both divisions and districts) in the provision and usage of these basic services.

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APPENDIIX - A : SAMPLE SIZES ACROSS MODULES

Table A1: Number of Observations by Services

	Bangladesh	Barisal	Chittagong	Dhaka	Khulna	Rajshahi	Rangpur	Sylhet
				National				
Early Breastfeeding	31566	3308	5689	7149	3595	3951	4240	3634
Exclusive Breastfeeding	6695	737	1174	1507	765	868	866	778
Complementary Feeding	24852	2546	4523	5638	2830	3081	3376	2858
Maternal Diets	41633	4624	6438	9258	5337	5495	5971	4510
Antenatal Care	19888	2379	3554	4540	2137	2237	2790	2251
IFA Supplementation	9758	1225	1616	2182	1137	1156	1398	1044
Acute Respiratory Infection	85564	8778	16333	19652	9536	10332	11041	9892
Birth Registration of Child	16047	1663	2916	3732	1788	2013	2053	1882
Grade 5 Completion	106631	12494	19096	22318	12869	13410	14354	12090
Knowledge About HIV/AIDS	127079	12928	23312	27633	14951	16559	16415	15281
Household Water Supply	208858	22277	31945	47824	28352	30680	28688	19092
Sanitation	209047	22291	32024	47889	28378	30683	28679	19103
Handwashing	85589	8782	16356	19649	9535	10334	11039	9894
				Rural				
Early Breastfeeding	18739	1347	3749	4864	2073	2382	2404	1920
Exclusive Breastfeeding	3904	292	764	1036	445	497	490	380
Complementary Feeding	14819	1033	2995	3830	1627	1882	1914	1538
Maternal Diets	24954	1947	4242	6388	3174	3420	3458	2325
Antenatal Care	12124	1118	2266	3038	1349	1416	1709	1228
Iron and Folic Acid Supplementation	6047	589	1058	1530	723	745	814	588
Acute Respiratory Infection	49841	3618	10329	13226	5427	6056	6269	4916
Birth Registration of Child	9502	643	1907	2567	1060	1173	1200	952
Grade 5 Completion	60628	5299	11808	15179	7302	7546	7769	5725
Knowledge About HIV/AIDS	70249	5204	13837	17657	8166	9339	8898	7148
Household Water Supply	115921	8744	18743	30860	15655	17506	15778	8635
Sanitation	116018	8752	18790	30875	15671	17516	15776	8638
Handwashing	49858	3618	10355	13219	5425	6055	6265	4921
				Urban				
Early Breastfeeding	12827	1961	1940	2285	1522	1569	1836	1714
Exclusive Breastfeeding	2791	445	410	471	320	371	376	398
Complementary Feeding	10033	1513	1528	1808	1203	1199	1462	1320
Maternal Diets	16679	2677	2196	2870	2163	2075	2513	2185
Antenatal Care	7764	1261	1288	1502	788	821	1081	1023
Iron and Folic Acid Supplementation	3711	636	558	652	414	411	584	456
Acute Respiratory Infection	35723	5160	6004	6426	4109	4276	4772	4976
Birth Registration of Child	6545	1020	1009	1165	728	840	853	930
Grade 5 Completion	46003	7195	7288	7139	5567	5864	6585	6365
Knowledge About HIV/AIDS	56830	7724	9475	9976	6785	7220	7517	8133
Household Water Supply	92937	13533	13202	16964	12697	13174	12910	10457
Sanitation	93029	13539	13234	17014	12707	13167	12903	10465
Handwashing	35731	5164	6001	6430	4110	4279	4774	4973

APPENDIIX - B : DISTRICT TABLES

Table B1: Coverage of Early Breastfeeding by Districts

District	Accessibility (%)	Rank	Effective Coverage (%)	Rank
Bagerhat	77.1	14	34.3	34
Bandarban	96.4	1	82.2	1
Barguna	57.8	49	38.9	24
Barisal	63.8	37	36.8	27
Bhola	74.3	20	58.3	5
Bogra	87.4	2	61.9	2
Brahmanbaria	49.7	58	16.1	61
Chandpur	78.8	9	44.4	18
Chittagong	63.8	37	30.5	40
Chuadanga	79.0	8	48.9	13
Comilla	64.5	34	41.6	19
Cox's Bazar	75.4	18	54.4	8
Dhaka	76.7	15	36.6	28
Dinajpur	76.3	17	59.6	3
Faridpur	79.3	6	44.5	17
Feni	32.7	63	19.3	58
Gaibandha	68.6	28	49.0	12
Gazipur	66.3	31	29.1	44
Gopalganj	50.0	57	17.8	60
Habiganj	66.7	30	40.4	22
Jamalpur	73.4	22	27.5	45
Jessore	77.6	13	52.6	10
Jhalokati	61.0	42	47.6	14
Jhenaidah	43.9	61	22.6	53
Joypurhat	78.6	10	56.4	7
Khagrachhari	55.3	51	21.9	55
Khulna	67.2	29	39.3	23
Kishoreganj	81.5	5	45.0	16
Kurigram	64.4	35	46.5	15
Kushtia	76.7	15	24.4	51
Lakshmipur	57.7	50	29.6	41
Lalmonirhat	82.2	4	57.4	6
Madaripur	71.5	26	19.2	59
Magura	64.4	35	53.2	9
Manikganj	73.4	22	20.9	57
Maulvibazar	63.7	39	36.9	26
Meherpur	48.3	60	23.4	52
Munshiganj	58.1	48	24.9	49

District	Accessibility (%)	Rank	Effective Coverage (%)	Rank
Mymensingh	55.2	52	33.3	37
Naogaon	62.0	41	29.5	42
Narail	72.3	24	34.6	31
Narayanganj	74.5	19	32.6	38
Narsingdi	71.9	25	26.1	48
Natore	60.7	43	24.5	50
Nawabganj	29.2	64	7.7	64
Netrakona	79.1	7	41.0	20
Nilphamari	78.2	11	59.3	4
Noakhali	59.0	46	26.8	47
Pabna	39.7	62	15.8	62
Panchagarh	51.9	54	34.5	32
Patuakhali	52.1	53	31.2	39
Pirojpur	70.6	27	29.4	43
Rajbari	51.1	56	27.5	45
Rajshahi	60.0	45	35.0	30
Rangamati	60.2	44	33.6	36
Rangpur	65.6	32	34.5	32
Satkhira	82.9	3	52.3	11
Shariatpur	73.7	21	34.0	35
Sherpur	51.4	55	22.1	54
Sirajganj	48.6	59	10.7	63
Sunamganj	65.4	33	40.9	21
Sylhet	58.6	47	38.0	25
Tangail	78.2	11	21.5	56
Thakurgaon	63.1	40	35.9	29

Table B2: Coverage of Exclusive Breastfeeding by Districts

District	Accessibility (%)	Rank	Effective Coverage (%)	Rank
Bagerhat	84.7	6	24.2	17
Bandarban	96.2	1	27.5	13
Barguna	61.3	44	11.3	49
Barisal	61.7	43	11.7	47
Bhola	70.3	31	31.6	9
Bogra	87.5	2	25.8	14
Brahmanbaria	51.3	57	11.6	48
Chandpur	84.4	7	41.3	1
Chittagong	57.6	53	18.0	31
Chuadanga	84.0	9	13.0	43
Comilla	69.7	33	23.5	18
Cox'sBazar	75.1	21	19.5	26
Dhaka	79.2	14	21.3	24
Dinajpur	76.8	18	29.8	10
Faridpur	84.1	8	6.6	60
Feni	26.1	63	6.6	60
Gaibandha	67.6	34	41.0	2
Gazipur	67.6	34	21.7	23
Gopalganj	48.3	58	13.8	39
Habiganj	74.0	22	32.6	7
Jamalpur	79.5	12	23.2	19

District	Accessibility (%)	Rank	Effective Coverage (%)	Rank
Jessore	79.0	15	14.5	38
Jhalokati	56.0	54	4.0	63
Jhenaidah	46.3	59	15.1	36
Joypurhat	76.5	19	31.8	8
Khagrachhari	60.7	46	10.0	53
Khulna	76.5	19	13.6	40
Kishoreganj	87.5	2	18.1	30
Kurigram	58.6	50	10.7	52
Kushtia	79.5	12	7.7	58
Lakshmipur	59.5	48	29.2	11
Lalmonirhat	86.6	4	36.0	4
Madaripur	71.1	29	19.4	27
Magura	58.1	52	18.2	28
Manikganj	73.4	23	8.7	56
Maulvibazar	43.6	60	9.9	54
Meherpur	39.8	61	0.0	64
Munshiganj	55.1	55	12.2	45
Mymensingh	60.8	45	11.9	46
Naogaon	67.1	36	33.5	5
Narail	86.2	5	33.1	6
Narayanganj	77.8	16	10.8	51
Narsingdi	70.0	32	17.6	33
Natore	72.1	27	27.9	12
Nawabganj	25.7	64	13.2	42
Netrakona	72.7	25	22.5	21
Nilphamari	70.5	30	36.3	3
Noakhali	65.6	38	25.1	15
Pabna	39.1	62	5.5	62
Panchagarh	62.6	40	12.3	44
Patuakhali	71.2	28	8.3	57
Pirojpur	67.1	36	16.5	35
Rajbari	61.8	42	20.6	25
Rajshahi	64.9	39	18.2	28
Rangamati	62.4	41	24.5	16
Rangpur	60.1	47	22.8	20
Satkhira	83.5	10	22.3	22
Shariatpur	82.9	11	17.1	34
Sherpur	58.5	51	11.3	49
Sirajganj	53.4	56	8.8	55
Sunamganj	72.6	26	7.4	59
Sylhet	58.9	49	13.6	40
Tangail	77.2	17	14.7	37
Thakurgaon	73.4	23	17.9	32

Table B3: Coverage of Complementary Feeding by Districts

District	Accessibility (%)	Rank	Effective Coverage (%)	Rank
Bagerhat	77.4	16	12.8	52
Bandarban	95.0	1	50.9	1
Barguna	52.2	52	23.0	23
Barisal	66.3	36	26.0	14
Bhola	74.6	20	33.2	6
Bogra	90.2	2	33.1	7
Brahmanbaria	48.0	60	10.8	57
Chandpur	77.4	16	19.2	32
Chittagong	68.5	32	20.8	28
Chuadanga	78.6	14	36.6	3
Comilla	68.8	31	27.6	12
Cox's Bazar	79.5	11	32.1	8
Dhaka	77.2	18	24.0	19
Dinajpur	74.5	21	36.2	4
Faridpur	78.4	15	20.7	29
Feni	43.3	62	8.7	59
Gaibandha	69.1	30	24.4	18
Gazipur	67.0	34	20.6	30
Gopalganj	50.4	54	8.6	60
Habiganj	66.8	35	28.1	11
Jamalpur	72.4	25	11.1	55
Jessore	75.5	19	38.0	2
Jhalokati	64.7	39	16.7	35
Jhenaidah	48.6	57	12.7	53
Joypurhat	80.1	9	28.6	9
Khagrachhari	53.8	51	14.1	48
Khulna	64.5	40	25.3	15
Kishoreganj	80.8	7	23.7	21
Kurigram	71.5	26	33.3	5
Kushtia	79.3	13	25.3	15
Lakshmipur	58.2	47	14.5	46
Lalmonirhat	83.0	4	25.1	17
Madaripur	72.9	23	17.2	34
Magura	67.5	33	26.6	13
Manikganj	79.8	10	4.8	63
Maulvibazar	69.4	29	11.9	54
Meherpur	48.9	56	15.6	39
Munshiganj	61.3	44	15.9	38
Mymensingh	54.0	50	15.1	41
Naogaon	62.9	43	13.3	50
Narail	81.1	6	20.4	31
Narayanganj	72.7	24	11.0	56
Narsingdi	74.1	22	13.2	51
Natore	57.1	49	16.7	35

District	Accessibility (%)	Rank	Effective Coverage (%)	Rank
Nawabganj	30.5	64	3.8	64
Netrakona	83.4	3	24.0	19
Nilphamari	80.3	8	28.6	9
Noakhali	64.8	38	14.8	43
Pabna	41.0	63	6.2	62
Panchagarh	52.1	53	16.2	37
Patuakhali	48.4	58	22.3	26
Pirojpur	70.8	28	14.6	45
Rajbari	47.0	61	15.4	40
Rajshahi	57.7	48	14.5	46
Rangamati	58.6	46	23.4	22
Rangpur	65.9	37	22.4	25
Satkhira	83.0	4	22.3	26
Shariatpur	71.4	27	22.8	24
Sherpur	49.0	55	7.6	61
Sirajganj	48.3	59	9.3	58
Sunamganj	64.2	41	15.1	41
Sylhet	60.8	45	18.4	33
Tangail	79.5	11	14.8	43
Thakurgaon	64.0	42	13.4	49

Table B4: Coverage of Maternal Diet by Districts

District	Accessibility (%)	Rank	Effective Coverage (%)	Rank
Bagerhat	75.1	23	35.7	32
Bandarban	95.4	1	70.8	1
Barguna	70.3	32	49.8	7
Barisal	65.9	45	36.8	28
Bhola	74.8	24	42.0	17
Bogra	85.8	3	51.8	6
Brahmanbaria	53.7	57	29.0	45
Chandpur	77.0	19	31.3	40
Chittagong	68.1	39	35.1	34
Chuadanga	78.7	14	42.8	15
Comilla	73.3	29	40.7	19
Cox's Bazar	81.2	8	43.7	12
Dhaka	77.5	17	44.7	11
Dinajpur	79.1	13	55.3	2
Faridpur	84.1	5	38.2	23
Feni	30.3	64	16.5	60
Gaibandha	75.5	21	46.8	9
Gazipur	69.0	36	38.9	22
Gopalganj	55.6	54	28.3	46
Habiganj	68.0	40	45.0	10
Jamalpur	75.6	20	25.1	50
Jessore	78.4	15	53.7	3
Jhalokati	56.1	53	33.0	38
Jhenaidah	48.7	62	16.3	61
Joypurhat	73.6	27	43.4	13

District	Accessibility (%)	Rank	Effective Coverage (%)	Rank
Khagrachhari	56.5	52	24.0	53
Khulna	67.0	44	36.5	30
Kishoreganj	80.9	10	37.6	24
Kurigram	67.9	41	37.3	26
Kushtia	78.4	15	40.2	20
Lakshmipur	54.2	56	21.0	57
Lalmonirhat	88.0	2	35.0	35
Madaripur	74.8	24	35.0	35
Magura	72.4	30	31.4	39
Manikganj	71.5	31	12.6	63
Maulvibazar	68.2	38	25.9	49
Meherpur	58.3	50	42.1	16
Munshiganj	67.6	42	22.4	56
Mymensingh	55.1	55	22.7	55
Naogaon	69.3	34	23.7	54
Narail	83.0	6	24.4	52
Narayanganj	74.3	26	33.5	37
Narsingdi	77.1	18	30.6	41
Natore	67.1	43	26.9	47
Nawabganj	65.0	46	20.2	58
Netrakona	80.8	11	53.1	4
Nilphamari	85.8	3	52.3	5
Noakhali	62.0	48	30.6	41
Pabna	45.2	63	19.1	59
Panchagarh	58.3	50	29.9	44
Patuakhali	51.3	61	24.6	51
Pirojpur	75.2	22	37.4	25
Rajbari	53.1	58	39.1	21
Rajshahi	69.1	35	36.6	29
Rangamati	64.0	47	26.5	48
Rangpur	70.2	33	36.9	27
Satkhira	81.1	9	35.7	32
Shariatpur	80.7	12	43.4	13
Sherpur	51.7	60	9.3	64
Sirajganj	52.8	59	14.9	62
Sunamganj	69.0	36	41.9	18
Sylhet	61.7	49	36.3	31
Tangail	82.9	7	30.2	43
Thakurgaon	73.4	28	49.2	8

Table B5: Coverage of Antenatal Care by Districts

District	Accessibility (%)	Rank	Adequate Coverage (%)	Rank
Bagerhat	87.8	6	21.1	20
Bandarban	76.8	28	19.1	25
Barguna	83.1	14	55.8	1
Barisal	67.9	36	20.5	21
Bhola	77.9	25	8.7	48
Bogra	89.5	2	19.7	22
Brahmanbaria	51.9	56	3.1	64
Chandpur	82.4	17	36.0	3
Chittagong	78.2	24	19.0	26
Chuadanga	88.9	3	15.6	40
Comilla	67.5	39	21.5	19
Cox's Bazar	77.9	25	18.1	29
Dhaka	86.2	9	36.3	2
Dinajpur	71.9	35	23.7	15
Faridpur	86.0	10	19.6	24
Feni	40.7	64	8.5	49
Gaibandha	67.6	37	25.9	8
Gazipur	77.7	27	16.6	36
Gopalganj	54.5	54	23.0	18
Habiganj	83.6	13	16.0	39
Jamalpur	81.7	18	6.7	52
Jessore	80.6	20	16.8	35
Jhalokati	62.2	49	17.8	30
Jhenaidah	46.7	61	18.2	28
Joypurhat	67.6	37	26.1	7
Khagrachhari	51.5	58	4.8	58
Khulna	74.8	33	23.9	14
Kishoreganj	83.0	15	25.8	9
Kurigram	62.8	48	10.3	46
Kushtia	86.3	8	23.4	17
Lakshmipur	52.6	55	11.9	43
Lalmonirhat	88.5	4	17.7	31
Madaripur	66.1	41	3.2	63
Magura	80.6	20	17.4	32
Manikganj	79.5	22	8.9	47
Maulvibazar	63.6	44	17.0	34
Meherpur	61.3	50	17.4	32
Munshiganj	75.5	30	26.7	6
Mymensingh	62.9	46	5.1	57
Naogaon	67.5	39	25.4	10
Narail	95.0	1	14.5	42
Narayanganj	88.1	5	34.1	4
Narsingdi	75.4	31	8.2	50
Natore	75.0	32	25.0	12
Nawabganj	73.1	34	18.6	27
Netrakona	81.2	19	6.7	52
Nilphamari	84.4	12	33.5	5
Noakhali	62.9	46	19.7	22
Pabna	45.3	62	5.2	55

District	Accessibility (%)	Rank	Adequate Coverage (%)	Rank
Panchagarh	60.2	52	5.2	55
Patuakhali	49.7	59	4.7	59
Pirojpur	64.6	42	10.4	45
Rajbari	60.0	53	24.3	13
Rajshahi	76.5	29	25.2	11
Rangamati	51.6	57	5.8	54
Rangpur	63.3	45	16.6	36
Satkhira	86.8	7	23.7	15
Shariatpur	83.0	15	3.4	62
Sherpur	48.3	60	4.3	61
Sirajganj	42.5	63	4.7	59
Sunamganj	60.3	51	7.2	51
Sylhet	63.7	43	11.6	44
Tangail	85.7	11	16.5	38
Thakurgaon	78.5	23	15.2	41

Table B6: Coverage of Iron and Folic Acid Supplementation by Districts

District	Accessibility (%)	Rank	Effective Coverage (%)	Rank
Bagerhat	17.3	63	0.0	50
Bandarban	65.1	8	4.2	19
Barguna	84.5	1	18.4	1
Barisal	45.5	30	7.0	7
Bhola	49.4	26	1.1	36
Bogra	59.8	15	5.2	15
Brahmanbaria	38.8	46	0.0	50
Chandpur	65.4	6	2.0	31
Chittagong	41.1	40	3.0	25
Chuadanga	63.4	10	1.4	33
Comilla	48.4	27	3.8	21
Cox's Bazar	44.4	35	7.0	7
Dhaka	62.4	12	8.1	6
Dinajpur	58.2	17	0.6	43
Faridpur	44.5	34	0.0	50
Feni	13.8	64	0.0	50
Gaibandha	56.7	18	2.1	30
Gazipur	41.2	39	1.1	36
Gopalganj	28.0	57	0.0	50
Habiganj	45.0	33	1.0	39
Jamalpur	53.0	25	2.6	28
Jessore	70.0	3	8.9	5
Jhalokati	38.0	47	2.2	29
Jhenaidah	25.8	58	0.5	46
Joypurhat	62.1	13	0.0	50
Khagrachhari	30.2	54	6.2	11
Khulna	53.3	24	5.0	16
Kishoreganj	56.3	19	0.6	43
Kurigram	59.6	16	0.7	42
Kushtia	64.7	9	3.0	25
Lakshmipur	25.6	59	1.2	35

District	Accessibility (%)	Rank	Effective Coverage (%)	Rank
Lalmonirhat	79.8	2	6.4	10
Madaripur	29.0	55	1.0	39
Magura	60.7	14	3.8	21
Manikganj	39.1	44	0.0	50
Maulvibazar	33.3	50	1.3	34
Meherpur	41.1	40	6.1	12
Munshiganj	44.4	35	3.5	24
Mymensingh	31.1	52	3.8	21
Naogaon	43.5	37	0.0	50
Narail	65.3	7	5.9	13
Narayanganj	56.3	19	12.9	2
Narsingdi	32.8	51	0.0	50
Natore	42.6	38	5.3	14
Nawabganj	45.4	31	0.5	46
Netrakona	54.9	22	6.7	9
Nilphamari	65.5	5	1.6	32
Noakhali	37.2	48	0.9	41
Pabna	23.2	62	0.6	43
Panchagarh	45.3	32	3.0	25
Patuakhali	30.7	53	0.2	49
Pirojpur	35.3	49	0.3	48
Rajbari	46.5	29	0.0	50
Rajshahi	47.0	28	3.9	20
Rangamati	24.5	61	0.0	50
Rangpur	54.7	23	10.6	3
Satkhira	63.4	10	10.0	4
Shariatpur	39.2	43	4.8	17
Sherpur	28.6	56	0.0	50
Sirajganj	25.6	59	0.0	50
Sunamganj	39.5	42	0.0	50
Sylhet	39.0	45	1.1	36
Tangail	55.2	21	0.0	50
Thakurgaon	68.5	4	4.3	18

Table B7: Coverage of Birth Registration by Districts

District	Accessibility (%)	Rank	Effective Coverage (%)	Rank
Bagerhat	71.3	10	0.0	39
Bandarban	89.4	1	1.6	20
Barguna	56.2	36	0.3	35
Barisal	53.6	48	1.8	13
Bhola	54.5	45	0.0	39
Bogra	56.1	37	6.1	2
Brahmanbaria	49.0	56	0.0	39
Chandpur	71.6	9	1.8	13
Chittagong	60.7	29	1.8	13
Chuadanga	71.0	11	1.8	13
Comilla	56.0	38	0.4	33
Cox's Bazar	46.0	59	1.7	17
Dhaka	52.1	51	1.2	23
Dinajpur	67.9	16	2.7	5

District	Accessibility (%)	Rank	Effective Coverage (%)	Rank
Faridpur	58.7	31	0.0	39
Feni	56.3	35	0.0	39
Gaibandha	71.9	8	0.1	37
Gazipur	66.5	21	1.7	17
Gopalganj	62.1	27	1.9	11
Habiganj	78.5	3	0.0	39
Jamalpur	54.3	46	0.0	39
Jessore	72.9	7	0.0	39
Jhalokati	47.0	58	2.8	4
Jhenaidah	56.8	34	0.7	29
Joypurhat	66.0	23	0.0	39
Khagrachhari	66.7	20	1.9	11
Khulna	51.1	52	0.3	35
Kishoreganj	55.5	41	2.1	10
Kurigram	54.3	46	2.3	8
Kushtia	67.0	17	1.2	23
Lakshmipur	47.7	57	0.7	29
Lalmonirhat	69.8	13	9.4	1
Madaripur	58.2	32	0.0	39
Magura	54.8	42	0.0	39
Manikganj	54.6	43	0.0	39
Maulvibazar	68.3	14	0.1	37
Meherpur	73.5	6	0.0	39
Munshiganj	55.7	40	2.3	8
Mymensingh	57.2	33	1.3	22
Naogaon	42.9	64	0.0	39
Narail	79.2	2	0.5	32
Narayanganj	74.4	5	0.9	28
Narsingdi	64.2	26	0.0	39
Natore	68.0	15	1.6	20
Nawabganj	49.9	55	0.0	39
Netrakona	54.6	43	0.0	39
Nilphamari	52.5	49	0.0	39
Noakhali	52.5	49	1.0	27
Pabna	55.8	39	0.4	33
Panchagarh	78.2	4	0.0	39
Patuakhali	50.3	54	1.7	17
Pirojpur	66.8	19	1.1	25
Rajbari	44.1	61	0.0	39
Rajshahi	64.6	25	2.4	6
Rangamati	43.9	62	0.0	39
Rangpur	64.9	24	1.1	25
Satkhira	66.4	22	0.7	29
Shariatpur	44.3	60	0.0	39
Sherpur	43.8	63	0.0	39
Sirajganj	59.7	30	0.0	39
Sunamganj	50.5	53	5.3	3
Sylhet	67.0	17	2.4	6
Tangail	61.9	28	0.0	39
Thakurgaon	70.4	12	0.0	39

Table B8: Prevalence of Early Marriage by Districts

	Age Group: 15 to 49		Age Group: 20 to 49	
District	Marriage Before Age 15	Rank	Marriage Before Age 18	Rank
Bagerhat	17.3	7	59.1	12
Bandarban	11.6	30	39.9	47
Barguna	5.6	53	47.5	34
Barisal	8.1	41	39.1	50
Bhola	7.2	45	45.7	37
Bogra	16.0	10	61.7	8
Brahmanbaria	6.3	48	40.1	46
Chandpur	6.1	49	38.3	52
Chittagong	3.4	60	30.6	58
Chuadanga	14.9	15	62.8	7
Comilla	5.6	53	38.8	51
Cox's Bazar	5.8	51	35.4	56
Dhaka	9.2	38	39.9	47
Dinajpur	11.7	29	52.1	28
Faridpur	9.1	39	45.4	38
Feni	2.0	61	27.0	59
Gaibandha	17.6	6	59.1	12
Gazipur	10.9	31	47.1	35
Gopalganj	12.7	27	46.7	36
Habiganj	2.0	61	25.8	62
Jamalpur	12.6	28	56.9	18
Jessore	13.1	26	55.4	22
Jhalokati	15.3	14	49.0	31
Jhenaidah	14.7	18	63.5	5
Joypurhat	27.5	2	65.8	2
Khagrachhari	9.7	35	48.4	33
Khulna	14.6	20	51.6	29
Kishoreganj	7.8	44	44.2	41
Kurigram	9.6	36	45.3	39
Kushtia	14.7	18	57.5	16
Lakshmipur	4.2	57	37.2	54
Lalmonirhat	15.7	11	55.6	21
Madaripur	7.1	47	39.3	49
Magura	6.0	50	40.7	45
Manikganj	14.3	22	54.5	24
Maulvibazar	3.5	59	26.6	61
Meherpur	21.3	3	64.7	3
Munshiganj	8.6	40	42.5	44
Mymensingh	7.9	43	43.1	43
Naogaon	15.4	12	59.3	11
Narail	9.8	34	57.8	15
Narayanganj	7.2	45	45.2	40
Narsingdi	5.5	55	36.0	55
Natore	14.2	24	56.6	19
Nawabganj	29.2	1	69.6	1
Netrakona	5.1	56	37.8	53
Nilphamari	14.4	21	58.8	14
Noakhali	8.1	41	44.0	42
Pabna	14.9	15	49.2	30
Panchagarh	9.5	37	52.9	26

	Age Group: 15 to 49		Age Group: 20 to 49	
District	Marriage Before Age 15	Rank	Marriage Before Age 18	Rank
Patuakhali	10.5	33	52.7	27
Pirojpur	14.9	15	55.1	23
Rajbari	10.9	31	48.7	32
Rajshahi	21.0	4	57.5	16
Rangamati	1.0	64	26.7	60
Rangpur	16.8	9	63.1	6
Satkhira	15.4	12	60.0	9
Shariatpur	5.8	51	31.3	57
Sherpur	17.0	8	55.7	20
Sirajganj	13.2	25	54.3	25
Sunamganj	1.5	63	19.8	64
Sylhet	4.0	58	25.2	63
Tangail	20.1	5	64.4	4
Thakurgaon	14.3	22	59.9	10

Table B9: Adolescent Population with Knowledge on HIV/AIDS by Districts

District	Knowledge of HIV/AIDS	Rank
Bagerhat	28.6	22
Bandarban	25.6	34
Barguna	15.5	53
Barisal	29.7	19
Bhola	20.3	44
Bogra	34.4	10
Brahmanbaria	10.5	59
Chandpur	25.7	33
Chittagong	31.0	17
Chuadanga	28.5	23
Comilla	20.6	42
Cox's Bazar	16.4	51
Dhaka	41.6	4
Dinajpur	17.0	50
Faridpur	26.1	32
Feni	20.5	43
Gaibandha	23.7	36
Gazipur	32.2	13
Gopalganj	41.0	6
Habiganj	18.7	48
Jamalpur	23.0	38
Jessore	26.8	28
Jhalokati	18.9	46
Jhenaidah	35.6	9
Joypurhat	29.7	19
Khagrachhari	9.5	62
Khulna	31.3	16
Kishoreganj	10.5	59
Kurigram	28.2	25
Kushtia	31.8	15
Lakshmipur	8.9	63

District	Knowledge of HIV/AIDS	Rank
Lalmonirhat	18.1	49
Madaripur	48.5	3
Magura	14.2	56
Manikganj	30.4	18
Maulvibazar	26.3	31
Meherpur	22.0	40
Munshiganj	26.7	29
Mymensingh	22.1	39
Naogaon	15.1	54
Narail	50.3	2
Narayanganj	26.5	30
Narsingdi	28.9	21
Natore	23.3	37
Nawabganj	19.0	45
Netrakona	14.2	56
Nilphamari	32.8	12
Noakhali	14.8	55
Pabna	21.0	41
Panchagarh	18.9	46
Patuakhali	13.7	58
Pirojpur	15.7	52
Rajbari	27.4	26
Rajshahi	41.5	5
Rangamati	27.4	26
Rangpur	24.9	35
Satkhira	39.2	7
Shariatpur	53.5	1
Sherpur	10.2	61
Sirajganj	28.5	23
Sunamganj	7.8	64
Sylhet	32.1	14
Tangail	32.9	11
Thakurgaon	39.2	7

Table B10: Coverage of Safe Water Supply by Districts

District	Accessibility	Rank	Adequate Coverage	Rank
Bagerhat	51.1	64	7.3	57
Bandarban	80.9	49	6.5	58
Barguna	80.9	49	27.8	26
Barisal	82.5	41	62.2	8
Bhola	84.3	33	27.5	28
Bogra	92.9	13	84.8	1
Brahmanbaria	86.4	27	54.3	14
Chandpur	90.4	21	8.6	53
Chittagong	87.8	24	19.2	41
Chuadanga	95.2	5	24.8	32
Comilla	87.8	24	9.0	51
Cox's Bazar	85.5	30	60.6	9
Dhaka	97.0	3	23.0	33
Dinajpur	93.9	10	6.4	59

District	Accessibility	Rank	Adequate Coverage	Rank
Faridpur	81.6	47	42.2	19
Feni	81.8	46	0.1	64
Gaibandha	95.0	7	74.3	4
Gazipur	90.6	19	37.3	22
Gopalganj	74.9	58	22.6	35
Habiganj	80.7	52	8.4	54
Jamalpur	90.5	20	59.3	10
Jessore	91.5	17	25.0	31
Jhalokati	78.7	54	8.9	52
Jhenaidah	83.7	35	9.6	50
Joypurhat	93.4	12	41.6	20
Khagrachhari	84.1	34	20.9	38
Khulna	73.8	59	36.1	23
Kishoreganj	98.5	1	11.4	47
Kurigram	79.4	53	25.5	30
Kushtia	96.2	4	18.6	42
Lakshmipur	83.3	38	1.6	61
Lalmonirhat	95.1	6	44.6	17
Madaripur	85.8	28	20.5	40
Magura	82.8	40	10.1	49
Manikganj	82.3	42	63.3	6
Maulvibazar	80.8	51	38.6	21
Meherpur	86.5	26	0.5	63
Munshiganj	85.8	28	1.6	61
Mymensingh	82.9	39	35.5	24
Naogaon	84.7	31	22.6	35
Narail	82.0	45	21.5	37
Narayanganj	94.6	8	7.7	55
Narsingdi	93.8	11	20.9	38
Natore	84.5	32	17.3	44
Nawabganj	92.0	16	27.7	27
Netrakona	88.3	23	73.4	5
Nilphamari	97.1	2	82.8	3
Noakhali	72.7	61	6.1	60
Pabna	83.6	37	12.3	45
Panchagarh	94.3	9	56.9	13
Patuakhali	82.1	44	51.3	15
Pirojpur	73.5	60	7.7	55
Rajbari	71.2	62	30.6	25
Rajshahi	89.4	22	51.2	16
Rangamati	70.9	63	17.5	43
Rangpur	91.1	18	22.9	34
Satkhira	76.2	57	10.7	48
Shariatpur	76.3	56	42.5	18
Sherpur	83.7	35	57.1	12
Sirajganj	92.7	14	58.1	11
Sunamganj	82.2	43	11.8	46
Sylhet	77.5	55	26.7	29
Tangail	92.3	15	82.9	2
Thakurgaon	81.3	48	62.9	7

Table B11: Coverage of Sanitation by Districts

District	Accessibility	Rank	Effective Coverage	Rank
Bagerhat	80.0	7	2.7	51
Bandarban	43.7	61	3.3	45
Barguna	77.4	11	10.2	7
Barisal	71.2	23	3.3	45
Bhola	64.6	32	3.0	48
Bogra	54.2	50	8.5	11
Brahmanbaria	57.4	43	2.1	58
Chandpur	84.7	3	5.7	26
Chittagong	69.6	26	7.0	18
Chuadanga	63.7	34	5.9	24
Comilla	81.0	5	13.4	4
Cox's Bazar	47.6	57	2.5	53
Dhaka	90.2	1	22.3	2
Dinajpur	50.9	54	5.4	31
Faridpur	77.1	12	2.2	56
Feni	68.5	28	11.4	6
Gaibandha	54.0	51	5.4	31
Gazipur	79.4	9	22.4	1
Gopalganj	73.9	17	2.2	56
Habiganj	60.0	39	2.1	58
Jamalpur	41.2	63	4.7	36
Jessore	72.0	20	5.9	24
Jhalokati	62.3	35	5.7	26
Jhenaidah	56.6	45	2.7	51
Joypurhat	57.3	44	4.9	35
Khagrachhari	46.0	59	3.5	43
Khulna	79.7	8	6.9	19
Kishoreganj	61.5	36	6.4	21
Kurigram	56.3	46	7.4	16
Kushtia	75.8	15	5.7	26
Lakshmipur	64.5	33	1.7	61
Lalmonirhat	59.1	41	7.9	13
Madaripur	80.1	6	1.2	62
Magura	60.5	37	4.4	37
Manikganj	76.7	13	3.2	47
Maulvibazar	43.5	62	0.9	64
Meherpur	71.3	22	8.7	10
Munshiganj	72.5	19	7.3	17
Mymensingh	47.8	56	3.7	40
Naogaon	49.2	55	5.6	30
Narail	78.1	10	2.3	54
Narayanganj	82.2	4	17.8	3
Narsingdi	68.6	27	7.6	15
Natore	58.5	42	4.0	39
Nawabganj	45.4	60	7.8	14
Netrakona	41.2	63	2.0	60
Nilphamari	55.8	48	8.8	9
Noakhali	70.0	25	2.3	54
Pabna	70.2	24	6.0	22

District	Accessibility	Rank	Effective Coverage	Rank
Panchagarh	55.7	49	4.3	38
Patuakhali	73.0	18	6.6	20
Pirojpur	87.9	2	2.8	49
Rajbari	75.3	16	2.8	49
Rajshahi	67.2	30	6.0	22
Rangamati	55.9	47	9.5	8
Rangpur	60.5	37	8.1	12
Satkhira	71.6	21	3.5	43
Shariatpur	76.1	14	3.6	42
Sherpur	52.7	53	12.4	5
Sirajganj	59.8	40	5.2	33
Sunamganj	53.3	52	3.7	40
Sylhet	64.9	31	5.7	26
Tangail	68.5	28	5.2	33
Thakurgaon	46.1	58	1.2	62

Table B12: Coverage of Handwash by Districts

District	Accessibility	Rank	Effective Coverage	Rank
Bagerhat	84.2	46	45.3	36
Bandarban	94.5	8	52.7	24
Barguna	88.8	31	51.0	29
Barisal	90.7	23	63.5	10
Bhola	90.5	24	48.2	32
Bogra	92.1	17	48.1	33
Brahmanbaria	90.1	25	43.2	42
Chandpur	94.7	5	56.1	18
Chittagong	89.0	29	62.6	11
Chuadanga	95.5	3	41.4	44
Comilla	93.3	13	68.4	6
Cox's Bazar	79.6	57	46.7	34
Dhaka	91.8	19	69.2	5
Dinajpur	88.4	34	66.1	8
Faridpur	92.0	18	39.6	46
Feni	72.0	62	50.2	30
Gaibandha	89.3	26	52.2	26
Gazipur	93.3	12	62.6	11
Gopalganj	89.2	28	33.0	55
Habiganj	88.0	36	56.9	17
Jamalpur	64.6	63	24.1	59
Jessore	88.2	35	40.7	45
Jhalokati	85.4	41	43.0	43
Jhenaidah	76.0	59	23.4	61
Joypurhat	83.1	50	58.7	15
Khagrachhari	75.0	61	46.2	35
Khulna	94.0	9	44.9	37
Kishoreganj	87.0	39	23.1	62
Kurigram	83.5	47	53.9	22
Kushtia	95.4	4	59.5	14
Lakshmipur	83.4	48	43.4	40

District	Accessibility	Rank	Effective Coverage	Rank
Lalmonirhat	98.4	1	52.5	25
Madaripur	88.9	30	54.1	20
Magura	84.9	44	12.4	64
Manikganj	94.6	7	33.8	53
Maulvibazar	85.1	43	55.1	19
Meherpur	87.6	38	38.7	48
Munshiganj	92.1	16	53.9	21
Mymensingh	77.7	58	34.7	52
Naogaon	75.3	60	37.8	49
Narail	91.0	21	75.3	3
Narayanganj	93.7	11	60.6	13
Narsingdi	82.4	51	31.5	56
Natore	85.4	42	33.5	54
Nawabganj	80.8	55	15.8	63
Netrakona	83.4	49	39.6	47
Nilphamari	91.0	22	77.2	2
Noakhali	80.2	56	43.9	38
Pabna	87.9	37	53.8	23
Panchagarh	84.4	45	67.0	7
Patuakhali	82.2	52	35.1	51
Pirojpur	94.7	6	51.3	28
Rajbari	92.9	15	49.3	31
Rajshahi	91.2	20	51.7	27
Rangamati	88.6	33	64.8	9
Rangpur	93.1	14	69.2	4
Satkhira	95.8	2	25.3	58
Shariatpur	86.8	40	43.3	41
Sherpur	62.2	64	24.1	60
Sirajganj	81.6	54	28.8	57
Sunamganj	81.6	53	43.6	39
Sylhet	88.8	32	58.1	16
Tangail	89.3	27	36.7	50
Thakurgaon	93.9	10	82.3	1

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