



A Baseline Survey of Adolescent Health and Rights Enhancement through Innovation and System Strengthening

KEY FINDINGS

BACKGROUND

Adolescence (age 10-19 years) is a time in life that harbors many risks and dangers, but also opens great opportunities for sustained health and wellbeing through education, promotion and prevention efforts. Adolescents constitute more than one-fifth of the total population of Bangladesh distributed almost equally between boys and girls (BBS 2017). Adolescents today belong to the largest ever cohort due to a legacy of high population growth in the recent past. The number of adolescent population continues to increase until 2021 (MCHSU 2016). Adolescent girls are experiencing early marriage, early and unwanted pregnancy, and poor nutrition. Contrarily, adolescent boys face pressure to comply with prevailing norms of masculinity, which drives to risky behaviours such as unsafe sex, violence and substance abuse. However, access to Adolescent Sexual and Reproductive Health (ASRH) information and services is culturally sensitive especially for unmarried adolescents (Abajobir and Seme 2014).

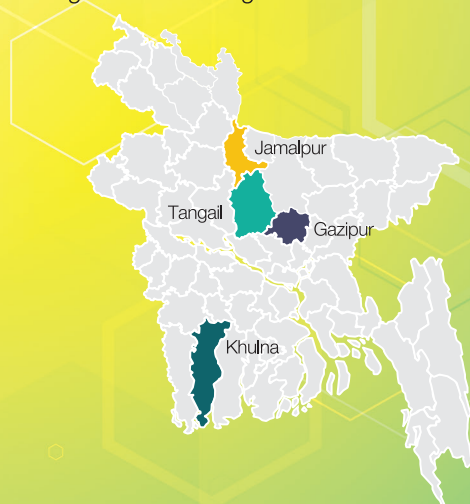
The Sustainable Development Goal (SDG) 3.7 and 5.6 aim to ensure universal access to sexual and reproductive health and reproductive rights as agreed in accordance with the Programme of Action of the International Conference on Population and Development and the Beijing Platform for Action and the outcome documents of their review conferences (GED 2016). A life course perspective also places adolescents at the centre of other global health agenda including the prevention of non-communicable diseases (NCDs), mental disorders and injuries.

Recently, Ministry of Health and Family Welfare has undertaken the National Adolescent Health Strategy (NAHS) 2017-2030. It's a comprehensive document broadening adolescent health from sexual and reproductive health through incorporating nutrition, mental health, substance abuse, violence and injury. Other adolescent health issues such as child marriage, STI/RTI and HIV/AIDS have also been addressed (MCHSU 2016). However, the implementation of strategic directions of NAHS needs evidence based action that could be piloted and scale-up within shortest possible time.

ABOUT ADOHEARTS

Adolescent Health and Rights Enhancement through Innovation and System Strengthening (ADOHEARTS) is an initiative of evidence generation of the government, UNICEF and The Embassy of the Kingdom of the Netherlands. The thought behind ADOHEARTS is to increase resources for adolescent health as evidence shows investments in adolescent health and wellbeing bring a triple dividend in teen ages, adult life and for their next generation (Lancet 2016). Albeit the huge need, availability of Adolescent Friendly Health Services (AFHS) is suboptimal in public and NGO health facilities in Bangladesh due to least allocation of resources. There is no evidence on effective model to deliver adolescent health services through existing health system. ADOHEARTS aims to address this knowledge gap through evidence generation on scalable model of AFHS using the existing public health system. The operational components of ADOHEARTS are providing technical assistance and advocacy for implementation of NAHS 2017-2030 and action plan, testing feasible and cost effective service delivery model, creating demand for quality adolescent health and counselling services, strengthening health system and mainstreaming successful interventions through the existing government health system. AFHS under ADOHEARTS is being implemented in four districts: Gazipur, Jamalpur, Tangail and Khulna District Hospitals (DHs), Maternal and Child Welfare Centers (MCWCs), Upazila Health Complexes (UHCs) and selected Union Health and Family Welfare Centers (UHFWCs) from October 2017 to December 2020.

Map of Bangladesh Showing ADOHEARTS Districts



BASELINE SURVEY

A baseline survey of adolescents was conducted by Department of Public Health & Informatics (DPHI) of Bangabandhu Sheikh Mujib Medical University (BSMMU) in ADOHEARTS districts to determine the following programme parameters set in the results framework.

- Knowledge about adolescent health (AH) services and information
- Utilization of adolescent health services
- Current reproductive health status of adolescents
- Prevalence of underweight and anemia among adolescents

BASELINE SURVEY METHODOLOGY

This is a household survey using simple randomization in stage one, systematic sampling in stage two and stratified sampling in stage three. A representative sample of three groups of adolescents (unmarried girl 10-19, married girl 15-19, and unmarried boy 10-19) and mothers of unmarried adolescent girls and boys have been selected from 120 sample clusters.

In the first stage, 120 Primary Sampling Units (mouzas/mohallahs) were selected considering Probability Proportionate to household Size (PPS) at urban/rural areas and four ADOHEARTS districts using data from the Population and Housing Census 2011. In the second stage, selected PSUs were segmented into approximately 150 households in each segment. One segment was randomly selected and prepared lists of adolescent boys and girls from the list of all usual household members. In the third stage, randomly selected adolescents and their mothers were included.

- Unmarried girl aged 10-19 – systematically selected every 4th
- Married girl aged 15-19 – selected all
- Unmarried boy aged 10-19 – systematically selected every 5th
- Mothers – systematically selected mothers of every 3rd unmarried boy and girls interviewed

Trained female interviewers interviewed adolescent girls and mothers, male interviewers interviewed adolescent boys while trained Medical Technologists have been deployed for anthropometry of all adolescents using CAMRY Electronic Personal Scale and locally made height scale. Anemia test of half of adolescents was performed using HemoCue301 analyzer by Medical Technologists. The field survey was implemented during July-August 2017.

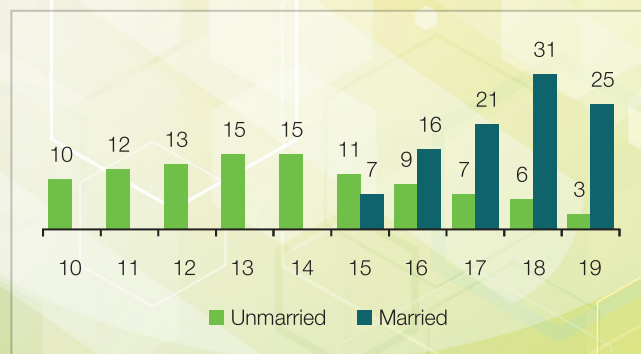
The survey successfully interviewed 1,474 unmarried adolescent girls, 1,232 married girls, 1,503 unmarried boys and 808 mothers. The response rate was the highest for unmarried girls (94%) and the lowest for married girls (74%). However, among the adolescents interviewed, the response rate for anthropometry was 98% and anemia was 100%. Test results of anthropometry and anemia have been given to adolescents including a leaflet on detailed clarification of anemia levels, symptoms, risks and prevention.

The survey strictly followed research ethics including ethical approval of the Institutional Review Board (IRB) of BSMMU, informed assent and consent before interview, confidentiality during interview, and data processing. CSPro software was used for data processing and SPSS for Windows was used for tabulation and analysis.

CHARACTERISTICS OF ADOLESCENTS

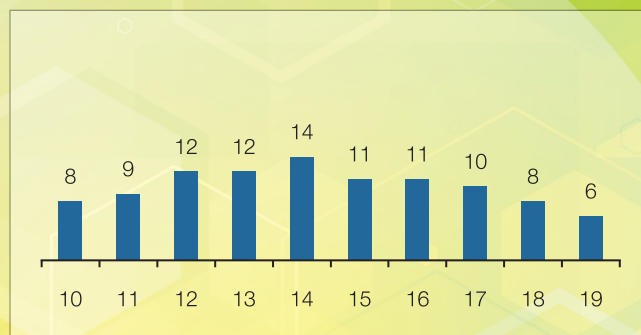
Two in three unmarried girls belong to the age group of 10-14 years. More than half of married girls belong to age 18 or 19 years. The mean age of unmarried girls is 13.7 years while the mean age of married girls is 17.5 years.

Figure 1.1: Age distribution of adolescent girls (%)



The mean age of unmarried boys (14.3 years) is slightly more than unmarried girls. More than half of unmarried boys belong to the age group of 10-14 years.

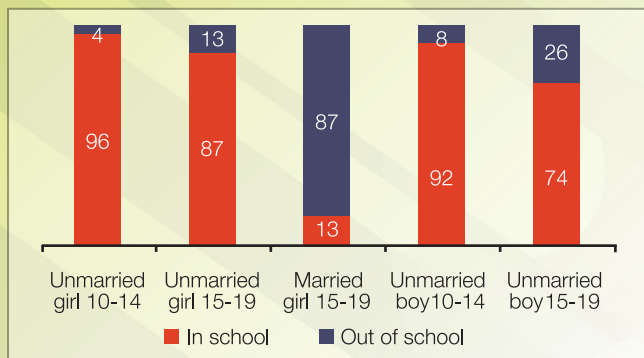
Figure 1.2: Age distribution of adolescent boys (%)



School attendance is nearly universal among young adolescent girls and boys aged 10-14. School attendance decreases with increase of age. The decrease is more among unmarried boys compared with unmarried girls. However, early marriage of girls is found as main contributing factor for dropout from school. Figure 2 shows that 87% of unmarried girls aged 15-19 are currently attending school while 87% of married girls aged 15-19 are out of school.

Television is the main form of media consumed by adolescents. About 80% of adolescents from all five groups watched television at least once a week.

Figure 2: Schooling status (%)



Boys are more likely to have personal mobile phone compared with girls. Unmarried boys aged 10-14 (17%) are about six times more likely to have mobile phones compared to girls. Unmarried girls aged 10-14 (only 3%) are least likely to have own mobile phones. Seventy-seven percent of unmarried boys aged 15-19 have their own mobile phones compared to only 27% of unmarried girls aged 15-19. However, married girls (51%) are almost twice as likely to have their own mobile phones compared to unmarried girls (27%).

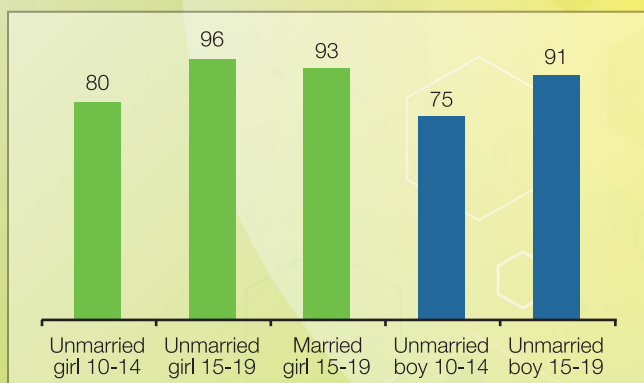
Among adolescents who have personal mobile phones, 65% of unmarried boys aged 15-19 use internet at least once a week. About 40% of unmarried boys aged 10-14 and unmarried girls aged 15-19 also use internet. Use of internet among married adolescent girls is comparatively low (18%).

Involvement of unmarried adolescent boys and girls in adolescent groups is very poor. Less than 1% of them are involved in Adolescent Forums or the National Children Task Force. About 5% of them are involved in school based groups such as Boys Scout/Girls Guide and school library. Seven percent of unmarried boys aged 15-19 are also involved in local clubs and 6% are involved in sports organizations. However, married adolescent girls are completely isolated from adolescent groups.

KNOWLEDGE AND PERCEPTION

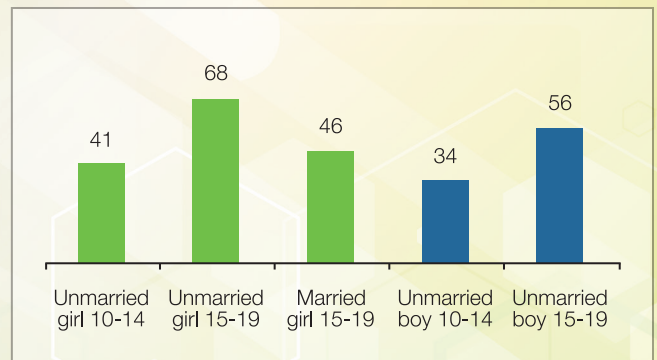
Adolescents were asked about legal age at marriage for girls and boys in Bangladesh. Almost all adolescents aged 15-19 have correct knowledge on legal age at marriage for girls that is age 18 years. However, 20% of unmarried girls aged 10-14 and 25% of unmarried boys aged 10-14 don't have correct knowledge on legal age at marriage for girls.

Figure 3.1: Knowledge on 'legal age at marriage for girls' (%)



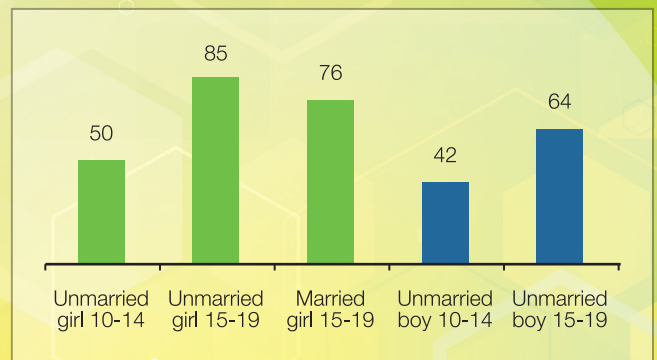
It is found that adolescents are less aware about the legal age of marriage for boys. Adolescent boys and girls aged 10-14 are less aware about the legal age of marriage for boys. Sixty-eight percent of unmarried girls aged 15-19 have correct knowledge on the legal age of marriage for boys followed by 56% of unmarried boys aged 15-19.

Figure 3.2: Knowledge on 'legal age at marriage for boys' (%)



Adolescents' knowledge on prevention of anemia was assessed through asking their awareness on appropriate food items need to take for prevention of anemia. Figure 4 reveals that girls are more aware about anemia prevention foods compared to boys. As expected, adolescents aged 10-14 are less aware about anemia prevention foods compared to adolescents aged 15-19. However, the knowledge level of married girls is somehow lower than a unmarried girls, presumably due to the effect of education.

Figure 4: Percentage of adolescents know appropriate food items required to prevent anemia



Adolescents were asked whether their parents/guardians would permit them to visit a nearby health facility alone to take services or advice. Figure 5 shows that fewer numbers of girls think that they would be allowed to visit health facilities alone compared to boys. Only 3% of unmarried girls aged 10-14 said they would be allowed to visit health facilities alone compared to 17% of boys of the same age. Similarly, 13% of unmarried girls aged 15-19 said they would be allowed compared to 51% of boys of the same age. Married girls aged 15-19 have also expressed their perception of less parental consents as a barrier to visit health facilities alone. Only 17% of them said they would be allowed to go to the health facilities alone by parents/guardians.

Figure 5: Percentage of adolescents who have been allowed to go to a health facility alone

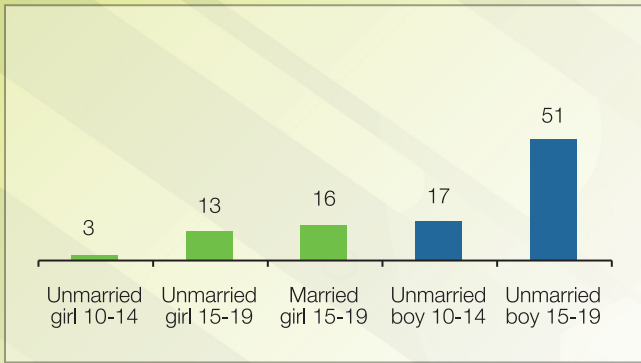
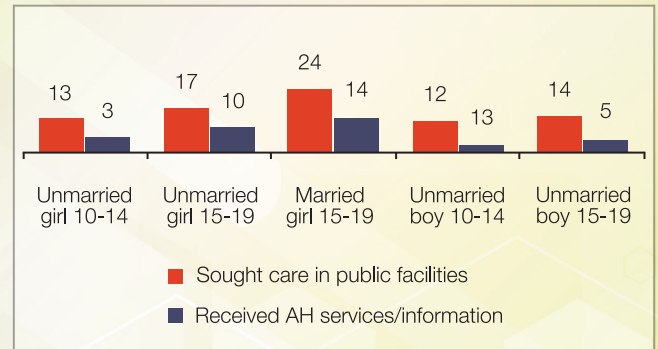


Figure 6: Percentage of adolescents who sought care in public health facilities and who received adolescent health services/information



UTILIZATION OF HEALTH SERVICES

Respondents were asked whether they sought any health care or advice in the last one year, where they sought care and what services and information they received. Table 1 shows that more than 50% of all five groups of adolescents sought health care or advice in the last one year. Unmarried boys are slightly more likely to seek care compared to unmarried girls. About 70% of married girls reported that they sought health care in last one year.

Table 1: Percentage of adolescents sought health care in last one year from different types of health facilities

Adolescent group	Sought any health care	Public	NGO	Private hospital/clinic	Pharmacy
Unmarried girl 10-14	56	13	0	9	22
Unmarried girl 15-19	59	17	1	13	20
Married girl 15-19	69	24	3	20	17
Unmarried boy 10-14	61	12	0	6	29
Unmarried boy 15-19	70	14	0	9	39

Pharmacy is the most prominent source of health care for all groups of adolescents followed by public facilities. Twenty percent of married girls sought health care in private hospital/clinic in the last one year.

Care seeking from public facilities from medical college to community clinics is not very popular among adolescents. Slightly over 10% of adolescent boys and younger (age 10-14) adolescent girls sought care from public facilities in the last one year. About one in six unmarried girls (17%) aged 15-19 and one in four married girls (24%) aged 15-19 also sought care from public facilities (Figure 6).

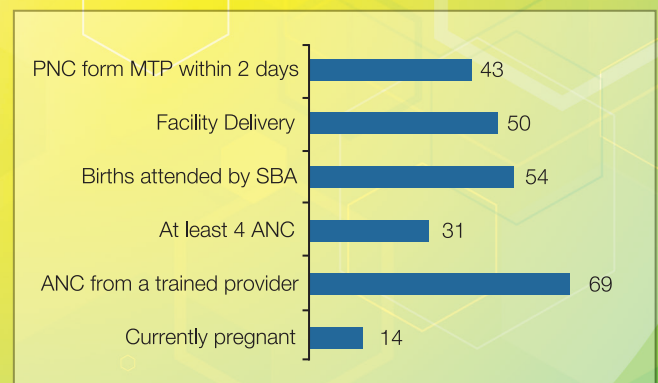
The highest 10% of married girls sought health care from a Upazila Health Complex (UHC). About 5% of unmarried girls and boys also visited a UHC in last one year. Adolescents' visitation rate at District Hospitals is about 4% in last one year. The utilization of other public health facilities is negligible.

The utilization of adolescent health services and information from public facilities is found to be low. Only 3%-5% of adolescent boys received adolescent health services and information from public facilities in the last one year. Girls are twice as likely compared to boys to utilize adolescent health services and information from public facilities. Only 6% of unmarried girls aged 10-14 and 10% of unmarried girls aged 15-19 received adolescent health services and information from public facilities in the last one year. As visitation of public facilities is the highest among married girls aged 15-19, they are the highest users (14%) of adolescent health services and information from public facilities.

REPRODUCTIVE HEALTH STATUS

Reproductive health status of adolescents has been examined for married adolescent girls aged 15-19. Fourteen percent of married adolescent girls are found pregnant at the day of field survey. The figure is slightly lower than the BDHS 2014 estimate of 17% point in time pregnancy rate among married adolescents aged 15-19 (NIPOORT et al. 2016).

Figure 7: Reproductive health status of married adolescents aged 15-19 (%)

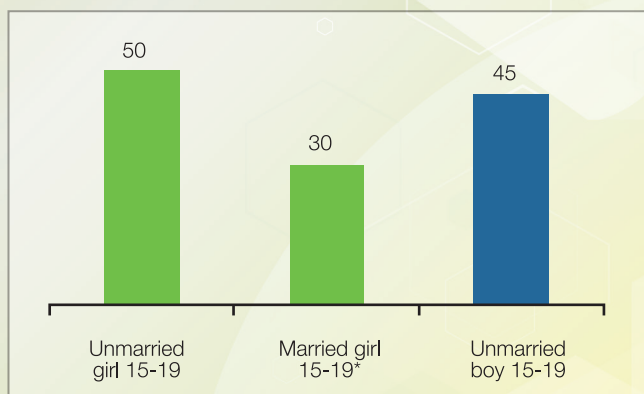


The indicators on maternal care were assessed for births in the preceding 3 years of the survey. Figure 7 shows that about 70% of adolescent mothers received antenatal care (ANC) from a medically trained provider. However, only 31% of mothers received WHO recommended 4 or more ANC during their pregnancies. Use of skilled birth attendants (SBAs) for delivery has been increasing in recent years. More than half of births (54%) in the last 3 years delivered by adolescent mothers were assisted by a skilled birth attendant. Half of all births have been delivered in health facilities. Forty-three percent of adolescent mothers received postnatal care from a medically trained provider within 2 days of delivery.

UNDERWEIGHT AND ANEMIA

Prevalence of being underweight among adolescents was assessed through Body Mass Index (BMI) computed from height and weight data. The highest 50% of unmarried girls aged 15-19 are underweight or thin (BMI <18.5). Almost same proportion of unmarried boys aged 15-19 (45%) is also underweight. The prevalence of being underweight among married non-pregnant adolescent girls aged 15-19 is comparatively less and 30% of them are underweight. This estimate is similar to the BDHS 2014 estimate, which showed 31% of married non-pregnant adolescent girls aged 15-19 are underweight (NIPORT et al. 2016).

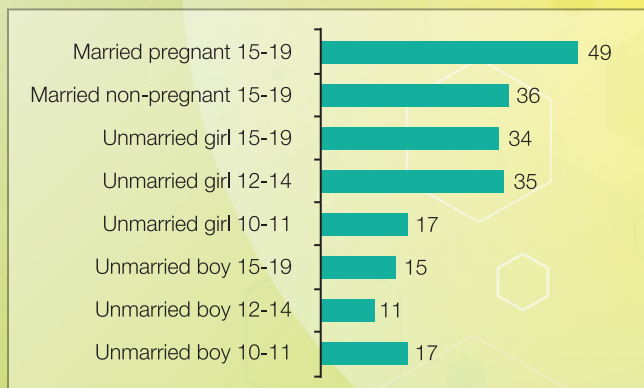
Figure 8: Prevalence of being underweight (%), BMI <18.5



*Non-pregnant

Hemoglobin levels of adolescents was analyzed using WHO standard cut-off values specified for 3 different age groups of adolescents (aged 10-11, 12-14 and 15-19) and pregnancy status of married adolescent girls (WHO 2011).

Figure 9: Prevalence of anemia (%)



Data revealed that about one in six boys and girls (17%) remain anemic during their early adolescence period (age 10-11). The prevalence of anemia among boys decreases slightly during age 12-14 (11%) and increases again during age 15-19 (15%).

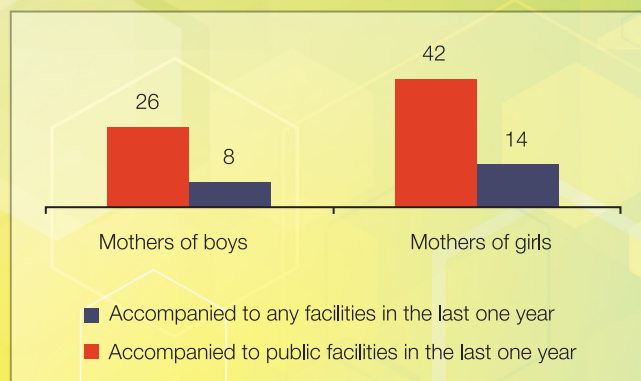
The situation is tragic for adolescent girls. The prevalence of anemia doubled immediately after menarche compared to pre-menarche period. More than one in three adolescent girls (35%) aged 12-14 was found anemic. Same level of anemia prevalence continues in rest of the adolescence period of girls (aged 15-19). However, the prevalence of anemia accelerates during pregnancy and about one in two pregnant adolescents (49%) are anemic.

MOTHERS' INVOLVEMENT AND EXPECTATIONS FOR ADOLESCENT HEALTH SERVICES

Mothers' involvement in adolescent health care was assessed through asking whether they accompanied their son/daughter to health facilities in the last one year and also whether they always accompanied them for health care with reasons.

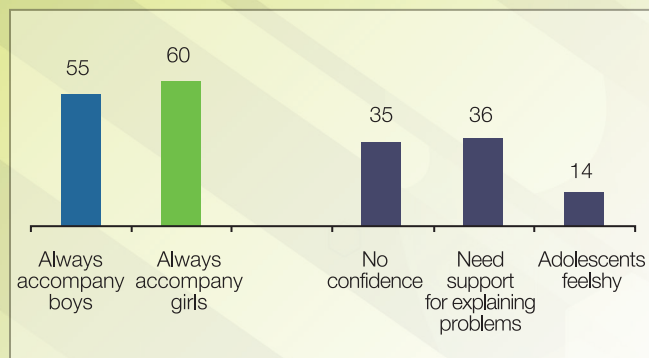
We know that more than half of adolescents sought health care in the last one year. Figure 10 shows that 42% mothers of adolescent girls accompanied them during health care in the last one year. The proportion is substantially lower for boys (26%). However, mothers' involvement in care seeking from public facilities is comparatively more because out of 13-17 of girls visited public facilities, mothers were present in 14% of cases. Similarly, out of 12%-14% of boys visited public facilities, mothers were present in 8% of cases.

Figure 10: Percentage of mothers who accompanied adolescent boys and girls in obtaining health services



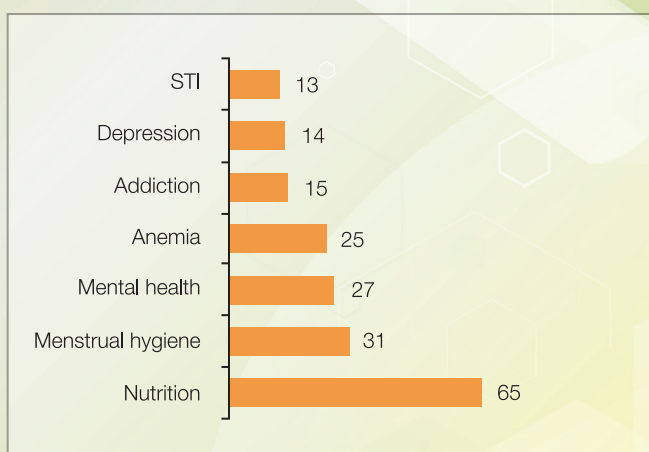
Mothers were asked whether they always accompanied adolescent boys and girls to health facilities and its reasons. About 60% of mothers reported that they always try to accompany their boys and girls to health facilities. The main reasons are lack of confidence in adolescents, supporting in explaining problems and shyness of adolescents.

Figure 11: Percentage of mothers who always accompanied adolescent boys and girls to health facilities and reasons for accompanying them



Mothers were asked about their expectations of adolescent health services. Two in three mothers expect nutritional services for adolescents and about one in three expects advice on menstrual hygiene and management. One in four mothers desire mental health care and treatment of anemia. Slightly over 10% of mothers want treatment for addiction, depression and Sexually Transmitted Diseases (STIs).

Figure 12: Percentage of mothers who desire support in specific adolescent health services



HEALTH FACILITY SURVEY

The Health Facility Survey (HFS) of ADOHEARTS is an assessment of health care facilities in the public sector of four districts of Bangladesh. The survey provides information on the availability of basic and essential health care services for adolescents and the readiness of health facilities to provide quality services to clients. The HFS focused primarily on the service readiness indicators that were jointly developed and proposed by the World Health Organization (WHO) and other partners (WHO 2012). The HFS assessed whether components considered essential for adolescents for quality service delivery were present and functioning or not. In general, the components that were assessed are those that are commonly considered important to various adolescent health programs supported by the government and development partners.

HEALTH FACILITY SURVEY METHODOLOGY

It was a census of public health facilities from district to union level identified for implementation of ADOHERTS. Altogether 56 public health facilities plan to have an adolescent health programme in the next one year including 2 District Hospitals (DHs), 2 Maternal and Child Welfare Centres (MCWCs), 26 Upazila Health Complexes (UHCs) and 31 Union Health and Family Welfare Centres (UHFWCs) incorporated in the survey. However, the non-response rate was about 10% (3 UHCs and 2 UHFWCs). The HFS used facility inventory and service provider questionnaire for data collection. The facility inventory questionnaire obtained information on the availability and preparedness of the facilities to provide services to adolescents.

Specifically, the inventory collected information on the availability of adolescent health services (providing services to adolescent, specific room or space, number of days of providing services, guidelines, facility infrastructure i.e. sources of water and electricity, staffing, health management information systems, availability of basic supplies, and equipment and medicines.)

The service provider's questionnaire collected information from a sample of 134 health service providers. The content of the questionnaire included individual characteristics, training, and experience and supportive policies for delivering adolescent health services. Trained interviewers interviewed facility managers and related officials for completing inventory and also interviewed service providers in each facility. The survey was conducted during August-September, 2017. The survey strictly followed the research ethics from the Institutional Review Board of BSMMU. Informed consent was taken prior to every interview. SPSS was used for data analysis.

RESULTS

Service providers of all facilities (100%) reported that they provide services to the adolescents. Most of the health facilities (46 out of 56) are providing services to adolescents 6 days a week.

SERVICE READINESS

The HFS assessed the availability of four basic components (guidelines, trained staff, equipment and medicine) in compliance with the service readiness indicator proposed by WHO (WHO 2012). Table 2 shows that a guideline for adolescent health services is available at one in two MCWCs and a few UHFWCs and UHCs. There is no guideline in the DHs.

The survey assessed whether the facility has staff trained on adolescent health in the last 24 months. Since the training on adolescent health has not been started, it was found that only one UHC and one UHFWC has staff trained on AH health in last 24 months.

Majority of the health facilities except DHs have five basic equipment necessary for delivering adolescent health services. Consistent availability of essential medicines is crucial to the delivery of quality health services. The HFS assessed the availability of two essential medicines for adolescents: Iron and folic acid tablet, and Butapen tablet. Most of the facilities were equipped with Iron and folic acid tablets except MCWC. However, Butapen tablets were less available in DHs and MCWCs.

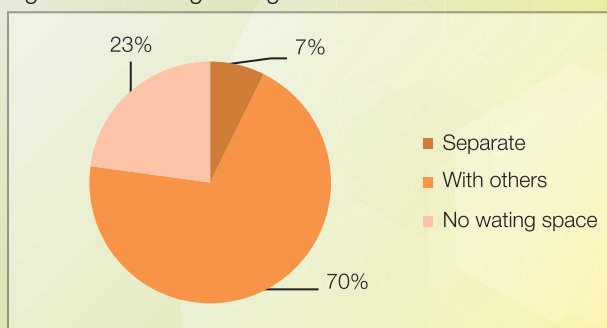
Table 2: Number of facilities by service readiness components

Components	DH	MCWC	UHC	UHFWC
Guideline	0	1	1	3
Trained staff	0	0	1	1
Equipment				
Weight machine	0	2	21	24
Height scale	1	1	15	11
Thermometer	2	2	23	18
Stethoscope	2	2	23	28
Digital BP machine	2	2	23	27
Medicine				
Iron folic acid tablet	2	1	19	26
Tablet Butapen	1	1	16	26
Number of facilities	2	2	23	29

WAITING ARRANGEMENT

Figure 13 shows that only 7% of public health facilities have a separate waiting space for adolescents while 70% of facilities have a common waiting space for adolescents with other patients.

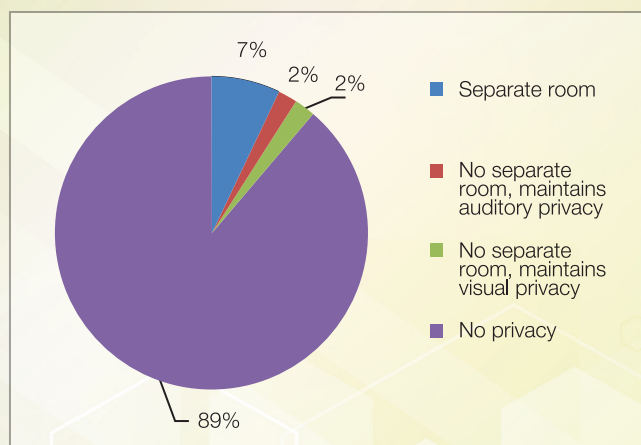
Figure 13: Waiting arrangement for adolescents



PRIVACY DURING CONSULTATION

The HFS assessed privacy during consultation based on three criteria: separate room, no separate room but maintains auditory privacy, and no separate room but maintains visual privacy. Each of the health facilities should have at least one of three criterions for privacy. The survey found that 89% of public health facilities do not maintain this criterion that is they do not maintain privacy during consultation. Only 7% of facilities have separate rooms for adolescent health services while 2% maintain auditory privacy and another 2% maintain visual privacy.

Figure 14: privacy during consultation



COMMUNICATION MATERIALS

Availability of communication materials for Adolescent Friendly Health Services (AFHS) is poor in public health facilities. No BCC materials on adolescent health have been displayed in the waiting area except only one UHC. Signboard on AFHS was available in one MCWC and one UHFWC. Only one UHFWC also displayed logo on AFHS.

Table 3: Number of facilities by availability of communication materials

Components	DH	MCWC	UHC	UHFWC
Displays BCC materials in the waiting area	0	0	1	0
Have signboard on AFHS	0	1	0	1
Displays logo on AFHS	0	0	0	1
Number of facilities	2	2	23	29

CAPACITY OF SERVICE PROVIDERS

The mean year of experience of the service providers on adolescent health is more than 10 years. Overall, ever receiving training on adolescent health including mental health, nutrition and counseling is poor. Half of the service providers of MCWCs ever received training on Adolescent health but only 20% of providers from other types of facilities ever received this training. Status of ever receiving training on mental health, nutrition and counseling is less than 20%.

Table 4: Percentage of service providers' capacity on adolescent health issues

Components	DH	MCWC	UHC	UHFWC
Mean years of services on AH	14.4	19.7	12.5	16.3
Ever received training on (%)				
AH	20	50	23	20
Mental health	0	17	13	13
Nutrition	10	17	17	20
Counseling	20	17	13	10

RECORDING AND REPORTING

UHCs do not use a separate register for adolescent health. Only 4 out of 29 UHFWCs use separate registers for adolescents. In general, MCWCs and UHFWCs use separate reporting form for adolescent health services. However, such reporting system is almost absent in District Hospitals and UHCs.

Table 5: Number of facilities having registers for adolescents and providing monthly report

Components	DH	MCWC	UHC	UHFWC
Maintains separate register	1	1	0	4
Shows monthly reporting form	0	2	2	25
Number of facilities	2	2	23	29

CONCLUSION

Adolescents are aware about the legal age of marriage for girls although high drop outs from school was observed as usual phenomenon in married adolescents' lives. Adolescent boys have less knowledge on health, hygiene and nutrition compared to girls. However, girls face more restrictions in visiting health facilities alone compared to boys.

Utilization of public facilities for adolescent health care is poor. A few girls and boys received adolescent health services/information in last one year. Girls are twice as likely to utilize adolescent health services/information compared with boys. Reproductive health status and utilization of maternal health care among married adolescent girls are consistent with national survey estimates.

In general, the nutritional status of adolescents is poor. About half of unmarried adolescent boys and girls aged 15-19 are underweight. Similarly, half of pregnant girls aged 15-19 are anemic. Girls usually carry the burden of anemia due to poor care beginning from menarche and reach the highest level during pregnancy.

As the survey found a huge opportunity for better health for adolescents, the readiness of public facilities for delivering adolescent health services is poor. Service providers need to have regular (once in every 2 years) training on adolescent health and be equipped with a service delivery guideline, communication materials and proper recording and reporting system. Since AFHS has cultural sensitivity, privacy during service delivery and BCC for parents need special attention.

REFERENCES

Abajobir AA and Seme A. 2014. Reproductive health knowledge and services utilization among rural adolescents in east Gojjam zone, Ethiopia: a community-based cross-sectional study. BMC health services research. 2014;14(1):1.

BBS. 2017. Report on Bangladesh Sample Vital Registration System 2016. Dhaka. Bangladesh Bureau of Statistics. Statistics and Informatics Division. Ministry of Planning.

GED. 2016. Mapping of Ministries by Targets in the Implementation of SDGs Aligning with 7th Five Year Plan (2016-20). SDG Publication # 1. General Economic Division. Ministry of Planning.

Lancet Commission on Adolescent Health and Wellbeing. 2016.

MCHSU. 2016. National Strategy for Adolescent Health 2017-2030. MCH Services Unit. Directorate General of Family Planning. Ministry of Health and Family Welfare.

NIPORT, Mitra and Associates and ICF International. 2016. Bangladesh Demographic and Health Survey 2014. Dhaka, Bangladesh and Rockville, Maryland, USA: National Institute of Population Research and Training (NIPORT), Mitra and Associates and ICF International.

WHO. 2011. Haemoglobin concentrations for the diagnosis of anaemia and assessment of severity. Vitamin and Mineral Nutrition Information System. Geneva, World Health Organization, (WHO/NMH/ NHD/MNM/11.1) (<http://www.who.int/vmnis/indicators/haemoglobin.pdf>, accessed on July 2, 2017).

WHO | Service availability and readiness assessment (SARA), 2012 (https://dhsprogram.com/pubs/pdf/SPAQ5/Service_Readiness_Indicators_042012.pdf)

Study Team

Dr. Fariha Haseen
Mr. Subrata Kumar Bhadra
Ms. Sabrina Sharmin
Dr. Dilip Kumar Basak
Ms. Nusrat Sharmin
Prof. Masuda Begum
Dr. A M Zakir Hussain
Prof. Syed Shariful Islam



Kingdom of the Netherlands

