EFFECTIVENESS OF THE FAMILY PLANNING INTERVENTION TO IMPROVE REPRODUCTIVE HEALTH OF MARRIED FEMALE ADOLESCENTS IN URBAN SLUMS OF DHAKA, BANGLADESH: A QUASI-EXPERIMENTAL STUDY

Miss Fauzia Akhter Huda

A Dissertation Submitted in Partial Fulfillment of the Requirements
for the Degree of Doctor of Philosophy Program in Public Health
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ประสิทธิผลของการแทรกแซงด้านการวางแผนครอบครัวเพื่อส่งเสริมอนามัยเจริญพันธุ์ในกลุ่มวัยรุ่นหญิงที่สมรสแล้วในชุมชนแออัด เขตเมืองดากา ประเทศบังลาเทศ : การวิจัยกึ่งทดลอง

นางสาวเฟาเซีย อักเตอร์ ฮูดา

วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาสาธารณสุขศาสตรดุษฎีบัณฑิต
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Thesis Title	EFFECTIVENESS OF THE FAMILY PLANNING INTERVENTION TO IMPROVE REPRODUCTIVE HEALTH OF MARRIED FEMALE ADOLESCENTS IN URBAN SLUMS OF DHAKA, BANGLADESH:A QUASI-EXPERIMENTAL STUDY
By	Miss Fauzia Akhter Huda
Field of Study	Public Health
Thesis Advisor	Associate Professor Ratana Somrongthong, Ph.D.

Accepted by the College of Public Health Sciences, Chulalongkorn University in Partial Fulfillment of the Requirements for the Doctoral Degree

.....Dean of the College of Public Health Sciences
(Professor Sathirakorn Pongpanich, Ph.D.)

THESIS COMMITTEE

.....Chairman
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.....Thesis Advisor
(Associate Professor Ratana Somrongthong, Ph.D.)

.....Examiner
(Alessio Panza, M.D.)

.....Examiner
(Professor Sathirakorn Pongpanich)

.....External Examiner
(Nanta Auamkul, M.D.)

เฟาเซีย อักเตอร์ สูดา : ประสิทธิผลของการแทรกแซงด้านการวางแผนครอบครัวเพื่อส่งเสริมอนามัยเจริญพันธุ์ในกลุ่มวัยรุ่นหญิงที่สมรสแล้วในชุมชนแออัด เขตเมืองดากา ประเทศบังลาเทศ : การวิจัยกึ่งทดลอง (EFFECTIVENESS OF THE FAMILY PLANNING INTERVENTION TO IMPROVE REPRODUCTIVE HEALTH OF MARRIED FEMALE ADOLESCENTS IN URBAN SLUMS OF DHAKA, BANGLADESH:A QUASI-EXPERIMENTAL STUDY) อ.ที่ปรึกษาวิทยานิพนธ์หลัก: รัตนา สำโรงทอง, 172 หน้า.

ความเป็นมา: ในบังกลาเทศการสมรส และมีบุตรเมื่อยังอายุน้อยทำให้อัตราการเจริญพันธุ์ของวัยรุ่นอยู่ในระดับที่สูงที่สุดในเอเชียแปซิฟิค โดยมากกว่าครึ่งหนึ่งของการตั้งครรภ์ (ร้อยละ 53) ในหมู่วัยรุ่นที่สมรสในชุมชนแออัดเขตเมือง พบว่ามีการตั้งครรภ์ไม่พึงประสงค์ หรือมิได้คุมกำเนิดด้วยวิธีสมัยใหม่ การศึกษาครั้งนี้มีจุดประสงค์เพื่อประเมินประสิทธิผลของ “ชมรมหญิงวัยรุ่นที่สมรส” (MAG club) ต่อ ความรู้ ทัศนคติ การปฏิบัติและการไม่ได้รับตอบสนองต่อสิ่งที่ต้องการในการวางแผนครอบครัวของวัยรุ่นสมรสแล้วในชุมชนแออัดเขตเมืองดากา ประเทศบังคลาเทศ

วิธีการวิจัย: เป็นการศึกษากึ่งทดลอง โดยมีการประเมินผลหลังการทดลองในกลุ่มทดลอง เปรียบเทียบกับกลุ่มควบคุม ดำเนินการตั้งแต่เดือนกรกฎาคม 2557 - สิงหาคม 2559 กลุ่มตัวอย่างเป็นสตรีวัยรุ่นสมรสแล้ว (14-19 ปี) ในชุมชนแออัดในเมือง ดากา 4 ชุมชน (กลุ่มแทรกแซง 2 ชุมชน และการควบคุม2 ชุมชน) โดยเก็บข้อมูลเชิงปริมาณและเชิงคุณภาพ ซึ่งกิจกรรมการแทรกแซง ประกอบด้วยการริเริ่มชมรมสตรีวัยรุ่นสมรส โดยจัดให้มีกิจกรรมในชมรมเป็นระยะๆ การสร้างแกนนำชมรม การทำหนังสือ pocket book เรื่องการวางแผนครอบครัวแบบง่ายๆ การสร้างสื่อเพื่อการเปลี่ยนแปลงพฤติกรรม จัดกิจกรรมในห้องชมรม กิจกรรมเสริมความบันเทิง (การเรียนรู้ผ่านละคร และ เพลง) และมีการทดสอบประเมินผล โดยกิจกรรมของชมรมฯ จัดให้มีเดือนละครั้ง ต่อเนื่อง 12 เดือน สำหรับในพื้นที่เป็นกลุ่มควบคุมจัดให้มีบริการด้านสุขภาพและการวางแผนครอบครัวเป็นประจำ แต่ไม่มี “ชมรมหญิงวัยรุ่นที่สมรส” MAG Club การประเมินผลการวิจัยได้ทำการสำรวจสตรีวัยรุ่นสมรสในชุมชน มีจำนวนกลุ่มตัวอย่าง 1601 คน (799 คนในพื้นที่ทดลอง และ 802 คน ในพื้นที่ควบคุม) และสัมภาษณ์เชิงลึกกับสตรีวัยรุ่นสมรส จำนวน 20 คนในพื้นที่ทดลอง การวิเคราะห์ข้อมูลเชิงปริมาณใช้สถิติเชิงพรรณนาการทดสอบ การทดสอบไคสแคว์รของเพียร์สัน การทดสอบการทดสอบความแตกต่างของค่ากลางของสองประชากรอิสระ แบบการทดสอบสัดส่วนตัวอย่าง และการทดสอบของฟิชเชอร์ โดยการแทรกแซงจะมีประสิทธิภาพหากมีการเปลี่ยนแปลงอย่างมีนัยสำคัญในตัวบ่งชี้ผลที่สำคัญในกลุ่มทดลองมีค่ามากกว่าในพื้นที่ควบคุม p-value น้อยกว่า 0.05 ถือว่ามีความแตกต่างอย่างมีนัยสำคัญทางสถิติ ใช้การวิเคราะห์เชิงเนื้อหาทำเพื่อวิเคราะห์ข้อมูลเชิงคุณภาพ

ผลการศึกษา: กลุ่มตัวอย่าง 1601 คน ส่วนใหญ่ (73%) มีอายุ> 18 ปี, 26% อยู่ระหว่าง 15-17 ปีส่วนที่เหลืออายุน้อยกว่า 15 ปี ในบรรดาผู้ตอบแบบสอบถามทั้งหมด 68% จากพื้นที่ทดลองและ 85% จากพื้นที่ควบคุม ไม่มีทำงานทำ โดยลักษณะของการทำงานทั้งสองกลุ่ม มีความแตกต่างอย่างมีนัยสำคัญ อายุเฉลี่ยที่แต่งงาน ของกลุ่มตัวอย่างในพื้นที่ทดลอง คือ 14.6 (± 1.6) ปี และ 15.2 (± 1.8) ปีในพื้นที่ควบคุม มากกว่าครึ่งหนึ่งของกลุ่มตัวอย่างเคยตั้งครรภ์เพียงครั้งเดียว เกือบหนึ่งในสาม (30.8%) ของกลุ่มตัวอย่างในพื้นที่ทดลอง และประมาณ 1 ใน 5 (18.6%) ของกลุ่มตัวอย่างในพื้นที่ควบคุมมีประวัติการตั้งครรภ์ ตั้งแต่ 2 ครั้งขึ้นไป

กลุ่มตัวอย่างเกือบทั้งหมด (1601 คน) ทราบว่ายาเม็ดคุมกำเนิดเป็นวิธีการคุมกำเนิด การศึกษาพบว่าความรู้เกี่ยวกับวิธีการคุมกำเนิดมีความแตกต่างอย่างมีนัยสำคัญ โดยในกลุ่มทดลองมีความรู้สูงกว่ากลุ่มควบคุม มีเพียงส่วนน้อย ร้อยละ0.9 ในกลุ่มทดลอง และ ร้อยละ 4.5 ในกลุ่มควบคุมไม่ได้คุมกำเนิด โดยเหตุผลมาจากความเข้าใจผิด และความเชื่อ ที่คิดว่ายาคุมกำเนิดมีผลข้างเคียง ข้อห้ามทางศาสนา และการรับรู้ถึงความเสี่ยงของความล้มเหลวของการคุมกำเนิด

พบว่ากลุ่มตัวอย่างในพื้นที่ทดลองได้พูดคุยเกี่ยวกับวิธีการวางแผนครอบครัวกับสามีมากขึ้น (97.5%) เมื่อเทียบกับคู่สมรสในพื้นที่ควบคุม (84.7%) มีการใช้วิธีการวางแผนครอบครัวแบบทันสมัย ในกลุ่มทดลอง(ร้อยละ 72.6) มากกว่ากลุ่มควบคุม (ร้อยละ 63.5) สัดส่วนของความต้องการที่ไม่ได้รับการตอบสนองในการวางแผนครอบครัวลดลงอย่างมีนัยสำคัญในกลุ่มทดลอง (16.2%) เมื่อเทียบกับกลุ่มควบคุม (20.7%) อย่างมีนัยสำคัญทางสถิติ ผลจากการสัมภาษณ์ในเชิงลึกพบว่า ชมรมสตรีวัยรุ่นสมรส MAG Club

มีส่วนช่วยให้กลุ่มตัวอย่างมีโอกาสที่จะได้พบปะพูดคุยแลกเปลี่ยนประสบการณ์และปัญหาที่เกี่ยวข้องกับการแต่งงานเมื่ออายุน้อย การตั้งครรภ์ในวัยรุ่น และวางแผนครอบครัว ชมรมสตรีวัยรุ่นสมรส ได้ให้โอกาสกับหญิงวัยรุ่นที่สมรสแล้วได้พูดคุยอย่างเปิดเผย ใช้เวลาและสร้างเครือข่ายทางสังคมกับเพื่อนๆ

ข้อสรุปและข้อเสนอแนะ: หญิงที่สมรสในกลุ่มทดลองได้รับข้อมูลด้านการวางแผนครอบครัวจาก ชมรมสตรีวัยรุ่นสมรส อันส่งผลกระทบอย่างมีนัยสำคัญต่ออนามัยเจริญพันธุ์ของพวกเขา ชมรมสตรีวัยรุ่นสมรส ยังมีบทบาทสำคัญในการลดความต้องการที่ไม่ได้รับการตอบสนองด้านการวางแผนครอบครัว ในกลุ่มทดลอง ดังนั้น การบูรณาการ ชมรมสตรีวัยรุ่นสมรส เข้าไปในระบบการดูแลสุขภาพแบบเดิมที่มีอยู่ เพื่อเพิ่มการวางแผนครอบครัวในกลุ่มหญิงวัยรุ่นสมรสในชุมชนแออัดในเมืองบังคลาเทศ จะช่วยลดความต้องการที่ไม่ได้รับการตอบสนองด้านการวางแผนครอบครัว การตั้งครรภ์ไม่พึงประสงค์ และการทำแท้งที่ไม่ปลอดภัยอันนำไปสู่การเจ็บป่วยและการเสียชีวิตของมารดา โดยควรมีการวิจัยเพื่อติดตาม ประเมินผลในระยะยาวต่อไป

สาขาวิชา สาธารณสุขศาสตร์ ลายมือชื่อนิสิต .....

ปีการศึกษา 2560 ลายมือชื่อ อ.ที่ปรึกษาหลัก .....

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KEYWORDS: MARRIED ADOLESCENT GIRLS, FAMILY PLANNING, MARRIED ADOLESCENT GIRLS CLUB, CLUB SESSION, CLUB LEADER, FAMILY PLANNING POCKET BOOK, URBAN SLUM, BANGLADESH

FAUZIA AKHTER HUDA: EFFECTIVENESS OF THE FAMILY PLANNING INTERVENTION TO IMPROVE REPRODUCTIVE HEALTH OF MARRIED FEMALE ADOLESCENTS IN URBAN SLUMS OF DHAKA, BANGLADESH:A QUASI-EXPERIMENTAL STUDY. ADVISOR: ASSOC. PROF. RATANA SOMRONGTHONG, M.A., Ph.D., 172 pp.

Background: In Bangladesh, early marriage and childbearing has led to an adolescent fertility rate that is among the highest in the Asia pacific. More than half of the pregnancies (53%) among married adolescents in the country's urban slums is being unintended and is largely due to non-use or discontinuation of use of modern contraceptive methods. This study was aimed to assess the effectiveness of a married adolescent girls' club (MAG club) in terms of measuring differences in knowledge, attitude, practices, and unmet need for family planning among the married adolescent girls in urban slums of Dhaka, Bangladesh.

Methods: This was a quasi experimental study with post-test only control group design and was conducted from July 2014 – August 2016 among married adolescent girls' (14-19 years) in four urban slums of Dhaka city (two intervention, two control) using both quantitative and qualitative data collection methods. The intervention involved creation of a marriage adolescent girls' club that included club sessions, club leaders, family planning pocket book, behaviour change communication materials, indoor games, edutainment activities (learning through drama, music) and assessment tests. Club sessions was conducted once in a month and continued over 12-months. The control areas had routine health and family planning services but no MAG Club. Evaluation of intervention was done through a community based survey with 1601 respondents (799 in intervention areas and 802 in control areas) and in-depth interviews with twenty respondents in the intervention areas. Descriptive statistics, Pearson's Chi-Square test, two sample independent t-tests, two sample proportion test, and Fisher's exact test were used for quantitative data analysis. The intervention was considered to be effective if significant change in the key outcome indicators were observed in the experimental than in the control areas. p-value less than 0.05 were considered as statistically significant. Content analysis was done to examine qualitative data.

Results: Of 1601 respondents interviewed, majority (73%) was >18 years, 26% was between 15-17 years, and the remaining was less than 15 years of age. Among all the respondents, 68% from the experimental area and 85% from the control area had no employment history; a significant difference was observed in types of work between the two groups. Mean age at marriage (with standard deviation) of the respondents was 14.6 (±1.6) years in experimental areas and 15.2 (±1.8) years in control areas. More than half of the respondents in both the areas had history of a single pregnancy. Nearly one-third (30.8%) of the respondents in the experimental area and around one-fifth (18.6%) of the respondents in the control area had history of 2 or more pregnancies.

Almost all the respondents (1601) could mention oral pill as a contraceptive method. Significant difference in knowledge on other contraceptive methods was observed between the two groups. Knowledge difference on potential problems of adolescent pregnancy was also found significantly higher in intervention areas than the control areas. A few (0.9%) of the respondents in the experimental areas and 4.5% of the respondents in the control areas did not support family planning method use. Major reasons for not supporting family planning method use included misconceptions and myths around side effects of methods, religious prohibition and perceived risks of method failure.

Respondents in the experimental area discussed more about family planning methods with their husbands (97.5%) compared to their counterparts in the control area (84.7%). Any modern family planning method use was also found significantly higher (72.6%) among respondents in the experimental area than that of the control area (63.5%). Proportion of unmet need for family planning was found significantly lower among respondents in the experimental area (16.2%) than that of the control area (20.7%).

Findings from in-depth interviews showed that the MAG club empowered the respondents with the rare opportunity to assemble in a common platform to socialize and to share their experiences and challenges related to early marriage, early pregnancy and family planning. The MAG club has also provided with the opportunity to the married adolescent girls to open up, spread time and make a social network with their peers.

Conclusion and recommendations: A noteworthy number of married adolescent girls had received family planning information from the MAG club that had significant effects in their reproductive lives. The MAG club played a substantial role in reducing unmet need for family planning among the target population. It is important to design sustainable programs and interventions like the MAG club, and thus integrate them in the existing formal healthcare system to increase family planning method utilization among the married adolescent girls in urban slums of Bangladesh which in turn will help in reducing unintended pregnancy and unsafe abortions related maternal morbidity and mortality. To measure the effect of integrated intervention package in terms of reducing unmet need for family planning and unintended pregnancy, a longer duration follow up research study should also be carried out.

Field of Study: Public Health
Academic Year: 2017

Student's Signature .....
Advisor's Signature .....

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CHAPTER I

INTRODUCTION

Background

In Bangladesh, early marriage and early childbearing has led to an adolescent fertility rate of 128 births/1000 girls aged 15-19 years that is among the highest in the Asia pacific (Organization, 2016). In spite of set minimum legal age for marriage (18 years for girls), 66% of the adolescent girls being married before the age of 18 years (Fund, 2012). Marriage at an even earlier age is common in urban slums where about 85% of the girls are married before they reach the age of 16 (Fund, 2012). Increasing tendency of dowry, lack of safety and security of young girls and less economic value attached to girls are some of the reasons for continuing early marriage (Bangladesh, 2007). Once married, the girls are under pressure to prove their fertility, and as a result pregnancy closely follows.

Unintended pregnancies (UP) are defined as pregnancies that are reported to have been either unwanted i.e. pregnancy occurred when no children or no more children were desired; or mistimed i.e. pregnancy occurred earlier than desired (Santelli et al., 2003). Unintended pregnancies constitute more than one third (80 million) of the 210 million pregnancies that occur globally each year (Fund, 2012). Not only are early pregnancies more likely to be unintended, they are also associated with many additional adverse health, social, and economic consequences (Santhya, 2011). Unintended pregnancy among adolescents is an issue of global concern that has

considerable implications for maternal, neonatal, and child health (Organization, 2012a). In low- and middle-income countries, complications of pregnancy and childbirth among adolescents represent 23% of the overall burden of disease and are the leading cause of death among girls aged 15-19 years (Gipson, Koenig, & Hindin, 2008). Adolescent pregnancy is correlated with pregnancy-related complications, preterm delivery, delivery of low birth weight babies, and spousal violence (Santhya, 2011).

In countries like Bangladesh with highly restrictive abortion laws, early, unwanted pregnancies are related to high rates of induced abortion often carried out in unsafe conditions, which can cause severe health problems, or even death (Singh, Sedgh, & Hussain, 2010). The broader social consequences of early pregnancy include lower educational attainment, limited ability to earn income, higher overall fertility rates, and marital and family difficulties (Gipson et al., 2008).

Evidence from Bangladesh Demographic and Health Survey (BDHS 2014) shows that, Thirty two percent (32%) of the adolescent girls aged 15-19 years have begun childbearing; one in four of them have given birth and another 6 percent are currently pregnant with their first child (N. I. o. P. R. a. T. M. a. A. I. International, 2015). It is also found that the prevalence of unintended pregnancies among the married adolescent girls in urban Bangladesh is 24% (N. I. o. P. R. a. T. M. a. A. I. International, 2015). Besides early marriage and family pressure to prove fertility, lack of accessible family planning and reproductive health services also act as additional contributing factors to early unintended childbearing.

Family planning (FP) allows individuals and couples to anticipate and attain their desired number of children and the spacing and timing of their births. On the contrary, women with unmet need for family planning are those who are fecund and sexually active but are not using any method of contraception, and report not wanting any more children or wanting to delay the next child (Organization, 2015). The concept of unmet need points to the gap between women's reproductive intentions and their contraceptive behavior (Organization, 2015). Evidence shows that, overall unmet need for family planning among married adolescent girls of 15-19 years age group in Bangladesh is 17% (N. I. o. P. R. a. T. M. a. A. I. International, 2015).

Married adolescent girls who live in urban slums are a particularly vulnerable group in Bangladesh. They are almost twice as likely to be mothers as married adolescent girls from non-slum areas (Training, 2008). Slums are cluster of compact settlements of five or more households which generally grow very unsystematically and haphazardly in an unhealthy condition and atmosphere on government and private vacant land (B. B. o. S. M. o. Planning, 2015). Slums also exist on the owner based household premises. Generally a slum has high population density with insufficient and unsafe water supply, inadequate sanitation systems, lighting, and road facilities (B. B. o. S. M. o. Planning, 2015).

Findings from one study conducted among married adolescent girls in urban slums in Dhaka showed that more than half of the pregnancies (53%) among this population

being unintended (Huda, Chowdhuri, Sarker, Islam, & Ahmed, 2014), which was more than two times that of similarly aged married adolescent girls in all urban (22%) and rural (24%) areas of Bangladesh (N. I. o. P. R. a. T. M. a. A. I. International, 2013). In addition, the proportion of MAGs in the slums with unmet need for family planning was higher (15%) compared with their similarly aged counterparts in non-slum urban areas of Bangladesh (10%) (N. I. o. P. R. a. T. M. a. A. I. International, 2013). Unintended pregnancy among MAGs in the urban slums was largely due to non-use or discontinuation of use of modern contraceptives; in particular, 15% of MAGs in the slums had never used any modern contraceptives while 27% had discontinued contraceptive use (Training, 2008). Significant variations in pregnancy outcomes were also identified; for instance, a higher proportion (12%) of unintended pregnancies resulted in abortion (Huda et al., 2014).

Other than the rural parts of the country, greater public acceptance of family planning has led to an increased variety of mechanisms for providing modern contraception. The most difficult challenge ahead is to reduce inequities in access and use, such as those related to poverty, gender, or age, for example, married adolescents in urban slums, face barriers related to access to family planning information and services.

Evidence shows that providing comprehensive information on family planning through peers and behavior change communication (BCC) materials can be an effective tool to provide customized information and to address cultural and social barriers that may prevent women in low- and middle-income countries adopting family planning services. It also encourage conversations between women and their

peers that are interactive, culturally relevant, and personalized - and that lead to increased, sustained use of modern contraceptive methods (Bongaarts, Cleland, Townsend, Bertrand, & Gupta, 2012).

Although research exists on overall unintended pregnancy, contraceptive use, and unmet need for family planning among the reproductive age group of women in Bangladesh, similar data that focuses on particularly vulnerable groups, such as, the married adolescent girls in urban slums, is limited. Health education on family planning is needed to promote awareness and consistent use of contraceptives for birth spacing among married adolescent girls in urban slums of Bangladesh. There is also a need to improve counselling on family planning for married adolescent girls and their family members in order to clear some of the barriers to method use such as misconceptions and fear of side effects, and to ensure appropriate timing and consistent use of contraception.

As part of a larger communications initiative, and to incorporate and disseminate a variety of information and messages about family planning service provision, an innovative intervention, like formation of a "Married Adolescent Girls' Club (MAG Club)", in areas with low-resource settings, and people with low educational status and poor accessibility to service facilities found to be effective that aimed to dispel myths and misconceptions regarding family planning issues. The ability of increased contraceptive method utilization to reduce unsafe abortion related maternal mortality can

only be realized if the poorest individuals and those with unmet need for family planning are reached on a wide scale (Bongaarts et al., 2012).

Rationale of the study

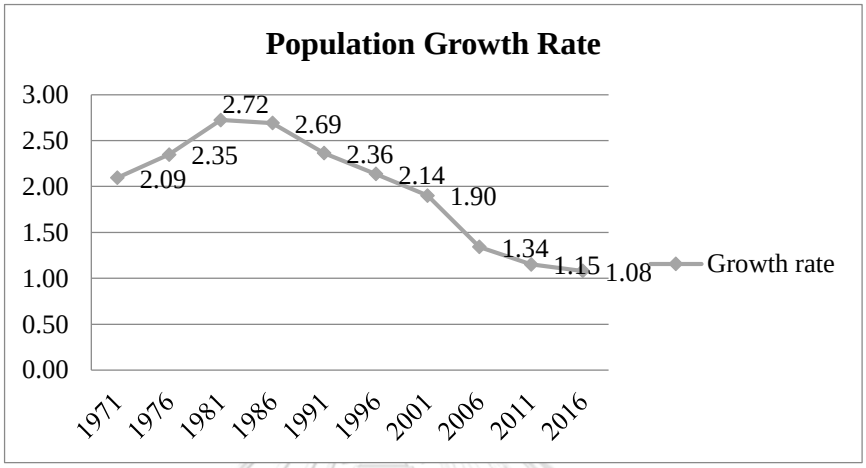
Bangladesh, with an estimated population of 150 million and a corresponding population density of more than 920 people per sq km, is regarded as one of the most densely populated countries in the world (N. I. o. P. R. a. T. M. a. A. M. International, 2009). Development policies in Bangladesh recognized the pressing need to reduce the population growth rate in order to ease the mounting pressure on the country's finite resources. The high total fertility rate with a corresponding low contraceptive prevalence rate was about to cause a population boom; this in turn also adversely affected maternal mortality, child mortality and the nutrition status (Qayyum, 2011).

Realizing the urgency of the need to contain the rapid population growth, the Government of Bangladesh introduced domiciliary services in 1976 as an innovative approach to provide maternal and child health and family planning services. By introducing domiciliary services, the Government wanted to generate demand for family planning through counselling, cater to the people's need for contraception, ensure easy access to services, and bring about changes in reproductive-health behavior among target groups. Poor infrastructure, conservative attitude of people towards contraception, high fertility rate but low demand for contraceptives, low literacy rate, poor economic conditions of the people, and gender inequality were all the background reasons for starting this innovative approach (Qayyum, 2011).

With the introduction of the domiciliary service-delivery model, the family planning programme of Bangladesh achieved remarkable results, with a rise in the contraceptive prevalence rate from 8% in 1975 to 62% in 2014 (Singh et al., 2010).

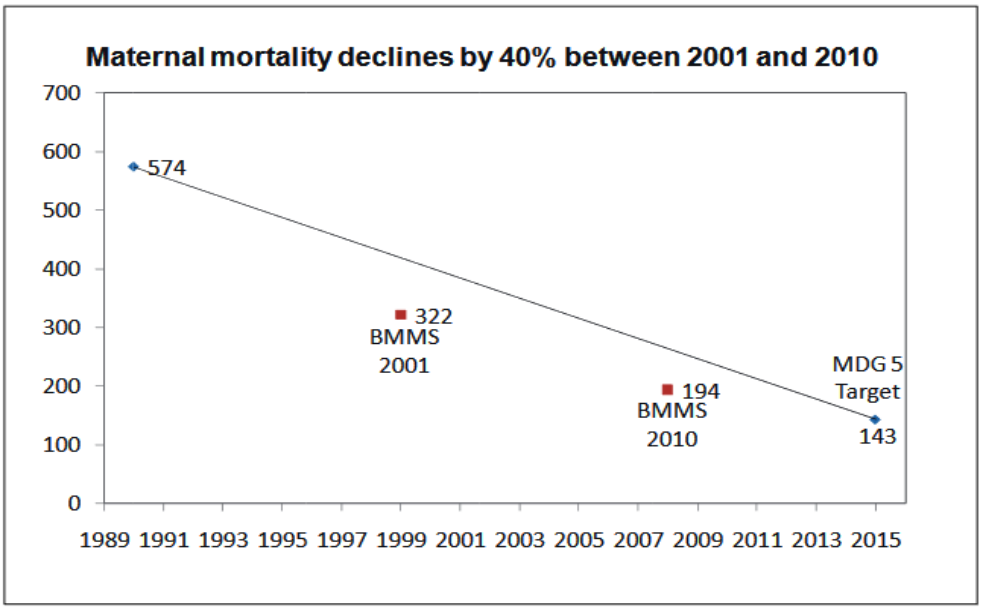
The annual population growth rate came down substantially, from 2.35% in 1976 to 1.08% in 2015 (Figure 1) (Bank, 2017).

Figure 1: Annual Population Growth Rate in Bangladesh, World Bank 2016



The level of knowledge of contraception increased to 100% and maternal mortality ratio was considerably reduced from 574 in 1990 to 194 in 2010 (Figure 2) (NIPORT, 2010).

Figure 2: Maternal Mortality Ratio in Bangladesh, BMMS 2010



A vital part of the success of voluntary family planning programs is promoting the benefits of contraception to women, their partners, and communities. The behaviour change communication (BCC) programs—disseminated via interpersonal communication/counselling—increase awareness and acceptance of contraception by encouraging individuals to look to a better future and promoting family planning as one means to that end (Bongaarts et al., 2012).

Communication programs dispel myths and misconceptions in an effort to overcome barriers to use. The peers provide factual information on types of contraceptive methods, safety, sources of supply, and management of side effects; and the BCC programs aim to motivate individuals to action: to discuss family planning with their spouse or partner, to visit a clinic or community worker, and to initiate use of a contraceptive method when pregnancy is not desired (Bongaarts et al., 2012).

The most effective programs employ the principles of strategic communication. Communication programs can have a powerful influence on community norms, helping to shape attitudes about new behaviors and their acceptance by community members. “Individuals” in this case are the married adolescent girls’ in urban slums, as well as the people with significant influence on their contraceptive behavior (e.g., husbands, mothers-in-laws). Studies have shown that these campaigns can increase: demand for services at clinics, knowledge of modern family planning methods, partner communication about family planning, approval of family planning, and use of modern contraceptive methods (Bongaarts et al., 2012).

Often community-based, grassroots communication engenders a greater sense of personal involvement, in addition to building local capacity. Much of the community mobilization operates on the principle that empowering communities to take ownership of their health needs is essential to effective and sustainable programs. Social networking further strengthens commitment to change, especially as new practices become integrated into social norms. Under this approach, communities are directly responsible for the planning, implementation, and evaluation of programs designed to bring about change (Bongaarts et al., 2012).

Formation of a married adolescent girls' club, a platform that can provide comprehensive information on family planning, modern contraceptive methods, misconceptions on method use including fear of side effects, available family planning service centers, early unintended pregnancy and its health and social consequences, can be helpful for the married adolescent girls in urban slums.

It is anticipated that formation of the club will help the married adolescent girls in urban slums in improving knowledge and attitude on family planning related issues, and in increasing family planning method utilization. The expected outcome of this study was to increase family planning method and service utilization which in turn will prevent unintended pregnancies and unsafe abortions, and eventually improve maternal health and reduce unsafe abortions-related maternal mortality and morbidities.

Research question

How an innovative intervention, formation of a married adolescent girls club (MAG club), be effective in making differences in terms of knowledge, attitude, practices, and unmet need for family planning among the married adolescent girls' in urban slums of Dhaka, Bangladesh?

Research hypothesis

Null hypothesis (H0):

There may not be any differences in terms of knowledge, attitude, practices, and unmet need for family planning after implementation of MAG club among the married adolescent girls in urban slums of Dhaka, Bangladesh.

Alternative hypothesis (H_1):

There may be differences in terms of knowledge, attitude, practices, and unmet need for family planning after implementation of MAG club among the married adolescent girls in urban slums of Dhaka, Bangladesh.

Research objective

General objective

To evaluate the effectiveness of MAG club in terms of measuring differences in knowledge, attitude, practices, and unmet need for family planning among the married adolescent girls' in urban slums of Dhaka, Bangladesh.

Specific objectives

- To compare socio-demographic characteristics between the experimental and control groups.
- To compare knowledge on family planning methods and consequences of early pregnancy between the experimental and control groups
- To compare attitude towards family planning method use between the experimental and control groups;
- To compare family planning method utilization and unmet need for family planning between the experimental and control groups.
- To acquire in-depth information on knowledge, attitude, and family planning method practices among the experimental group; and
- To document the implementation of MAG club activities among the experimental group in urban slums of Dhaka, Bangladesh.

Operational definitions:

General terminologies used:

- **Married adolescent girls (MAGs)**: refers to the married adolescent girls aged 14 to 19 years, who were randomly selected as sample/respondents in this study.
- **Early marriage:** refers to the formal marriage of an adolescent girl before the age of 18 years.
- **Urban:** refers to a human settlement with high population density and infrastructure of built environment (Wikipedia, 2017).

- **Slum:** refers to a cluster of compact settlements of 5 or more households where the study respondents resided (B. B. o. S. M. o. Planning, 2015).
- **Family planning:** refers allowing the respondents' and their husbands to anticipate and attain their desired number of children and the spacing and timing of their births through use of methods of contraception (Organization, 2017b).
- **Reproductive health:** refers to family planning and its related issues of the respondents.

Independent Variables:

1.6.1.1. Socio-demographic factors:

- **Respondents' age:** self-reported information by the respondents regarding their age in completed years.
- **Religion:** people with four religions, mostly Muslim, Hindu, Buddhist, and Christian live in Bangladesh. Self-reported information by the respondents regarding their religion.
- **Respondents' education:** self-reported information by the respondents regarding their completed years of education. During data analysis, following the country's formal education system, education data was categorized as primary (1 to 5 years), junior (6-8 years), and secondary & above (9+ years).

- **Respondents' occupation:** self-reported information by the respondents regarding their involvement with any of the 10 listed income generating activities.
- **Respondents' husbands' age:** self-reported information by the respondents regarding their husbands' age in completed years.
- **Respondents' husbands' education:** self-reported information by the respondents regarding their husbands' completed years of education.
- **Respondents' husbands' occupation:** self-reported information by the respondents regarding their husbands' involvement with any of the 10 listed income generating activities.
- **Monthly family income:** self-reported information by the respondents regarding their average monthly family income.
- **Age at marriage:** self-reported information by the respondents regarding their age in completed years at the time of marriage.
- **Duration of marriage:** self-reported information by the respondents regarding the time duration they have spent with their current husbands.
- **Type of marriage:** self-reported information by the respondents regarding their choice of being married, by own choice or by parents' choice.

Reproductive factors:

- **Number of pregnancy:** self-reported information by the respondents regarding the number of conceptions in their life time.

- **Current pregnancy status:** self-reported information by the respondents regarding their pregnancy status at the time of interview. Barriers in family planning method use*:*
- **Husband stays away:** self-reported information by the respondents regarding their husbands' staying away from home for one month or more.
- **Husband's opposition in family planning method use:** self-reported information by the respondents regarding their husbands' disagreement for family planning method use.
- **Spousal communication:** self-reported information by the respondents about communication between them and their spouses regarding interaction or exchange of their thoughts, feelings, and viewpoints about number of children, time of pregnancy, spacing, and contraceptive method use.

Intervention:

- **Married adolescent girls club:** refers to a gathering where the respondents were called to attend once in a month to learn about comprehensive information on family planning and related issues.
- **Predisposing factors:** refers to the club sessions (the educational intervention) that influenced the married adolescent girls more or less likely to accept family planning methods.

- **Club session:** refers to the meeting on family planning information dissemination among the married adolescent girls' club. Duration of each club session was approximately one and half to two hours.
- **Comprehensive information on family planning:** refers to detailed and complete information on all modern contraceptive methods provided by the club leaders to the respondents attending in the *Knowledge hub.* Information included temporary (short term: oral pill, condom, injection; and long term: IUD and Implant) and permanent (tubectomy for female and vasectomy for male) family planning methods; their indication, contraindication, side effects and names and location of family planning service centres.
- **Enabling factors:** refers to the club leaders, community health volunteers, and field implementing team members who viaread the married adolescent girls at their household level to invite them for attending the club sessions.
- **Club leaders:** refers to the person in charge to conduct the club sessions for the respondents in the married adolescent girls club. Each club leader was paid of 150 taka (USD 2.0) for conducting each club session.
- **Community health volunteers:** refers to the community health workers from brac, also known as *Shyastha Shebika*, who had helped listing the respondents, in calling them for club sessions, counselled them for FP method use, and accompanied them to the FP service centres to receive long acting reversible contraceptive methods.

- **Field implementing team members:** a team of 14 members who remained in the field throughout the one year intervention period and helped in study implementation.
- **Reinforcing factors:** refers to the different components of MAG club that supported the married adolescent girls in adopting healthy behaviours.
- **Family planning pocket book:** refers to a pictorial pocket-book bearing simplified messages on family planning was developed and printed in local language using government's existing behaviour change communication (BCC) messages and materials .
- **Behaviour change communication (BCC) materials:** refers to the existing posters, flipcharts, and banners on family planning information and messages displayed inside the *Knowledge hub*.
- **Edutainment activities:** refers to the educational topics presented during the club sessions by the club leaders and selected respondents through entertainment activities including drama, music, and dance.
- **Assessment test:** refers to a quiz test arranged in every three months for the respondents attended the *Knowledge Hub*.
- **Awards based on test results:** refers to some token gifts given to all the respondents based on their results of the assessment tests.
- **Indoor games and recreations:** refers to some recreational facilities including carom board, ludo board, and pictorial story books, kept for the respondents in the *Knowledge hub.*

- **Light refreshments:** Refreshments (snacks and juice) were supplied to all the respondents after the club sessions.

Outcome variables:

1.6.1.2. Knowledge and attitude:

- **Ideal age of marriage:** refers to the correct answer (yes) on ideal age of marriage for a man (21 years), and woman (18 years).
- **Ideal age of having first child:** refers to the correct answer (yes) on ideal age of having first child for a man (24 years), and woman (20 years).
- **Birth spacing:** refers to the correct answer (yes) on ideal time interval between two births (at least 2 years or more).
- **Family planning methods:** self-reported information by the respondents regarding mentioning any of the 10 listed methods of contraception.
- **Source of family planning methods:** self-reported information by the respondents regarding mentioning any of the 15 listed names of family planning service centers.
- **Consequences of early pregnancy:** self-reported information by the respondents regarding mentioning any of the 8 listed possible consequences of early pregnancy.
- **Support to FP method use:** self-reported information by the respondents regarding their and their husbands' support/non-support to

FP method use and mentioning any of the 4 listed possible causes for non-supporting the method use.

- **Misconceptions and myths around side effects of FP methods:** self-reported information by the respondents regarding their false impression and traditional beliefs around side effects of family planning method use.
- **Religious belief:** self-reported information by the respondents regarding their beliefs on religious perspectives of family planning method use.
- **Perceived risks of method failure:** self-reported information by the respondents regarding their view on risks of family planning method failure.
- **Responsibility of FP method use:** self-reported information by the respondents regarding their thought about responsibility of FP method use.

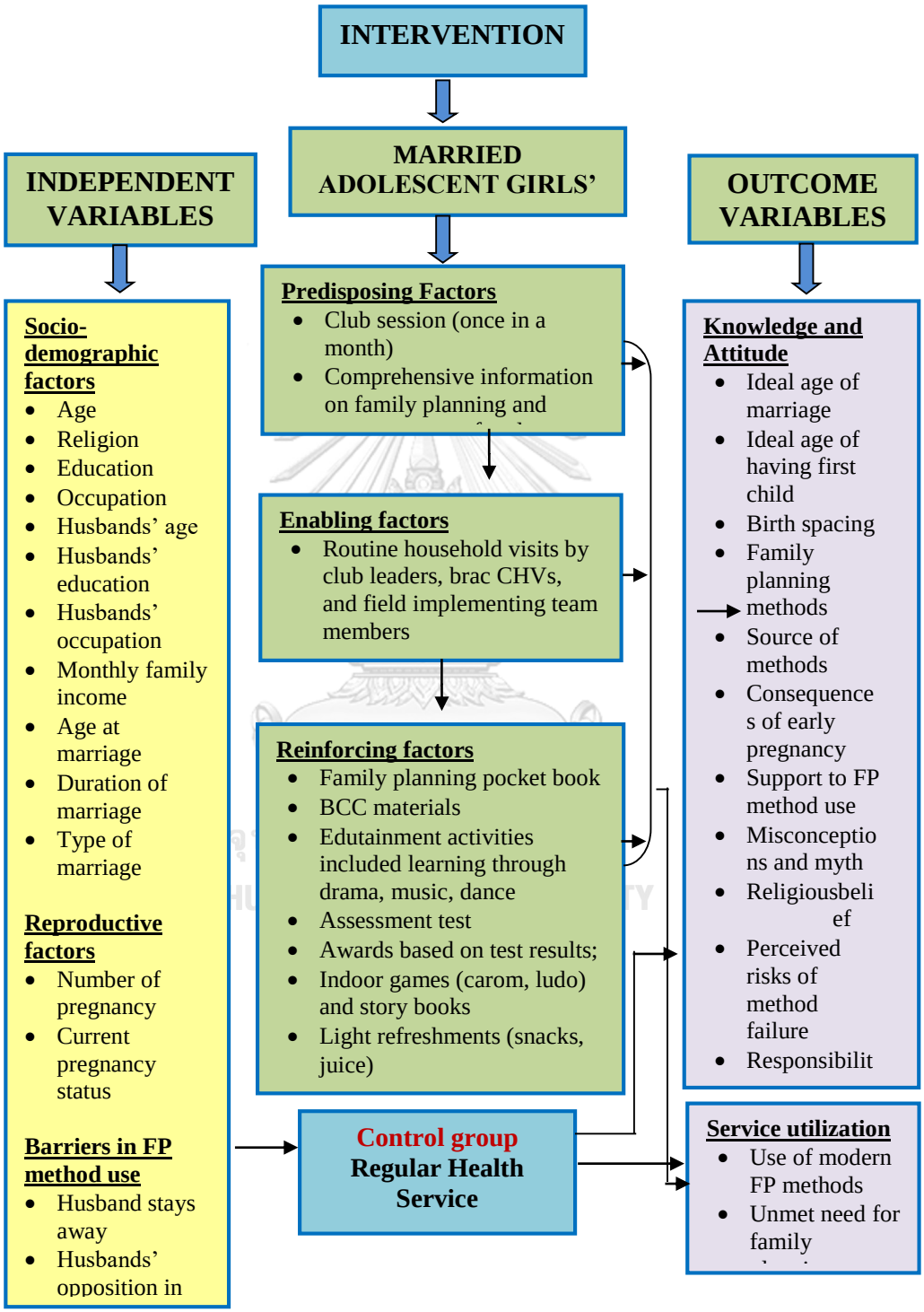
Service utilization

- **Family planning method use:** self-reported information by the respondents regarding correct and consistent **use of** oral pill/ condoms/ injections, and acceptance of implant or IUD.
- **Unmet need for family planning**: self-reported information by the respondents who wanted to stop or delay childbearing at least for 2 years but were not using any method of contraception at the time of

interview (Organization, 2015). The unmet need for currently pregnant women's was considered their pregnancy was unintended or not.

1.7. Conceptual Framework

Figure 3: Conceptual Framework of the Study



CHAPTER II

LITERATURE REVIEW

Adolescence is generally accepted as a period of rapid and important change- the transition between childhood and adulthood. A universally accepted definition categorizes those belonging to 10-19 years of age as adolescents (Organization, 2017a). Adolescents, especially adolescent girls are shaping humanity's present and future. Depending on their opportunities and choices, they can begin adulthood as empowered and active citizens, or become neglected, voiceless and entrenched in poverty(Fund, 2015).

Focus on the adolescent girls is more important than ever to realize the world's forward-looking Sustainable Development Agenda by 2030. It strives to provide adolescents, particularly married adolescent girls, with a nurturing environment for the full realization of their rights and capabilities. By investing in a married adolescent girl's health, and reducing the risk of early pregnancy, she has greater opportunities to find a path out of poverty, lead a healthier life and become an asset to her family, community and society (Fund, 2015).

Overview of the global adolescent population and adolescent Pregnancy

The total number of adolescents was estimated at 1.2 billion for 2010, representing 18 per cent of total world population, with over 580 million female adolescents representing close to half the total (Loaiza & Liang, 2013). Among female

adolescents, girls aged 10 to 17 was specially focused, given the higher risks they confront during pregnancy and motherhood including higher risks of maternal death, violence, disability, and violations of rights to education, employment and reproductive health(Loaiza & Liang, 2013). This age group represents about 80 per cent of all adolescents aged 10 to 19, or about 14 per cent of the total female population(Loaiza & Liang, 2013).

Sexual and reproductive health (SRH) is an important component of adolescent's health and SRH situation has enormous implications both for their later health as well as the health of the future generation. Review has showed that, there has been some progress in selected areas of adolescent girls' sexual and reproductive health rights (SRHR) situation in some regions, for example, early marriage in South Asia; reduction in multiple partnership and increase in condom use within pre-marital relationship in sub-Saharan Africa. Yet, several countries have to struggle to delay marriage and childbearing, reduce unintended pregnancy among adolescent girls, and reduce the risk of poor health outcomes (Bearinger, Sieving, Ferguson, & Sharma, 2007; Hindin & Fatusi, 2009; Jejeebhoy, Zavier, & Santhya, 2013).

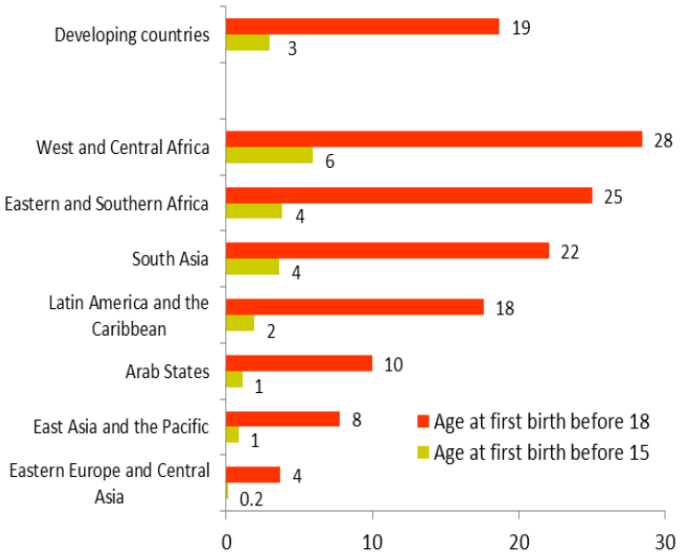
In many settings, girls choice is limited to decide whom or when they will marry, further compromising their ability to exercise their reproductive rights after marriage(Jejeebhoy, Santhya, Acharya, & Prakash, 2013). In order to overcome these issues, a number of interventions were recommended and are being implemented in different countries. Notable among these are access to health promoting information, safe spaces for the most vulnerable girls, access to SRH services and creating a

favorable environment. While limited studies and observation suggest that these have strong prospective for improving the health and rights for large numbers of adolescent girls, rigorous evaluations of these interventions have yet to be conducted in most cases(Santhya & Jejeebhoy, 2015).

Adolescent pregnancy is an issue of global concern. Worldwide, approximately 16 million girls between the ages of 15 and 19, and two million girls under age 15, become pregnant every year(Fund, 2015). During the transitional stage of physical and psychological human development that generally occurs during the period from puberty to legal adulthood (age of majority), 95 percent of the adolescent girls, living in low and middle-income countries are giving birth which constitutes 11 percent of all births around the globe, and accounted for 14% of all maternal deaths globally (Organization, 2011; Qayyum, 2011).

The magnitude of the issue of adolescent pregnancy can be better understood by looking on the percentage of women aged 20 to 24 who had a live birth by age 15 or 18. The most recent estimate available indicates that almost one in five women aged 20 to 24 (19 per cent) had a live birth by their 18th birthday (Figure 4)(Loaiza & Liang, 2013).

Figure 4 ***Percentages of women aged 20-24 with a live birth by ages 15 or 18, 1995-2011***



Note: Calculations are based on data for 81 countries, representing over 83 per cent of the populations in these regions

Source: UNFPA MDG5b+Info database with data from DHS and MICS studies (www.devinfo.org/mdg5b).

High rates of unintended pregnancy and abortion are also observed among adolescents, and are repeatedly associated with early marriage and experience of violence (Adhikari, Soonthorndhada, & Prasartkul, 2009; Jejeebhoy, Santhya, & Acharya, 2010; Raj, Saggurti, Balaiah, & Silverman, 2009; Santhya, 2011). An estimated 15% of the nearly 22 million unsafe abortions worldwide annually take place among girls aged 15–19, ranging from 11% in Asia (excluding Eastern Asia) to 22% in sub-Saharan Africa(I. H. Shah & Åhman, 2012), and an estimated three million girls under 20 years sought abortions in 2008 in countries where abortion is illegal and unsafe(Organization, 2012b).

Adolescents are also more likely than older women to bear underweight infants and experience neonatal and infant deaths(Jejeebhoy, Santhya, et al., 2013). Although research from the developing world on the social and economic impact of adolescent

childbearing is limited(N. R. Council & Population, 2005), evidence from developed countries suggest that early childbearing is associated with poor educational and economic outcomes for the mother and child (Boden, Fergusson, & John Horwood, 2008; Coyne, Långström, Lichtenstein, & D'Onofrio, 2013; Jutte et al., 2010; Lipman, Georgiades, & Boyle, 2011).

Adolescents' reproductive desires are strongly influenced by social norms and expectations of gender roles. The belief that a girl's primary value and role in society is that of a wife and/or mother can impact greatly her family planning desires and decisions. Early marriage often exacerbates the pressure on girls to prove fertility and bear children (Malhotra, Warner, McGonagle, & Lee-Rife, 2011). When a girl becomes pregnant, her present and future change radically, and rarely for the better. Her health is endangered, her education and job prospects abruptly end and her vulnerability to poverty and exclusion multiplies. Pregnancy before a girl is physically, developmentally and socially ready jeopardizes her right to a safe, successful transition into adulthood (Fund, 2015).

Adolescent pregnancy can prevent girls from exercising their rights, including the right to education and to the social supports they need for healthy development and a safe and successful transition to adulthood. The consequences of adolescent pregnancy resound throughout the girl's life and for generations after(Fund, 2015). Adolescent pregnancy risks devastating girls' healthy development and prevents them from achieving their full potential.

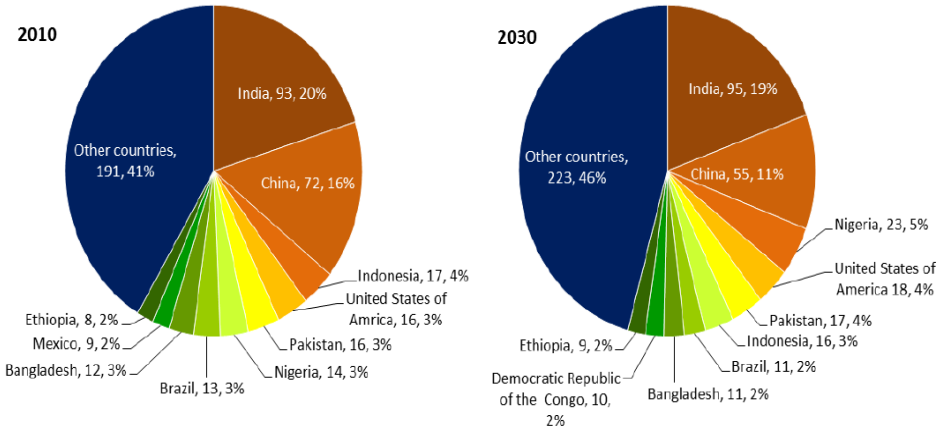
Early marriage and early pregnancy: situation in Bangladesh

According to 'Millennium Development Goals: Bangladesh Progress Report 2015', Bangladesh has achieved enviable progress in the areas of poverty alleviation, ensuring food security, primary school enrolment, gender parity in primary and secondary level education, lowering the infant and under-five mortality rate and maternal mortality ratio, improving immunization coverage; and reducing the incidence of communicable diseases. Despite these achievements Bangladesh could not attain the expected success in increasing the average age of marriage for girls (Commission, 2015). According to 2010 estimates, Bangladesh is in the list of top 10 countries with the greatest number of adolescent girls aged 10 to 17 (Figure 5)(Loaiza & Liang, 2013).

Most girls in Bangladesh are married and bear children while they are still children. An estimated two out of every three girls are married before the legal age of 18, and little improvement has taken place to reduce child marriage in recent decades (S. Amin, Ahmed, Saha, Hossain, & Haque, 2016).

According to Bangladesh Demographic and Health Survey (BDHS) report 2014, the average age of marriage for girls in Bangladesh is 16.6 years. Due to this, Bangladesh has been lagging behind in many social indicators for a long time which has been a prime area of concern in recent days (N. I. o. P. R. a. T. M. a. A. I. International, 2015).

Figure 5 ***Top 10 countries with greatest number (millions) of adolescent girls aged 10-17, 2010 and 2030***



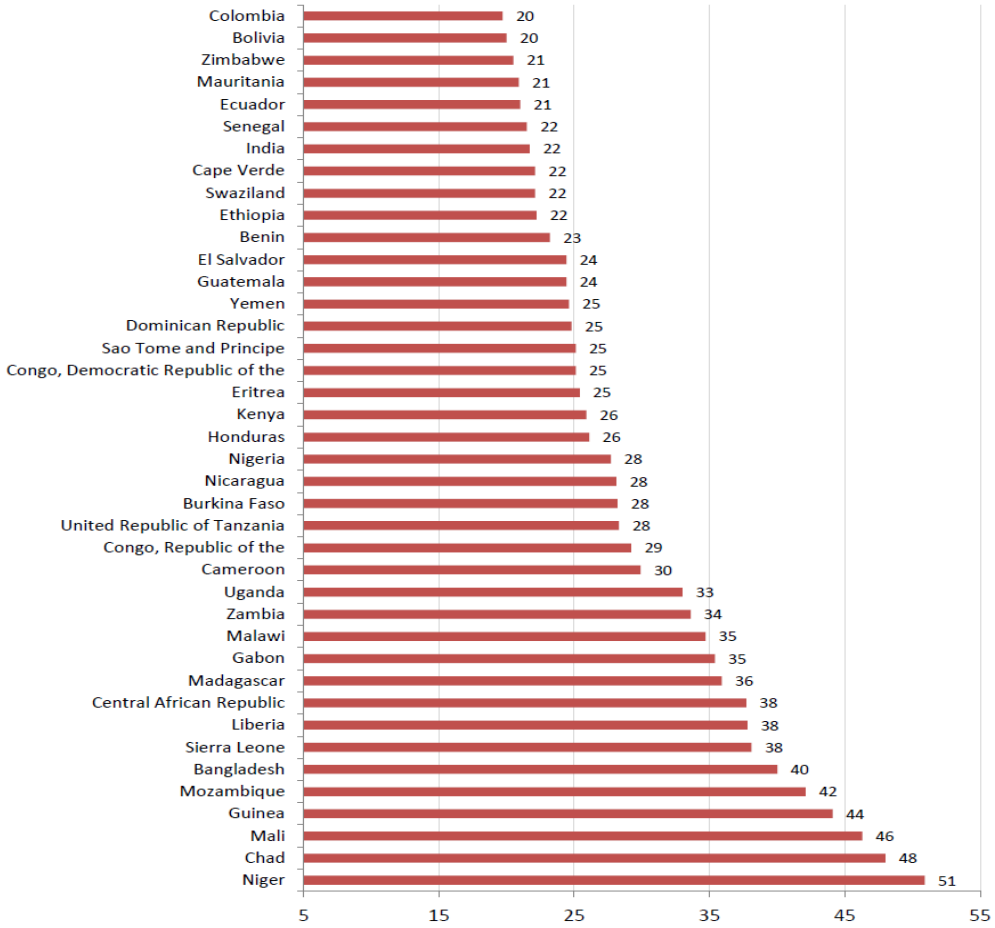
Source: UNFPA database, using United Nations Population Division, 2010 estimates.

Marriage completely exterminate tuition and prevents girls from execute their full economic potential. Educating girls and promoting their sexual and reproductive health and rights, including child-marriage prevention, can contribute to population and poverty reduction goals by enabling girls and women to have greater control over their productive and reproductive lives. Research on the initiation of childbearing and determinants of child marriage suggest that relatively little is known about scalable programs that can empower girls to delay marriage (S. Amin et al., 2016).

According to the WHO, half of all adolescent births occur in seven countries: Bangladesh, Brazil, the Democratic Republic of the Congo, Ethiopia, India, Nigeria and the United States; of which Bangladesh is among the highest in the Asia pacific (128 births/1000 girls aged 15-19 years) in adolescent fertility rate led by early marriage and early child bearing (Organization, 2012b, 2016). Bangladesh is among the top 10 countries with the highest percentages of women aged 20-24 who gave

birth by 18, and the only country that has a rate above 30 percent outside sub-Saharan Africa at 40 percent (Figure 6) (Loaiza & Liang, 2013).

Figure 6 ***Women aged 20-24 having a live birth before age 18***



Source: UNFPA MDG5b+Info database with data from DHS and MICS studies (www.devinfo.org/mdg5b).

Married adolescent girls play a crucial role in society and family as a whole (Bangladesh, 2007) as adolescent is the preparatory stage for future production and reproduction. It is, however, likely to have some health risks among the married adolescent girls, especially who live in urban slum areas, as they have limited access to the information, education and means to exercise their family planning rights (Rob, Talukder, & Ghafur, 2006).

Findings showed that in developing countries like Bangladesh, lack of access and utilization of family planning service is related with lack of awareness of services, inaccessible location, inconvenient operating hours, costs, lack of provider quality, unavailability of appropriate methods, and stock-outs (Speizer, Magnani, & Colvin, 2003). Therefore, many of the adolescent girls are considered to have high level of unmet need of family planning(Levine, Lloyd, Greene, & Grown, 2007).

Some major factors associated with married adolescent girls' family planning related vulnerabilities are illustrated below:

- **Information and Knowledge Gap:** Married adolescents of urban slums of Bangladesh appear to be poorly informed with regard to their own body, sexuality, health and physical well-beings (Nations, 2013). There is no formal sexual and reproductive health education system that literate them about their own body. In most cases, they have lack/inadequate information about their physical issues such as: functionality of their body, occurrence of pregnancy, how the pregnancy can be prevented, and access to contraceptives: where and how? (Welfare, 1998) In addition, their acquired knowledge is mostly incomplete and confusing (Firm, 2012). Therefore, the young girls are unable to exercise family planning methods which in turn take them towards inadvertent pregnancy.

- **Socio-cultural influences in decision making**: The immense pressure on married adolescent girls to prove their fertility and other social norms and expectations place on them can constrain their ability to understand and

exercise their right to make decisions around their own sexual and reproductive health, including family planning (Amin, 2007).

Respecting and protecting adolescents' rights entails engaging them in the decision-making process from the individual to the policy level, assuring that they are fully informed decision-makers and have the skills to voice their perspectives and priorities, and that approaches are non-coercive as well as evidence-based (Fund, 2015).

Issues Related to Family Planning

- Inadequate Information and Knowledge Gap
- Socio-cultural influence in decision making
- Limitation of quality services
- Communication gap among partners/family members
- Cultural misconceptions and prejudices about the use of

Adolescent pregnancy and contraceptive method use

Early marriage is associated with low use of family planning methods prior to the first child, followed by multiple, shortly spaced pregnancies (McQueston, Silverman, & Glassman, 2012) and high levels of unmet need for family planning resulted in unintended pregnancies. Family planning is a key development issue that impacts the quality of lives of families, communities, and broader society. Increased utilization of family planning methods leads to large improvements in the health of mothers and

children, the status of women, and overall social and economic development(Greene & Merrick, 2005).

Family planning ensures that women are able to delay their first pregnancy until they are physically and mentally ready to have children. It also allows women to space their children and gives mothers a chance to recover especially after childbirth, build their own strength, and provide each child with adequate nutrition and attention. For this, a number of current policy documents place a strong emphasis on the importance and the role of communication and behaviour change to improve contraceptive method uptake (H.-I. P. i. F. Planning, 2015).

Findings from different studies showed that, effective family planning service, access to appropriate family planning information as well as service is still very low in the developing countries. In Ethiopia, adolescent girls have very little basic knowledge about birth control(Edmeades, Hayes, & Gaynair, 2014). Modern family planning methods, which have been documented to be highly effective means of improving maternal health by preventing unintended pregnancies in order to ensure healthy timing and spacing of births, only account for 26 percent of family planning use in Pakistan(NIPS, 2012). In Kenya, only 16.9 percent of currently married adolescents aged 15-19 years use a modern contraceptive while only 5 percent of all adolescents in the country aged 15-19 years currently use any modern method of contraceptives(Statistics, 2010). The rate of using modern contraceptive method in Bangladesh is 41 percent (N. I. o. P. R. a. T. M. a. A. I. International, 2013).

Barriers in contraceptive method use

In Bangladesh, both men and women face barriers that need to overcome in order to improve family planning uptake for both sexes of all ages. Literature has shown the main challenges of family planning programs were lack of adequate information. Moreover, traditional and religious beliefs further influence the knowledge level with myths and rumours(Ferdousi et al., 2010). On the other hand, low levels of women's status, lack of spousal communication, lack of access to family planning services, particularly among women whose mobility is limited due to various socio-cultural factors exacerbate family planning issues (Ferdousi et al., 2010; Kamruzzaman & Hakim, 2015).

An article published by International Centre for Research on Women (ICRW) in July 2014, where the researchers wanted to identify the key barriers that adolescents' face during family planning and subsequently evaluated programmatic approaches for increasing adolescents' access to and use of family planning services.

Limited decision making power, limited access to contraception and costs, lack of access to financial resources, family pressure to have children early, not using contraception for childbearing, poor partner communication, social and cultural taboos to use family planning, religious values and preferences for sons etc. were identified as the key barriers of the adolescent girls in developing countries. To overcome this situation the authors analyzed, focused and recommended some direct and indirect programmatic approaches (Glinski, Sexton, & Petroni, 2014).

Summary of Key Barriers

- Myths and misconceptions around the side effects of modern methods
- Low self-efficacy to negotiate family planning with partners
- Lack of partner support/communication
- Gender inequalities
- Community norms and practices that encourage early and frequent childbearing
- Stigma around specific methods
- Poor provider-client communication around family planning
- Poor integration of family planning across entry points within facilities and community settings

Preventing Unintended pregnancy

Research shows that, in Sub-Saharan Africa, 35 percent of pregnancies among 15-19 year-olds are unintended; either unwanted, that is they occurred when no children or no more children were desired, or mistimed that is they occurred earlier than desired(I. Shah & Åhman, 2004). Of these unintended pregnancies, an estimated two-thirds end in childbirth and one-third result in induced abortion. As adolescents often lack access to legal, high quality abortion services, many of these abortions are unsafe. Of the estimated 18.5 million unsafe abortions that occur in developing countries each year, 2.5 million (nearly 14 percent) occur in women under the age of 20 (Presler-Marshall et al., 2012). However, it is evident that by introducing safe and

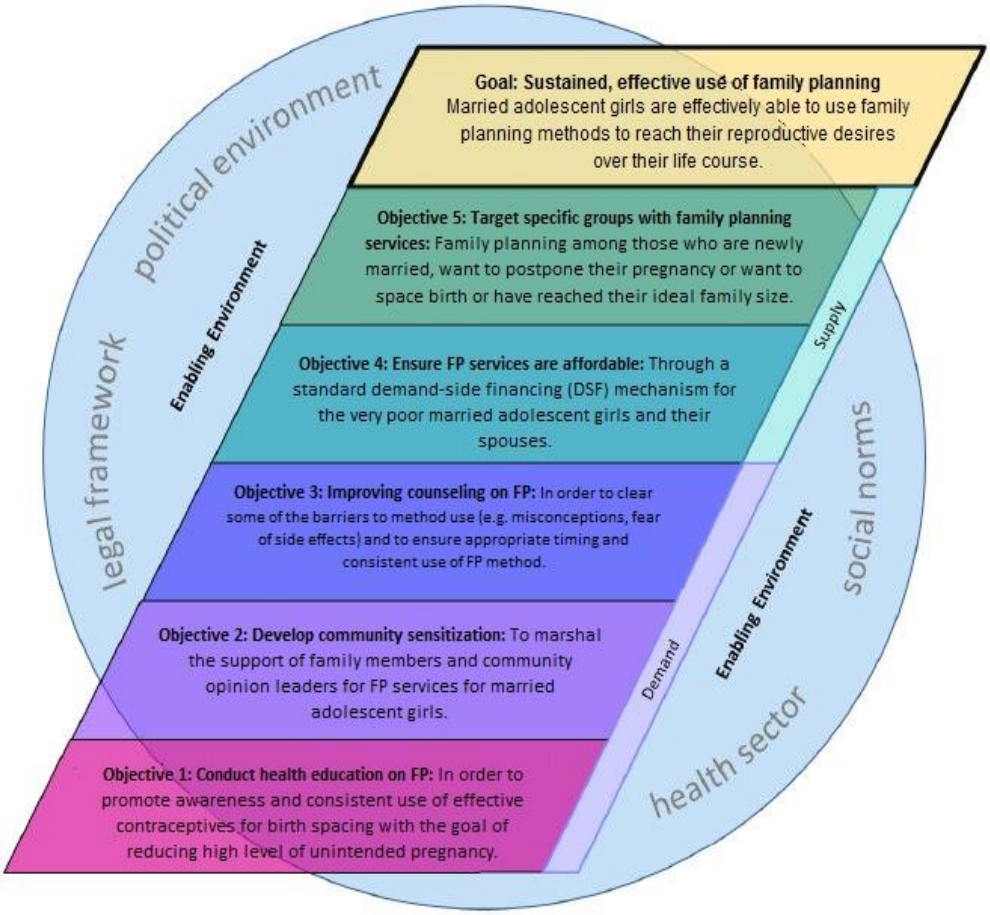
effective modern contraceptive methods, unintended pregnancies can be prevented (Greene & Merrick, 2005).

To prevent the unintended pregnancy among the married adolescent girls in urban slums of Bangladesh, a conceptual framework suggested by Allison et al. that reflects the objectives with interlinked demand and supply of family planning can be used. By applying this conceptual framework, sustainable and effective use of family planning methods is possible to reach the married adolescent girls' reproductive desires over their life course (Glinski et al., 2014).

In the conceptual framework below (Figure 7), O**bjective one** shows the demand for conducting health education of family planning in order to promote awareness and consistent use of effective contraceptive methods for birth spacing with the goal of reducing high level of unintended pregnancy.

O**bjective two** emphasizes on development of community sensitization to assemble the support for family members and community opinion leaders for family planning services for married adolescent girls.

Figure 7 ***Combination of demand and supply with some enabling factors to attain sustained and effective use of family planning among the married adolescent girls living in urban slums of Bangladesh***



[Modified from: G. Allison, S. Magnolia and P. Suzanne (2014)]

Objective three illustrates the importance of improving counselling on family planning for married adolescent girls and their spouses in order to clear some of the barriers to method use; for instance, misconceptions and fear of side effects. Besides, it will effective to ensure appropriate timing and consistent use of family planning methods.

O**bjective four** ensures affordability of family planning services for married adolescent girls and their spouses.

Objective five indicates on target specific group with family planning services including newly married, want to postpone their pregnancy, want to space births, or have reached their ideal family sizes. Here, the married adolescent girls and their spouses are targeted to elicit their support and participation in such programs (Glinski et al., 2014).

Thus, following the five objectives framework, the model for this intervention was set to accomplish the goal for sustained and effective use of family planning among the married adolescent girls in urban slums of Bangladesh(Glinski et al., 2014).

Interventions to increase contraceptive method use

Study in USA revealed that such programs had been successful in reducing rates of teenage pregnancy which includes early childhood or elementary school interventions. Program maintained long-term connections with adolescents which affects by reducing young women's risk of pregnancy directly by improving their sexual literacy, delaying initiation of intercourse and increasing their use of effective contraceptive method (Philliber, Kaye, Herrling, & West, 2002).

The peer leadership model has been applied to changing adolescent behaviour, especially in regards to pregnancy prevention, for thirty or forty years. It has been applied to many health-related issues, including nutrition education, family planning, substance abuse, and violence prevention. Peer education was found effective and less

time consuming than conventional health education strategies in a study conducted in India(Parwej, Kumar, Walia, & Aggarwal, 2005).

A “peer educator” is someone who belongs to such a group as an equal participating member, but who receives special training and information so that this person may bring about or sustain positive behaviour change among group members (UNESCO, 2003). The model’s greatest advantage is that it recruits youth peer educators to help define and establish standards of acceptable behaviour within their own community. Because youth, themselves, play an important part in formulating standards, they go on to serve as effective positive role models within their groups. As such, peer educators are usually well received within their communities as credible disseminators of information and advice(UNESCO, 2003).

Programs are being implemented in low and middle income countries like Zambia by Population council for vulnerable adolescent girls to help them avoid early marriage, sexually transmitted diseases and unintended pregnancy(P. Council, 2015). Study done in Ethiopia, Nepal, Uganda and Vietnam revealed that girls’ clubs are popular approach to promote adolescent girls wellbeing in many ways like, awareness of sexual and reproductive health rights, provision of vocational training, safe place to discuss child marriage, and other problems (ukaid, 2015). Girls’ clubs operate in different ways, and are usually run by different facilitators like teachers, and local women community leaders. Girls club helps to empower girls by building their confidence, skills and independence. It increases their access to information about their rights including sexual and reproductive health (ukaid, 2015).

brac implemented Empowerment and Livelihood for Adolescents (ELA) programme in Uganda to deal with economic and health challenges faced by the adolescence girls. ELA programme operates through adolescent development clubs. They provided vocational training and life skills to generate small scale income and build knowledge and improve health in treatment communities. The life skills training sessions include sexual and reproductive health, menstruation and menstrual disorders, pregnancy, sexually transmitted infections, HIV/AIDS awareness, family planning, rape. In comparison with the control group the programme revealed a strong negative impact on fertility and substantial increase in condom use(Bandiera et al., 2012).

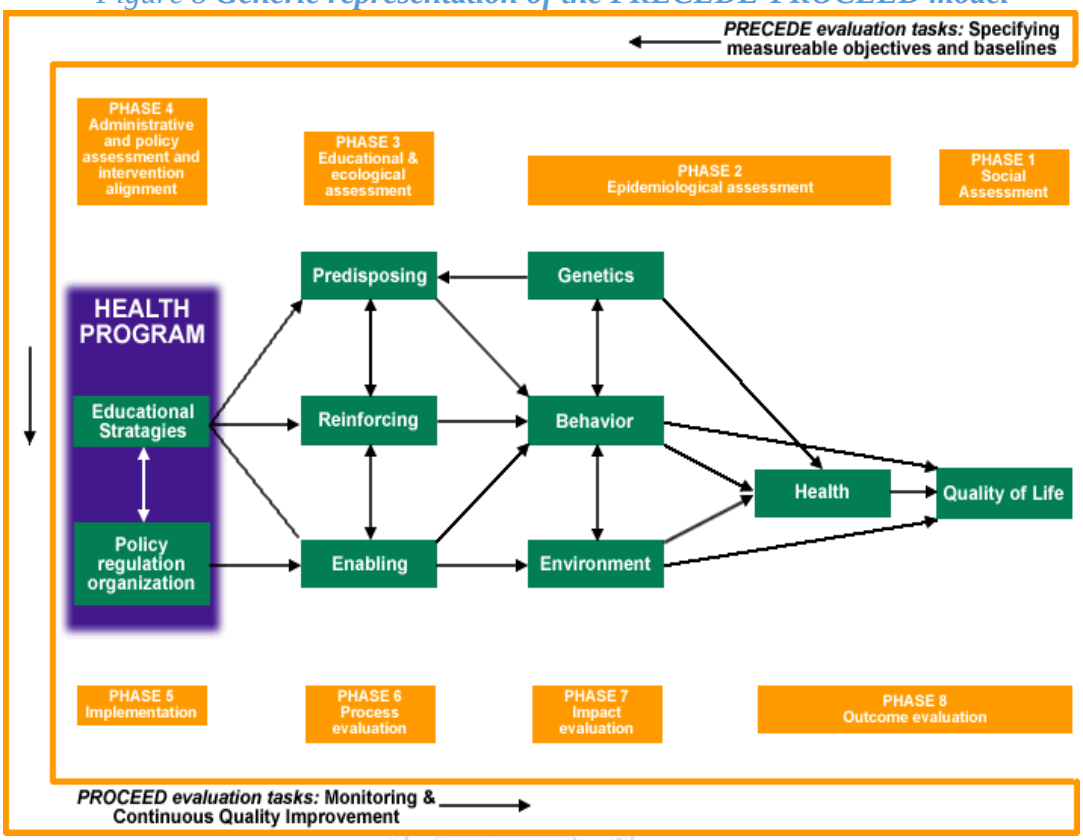
Contraceptive education, counselling and knowledge improvement could be effective to increase adolescents' access and use of contraception(Chandra-Mouli, McCarraher, Phillips, Williamson, & Hainsworth, 2014). Although several programs to improve sexual and reproductive health of adolescents are being implemented in Bangladesh, evidence is deficient to identify appropriate intervention due to lack of documentation. There is a lack of Sexual and Reproductive Health (SRH) programs that are exclusively focused on adolescents. Among 32 intervention programs on SRH issues for adolescents' age 10 to 24, only 9 programs had both primary focus on SRH and particularly focused on adolescents aged 10-19. Community based approaches for awareness rising found to be the most common approach(Hindin & Fatusi, 2009).

Adolescent fertility in Bangladesh is high and a major social and health concern. Through implementation of an appropriate intervention, married adolescent girls need

to be provided with increased access to correct information about family planning services, especially for them who are illiterate and living in urban slums. Along with family planning, the deleterious effects of early marriage, early pregnancy and motherhood are also important messages that need to convey to this particular group at urban slum level(Kamruzzaman & Hakim, 2015).

To design an effective intervention, modified PRECEDE-PROCEED model (Figure 6) can be used as it is structured as a participatory model, for creating successful community health promotion and other public health interventions (Green & Kreuter, 2005).

Figure 8 ***Generic representation of the PRECEDE-PROCEED model***



Source: L. Green and M. Kreuter 2005

By adapting this model, the intervention to be monitored and adjusted to respond to community needs and changes in the situation, and can check that its accomplishments actually lead to the projected goal(Green & Kreuter, 2005; MCDOWell & Newell, 1996).

Adolescent girls club provides opportunity to open up, spread time and make a social network with peers. So knowledge and awareness regarding sexual and reproductive health through adolescent girls club could be an effective way to intervene and to scale up married adolescent's sexual and reproductive health (SRH) in urban slums of Bangladesh.

CHAPTER III

METHODOLOGY

Study design

This was a quasi-experimental study with post-test only control group design.

Because of logistical constraint, it was difficult to have baseline information before implementing the intervention, so the strategies of post-test only control group design was employed.

Here, of the two matched groups, only one group was exposed to the experiment or intervention. Measurements were made on both the groups after the intervention is finished. The difference in the outcome variables in the experimental and control group was attributed to the intervention. The study was started with the basic assumption that the two groups were similar in characteristics at the beginning of the study and baseline data collection was not part of the intervention(Khanam, 1998).

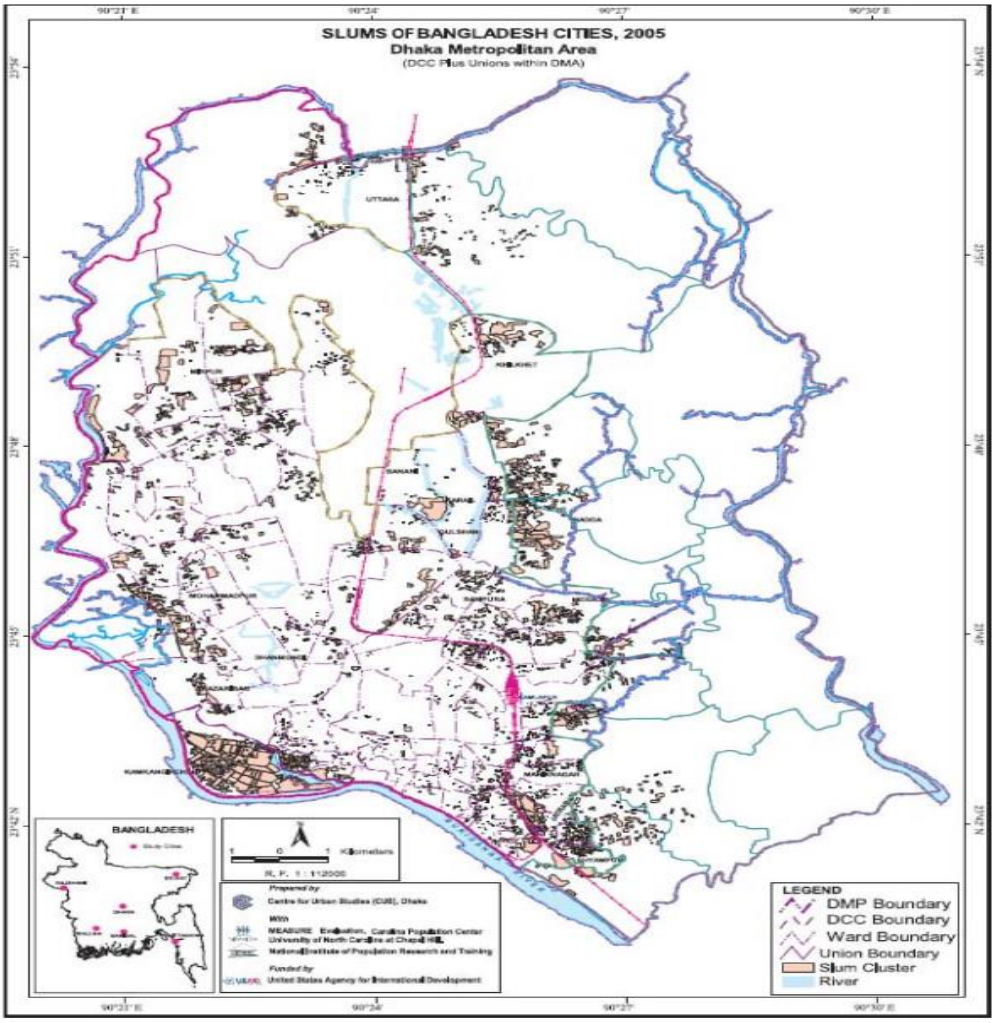
The study used both quantitative and qualitative methods for data collection.

Duration of the study was 26 months, from July 2014 to August 2016; the intervention was implemented for 12 months, between March 2015 and February 2016.

Study area

The study was conducted in four urban slums of Dhaka metropolitan city: Kamrangirchar and Mirpur as experimental area; Rayerbazar and Shekhertek as control area (Figure 9).

Figure 9 ***Geographical location of the study areas***



To conduct the study, collaboration was made with brac, an international NGO, who runs a community-based maternal, neonatal, and child health (MNCH) programme since 2007 with the objective of reducing maternal and child mortality in urban slums

of Bangladesh. Family planning (FP) is one of the integrated components of the brac MNCH programme.

The four slums were selected based on the following factors:

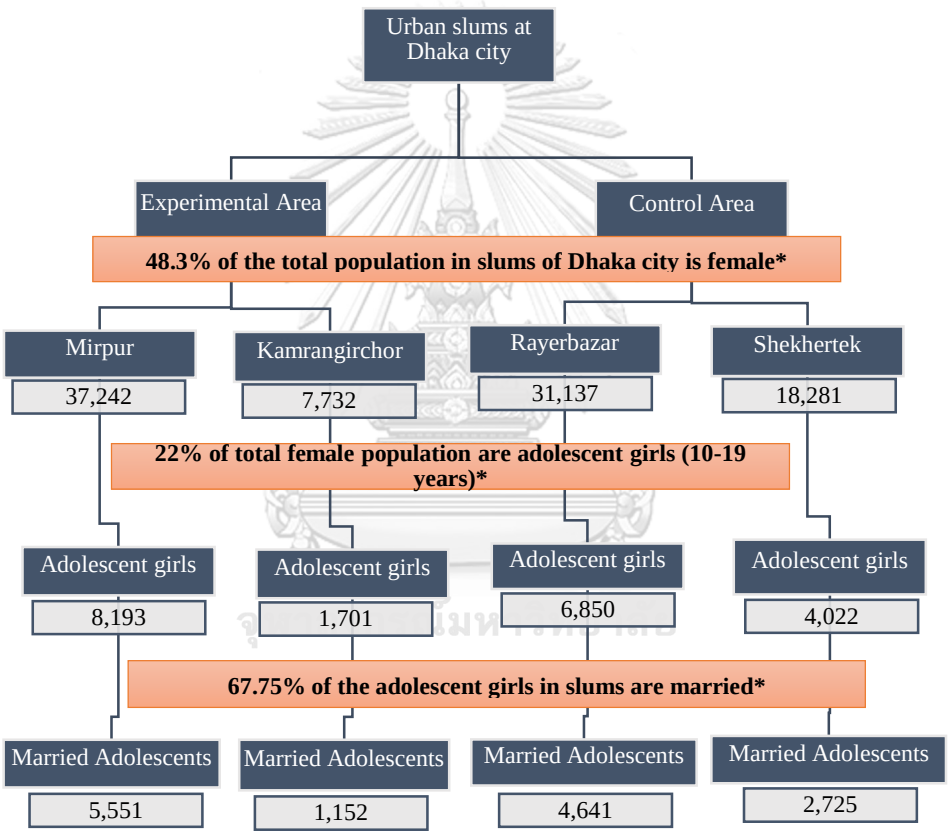
a. brac runs its MNCH programme in the slums;
b. brac runs its own primary schools under brac Education Programme (BEP) in the slums;
c. brac runs adolescent clubs both for unmarried adolescent girls and boys under its Adolescent Development Programme (ADP) in the slums. The clubs used their primary schools as a venue for operating the club sessions; and
d. brac community health volunteers (CHV) under MNCH programme were directly involved in providing FP services, selling FP commodities at the community level as well as motivating women and families in the slums to get the MNCH services.

Study Population

The study population was married adolescent girls aged 14-19 years resided in the selected four urban slums of Dhaka metropolitan city. Population of individual four slums were identified from the report of Bangladesh Bureau of Statistics on census of slum areas and floating population (B. B. o. S. M. o. Planning, 2015). According to the report, 48.3% of the total population in slums in Dhaka City Corporation were female, of which 22% were adolescents. Thus, number of adolescent girls aged 10-19

years was calculated from the total female population in the selected four slums. Again, 67.75% of the adolescent girls in the slums were married (B. B. o. S. M. o. Planning, 2015). Considering that, number of married adolescent girls from each slum was estimated (Figure 10).

Figure **10** ***Sampling frame***



**Source: Census of Slum Areas and Floating Population 2014, Bangladesh Bureau of Statistics*

Selection of study respondents

Inclusion criteria:

- married adolescent girls aged 14-19 years (both pregnant and non-pregnant);
- staying with their husbands;
- constantly staying at the slums at least for last six months;
- was willing to participate in the study by signing/giving thumb print in the written consent form.

Exclusion Criteria:

- divorced or separated at the time of enrolment;
- physically handicapped.

3.4. Sampling Technique

Study sample was drawn from experimental and control areas using cluster sampling procedure. brac operated primary schools was denoted as clusters and each selected slum was divided into numbers of clusters based on one kilometre radius around the brac primary schools. Therefore, 20 clusters were generated from experimental areas that included Kamrangirchar and Mirpur slums, and 15 clusters were generated from control areas that included Rayerbazar and Shekhertek slums.

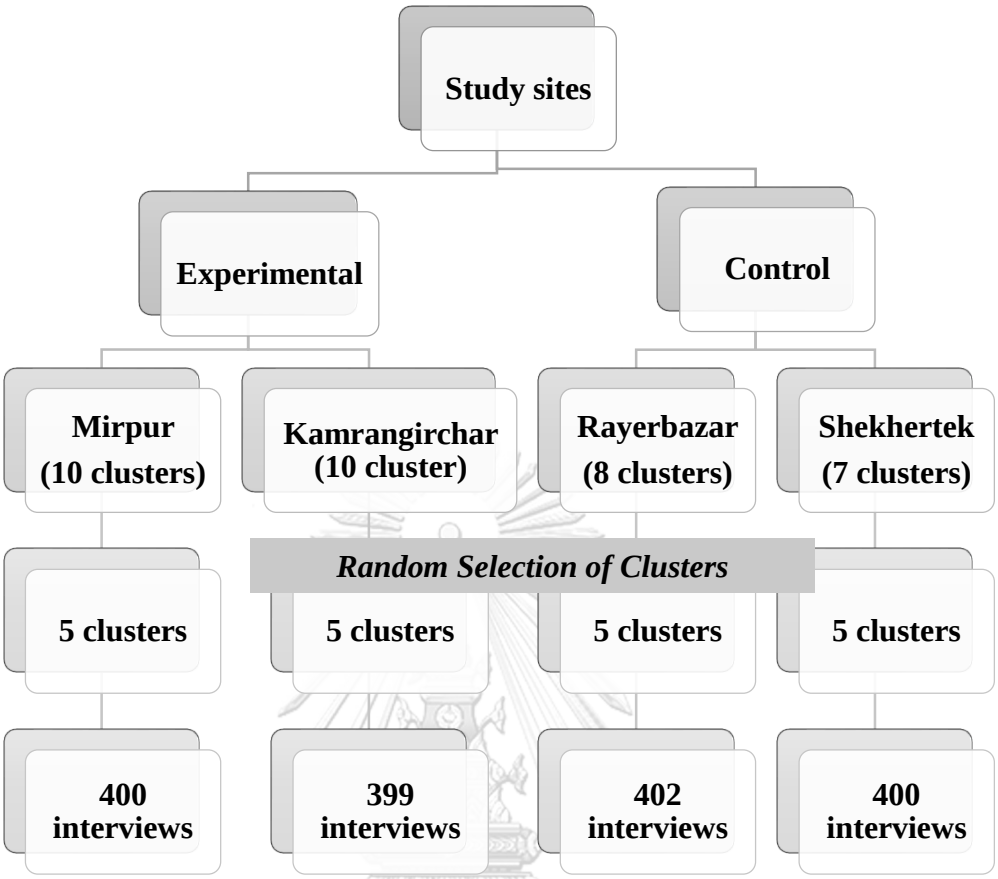
Finally, 10 clusters from each area (experimental and control) were selected by simple random sampling based on computer generated random sequence. Randomization was done independently by a computer programmer, who had no further involvement with the study. Married adolescent girls' club activities were conducted in selected 10

clusters of the experimental areas; and brac continued their ongoing adolescent club activities in the primary schools and regular MNCH services in the control areas.

After 12 months intervention, out of 1709 married adolescent girls attended in the club sessions in the experimental area, 800 were randomly selected through computer generation for quantitative interview. Among them, 20 respondents were interviewed in-depth as part of qualitative data collection. Respondents for IDI were purposively selected based on their numbers of club participation and were categorized into two groups: who had participated in 1 to 5 club sessions, and who had participated in 6 to 10 club sessions.

In the control areas, the team of interviewers' began by spinning a bottle from a brac operated primary school which was at the central location of the slums to determine the first household based on the direction of the bottle. All households in the direction determined by spinning the bottle were visited and each eligible respondent in the selected household was invited to take part in the survey (quantitative interview). This process was continued until the required sample size (n=800) in the control areas was achieved (Figure 11).

Figure 11 ***Sampling technique***



3.4.1. Sample size calculation

The sample size for this study was estimated using the following formula.

$$N = \frac{D * \left[Z_{1-\alpha/2}\sqrt{2 * p\,(1-p)} + Z_{1-\beta}\sqrt{p_1\,(1-p_1) + p_2\,(1-p_2)}\right]^2}{(p_2 - p_1)^2}$$

Where:

N Desired sample size

$Z_{1-\alpha/2}$ Z-score corresponded to the probability with which it was desired to be able to conclude that the observed change did not occur by chance (two-tailed; at 0.05 level of significance value of Z is 1.96).

$Z_{1-\beta}$ Z-score corresponded to the degree of confidence (power) with which it was desired to be certain that the change actually occurred (at power level 0.80, value of Z_{β} is 0.84).

p_1 current family planning method use and unmet need for family planning among married girls aged 15-19 (based on the findings from BDHS 2014) (N. I. o. P. R. a. T. M. a. A. I. International, 2015).

p_2 Expected proportions of married adolescent girls reported use of family planning methods and unmet need for family planning after the intervention

p Average of p_1 and p_2.

D Design effect was assumed 1.1 due to random selection arbitrarily.

To test an increase in family planning method use among the married adolescent girls from 47% (N. I. o. P. R. a. T. M. a. A. I. International, 2015) to 57% with 95% confidence interval and 80% power, following the calculation below, at least 418 married adolescent girls were needed in each experimental and control areas.

$$n = \frac{D\left[Z_{1-\alpha/2}\sqrt{2p(1-p)} + Z_{1-\beta}\sqrt{p_1(1-p_1)+p_2(1-p_2)}\right]^2}{(p_1-p_2)^2}$$

$$= \frac{1.10\times\left[1.96\sqrt{2\times0.52\times0.48} + 0.80\sqrt{(0.47\times0.53)+(0.57\times0.43)}\right]^2}{(0.47-0.57)^2}$$

$$= \frac{1.10\times\left[1.96\times0.71+0.80\times0.70\right]^2}{0.01}$$

$$= \frac{4.18}{0.01} \approx 418$$

Considering non-response rate, the sample size was inflated by 25% to account for loss. Thus, a total of 524~550 married adolescent girls' were needed in each experimental and control area to evaluate the effect of the intervention.

But, to test a decrease in unmet need for family planning from 17% (N. I. o. P. R. a. T. M. a. A. I. International, 2015) to 12% with 95% confidence interval and 80% power, at least 800 married adolescent girls were needed in each experimental and control areas.

$$n = \frac{D\left[Z_{1-\alpha/2}\sqrt{2p(1-p)} + Z_{1-\beta}\sqrt{p_1(1-p_1)+p_2(1-p_2)}\right]^2}{(p_1-p_2)^2}$$

$$= \frac{1.10\times\left[1.96\sqrt{2\times0.146\times0.854} + 0.80\sqrt{(0.171\times0.829)+(0.12\times0.88)}\right]^2}{(0.171-0.12)^2}$$

$$= \frac{1.10\times\left[1.96\times0.50+0.80\times0.50\right]^2}{0.0026}$$

$$= \frac{2.08}{0.0026} \approx 800$$

Therefore, in total 1601 eligible married adolescent girls were enrolled for survey (799 in experimental areas and 802 in control areas). Because 10 clusters were randomly selected from the 20 clusters in the experimental area, we had covered all the eligible respondents in each cluster during implementing the intervention to avoid any obvious selection bias.

3.5. Study procedure: The intervention was implemented in different stages as Follows:

- **Stage I: Preparatory stage**

Informal consultation with brac programme people regarding the following issues:

- to get acquainted with their experience in running unmarried adolescent girls/boys clubs to replicate the club model for married adolescent girls in urban slums;
- to know about the availability of brac primary schools to use those as married adolescent girls' club venues;
- to identify the existing brac club leaders to be selected as the club leaders for the newly formed married adolescent girls' clubs; and
- to recognize the existing responsibilities of brac community health volunteers (CHVs).

- **Stage 2: Finalization of 'Married Adolescent Girls' Club' design and its contents**

A team of experts including maternal health experts from icddr,b and brac, worked closely for a week to select and finalize the club locations, designed the infrastructure and contents of the clubs, selected the topics of the club sessions to be discussed with the married adolescent girls, and finalized the training manuals and guidelines for the brac community health volunteers and the club leaders.

Stage 3: Selection and training of brac community health volunteers (CHVs)

The CHVs were selected to help in listing the married adolescent girls (MAGs) in the slums, inviting them in the club sessions, and providing them comprehensive information on family planning methods and services during their routine household visits. A daylong training session was arranged for the community health volunteers.

Stage 4: Selection, and training of the club leaders

Each married adolescent girls' club had a club leader/facilitator. The club leaders were selected from existing brac adolescent club leaders, brac school teachers and enlisted married adolescent girls. A total of ten club leaders were selected for the training and for implementing the intervention based on the following criteria:

- were resident of the respective community;
- had leadership capability; and
- had self-confidence to work as club leaders.

Three days training session was conducted for the club leaders by the team of experts from icddr,b and brac. They were trained on the procedure of listing the married adolescent girls, on contents of club session, good interpersonal communication and facilitating skill, and on organizing effective conduction of club sessions. The club leaders were trained on the following topics for discussion in the club sessions:

- Early marriage, early pregnancy and its socio-economic and health consequences;
- Family planning methods and service centre; and
- Unmet need for family planning.

Before the training, a pre-assessment written test with short quizzes was conducted to evaluate the club leaders' current knowledge on the relevant topics. The club leaders were trained in such a way so that they could be able to encourage the club participants to ask questions and raise personal concerns about their health and wellbeing, motivate the club participants to take positive control of their life and to understand their health and family planning needs by learning relevant information. At the end, a post-assessment written test with similar quizzes was conducted again to ensure that the club leaders had mastered the lesson content and delivery strategies prior study implementation. Quarterly refresher trainings were arranged for the club leaders following the initial training.

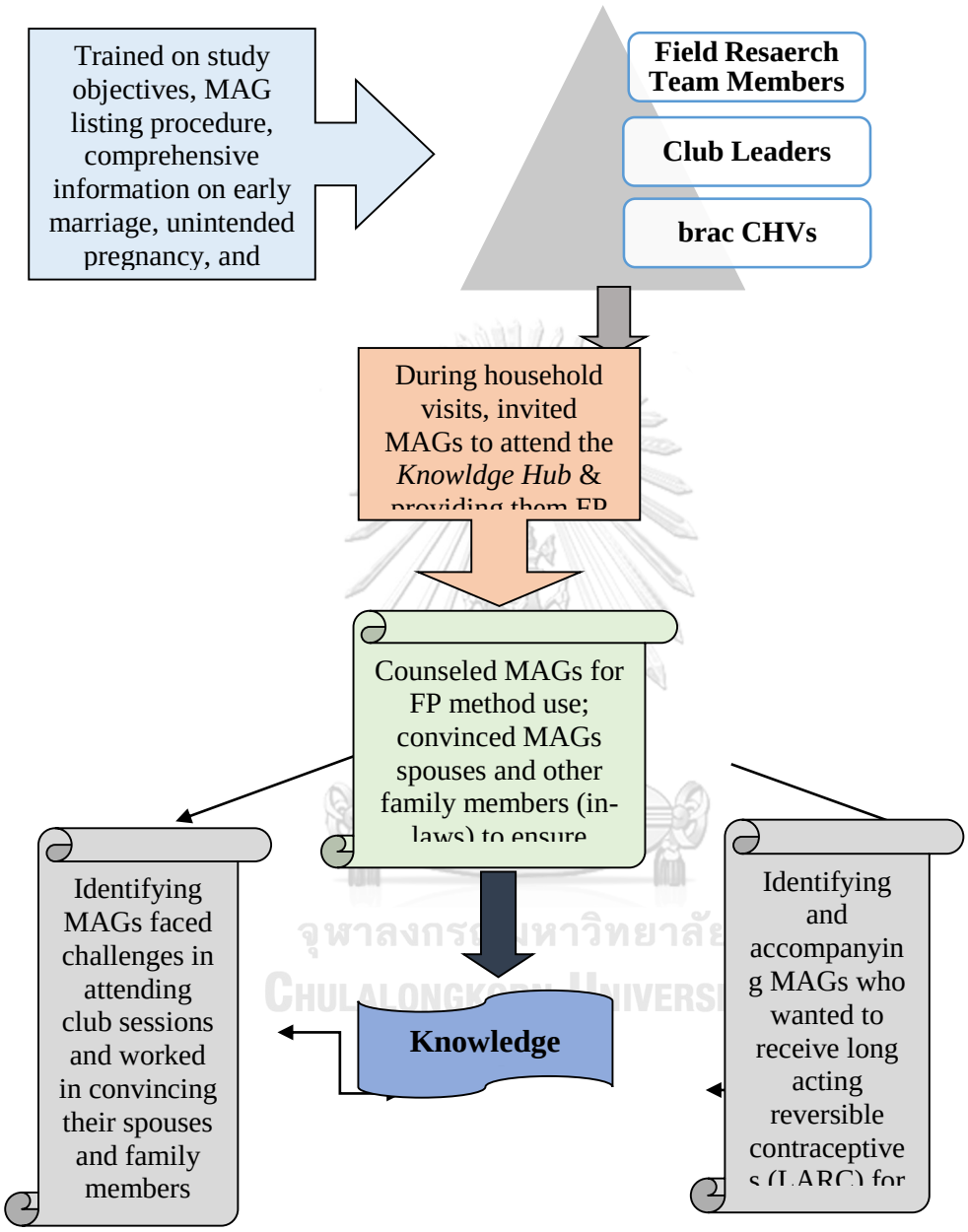
- **Stage 5: Identifying respondents to invite them in the clubs**

The field implementing team members, club leaders, and the brac community health volunteers visited every household of the selected clusters in the experimental area to make a list of the married adolescent girls. Names and contact addresses of the respondents, who fulfilled the inclusion criteria, were recorded using a checklist/screening questionnaire. Thus 1709 married adolescent girls were identified from the 10 clusters covering about 6000 households in the experimental areas. Each enlisted married adolescent girl was then invited to participate in the club sessions. If an eligible respondent lived in a selected household but was absent at the time of the visit, the field implementing team members obtained information on her availability from other household members, or their neighbors, or the people adjacent to the household, and re-scheduled a visit. This process of enrolment was continued throughout the intervention period.

The field implementing team members and the club leaders visited together at the household level of the married adolescent girls to invite them in the clubs. Together they discussed and found out different ways of running the club sessions smoothly.

The brac community health volunteers of the respective club area joined the club sessions regularly, and discussed about family planning methods and other relevant information with the club participants. Thus, an effective communication and linkage was built-up among field implementing team members, club leaders and the community health volunteers (Figure 12).

Figure 12 ***Association between Field Implementing Team Members, Club leaders and brac Community Health Volunteers (CHV)***



Stage 6: Implementation of intervention

The married adolescent girls' club activities took place in 10 existing brac primary schools in the experimental areas. A yearly calendar was prepared to run the clubs. Every week, one club session was conducted in each venue, thus four club sessions in a month in each venue; therefore, a total of 40 club sessions was conducted in all ten club venues. On an average, 20 married adolescent girls participated in each club session. By this way, each month, around 800 (40*20) married adolescent girls were covered through the club sessions. Each married adolescent girl had the scope of attending 12 club sessions (once in a month) during the one year intervention period.

Duration of the club sessions was approximately one to two hours and was adjusted based on time availability and interest of the club participants. Club leaders used to maintain an attendance sheet for the club participants and conducted the club sessions following the developed guideline.

A pictorial pocket-book bearing simplified messages on family planning issues was developed using the existing BCC materials of the Government. The pocket book had illustrations, enclosed with a key ring at it's end, handy to keep in the handbag of the married adolescent girls, and served as a multipurpose tool (Figure 13).

Figure 13 ***Family planning pocket book***

To make it eye-catching to the young girls, a mirror was placed on its cover and the remaining part of the cover was decorated with colourful stones and attractive embroidery materials. The initial draft of the pocket book was shared with the club participants to receive their feedback before being finalized. The pocket book was distributed to all the club participants.

Posters, flipcharts, and banners on family planning information and messages were displayed inside the club rooms. Some recreational facilities such as carom board/ludo board (indoor games), educational story books (for those who can read) were also kept as part of the club activities. After ending the club sessions, participants could spend times by playing carom/ludo and/or reading story books. Refreshments (snacks and juice) were provided to all the participants at the end of the club sessions.

An assessment test was arranged in every three months for the club participants. Twenty questions on the topics discussed in the club sessions were asked to the club participants during the assessment test. Based on the test results, the club participants were awarded with token prizes for further motivation.

Besides regular topic discussion, there was arrangement of entertainment activities like dance, music, and drama in participation of the club participants. The drama scripts were developed based on real life stories of the club participants collected by the field implementing team members as case studies. In the last month of the intervention, dramas were staged by the club participants in every club venues.

- **Stage 7: Process documentation, monitoring, and supervision**

An ongoing and effective process documentation and monitoring system was established by deployment of a field implementing team to observe progress in the process indicators. The team remained in the field throughout the intervention period. This was a continuous process that aimed at assessing progress in the implementation of intervention and undertaking refinements of intervention, if necessary.

Field implementing team members

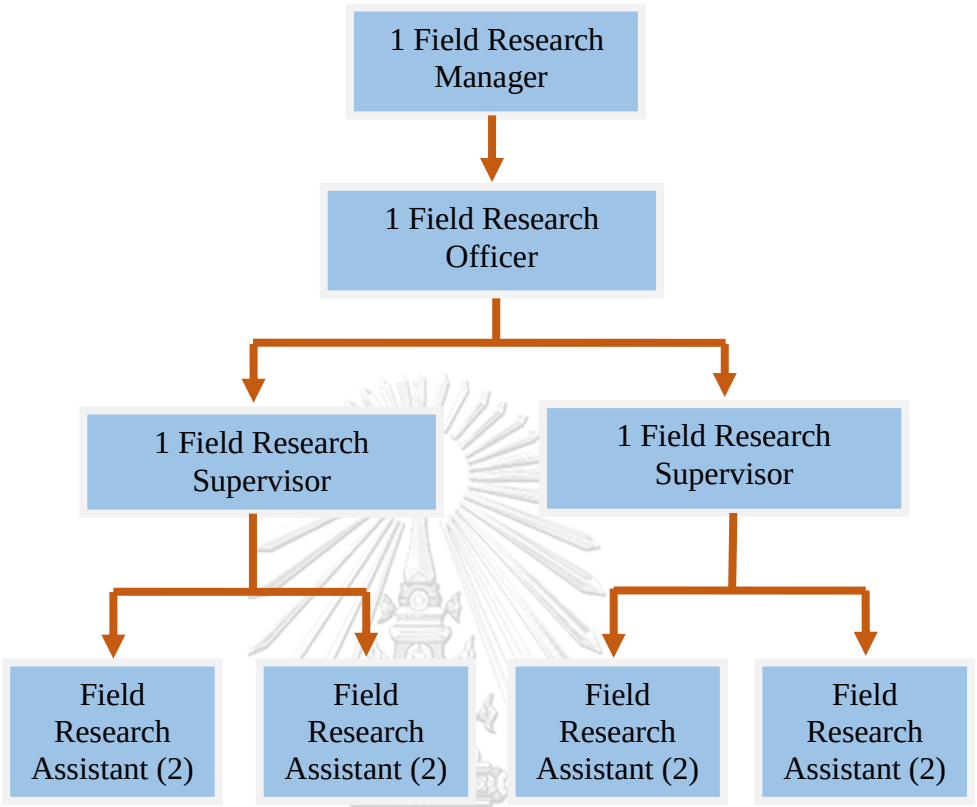
One field research manager (FRM), one field research officer (FRO), two field research supervisors (FRSs) and ten field research assistants (FRAs) were recruited for monitoring and supervision of the intervention activities. One FRA was assigned for each of the clubs; the FRAs closely worked with the club leaders for bringing the married adolescent girls to the club and assisted club leaders to conduct the club

sessions. The FRSs were appointed to supervise the works of FRAs and one FRS was in charge of one experimental area (one slum). The FRM was responsible for overall field implementation of the project and for quality assurance (Figure 14).

Process documentation and monitoring was focused on the following questions:

- How were the married adolescent girls (MAGs) recruited into the clubs?
- How many married adolescent girls were able to attend the club sessions?
- What were the needs of the married adolescent girls during the club sessions and how the club leaders responded to them?
- How were married adolescent girls and their spouses linked to reproductive health and FP services?
- What worked well (or not) and why? What were the strengths and weaknesses of the intervention from the perspective of the respondents and other actors (club leaders and brac community health volunteers)?
- What contextual factors, if any, affected the implementation of the intervention?

Figure 14 ***Field implementing team members***



As part of monitoring and supervision, the investigators' team did some routine visits at the clubs to observe the club leaders' performance, professionalism, rapport, interpersonal communication skills, counselling skills and adherence to explain the topics to the married adolescent girls.

- **Stage 8: Evaluation of intervention**

This study was evaluated using quantitative and qualitative research methods. A community-based survey was done (Quantitative) to assess the effectiveness of the intervention. Data collection for the survey was conducted by eight female interviewers having proven similar experience; the interviewers were blinded to the

study objectives in order to reduce the risk of bias from the effect of intervention, and to allow a realistic statistical comparison.

In-depth interviews (Qualitative) were done to develop a deeper understanding on the respondents' feedback regarding the club activities, their expectation from the club sessions, responses they received from the club leaders on their queries to the discussion topic, and about brac community health volunteers' activities. Furthermore, the qualitative interviews added to quantitative results through explanations and clarifications with the target population and helped in understanding different perspectives between the two groups, and in uncovering root motivations or factors influenced the respondents' decision making or opinions.

Data Collection

Data collection was done following the steps below:

Step 1: Development of survey questionnaire, in-depth interview guideline and checklist:

A structured questionnaire was developed for data collection for the quantitative survey. Literature retrieval and review was done to form and finalize the questionnaire which contained information on respondents socio-demographic characteristics; childbearing experiences; knowledge, attitude, access to and practices regarding family planning information and services; and experiences with the intervention (in experimental areas).

For content validity, a medical doctor with expertise on adolescent and maternal health issues assessed each question of the questionnaire**.** Moreover, the questionnaire was reviewed by the adolescent and maternal health experts from icddr,b and Chulalongkorn University. Three renowned maternal health research experts were invited for alpha scoring and each of them scored the questionnaire +1. Thus the total scoring for the questionnaire was +3.

For the qualitative part, semi-structured interview guidelines and checklists were used. The key issues addressed in the checklist were to explore how the respondents experienced and benefitted after being exposed to the intervention and how the intervention could be sustainable.

Step 2: Translation and field testing of data collection tools

The data collection tools were developed in English and then translated into local language (Bengali) following the stages below:

- Translation of the study tools into the target language (Bengali) by one person.
- Back translation: to get a sense of how effective the translation was, another independent person re-translated the translated study tools back into the original language (English).
- Any discrepancies in meaning was discussed with the original forward translator, who revised his translation, where needed. He explained exactly what was revised, and a new back translation of the new and improved sentence was done again.

- Field testing of the translated study tools (Bengali): field testing of the developed tools was conducted at the end of the training of the interviewers so that they benefit practically from administering the entire questionnaire in the real field situation.
- The newly translated and refined study tools (Bengali) were administered to a small sample (5-20 people) with a typical set of study participants which taken place in slums other than the study areas. Classroom sessions for reviewing tools and discussing problems followed each day of field practice.
- During doing the field testing, trainers observed as many interviews as possible; this allowed the trainers to provide individual feedback to the trainees. Time was also allocated for editing filled-up tools.
- Unlike a typical administration, however, the participants of the pre-testing were asked to comment on the study tools. Based on their comments and feedback, the tools were adjusted again and finalized for data collection. During this process, the words or phrases that didn't translate well or lost their meaning were especially looked for.

Individual face-to-face interview was done in both experimental and control areas. Informed written consent was obtained from the study respondents prior to interviews.

Step 3: Validity of self-reported data

The respondents could forget or hide any information about their reproduction, pregnancy, and family planning practices. If any respondents mentioned about receiving any family planning services, they were asked to show their document/card provided from the service centre. The sources of information (document/card or self-reported) of collecting data were recorded.

Step 4: Training of the interviewers

The team of investigators' at icddr,b, Dhaka, was responsible for conducting a week-long training on data collection methods using the structured questionnaire and qualitative interview guideline and checklist. Both classroom training and field practices were included in the training. Special emphasis was given in providing training on the consent form. The interviewers were particularly advised to put every effort in ensuring privacy during conducting the interview and to make sure that the respondent and the interviewer will only be present during the interview. During training, the intention of each and every question was explained and illustrated through mock interviews. In the mock interviews, one trainee interviewed another one and this was conducted by a trainer in front of the class.

Data Analysis

Quantitative data analysis

The data were entered into a computer database using Oracle 11G.R2 (Oracle Corporation, California, USA) and exported to STATA 13.1 (Stata, College Station, TX, USA) for analysis.

Descriptive statistics were computed to describe the respondents' social and demographic characteristics taking into account by study group (experimental and control). Pearson chi-square test, two sample independent t-test were used to examine the association between respondents' socio-demographic characteristics and study groups.

Regarding respondents' knowledge, attitude, and practices on family planning method, only the correct answers had been picked and presented here. Difference in respondents' knowledge, attitude, and practices on family planning method by experimental and control group were measured by Pearson chi-square and two sample proportion tests. All analyses related to evaluate the change of significance among the responses and exposure variables was done using two-tailed test at 95% confidence interval. The intervention was considered to be effective if significant change in the key outcome indicators were observed in the experimental than in the control areas. p-value less than 0.05 were considered as statistically significant; some of the p-values could not be calculated because of small sub-group numbers.

Qualitative data analysis

Qualitative data analysis of the study was performed thematically. Two field research assistants from Anthropology background were accountable for conducting in-depth interviews, preparing transcriptions, and analysing data. Several steps were followed to conduct qualitative data analysis:

- All recorded interviews were transcribed in Bengali and then reviewed by research team members.
- Researchers read transcribed interviews thoroughly in order to gain familiarity with the data and identified key issues, common ideas and recurrent concepts.
- Transcribed interviews were systematically coded, indexed and synthesized for enabling interpretation of the findings. Study researchers were involved to assess the reliability of the data.
- Subsequently, key themes and sub-themes were identified by drawing attention to priority issues based on the study objectives.
- Findings on the same issues discussed by various respondents that were compared by preparing two by two matrix to strengthen the validity of the findings and to assess their similarities and differences.
- Emerging themes and sub-themes were then analysed to understand the effectiveness of the experimental.
- Word for word quotes were used to indicate respondents' particular point of views regarding their experiences.

Ethical assurance for protection of human rights

Before being implemented, the project obtained ethical approval from the institutional review board (IRB) of icddr,b and Population Council, NewYork. Written consent was taken from each respondent and the consent process clearly explained purpose of the study, type of information to be collected, risks and benefits from participation in the study, mechanisms for maintaining confidentiality of the information, their rights of voluntary participation and withdrawal, and sources of additional study-related information.

Risks and risk management

The study did not create any physical risks to the study participants. However, some of them experienced a few emotional or psychological discomfort or potential embarrassment in discussing use of contraceptive methods and communication with their husbands about planning their families. In addition, some of them potentially incurred the risk of harassment (both psychological and physical) from husbands or family members if it became known that they were involved in an experimental promoting on family.

To minimize the risk, field implementing team members, club leaders, and brac community health volunteers were carefully trained on how to discuss these issues in a sensitive, albeit straightforward manner and to respect the respondents' rights to privacy. Researchers with prior training and working experience on sensitive issues like reproduction, pregnancy, and family planning were recruited for this purpose.

Club participants were also assured about maintaining confidentiality of their provided information.

Participating in the group discussions during the club sessions sometimes caused tension, suspicion, marital conflict or domestic violence in few cases. To mitigate these risks, researchers had talked with husbands of the club participants and asked them about their opinions on the appropriate timing of the club sessions as well as the topics they preferred to discuss in the clubs.

Some respondents felt uncomfortable discussing their experiences, practices, and behaviour regarding family planning and childbearing. Club leaders, field implementing team members and brac community health volunteers were trained on the importance of minimizing respondents' level of anxiety or stress and of the absolute requirement of confidentiality on their part. They were also trained to listen carefully to the information they receive from the respondents with a non-judgmental attitude, and to discern signs of their discomfort.

Another source of risk was that during data collection, respondents found some sensitive questions about family planning. Also, some respondents felt challenged by discussions that asked about their role in FP decisions such as choice of FP method to be used and when to have their future pregnancies. They considered such lines questions invasive. To minimize those risks, designing of the study tools were done carefully.

After pre-testing and prior to the study implementation, a small number of married adolescent girls with similar characteristics as the study population, were contacted and asked to review the study tools with a view to identify potentially sensitive questions that might cause distress and should be modified or removed. Field implementing team members were also trained on the project design, research ethics, and the need to ensure confidentiality of the information collected.

Benefits and compensation

There was no direct benefit or compensation to participants for taking part in the study. It was, however, expected that the information generated from the study will be used to improve reproductive health programmes for married adolescent girls in the country.

Confidentiality

A unique identification number was assigned to each respondent. No names were appeared on any study forms or materials apart from the informed consent form. The consent forms were kept separate from the completed questionnaire. Datasets were stored in computerized databases and study documentation and materials were stored in locked file cabinets at icddr,b office. Only the study investigators had access to the study information. After completion of the study, the data files were stored without names or identifiable information.

Informed consent

All participants involved in the study were provided with information about the study before any consent to participate was obtained. Participants were adequately informed about the:

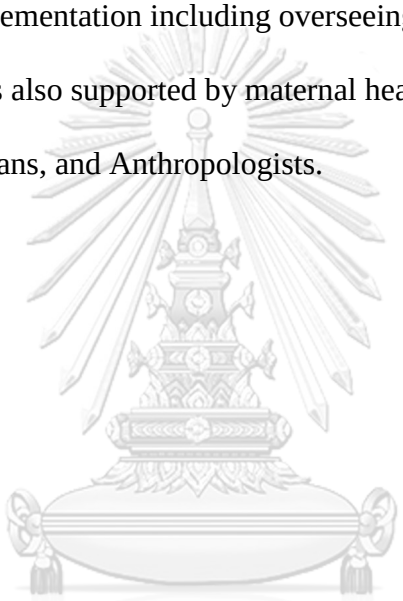
- aim of the experimental and methods to be used;
- institutional affiliations of the research;
- anticipated benefits and potential risks and follow-up of the study;
- discomfort that the study may entail;
- right to abstain from participating in the study, or to withdraw from it

  at any time, without reprisal;
- measures to ensure confidentiality of information provided.

Individual consent was obtained from all respondents. Some of the respondents were below the age of consent (18 years) as stipulated by Bangladeshi law. For those respondents, assent form was used. Respondents indicated their willingness to participate by assenting to the study after parents/guardians had given permission. Respondents aged 18-19 years had provided individual consent only. The consent form emphasized that participation in the study was voluntary and that participants can withdraw at any time if they feel uncomfortable. The consent form was translated into Bengali in a manner that is understandable to study participants, and was read out to each participant.

Study Investigators

The project was implemented by the researchers from Maternal and Child Health Division at icddr,b in collaboration with *brac.* icddr,b was responsible for the overall coordination of the project including providing administrative leadership and technical support. The Principal Investigator, Dr. Fauzia Akhter Huda, was responsible for developing and finalizing the proposal, data collection tools, and coordinating study implementation including overseeing the day-to-day running of the project. The project was also supported by maternal health experts, program implementers, Statisticians, and Anthropologists.



CHAPTER IV

RESULTS

This was a mixed method study and data collection was done using both quantitative and qualitative techniques during evaluation of the intervention. In total, 1601 respondents were interviewed as part of the community survey (quantitative), 799 from the experimental area and 802 from the control area. In-depth interviews (IDIs) with twenty (20) respondents from the experimental area were done as part of qualitative data collection.

Based on different indicators, findings from the study are presented into six sub-sections:

- Section 4.1: socio-demographic characteristics of the respondents participated in the quantitative survey.
- Section 4.2: knowledge of respondents' on family planning methods and consequences of early pregnancy.
- Section 4.3: attitude of respond
- ents' towards family planning method use.
- Section 4.4: respondents' family planning method practices and unmet need for family planning.
- Section 4.5: in-depth information on knowledge, attitude, and family planning method practices among the experimental group.
- Section 4.6: implementation of MAG club activities among the experimental group.

Section 4.1. Socio-demographic characteristics of the respondents participated in the quantitative survey

4.1.1. Socio-demographic characteristics of the respondents

Majority (73%) of the respondents from both experimental and control areas were aged above 18 years, 25% were between 15-17 years, and the remaining was less than 15 years age. Majority of the respondents in both the areas (98%) were Muslims. Regarding education, 13.9% of the respondents in the experimental area and 10.8% in the control area had no formal education. Less than half of the respondents in both experimental (40.4%) and control (41.2%) areas had primary level of education followed by 6-8 years of education (31.9% vs. 28.9%) and 9+ years of education (13.8 vs. 19.2%) respectively (Table 4.1.1).

One-third (32.3%) of the respondents in the experimental areas were involved in income generating activities which was found comparatively less in the control areas (14.8%). Regarding types of work, around one-fourth of the respondents in both areas were involved in garment factories. Half of the respondents in the experimental areas were involved in handicrafts while it was 10.9% in the control areas. Comparatively less number of respondents in the experimental areas (10.5%) was working as housemaids than that in the control areas (41.2%). Nearly one-fifth of the respondents in both areas were involved in other services such as government/private job, tailoring, and business (Table 4.1.1).

Table 1: Socio-demographic characteristics of the respondents by experimental and control areas

Characteristics	Respondents' n (%)		p-value
	Experimental (n=799)	Control (n=802)	
Respondents' age group (in years)§			
<15	3 (0.38)	11 (1.37)	
15-17	211 (26.4)	202 (25.2)	0.092
≥18	585 (73.2)	589 (73.4)	
Respondents' religion**			
Muslim	781 (97.7)	789 (98.4)	0.359
Others	18 (2.3)	13 (1.6)	
Respondents' education (in completed years)**			
No education	111 (13.9)	86 (10.8)	
1-5	323 (40.4)	329 (41.2)	0.009*
6-8	255 (31.9)	232 (28.9)	
9+	110 (13.8)	155 (19.2)	
Respondents' occupation**			
Involved in income generation	258 (32.3)	119 (14.8)	0.000*
Not involved	541 (67.7)	683 (85.2)	
Types of respondents' occupation**	n=258	n=119	
Housemaid	27 (10.5)	49 (41.2)	
Garment/factory worker	53 (20.5)	30 (25.2)	0.000*
Handicrafts	134 (51.9)	13 (10.9)	
Other services	44 (17.1)	27 (22.7)	

**Significant difference*
***p-value was calculated using chi-square test*
§ P-value was calculated using Fisher's exact test

4.1.2. Socio-demographic characteristics of the respondents' husbands

Mean age of the husbands of the respondents in both experimental and control areas were 25 years. One-third of the respondents' husbands in both the areas had primary level of education. Nine or more year's education was found lower among the respondents' husbands in the experimental area (18.4%) than that of the control area (25.6%). Moreover, 23.9% of the husbands in the experimental area had no formal education which was found 16.7% in the control area (Table 4.1.2).

Regarding types of work, husbands of the respondents in the experimental area were more involved in garments work (27.3%) than that of the control areas (8.2%) followed by bus/car driver or assistant to driver (22.8% vs 30.8%), business (13.8% vs 16.3%), skilled labour (8.1% vs 13.1%), non-government service (7.9% vs 14.7%), day labourer (7.6% vs 7.2%), restaurant worker (4.8% vs 2.5%), tailor (2.9% vs 2.0%), and other services (4.9% vs 5.2%) respectively. The average monthly family income was around fifteen thousand Bangladeshi taka (BDT) which was found more or less similar in both experimental and control areas (Table 4.1.2).

Table 2: Socio-demographic characteristics of the respondents' husbands by experimental and control areas

Characteristics	Respondents' husbands n (%)		p-value
	Experimental (n=799)	Control (n=802)	
Respondents' husbands age (in years)	n=799	n=802	
Mean (±sd) †	25.3 (3.51)	24.9 (4.05)	0.072
Respondents' husbands education (in completed years)**			
No education	191 (23.9)	134 (16.7)	
1-5	273 (34.2)	249 (31.0)	0.000*
6-8	188 (23.5)	214 (26.7)	
9+	147 (18.4)	205 (25.6)	
Types of respondents' husbands occupation**			
Garments/factory worker	218 (27.3)	66 (8.2)	
Bus/car driver/assistant to driver	182 (22.8)	247 (30.8)	
Business	110 (13.8)	131 (16.3)	
Skilled labour	65 (8.1)	105 (13.1)	
Non-government service	63 (7.9)	118 (14.7)	0.000*
Day labourer	61 (7.6)	58 (7.2)	
Works in restaurant/shop	38 (4.8)	20 (2.5)	
Tailor	23 (2.9)	16 (2.0)	
Others	39 (4.9)	41 (5.2)	
Monthly family income (in BDT)***			
Mean (±sd) †	15,513 (±9423)	15,208 (±8727)	0.501

**Significant difference*
† p-value was calculated using two sample mean test (independent t-test)
***p-value was calculated using chi-square test*
****1 USD was equivalent to 83 Bangladeshi taka (BDT)*

4.1.3. Marriage and reproductive characteristics of the respondents:

Most of the respondents (> 90.0%) in both the areas got married before the age of 18 years. Mean duration of marriage in experimental and in the control areas was 3.8 and 3.0 years respectively with 2.1 standard deviation. Nearly half of the respondents got married by their own choice and more than half by their parents' choice.

More than half of the respondents in both the areas had history of a single pregnancy. Nearly one-third (30.8%) of the respondents in the experimental area and around one-fifth (18.6%) of the respondents in the control area had history of 2 or more pregnancies. However, less respondents in the experimental area (11.5%) were found currently pregnant than that of the control area (17.3%) (Table 4.1.3).

Table 3: Marriage and reproductive characteristics of the respondents by experimental and control area

Characteristics	Respondents' n (%)		p-value
	Experimental (n=799)	Control (n=802)	
Respondents' age at marriage (in years)**			
≤14	383 (47.9)	277 (34.5)	
15-17	391 (48.9)	445 (55.5)	0.000*
≥18	25 (3.1)	80 (10.0)	
Mean (±sd)†	14.6 (±1.6)	15.2 (±1.8)	0.000*
Duration of marriage (in years)			
Mean (±sd)†	3.8 (±2.1)	3.0 (±2.1)	0.000*
Type of marriage**			
Marriage by own choice	387 (48.4)	329 (41.0)	
Marriage by parents' choice	412 (51.6)	473 (59.0)	0.003*
Pregnancy history**			
No pregnancy history	104 (13.0)	188 (23.4)	
Single pregnancy	449 (56.2)	465 (58.0)	0.000*
≥ 2 pregnancy	246 (30.8)	149 (18.6)	
Current pregnancy status**			
Pregnant	92 (11.5)	139 (17.3)	
Not pregnant	707 (88.5)	663 (82.7)	0.001*

**Significant difference*
***p-value was calculated using chi-square test*
† p-value was calculated using two sample mean test (independent t-test)

Section 4.2. Knowledge of the respondents' on family planning methods and consequences of early pregnancy

4.2.1. Knowledge of the respondents on ideal age of marriage, pregnancy, and on family planning

Respondents' knowledge on ideal age of marriage, ideal age at first childbirth, ideal time span for birth spacing, and on family planning methods by experimental and control areas are summarized in Table 4.2.1.

Most of the respondents in both the areas correctly mentioned the ideal age of first marriage for females, and ideal age of having first child for males. On the other hand, a significant increase in knowledge regarding the ideal age of first marriage for males and ideal age of first childbearing for females was found among respondents in the experimental areas than that of the control areas. Around three-fourths of the respondents from both experimental and control areas reported that the ideal time for birth spacing should be 2 years or more (99.9% vs. 99.3%) respectively.

Almost all of the respondents in both the areas had knowledge on oral pill. Significant difference in knowledge on other contraceptive methods including condom, injection, long acting reversible contraceptives (LARC), permanent methods, and emergency contraceptive pill (ECP) was observed in the experimental areas than in the control areas. Almost all of the respondents in both the areas knew about different sources of obtaining family planning methods (Table 4.2.1).

Table 4: Knowledge of the respondents' on ideal age of marriage, childbirth, birth spacing, and family planning methods by experimental and control areas

Characteristics	Respondents' n (%)		p value
	Experimental (n=799)	Control (n=802)	
Ideal age of marriage[#]			
For a man is 21 years or more**	684 (85.6)	622 (77.6)	0.000*
For a woman is 18 years or more**	788 (98.6)	788 (98.3)	0.552
Ideal age of having first child[#]			
For a man is 24 years or more**	578 (72.3)	561 (70.0)	0.291
For a woman is 20 years or more**	758 (94.9)	727 (90.7)	0.001*
Ideal birth spacing should be[#]			
At least 2 years or more§	798 (99.9)	796 (99.3)	0.124
Family planning method is needed[#]			
For better health of the mother**	342 (43.2)	227 (30.0)	0.000*
For better health of the children**	114 (14.4)	94 (12.4)	0.258
Knowing about FP methods[#]	n=799	n=798	
Oral pill ‡	794 (99.4)	795 (99.6)	0.479
Injection‡	785 (98.3)	714 (89.5)	0.000*
Condom‡	762 (95.4)	530 (66.4)	0.000*
Implant‡	715 (89.5)	447 (56.0)	0.000*
IUD‡	502 (62.8)	98 (12.3)	0.000*
Tubectomy‡	271 (33.9)	64 (8.0)	0.000*
Vasectomy‡	158 (19.8)	38 (4.8)	0.000*
Emergency contraceptive pill‡	141 (17.7)	98 (12.3)	0.003
Know the source of obtaining FP methods§			
Know	797 (99.7)	781 (97.9)	0.000*
Didn't know	2 (0.3)	17 (2.1)	

[#] Only the correct answers were calculated
**Significant difference*
‡p-value was calculated using two sample proportion test
***p-value was calculated using chi-square test*
§ P-value was calculated using Fisher's exact test

4.2.2. Knowledge of the respondents' on consequences of early pregnancy:

Knowledge difference on consequences of early pregnancy was found significantly higher among respondents in the experimental areas than that of the control areas.

Table 5: Knowledge difference of respondents' on consequences of early pregnancy by experimental and control areas

Characteristics	Respondents' n (%)		p value
	Experimental (n=799)	Control (n=802)	
Adolescent mothers potentially might face[#]			
Health risk of mother‡	753 (94.2)	680 (84.8)	0.000*
Health risk of baby ‡	619 (77.5)	242 (30.2)	0.000*
Might not continue job‡	25 (3.1)	4 (0.5)	0.000*
Education might stop‡	15 (1.9)	7 (0.9)	0.084
Early pregnancy can cause[#]			
Maternal death‡	405 (50.7)	315 (39.3)	0.000*
Neonatal death‡	282 (35.3)	222 (27.7)	0.001*
More chances of caesarean delivery‡	105 (13.1)	161 (20.1)	0.000*
More chances of having miscarriages‡	103 (12.9)	16 (2.0)	0.000*

[#] Only the correct answers were calculated
**Significant difference*
‡p-value was calculated using two sample proportion test

Section 4.3: Attitude of the respondents' towards family planning method use

A few (0.9%) of the respondents in the experimental areas and 4.5% of the respondents in the control areas did not support family planning method use. Major reasons for not supporting family planning method use included misconceptions and myths around side effects of methods (100% vs. 50%) in experimental area and control area respectively. A few of the respondents in control area did not support family planning method use due to religious prohibition and perceived risks of method failure.

A small proportion of the respondents' husbands in the experimental area (1.4%) opposed to use family planning methods which were much higher (4.8%) in the control area.

Around three-fourth of the respondents in the experimental area thought that both husband and wife should have the responsibility of using family planning methods, which was found much lower (45.9%) among respondents in the control area (Table 4.3.1).

Table 6: Attitude of the respondents' towards family Planning method use by experimental and control areas

Characteristics	Respondents' n (%)		p value
	Experimental (n=799)	Control (n=798)	
Support using FP methods§			
Supported	792 (99.1)	756 (94.7)	0.000*
Didn't support	7 (0.9)	36 (4.5)	
No comments	0 (0.0)	6 (0.8)	
Reason for not supporting FP method use##	n=7	n=36	
Misconceptions and myths	7 (100)	18 (50.0)	
Religious prohibition	0 (0.0)	2 (5.6)	
Perceived risks of method failure	0 (0.0)	1 (2.8)	
Family support increased with more children	0 (0.0)	1 (2.8)	
Others	0 (0.0)	18 (48.4)	
Husbands' support using FP method§	n=799	n=798	
Supported	786 (98.4)	728 (91.2)	0.000*
Didn't support	11 (1.4)	38 (4.8)	
Didn't know	2 (0.2)	32 (4.0)	
Reason for not supporting FP use##	n=11	n=38	
Misconceptions and myths	7 (63.6)	7 (18.4)	
Religious prohibition	0 (0.0)	5 (13.2)	
Perceived risk of method failure	1 (9.1)	0 (0.0)	
Family support increased with more children	0 (0.0)	9 (23.7)	
Others	0 (0.0)	18 (47.4)	
Didn't know	3 (27.3)	6 (15.8)	
Responsibility of FP method use**	n=799	n=802	
Respondents' responsibility	139 (17.4)	273 (34.0)	0.000*
Husband's responsibility	79 (9.9)	161 (20.1)	
Responsibility of both	581 (72.7)	368 (45.9)	

**Significant difference;*

##Multiple responses;

*** p-value was calculated using chi-square test*

§ P-value was calculated using Fisher's exact test

Section 4.4. Respondents' family planning method practices and unmet need for family planning

4.4.1. Spousal communication among respondents

Respondents in the experimental area discussed more about family planning methods with their husbands (97.5%) compared to their counterparts in the control area (84.7%).

Two-thirds of the respondents in the experimental area usually initiated discussion on FP by themselves which was found significantly lower (56.3%) among the respondents in the control area. More than 90% of the respondents husbands in both experimental and control areas were regularly staying with their wives. (Table 4.4.1).

Table 7. Spousal communication among the respondents regarding family planning method use by experimental and control areas

Characteristics	Respondents' n (%)		p value
	Experimental (n=799)	Control (n=802)	
Couples ever discussed about any FP method**			
Discussed	779 (97.5)	679 (84.7)	0.000*
Never discussed	20 (2.5)	123 (15.3)	
Discussion regarding FP methods usually initiated by**			
Respondents'	521 (66.9)	382 (56.3)	0.000*
Respondents' husbands	258 (33.1)	297 (43.7)	
Husband stays with respondents**			
#Stays regularly	729 (91.2)	753 (93.9)	0.043*
@Stays irregularly	70 (8.8)	49 (6.1)	

**Significant difference*
#Husband stays with the respondent regularly
@Husband does not stay with the respondent and visits her once a week/month or bimonthly
***p-value was calculated using chi-square test*
§ P-value was calculated using Fisher's exact test

4.4.2. Family planning method practices and unmet need for family planning

Higher proportions (72.6%) of respondents in experimental area were using modern family planning methods compared to the respondents in the control area (63.5%). Use of all types of short acting methods except oral pill, and long acting reversible contraceptive (LARC) methods was increased among respondents in the experimental area than that of the control area.

Respondents, who wanted to delay their next birth by two or more years but were not using any family planning methods, were considered having an unmet need for family planning. In case of pregnant women, if the current pregnancy was not expected and the respondents or their husbands were not using any contraceptive method before the pregnancy happened was considered as unmet need for FP. A significant difference in unmet need for FP was observed among respondents in the experimental area than that of the control areas (16.2% vs. 20.7%) (Table 4.4.2).

Table 8: Family planning method practices and unmet need for family planning among the respondents by experimental and control area

Characteristics	Respondents' n (%)		p-value
	Experimental n=799	Control n =802	
Ever used family planning methods**			
Used	749 (93.7)	709 (88.4)	0.000
Never used	50 (6.3)	93 (11.6)	*
Current use of modern FP methods**	n=749	n =709	
Using	544 (72.6)	450 (63.5)	0.000
Not using	205 (27.4)	259 (36.5)	*
Types of current method use§	n=544	n=450	
Pill	201 (37.0)	210 (46.7)	
Injection	195 (35.9)	142 (31.6)	
Condom	100 (18.4)	75 (16.7)	0.032
Implant	31 (5.7)	15 (3.3)	*
IUD	12 (2.2)	6 (1.3)	
Sterilization (Male/Female)	5 (0.9)	2 (0.4)	
Unmet need for family planning**	n=799	n=802	
Yes	129 (16.2)	166 (20.7)	0.019
No	670 (83.8)	636 (79.3)	*

**Significant difference*
***p-value was calculated using chi-square test*
§ P-value was calculated using Fisher's exact test

Section 4.5: In-depth information on knowledge, attitude, and family planning method practices among the respondents in the experimental area

Qualitative data was collected to acquire more in-depth information on the effect of MAG club in improving knowledge, attitude, and family planning methods practices among the respondents in the experimental areas. Respondents for qualitative interviews were purposively selected based on their number of club visits. Total 20 respondents were interviewed of which 10 attended 1-6 club sessions and other 10 attended 7 or more club sessions.

4.5.1. Socio-demographic characteristics of the qualitative interview respondents:

Out of 20 respondents, 14 of the respondents belonged to the age group 18 years and above and 6 were less than 18 years age group. Almost all of the respondents were Muslim (19 out of 20). 8 out of 20 respondents had 1-4 years of education, 5 had 5-9 years of education, while only 3 had completed 10 or more years of education. Remaining 4 of the respondents had no formal education. Among the 20 respondents, five were involved in income generating activities (Table 4.5.1).

Table 9: Socio-demographic characteristics of the qualitative interview respondents

Characteristics	Respondents (n=20)
Respondents' age (in years)	
≥ 18	14
<18	6
Respondents' education (in completed years)	
No formal education	4
1-4 years of schooling	8
5-9 years of schooling	5
≥ 10 years of schooling	3
Involved in income generating activities	
Involved	5
Not involved	15
Type of occupation	n=5
Day laborer	3
Garments worker	2

4.5.2. Married adolescents' girls club activities:

In-depth interviews (IDIs) with the respondents explored that the clubs created unique opportunity for them in exchanging their real life experiences with the peers that in turn helped in changing their beliefs regarding family planning behaviour and attitude. One of the respondents with an unintended pregnancy quoted:

> *"It was a mistake to have a child at this stage. If I had the baby at a later stage and I could use any method that would have been better, I did not know anything before. No one suggested me to take any contraceptive method or the*

*worth of using it. If I knew it before, I would have taken a method from the beginning. I have learned many things from the 'club apa (leader)' and 'icddr,b apa'. Not only that, now I have many new friends (peers) here; we can share our problems and discuss many issues among ourselves. I am aware about many things now that I didn't know before. This type of mistake will not be happening in my life again." (**Age- 14, Education- class 03, Occupation- Housewife, Mirpur slum**).*

Despite some difficulties in attending the club sessions regularly, all of the respondents (n=20) mentioned about enjoying the learning sessions very much. According to them, the strength of the club session was its teaching part, particularly on different issues related to family planning. They also reported that the interactive nature of the club sessions was much valuable that helped them to explore family planning method related misconceptions, fear, anxieties, and superstitions. At the time of conducting in-depth interviews, almost all of the respondents requested to continue the club sessions in future which manifest their warmth and attachment with the clubs.

Visiting the clubs and attending the club sessions was a space of freshening for the respondents. Furthermore, the respondents mentioned about a knowledge chain that had been developed throughout the intervention period among the neighbouring peers. This indicates that the respondents who participated in the club sessions shared their *take away home messages* with their peers who didn't attend the club sessions. One of the respondents mentioned:

"I will teach other girls what I have learnt from the club sessions. I will say that bearing a child at early age may create problem, so use a contraceptive method. If she is convinced then she will not bear a child at her early age but if she is not convinced then she will continue with early child bearing ***(Age-17, Education- class 7, Occupation- Garments worker, Mirpur slum)****"*

Some of the respondents brought their small child/children at the club with them. The snacks provided by the project after the club sessions often brought joys, in particular to the children of the respondents.

4.5.3. Knowledge and attitude on early marriage, early pregnancy, and family planning

Most of the respondents had learned about appropriate age at marriage, and age at first birth for man and woman from the club sessions which has made them more aware about the consequences of early marriage, early pregnancy and their adverse effects on mother and baby's health. One of the respondents quoted,

*"…learned a lot from the club sessions and misconceptions about family planning method use is now clearer to me. Also I came to know about appropriate age of marriage and appropriate age of child bearing for both female and male"… (****Age-17, Education-class 7, Occupation- Garments worker, Kamrangirchar slum****)*

Knowledge on delayed pregnancy, birth spacing, and birth limiting also influenced the respondents profoundly; especially those, who were married for one year (3 of the respondents) with no child and had planned to delay their first pregnancies at least for three to five years. The major factors that influenced them to delay first pregnancy were to attain economical solvency and physical capability/fitness to bear a child. They already had started using convenient methods at the time of data collection.

4.5.4. Spousal communication

According to the respondents' of IDI, a remarkable change was observed among husbands' participation in family planning through exchanging and sharing family planning related knowledge with their wives. More husbands were found using contraceptive methods at the time of evaluation of intervention and also discussed their active role in family planning related decision making with their wives, especially, in choosing FP methods and limiting births. One of the respondents stated that,

> *"My current pregnancy happened suddenly…after the birth of this baby, we will have two children. My husband have thought not having any more children after the second one….whether it is a boy or girl, he doesn't want any more children" (**Age-18, Education- no schooling, Occupation-Housewife, Mirpur slum**)*

Findings from the qualitative interviews also explored that after receiving FP related information from the club sessions, most of the respondents were able to place strong

opinion to their husbands in choosing and using FP methods, and their negotiation skills regarding discussion of FP issues with their husbands' were also increased. One of the respondents credited her participation in club with the following quote:

> *"I had two consecutive MR (menstrual regulation) within six months because my husband did not want the babies. I had to follow his order as he is the only breadwinner of the family. But I had suffered a lot both physically, mentally, and economically……then I talked with Apa (icddr,b field implementing team member) and she invited me to attend the married adolescent girls' club. I joined the club with the thought that I may learn something from there. And that was true and more than my expectation……..now I am able to discuss family planning issues like which is good, which is bad, with my husband…….and finally I was able to receive 'Implant' to delay my next pregnancy" (**Age-19, Education-class 06, Occupation- Housewife, Kamrangirchar slum**)*

4.5.5. Family planning method use

Among the respondents, who already had a child within one year of their marriage, showed more preference to receive long acting reversible contraceptive (LARC) methods for pregnancy spacing. Six of the respondents had thought about limiting their child birth. Respondents who were pregnant (3) or in lactational amenoerrheic period (1) were planned to use a suitable contraceptive method after their child birth and/or after initiation of their regular period. One of the respondents (pregnant) told:

*"I got married at an early age, if I knew about various contraceptive methods that are available for preventing birth, I would use them…" (**Age-14, Education- no schooling, Occupation- Housewife, Mirpur slum**)"*

Four of the respondents who received LARC showed strong motivation in selecting a long-term method for birth spacing, and they acknowledged the positive impact of the club sessions in their life that had helped them in gathering detailed knowledge and information about LARC, and also had communicated them with the *brac* community health volunteers, who, in some cases, had assisted them in obtaining the methods from the family planning service centres.

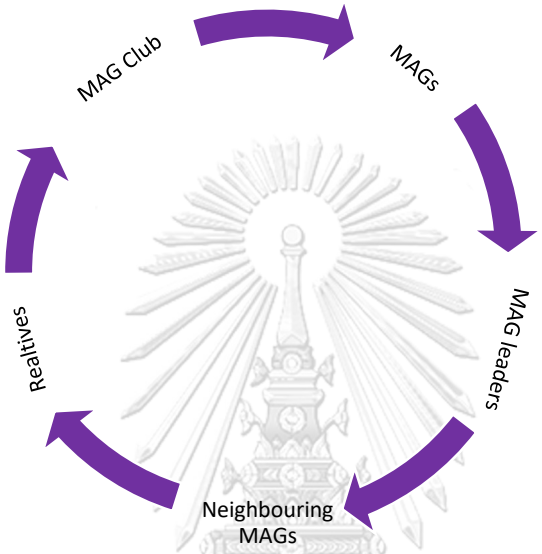
4.5.6. Peer network development

Respondents had opportunities to discuss and exchange their knowledge acquired from the club sessions with their peers. The pictorial family planning pocket book attached with a key ring – was an important point of discussion among the respondents and their peers attended the club sessions. They often gathered in a group and discussed the family planning pocket book contents. According to one of the respondents:

*"…usually after lunch and during load shedding we all met at our rooftop. My sister read the pocketbook for all of us and we gathered knowledge from that… (**Age- 14, Education- no schooling, Occupation- Housewife, Kamrangirchar slum**)*

Many married adolescent girls who could not attend the club sessions for several reasons, received first-hand family planning information from their peers who had the opportunity of attending the club sessions (Figure 15).

Figure 15 ***Development of peer network through knowledge sharing***



4.5.7. Challenges faced by the respondents in attending club sessions

Apart from the effectiveness, respondents also mentioned some user-related challenges to attend the club sessions. A few (2 out of 20) of the respondents mentioned that, it was difficult for them to attend the club sessions for an hour after conducting household work, like cooking, managing husbands, children, and family members. For some respondents, time for the club session was not appropriate, because they used to take lunch after their husbands' return from work at late afternoon which overlapped with the timing of the club session.

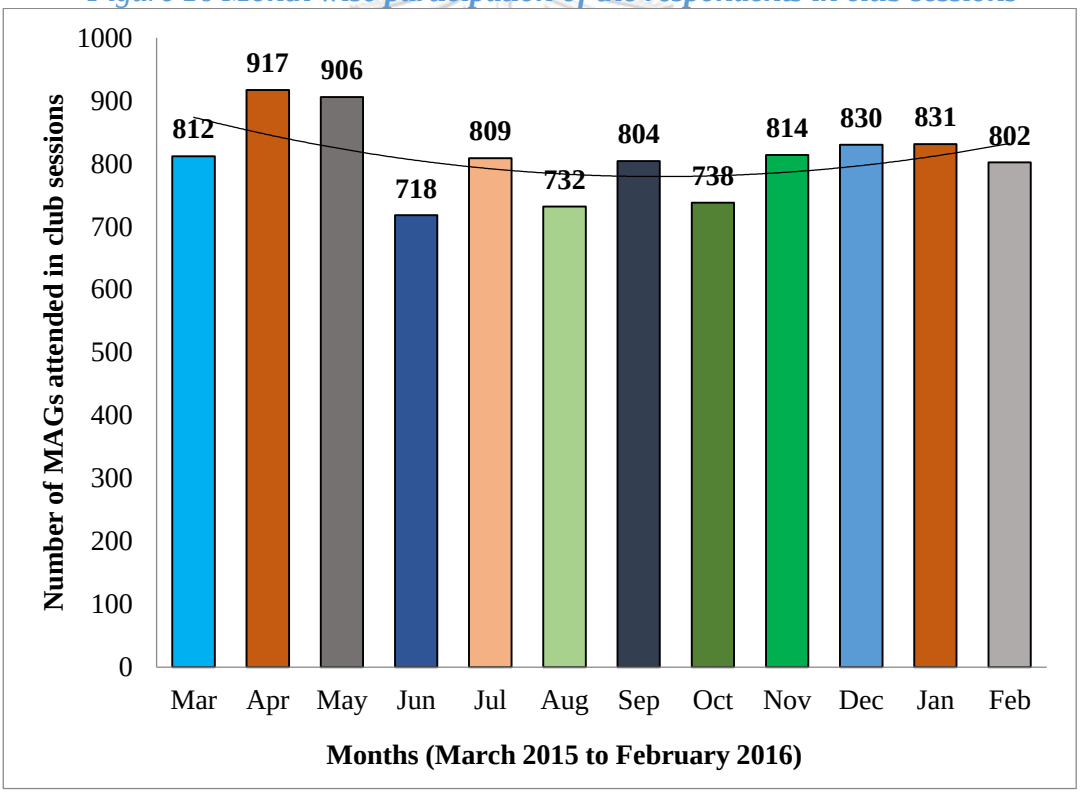
In some places in the study area, gas line for cooking was available with a better speed/flow only in the afternoon time, which hindered some of the respondents attending club sessions. Two out of 20 of the respondents felt that the sitting

arrangement in the clubs (on the floor using a floor mat) could have been better than what was arranged. Some (4 out of 20) participants mentioned that no electricity connection in their club venues made it difficult to stay them at the club for longer duration during summer.

Section 4.6: Implementation of MAG club activities among the experimental group

Each month, total 40 club sessions were conducted for the married adolescent girls in 10 club venues (4 in each venue) and at least 20 respondents were invited into per club session. On an average 809 respondents attended in the club sessions per month throughout the 12 months intervention period (Figure 16).

Figure 16 ***Month wise participation of the respondents in club sessions***



4.6.1. Club attendance of the respondents' and their feedback on the club activities:

Out of total 12 club sessions conducted during the one-year intervention period, all the respondents had attended at least one club session and approximately half of them (48 percent) had attended seven or more club sessions throughout the intervention period.

Among the different components of the club sessions, education on various topics including use of family planning methods, birth planning and spacing, consequences of early unintended pregnancy were reported as the most attractive component by majority of the club participants (97.6%). Assessment tests and awarding system (73.3%) was the following motivating thing to the respondents attended club sessions.

Regarding timing of club session conduction, majority of the respondents (91.5%) preferred the afternoon time. One-fifth of the respondents (22%) faced obstacle to attend the club sessions; major causes included household workload (53.4%), and difficulty in time management because of outside job (26.7%).

A major part of the respondents (87.9%) discussed the lessons learned from the club sessions among themselves (peers) and with their husbands (64.4%) and neighbors (66.8%) (Table 4.6.1).

Table 10: Club attendance of the respondents' and their feedback on the club activities

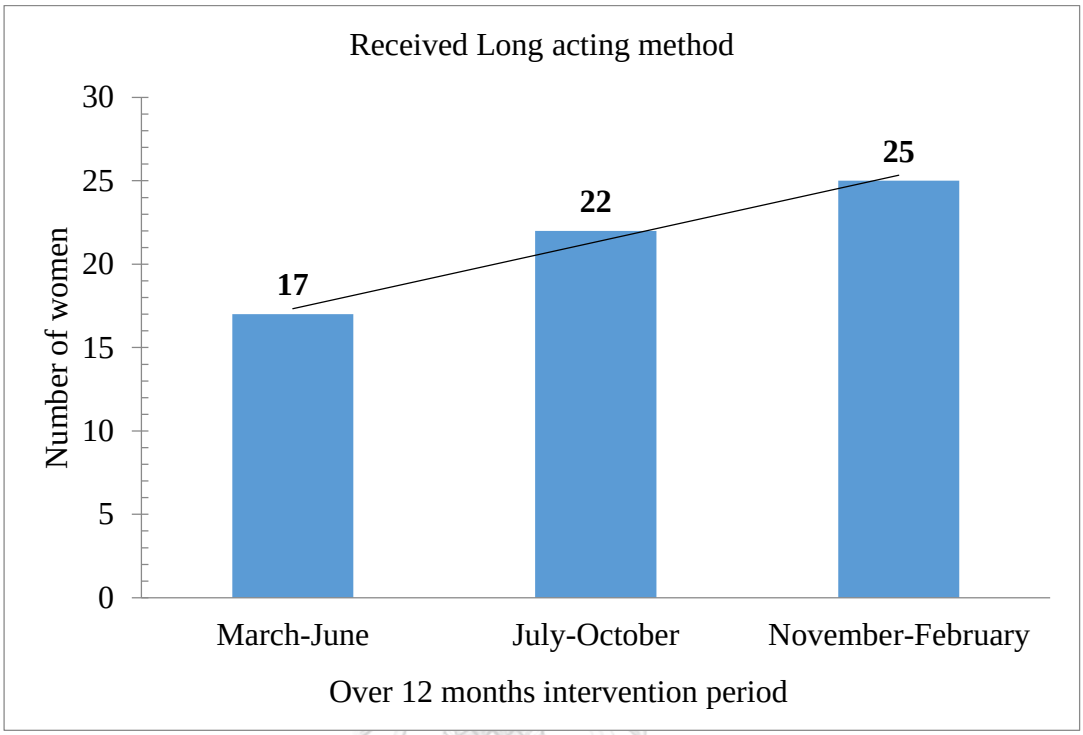
Characteristics	Respondents' n (%) (n=799)
Number of club sessions attended	
≤3	145 (18.2)
4-6	268 (33.5)
≥7	386 (48.3)
Attractive activities of the club sessions*	
Learning session	380 (97.6)
Assessment test and awarding system	586 (73.3)
Refreshment (snacks, juice)	583 (73.0)
Drama	530 (66.3)
Family planning pocket book	348 (43.6)
Opportunity to socialize with peers	191 (23.9)
BCC materials displayed in the club	158 (19.8)
Govt. family planning booklet	126 (15.8)
Indoor game facilities (ludo, carom)	64 (8.0)
Others	2 (0.3)
Timing of club session	
Appropriate	731 (91.5)
Not appropriate	68 (8.5)
Obstacles faced to attend club sessions	
Obstacles faced	176 (22.0)
No obstacles faced	623 (78.0)
Type of obstacles faced*	n=176
Household workload	94 (53.4)
Difficult to manage time due to job	47 (26.7)
Husband did not allow	14 (8.0)
Father/mother in-laws did not allow	12 (6.8)
Distance from residence to club	7 (4.0)

Characteristics	Respondents' n (%) (n=799)
Others	24 (13.6)
Characteristics	**Respondents' n (%) (n=799)**
Discussed club session topics with others	
Discussed	702 (87.9)
Not discussed	97 (12.1)
Discussed with*	n=702
Neighbor	469 (66.8)
Husband	451 (64.4)
Friends	100 (14.3)
Relatives	97 (13.8)
Sister	82 (11.7)
Mother	54 (7.7)
Sister in-law	49 (7.0)
Mother in-law	38 (5.4)
Others	14 (2.0)

**Multiple responses*

During the 12 months' intervention period, among all the club participants, 64 had received long acting reversible contraceptive (LARC) methods i.e. IUD and Implant. Acceptance of LARC of all 64 recipients was verified by checking their hospital card. **N**umber of respondents' for IUD and implant uptake was found gradually increased with each quarters of the intervention period (Figure 17).

Figure 17: ***Long acting reversible contraceptive (LARC) method uptake among the respondents in the experimental area over 12 month's intervention period***



CHAPTER V

DISCUSSION, CONCLUSION, AND RECOMMENDATIONS

Discussion

This was a quasi-experimental study with post-test only control group design. The study was conducted among the married adolescent girls aged 14-19 years in four urban slums of Dhaka metropolitan city (two experimental and two control areas) named Kamrangirchar, Mirpur, Rayerbazar, and Shekhertek. The study aimed to evaluate the effectiveness of an intervention, the married adolescent girls' club (MAG club), in terms of measuring differences in knowledge, attitude, practices, and unmet need for family planning among the married adolescent girls' in urban slums of Dhaka, Bangladesh. Duration of the study was 26 months, from July 2014 to August 2016; the intervention was implemented for 12 months, between March 2015 and February 2016.

Of the two groups, only one group was exposed to the intervention and data collection was done on both the groups after the intervention was over. The study was started with the basic assumption that the two groups were similar in characteristics at the beginning of the study and baseline data collection was not part of the intervention (Khanam, 1998). The study used both quantitative and qualitative methods for data collection. 1601 married adolescent girls were interviewed as part of the community survey (quantitative), 799 in the experimental area and 802 in the control area. In-

depth interviews with 20 married adolescent girls from the experimental area were conducted as part of qualitative data collection.

Findings from the study showed three-fourths of the respondents from both experimental and control areas were aged 18 years or more, and one-fourth was below 18 years. Though the legal age for marriage of a girl in Bangladesh is at least 18 years but a big part of adolescent girls are getting married before reaching that age. This is alarming because evidence shows that Bangladesh has the 4th highest prevalence rate of child marriage in the world, and the highest in Asia(UNICEF, 2015).

Around one-seventh of the respondents in the experimental area and one-tenth of the respondents in the control area had no formal education. Less than half of the respondents in both the areas had completed primary level of education only. This is another important issue that poorer families distinguish daughters as financial burdens and usually stop their education because of expenditure or marry them off as early as possible (UNICEF, 2015). Nineteen percent (19%) of the respondents in the control area found availed 9 or more years of education which was significantly higher than that of the experimental area (14%). The difference in higher education may have some effect in improved knowledge and practices among the respondents in the control area than that of the experimental area.

Child marriage brings an end to the education of girls and the dropout of girls from the education stream is an irretrievable loss to both society and economy(UNICEF, 2015). Common reasons of making the decision of marriage include sexual

harassment of the adolescent girls by boys and men, and preference for young brides in the society that command lower dowries to the bride's family(UNICEF, 2015). In most of the world, marriage and pregnancy is delayed as educational attainment increases. In general, the evidence of an association between child marriage, girls' education, and early pregnancy was found dreadfully strong(N. R. Council & Population, 2005).

A significant difference was observed between respondents' occupational status and the study areas. Findings showed that one-third of the respondents in the experimental area and one-seventh of the respondents in the control area were involved in income generating activities. Main occupation among the respondents in the control area was housemaid (41%); and handicrafts (52%) among respondents in the experimental area. However both of these services do not require any educational qualification and it is anticipated that this difference in occupational status and types of occupation might not have any major impact on study objectives. The human development cost of child marriage is huge, with the women's aptitude to empower and skill themselves and the low return to their productive abilities from the lack of schooling. The consequential economic loss to the nation's output and growth is too high to overlook(N. R. Council & Population, 2005).

Findings from the current study showed significant difference in age at marriage and duration of marriage among the respondents' in two areas. Nearly half of the respondents in both the areas got married by their own choice and more than half by their parents' choice.

More than half of the married adolescent girls in both experimental and control areas had history of at least one pregnancy. In addition, more respondents in the experimental area had history of two or more pregnancies than that of the control area. Interestingly, after completing the intervention, it was observed that more respondents in the control area than that of the experimental area were pregnant that demonstrated positive influence of the intervention regarding number of pregnancy among the respondents in the experimental area.

Almost all of the respondents from both intervention and control areas were aware about the ideal age of marriage for females and ideal age of having first child for males; no major differences in knowledge on these issues was observed between the groups. However, significant variation was found in knowledge regarding ideal age at marriage for males, ideal age of having first child for females, birth spacing, and necessity of family planning method use.

Other than oral pill, significant difference in knowledge on different short and long term contraceptive methods, their sources, and on potential problems of adolescent pregnancy was observed between the groups. This might be considered as an effect of the MAG club and its related components including the involvement of club leaders and the brac community health volunteers. Findings from the qualitative interviews also identified the uniqueness of the MAG clubs among the respondents that had given them the opportunity of gaining knowledge and exchanging their views with the club leaders and their peers. The respondents acknowledged the role of MAG club, club leaders, field implementing team members, and the community health volunteers

in improving their knowledge regarding family planning methods and relevant issues. Similar findings was revealed from a study conducted in Nairobi, Kenya where the mothers' club at informal setting helped in influencing the young mothers effectively to improve their knowledge of family planning and positive behaviour around childbirth (Ndirangu et al., 2015).

The current study also revealed significant difference in attitude towards family planning method use among the respondents of two groups. A few of the respondents in the experimental area and around 5% of the respondents in the control area didn't support family planning method use. Major reasons of which included misconceptions and myths around side effects of methods followed by religious prohibition and perceived risks of method failure. It was also observed that more husbands of the respondents in the control area didn't support family planning method use in compared to the husbands in the experimental area. More positive response regarding the combined responsibility of using family planning methods was found higher among respondents in the experimental area due to exposure to the club sessions and was significantly different from their counterparts in the control area.

Findings from the in-depth interviews conducted in the study showed that the respondents shared their knowledge and experience with their spouses and family members which in turn helped in developing awareness around the community. Lessons learned from the MAG clubs also helped the respondents in changing their thoughts, beliefs, behaviour and attitude regarding family creation, extension, and planning. A multi-country study involving fieldwork in four countries including

Ethiopia, Uganda, Nepal and Viet Nam also revealed similar findings that girls clubs are popular approach to promote adolescent girls wellbeing in many ways like, awareness of sexual and reproductive health rights, safe place to discuss early marriage, early pregnancy and many other issues of the adolescents(ukaid, 2015).

Discussion on family planning methods with their husbands was found significantly higher among the respondents in the experimental area compared to the respondents in the control area. In Bangladesh, traditionally, male involvement is negligible in family planning issues. However, a notable change was observed among the respondents' spouses regarding their participation in family planning issues. More respondents' in the experimental area had developed the confidence in initiating discussions on family planning related issues with their husbands. The MAG club played an important role in providing a trusted space for the respondents in developing negotiation skills with their husbands especially in choosing and using contraceptive methods that resulted in higher use of male methods (condoms) in the experimental area. This findings was supported by Malawi experience which showed, being a part of Teen Mother's Clubs (TMC), young mothers became more independent, which helped them to bring necessary positive life choices(Mayzel, Kachala, & Kerner, 2009).

Current use of any modern contraceptive methods was found higher among respondents in the experimental area than that of the control area. Additionally, uptake of long acting reversible contraceptive (LARC) methods was gradually increased during the intervention period and found higher among respondents in the

experimental area compared to the respondents in the control area. Respondents of in-depth interviews in the experimental area, who received long acting reversible contraceptive methods, accredited the positive role of the clubs in their life that helped them in getting extensive information about LARC and facilitated their communication with the brac community health volunteers. Not only in increasing the uptake of LARC, brac community health volunteers were found helpful in motivating the respondents, their spouses and family members in bringing the married adolescent girls to the MAG club. Similar finding was shown in a study in Malawi that involving community-based volunteers with necessary training and logistics can provide youth friendly family planning services(Mayzel et al., 2009).

A knowledge linkage was established between club participants and their peers who did not get the opportunity of attending club sessions. The club participants offered more support, and encouraged their peers who could not attend the clubs, to use family planning methods. Findings from other study also showed that awareness-raising through some common platform like clubs, schools, in combination with other approaches, such as peer education, involvement of community workers, and promotion of education or livelihoods brought overall positive changes at the community level(S. Amin et al., 2016).

It should be noted that all the outcome indicators resulted after the implementation of intervention among the respondents between experimental and control area might be affected to some extent by some of the socio-demographic factors of the respondents' and their husbands' including education, occupation, types of occupation, age at

marriage, duration of marriage, and pregnancy history. Some of the findings from the study may also be influenced by the sampling error due to lack of proper randomization during conducting the survey.

Strengths of the study

- Although several programs to improve sexual and reproductive health of adolescents are being implemented in Bangladesh, evidence is deficient to identify appropriate interventions due to lack of documentation. There is also a lack of Sexual and Reproductive Health (SRH) programs that are exclusively focused on married adolescent girls in urban slums. This is the first study conducted among married adolescent girls in urban slums of Bangladesh which documented the effectiveness of MAG club in improving their knowledge, attitude and family planning method practices.
- Because of quasi experimental design, the study included the idea of having any manipulations the experimenter so chosen. Also, using self-selected groups minimized the chance of ethical and conditional concerns while conducting the study (DeRue, Nahrgang, Hollenbeck, & Workman, 2012).
- The study used qualitative methods for data collection in conjunction with quasi-experimental design that helped in gaining better insights into the effectiveness of the MAG club; this was one of the strengths of the study.
- Hospital records of each of the respondents who did receive long acting reversible contraceptive methods during the intervention period were reviewed by the field implementing team members for validation purpose. This was one of the strengths of the study.

Limitations of the study

The study was not without limitations:

- First of all, the method was applied after the intervention has already finished, so the study suffered substantially from the lack of baseline data. This was one of the major limitations of the study.
- Another key limitation was the lack of random assignment in the study that posed many challenges in terms of internal validity. This deficiency in randomization made it harder to rule out the possibility of confounding bias, which hindered the ability to draw causal inferences(White & Sabarwal, 2014).
- Findings from the study may also provide weaker evidence because of the lack of randomness. Because the study design was based on certain assumptions, conclusions made about causality on the basis of the study were less definitive (Harmon, MORGAN, GLINER, & HARMON, 2000; White & Sabarwal, 2014).
- There was minimum participation of the married adolescent girls' in behaviour change communication (BCC) materials development, which was one of the important limitations of the study.
- brac schools were used as MAG club venues and no separate club venues were particularly formed for this intervention. Therefore, difficulties regarding availability of the venues, club session timing, and interior decoration were raised during the entire intervention period.

- Findings of this study may not be generalizable to married adolescent girls living in rural areas of Bangladesh. Because of self-reported data, there might have possibility of recall or response bias that may influence the study findings.

Conclusions

The study findings revealed that a noteworthy number of married adolescent girls had received extensive information on family planning from the MAG clubs that had significant effects in their reproductive lives. The MAG club empowered the respondents with the rare opportunity to assemble in a common platform to socialize and to share their experiences and challenges related to early marriage, early pregnancy and family planning. The MAG club has also provided the opportunity to open up, spread time and make a social network with their peers.

The teaching part of the club sessions, particularly on different issues related to family planning was found as the most enjoyable component of the club activities to the married adolescent girls. The interactive nature of the club sessions was identified as much valuable part to the club participants that helped them to explore family planning method related misconceptions, fear, anxieties, and superstitions. Visiting the clubs and attending the club sessions was also found as a space of freshening for the respondents. A knowledge chain was developed throughout the intervention period among the neighboring peers that reflected in conveying the messages and information by the married adolescent girls with their peers who didn't attend the club sessions.

Knowledge difference on appropriate age at marriage, age at first birth was observed with club session attendance. These lessons learned from the club sessions made the respondents more aware about the consequences of early marriage, early pregnancy and their adverse effects on mother and baby's health. Knowledge on delayed pregnancy, birth spacing, and birth limiting also influenced the respondents profoundly; especially those, who had no child at the time of conducting the interview, expressed their planning to delay the first pregnancy at least for three to five years during the in-depth interviews. Major causes identified for delaying first pregnancy were attainment of economical solvency and physical capability/fitness of the respondents' in bearing a child.

A remarkable change was observed among the respondents' husbands' participation in family planning through exchanging and sharing family planning related knowledge with their better halves. Active participation in family planning related discussion and male participation in family planning method use during the intervention period was noticeable.

Over the intervention period, more preference to receive long acting reversible contraceptive (LARC) methods was found among the respondents as a mean of birth spacing. Respondents, who were pregnant or in lactational amenoerrheic period during conducting the interviews, expressed their views of using a suitable contraceptive method after their child birth and/or after initiation of their regular menstruation.

The respondents who received long acting reversible contraceptive methods during the intervention period showed their strong motivation in selecting a long-term method for birth spacing, and acknowledged the positive impact of the club sessions in their life that helped them in gathering detailed knowledge and information about LARC, and had facilitated their communication with the *brac* community health volunteers, who, in some cases, had assisted them in obtaining the methods from the family planning service centres.

Adolescent fertility is a major social and health concern in Bangladesh. Through implementation of an appropriate intervention, married adolescent girls need to be provided with increased access to correct information about family planning services. Along with family planning, the deleterious effects of early marriage, early pregnancy and motherhood are also important messages that need to convey to the married adolescent girls in urban slums(Statistics, 2010). Knowledge and awareness regarding sexual and reproductive health, and family planning through the MAG club could be an effective way to intervene and to scale up married adolescent's sexual and reproductive health (SRH) in urban slums of Bangladesh.

Recommendations

Despite a range of efforts, child marriage before the age of 18, pregnancy rates before the age of 20, and family planning method utilization have not changed significantly for the poorest and least educated married adolescent girls in urban slums. Considering these major issues, this study lead to some recommendations:

1. ***Prevention of early marriage and early pregnancy:***
    - Program planners and managers should identify and target the geographic 'hotspots' – areas with concentrations of girls at risk of child marriage and pregnancy, and their levels of satisfied demand for family planning information and services.
    - Birth and marriage registration systems should be strengthened to support the enforcement of child marriage laws.
    - Strengthening and implementing laws on child marriage should be part of a national action plan, and greater efforts are needed to raise awareness at the community level to protect girls from child marriage and early pregnancy.

2. ***Policy and programmatic implications:***
    - Married adolescent girls' health should be addressed as a national priority. Intense efforts in policy, legislation, and program implementation can exhibit the path to improved and more equitable access to family planning information and services for them.
    - Further analysis of the determinants of child marriage and pregnancies before age 18 (demographic, cultural, social and economic factors) should

be done to better inform policies and programmes, and to strengthen the evidence base and programmatic linkages with education, health and poverty reduction.

- Policy makers, program planners and implementers can use this evidence base by designing and implementing married adolescent-friendly programs and platforms that can address the demands created by the target group and promote a package of interventions to endorse utilization of services.

3. Promoting uptake of long acting reversible contraceptive method:

- Long acting reversible contraceptive (LARC) users are still very low. Effective intervention measures should be taken to improve the uptake of long acting methods among the target population.

4. Sustainability

- To carry out the activities of the MAG club, public-private partnership and involvement of key gatekeepers and stakeholders, such as, in-laws, teachers, religious leaders, and local level political leaders at the outset should be ensured.
- For further scale up of the intervention, the target population needs to be involved from the beginning and in all aspects of programme design.
- Pre-testing of all messages for behavior change communication (BCC) is essential, and relevant supportive networking and training activities need to be carried out throughout the life of the project.

5. Future research:

- To measure the effect of integrated intervention package in terms of reducing unmet need for family planning and unintended pregnancy, a longer duration follow up research study is strongly recommended.

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APPENDIX

Annex I

Consent Form for Married Adolescent Girls

(Emancipated Minor-14+ to below 18)

(Quantitative Survey)

Study Title: Effectiveness of the family planning intervention to improve reproductive health of married female adolescents in urban slums of Dhaka, Bangladesh: A Quasi-Experimental Study

Principal Investigator's name: Dr. Fauzia Akhter Huda

Organization: Maternal and Child Health Division, icddr,b

Assalamualaikum/Adab. I *(please tell your name)* have come from an international research centre called icddr,b (Cholera Hospital) in Mohakhali, Dhaka. You are invited to take part in a research study. Before you decide whether to participate, you need to understand why the research is being done and what it would involve. Please take the time to read or to listen as I read the following information. Please ask me if there is anything that is not clear, or if you would like more information. When all of your questions have been answered and you feel that you are clear about the study and have willingness and time to participate in the study, I will request you to sign the consent form. You will be given a signed copy of this consent form to keep. We have

obtained permission from your parent/guardian for you to take part in this interview. However, you are still free to decide whether you want to participate or not.

What is the study?

We are doing a research study related to the reproductive health of married adolescent girls in urban slums. There is very little knowledge about the barriers to accessing FP services that married adolescent girls in urban slums in Bangladesh face, especially who are living in poor, urban areas. We are currently conducting a study to help us better understand unintended pregnancy and need for FP services among married adolescent girls living in urban slums. This research will provide evidence for how we can improve access to FP services and reduce unintended pregnancy.

Why have I been invited to take part?

You have been invited to take part because you are a married girl between the ages of 14-18 living in this area of Dhaka.

What will happen if I take part?

If you agree to take part in the study, we will ask you to answer the questions from this questionnaire which includes information related to your socio-demographic and household characteristics, reproduction and pregnancy, knowledge and perception on FP, fertility preferences, spousal communication on FP methods, and barriers of using FP methods etc.

How long will interview last?

The interview would take about one hour of your time.

Risks

By participating in this study, you will not be subjected to any physical risk. However, you may experience some emotional or psychological discomfort in answering some of the questions due to the sensitive topic of the study. You might feel some fear that if your husband or family members or community members find out that you are part of this study; some harm could come to you. If you feel any of these fears or have any hesitations, please let me know. A risk may be a breach of confidentiality (something you say is accidentally provided to others) but we will take precautions to see that this does not happen.

Benefits

There are no direct benefits or any direct financial compensation to you for participating in the study. You may find an indirect benefit in knowing you have participated in an important study that could help others in the future. In addition, findings of this study will be used to improve access to FP services for married adolescent girls living in urban slums.

Will my participation in the study be kept confidential?

The interview will not take place in the presence of your family members. We will take the interview in a private place at your home or any preferable place suggested

by you so that you can feel comfortable responding to all questions without any hesitation and interruption. I assure that the information you provide will remain confidential and will be kept private. Only the study team will have access to study forms, which will be stored in locked cabinets at our offices. Three years after the study, forms will be destroyed. Your personal identification, including your name and address, will not be recorded in the questionnaire during data collection. We will not share any of your information with your husband, parents or anyone known to you. Your privacy, anonymity, and confidentiality will be maintained at all times and your name will not be used in any report.

What are my rights as a research participant/subject?

Participation in this survey is entirely voluntary. You have the option to accept or refuse participation. You can also choose not to answer any individual question, or stop the interview at any point in time. If you decide to take part, you are free to skip any questions. If you choose not to participate, it will in no way affect you or the services you receive. However, we hope that you will participate in this survey and answer the questions as fully as possible because your perceptions are valuable to us and to this research.

What will I receive for participating?

You will not be paid for your participation in this study.

What will happen to the results of the research study?

A dissemination workshop will be carried out at the conclusion of the study. The study findings will be disseminated through presentations at national and international conferences and meetings and will be submitted to different journals for publication.

Who has reviewed the study for ethical issues?

This study has been reviewed and approved by the IRB of the Population Council and IRB of icddr,b.

What if I need more information?

If you have a concern about any aspect of the study, you should ask to speak to the researchers who will do their best to answer your questions. You may contact IRB Secretariat, RA, M. A. Salam Khan, phone No: 9827001-10, Ext. 3206 or Dr. Fauzia Akhter Huda, Phone: 9827001-10, Ext. 2257.

If you agree to participate in the survey, we would like to be able to contact you again for an additional and longer interview. If you are selected for a second and longer interview, it is important to understand that these longer interviews will include both you and your husband. However, that will only be done if you are selected during random sampling and both you and your husband agree to be interviewed. I would like to inform you that both you and your husband's interview will be taken separately by two different individuals. Even if you agree now that we may contact you later for an additional interview, you can decline to be interviewed at that time, if there is any problem.

What if there is a problem?

Any complaint about the way you have been treated during the study or any possible harm you might suffer will be addressed. Please contact IRB Secretariat, RA, M. A. Salam Khan, phone No: 9827001-10, Ext. 3206 or Dr. Fauzia Akhter Huda, Phone: 9827001-10, Ext. 2257.

If you agree to our proposal of enrolling you in our study, please indicate that by putting your signature or your left thumb impression at the specified space below.

Thank you for your cooperation.

Subject Statement

I have read the Informed Consent for this study. I have received an explanation of the planned research, procedures, risks and benefits and privacy of my personal information. I agree to be contacted at a later date and asked if I am willing to be interviewed. I understand that I do not have to agree and that if I agree now to be contacted in the future, I can always decide not to be interviewed at that time.

Now I agree to take part in this survey and I understand that my participation in this study is completely voluntary.

_____ _____

Your Signature or left thumb impression Date

_____ _____

Signature or left thumb impression of Date

Parent/ Guardian/ Attendant

Investigator or person who conducted informed consent discussion

I confirm that I have personally explained the nature and extent of the planned research, study procedures, potential risks and benefits, and confidentiality of personal information.

_____ _____

Signature of the PI or his/her representative Date

(NOTE: In case of representative of the PI, she/he shall put her/his full name and designation and then sign)

Annex –II

Consent Form for Married Adolescent Girls (18+ years)

(Quantitative Survey)

Study Title: Effectiveness of the family planning intervention to improve reproductive health of married female adolescents in urban slums of Dhaka, Bangladesh: A Quasi-Experimental Study

Principal Investigator's name: Dr. Fauzia Akhter Huda

Organization: Maternal and Child Health Division, icddr,b

Assalamualaikum/Adab. I *(please tell your name)* have come from an international research centre called icddr,b (Cholera Hospital) in Mohakhali, Dhaka. You are invited to take part in a research study. Before you decide whether to participate, you need to understand why the research is being done and what it would involve. Please take the time to read or to listen as I read the following information. Please ask me if there is anything that is not clear, or if you would like more information. When all of your questions have been answered and you feel that you are clear about the study and have willingness and time to participate in the study, I will request you to sign the consent form. You will be given a signed copy of this consent form to keep. However, you are still free to decide whether you want to participate or not.

What is the study?

We are doing a research study related to the reproductive health of married adolescent girls in urban slums. There is very little knowledge about the barriers to accessing FP services that married adolescent girls in urban slums in Bangladesh face, especially who are living in poor, urban areas. We are currently conducting a study to help us better understand unintended pregnancy and need for FP services among married adolescent girls living in urban slums. This research will provide evidence for how we can improve access to FP services and reduce unintended pregnancy.

Why have I been invited to take part?

You have been invited to take part because you are a married girl aged over 18 years living in this area of Dhaka.

What will happen if I take part?

If you agree to take part in the study, we will ask you to answer the questions from this questionnaire which includes information related to your socio-demographic and household characteristics, reproduction and pregnancy, knowledge and perception on FP, fertility preferences, spousal communication on FP methods, and barriers of using FP methods etc.

How long will interview last?

The interview would take about one hour of your time.

Risks

By participating in this study, you will not be subjected to any physical risk. However, you may experience some emotional or psychological discomfort in answering some of the questions due to the sensitive topic of the study. You might feel some fear that if your husband or family members or community members find out that you are part of this study; some harm could come to you. If you feel any of these fears or have any hesitations, please let me know. A risk may be a breach of confidentiality (something you say is accidentally provided to others) but we will take precautions to see that this does not happen.

Benefits

There are no direct benefits or any direct financial compensation to you for participating in the study. You may find an indirect benefit in knowing you have participated in an important study that could help others in the future. In addition, findings of this study will be used to improve access to FP services for married adolescent girls living in urban slums.

Will my participation in the study be kept confidential?

The interview will not take place in the presence of your family members. We will take the interview in a private place at your home or any preferable place suggested by you so that you can feel comfortable responding to all questions without any hesitation and interruption. I assure that the information you provide will remain confidential and will be kept private. Only the study team will have access to study forms, which will be stored in locked cabinets at our offices. Three years after the

study, forms will be destroyed. Your personal identification, including your name and address, will not be recorded in the questionnaire during data collection. We will not share any of your information with your husband, parents or anyone known to you. Your privacy, anonymity, and confidentiality will be maintained at all times and your name will not be used in any report.

What are my rights as a research participant/subject?

Participation in this survey is entirely voluntary. You have the option to accept or refuse participation. You can also choose not to answer any individual question, or stop the interview at any point in time. If you decide to take part, you are free to skip any questions. If you choose not to participate, it will in no way affect you or the services you receive. However, we hope that you will participate in this survey and answer the questions as fully as possible because your perceptions are valuable to us and to this research.

What will I receive for participating?

You will not be paid for your participation in this study.

What will happen to the results of the research study?

A dissemination workshop will be carried out at the conclusion of the study. The study findings will be disseminated through presentations at national and international conferences and meetings and will be submitted to different journals for publication.

Who has reviewed the study for ethical issues?

This study has been reviewed and approved by the IRB of the Population Council and IRB of icddr,b.

What if I need more information?

If you have a concern about any aspect of the study, you should ask to speak to the researchers who will do their best to answer your questions. You may contact IRB Secretariat, RA, M. A. Salam Khan, phone No: 9827001-10, Ext. 3206 or Dr. Fauzia Akhter Huda, Phone: 9827001-10, Ext. 2257.

If you agree to participate in the survey, we would like to be able to contact you again for an additional and longer interview. If you are selected for a second and longer interview, it is important to understand that these longer interviews will include both you and your husband. However, that will only be done if you are selected during random sampling and both you and your husband agree to be interviewed. I would like to inform you that both you and your husband's interview will be taken separately by two different individuals. Even if you agree now that we may contact you later for an additional interview, you can decline to be interviewed at that time, if there is any problem.

What if there is a problem?

Any complaint about the way you have been treated during the study or any possible harm you might suffer will be addressed. Please contact IRB Secretariat, RA, M. A.

Salam Khan, phone No: 9827001-10, Ext. 3206 or Dr. Fauzia Akhter Huda, Phone: 9827001-10, Ext. 2257.

If you agree to our proposal of enrolling you in our study, please indicate that by putting your signature or your left thumb impression at the specified space below.

Thank you for your cooperation

Subject Statement

I have read the Informed Consent for this study. I have received an explanation of the planned research, procedures, risks and benefits and privacy of my personal information. I agree to be contacted at a later date and asked if I am willing to be interviewed. I understand that I do not have to agree and that if I agree now to be contacted in the future, I can always decide not to be interviewed at that time.

Now I agree to take part in this survey and I understand that my participation in this study is completely voluntary.

_____ _____

Your Signature or left thumb impression Date

Investigator or person who conducted informed consent discussion

I confirm that I have personally explained the nature and extent of the planned research, study procedures, potential risks and benefits, and confidentiality of personal information.

_____ _____

Signature of the PI or his/her representative Date

(NOTE: In case of representative of the PI, she/he shall put her/his full name and designation and then sign)

Annex –III

Consent Form for Married Adolescent Girls

(Emancipated Minor-14+ to below 18)

(In-depth Interview)

Study Title: Effectiveness of the family planning intervention to improve reproductive health of married female adolescents in urban slums of Dhaka, Bangladesh: A Quasi-Experimental Study

Principal Investigator's name: Dr. Fauzia Akhter Huda

Organization: Centre for Reproductive Health, icddr,b

Assalamualaikum/Adab. I *(please tell your name)* have come from an international research centre called icddr,b (Cholera Hospital) in Mohakhali, Dhaka. You are invited to take part in a research study. Before you decide whether to participate, you need to understand why the research is being done and what it would involve. Please take the time to read or to listen as I read the following information. Please ask me if there is anything that is not clear, or if you would like more information. When all of your questions have been answered and you feel that you are clear about the study and have willingness and time to participate in the study, I will request you to sign the consent form. You will be given a signed copy of this consent form to keep. We have obtained permission from your parent/guardian for you to take part in this interview. However, you are still free to decide whether you want to participate or not.

What is the study?

We are doing a research study related to the reproductive health of married adolescent girls in urban slums. There is very little knowledge about the barriers to accessing FP services that married adolescent girls in urban slums in Bangladesh face, especially who are living in poor, urban areas. We are currently conducting a study to help us better understand unintended pregnancy and need for FP services among married adolescent girls living in urban slums. This research will provide evidence for how we can improve access to FP services and reduce unintended pregnancy.

Why have I been invited to take part?

We are inviting you to participate in this study because you are a married girl between the ages 14-18, living in this area of Dhaka and you have a history of attending the *Knowledge Hub*, the club sessions in the married adolescent girls' club that had conducted in this area.

What will happen if I take part?

If you agree to be interviewed, and if you agree that we may also interview your husband, we will then ask your husband if he is willing to be interviewed. If you consent to this interview, we will ask a range of questions related to your age, schooling, religion, number of children you have, number of children you want, whether you use anything to prevent pregnancy now, or have used something to prevent pregnancy in the past, whether or not you and your husband talk about family planning etc. Although we will be interviewing both you and your husband, we will do our best to maintain both you and your husband's privacy. We will conduct

separate interviews of you and your husband. However, unless there is another location you suggest, the interviews will be conducted in your home. We do not know if the interview will be overheard or interrupted. However, if we are interrupted, we will stop and continue the interview at another time. We will not reveal the things you say to your husband, nor will we reveal to you what your husband says. We would like to record the interview on audio tape and take notes so that we don't forget the valuable information you give. Again, you do not have to be recorded if you are not comfortable.

How long will interview last?

The interview would take about one hour to one hour and thirty minutes of your time.

Risks

By participating in this study, you will not be subjected to any physical risk. However, you may experience some emotional or psychological discomfort in answering some of the questions due to the sensitive topic of the study. You might feel some fear that if your husband or family members or community members find out that you are part of this study; some harm could come to you. If you feel any of these fears or have any hesitations, please let me know. A risk may be a breach of confidentiality (something you say is accidentally provided to others) but we will take precautions to see that this does not happen.

Benefits

There are no direct benefits or any direct financial compensation to you for participating in the study. You may find an indirect benefit in knowing you have participated in an important study that could help others in the future. In addition, findings of this study will be used to improve access to FP services for married adolescent girls living in urban slums.

Will my participation in the study be kept confidential?

The interview will not take place in the presence of your family members. We will take the interview in a private place at your home or any preferable place suggested by you so that you can feel comfortable responding to all questions without any hesitation and interruption. I assure that the information you provide will remain confidential and will be kept private. Only the study team will have access to study forms, which will be stored in locked cabinets at our offices. Three years after the study, forms will be destroyed. Your personal identification, including your name and address, will not be recorded in the questionnaire during data collection. We will not share any of your information with your husband, parents or anyone known to you. Your privacy, anonymity, and confidentiality will be maintained at all times and your name will not be used in any report.

What are my rights as a research participant/subject?

Participation in this survey is entirely voluntary. You have the option to accept or refuse participation. You can also choose not to answer any individual question, or stop the interview at any point in time. If you decide to take part, you are free to skip

any questions. If you choose not to participate, it will in no way affect you or the services you receive. However, we hope that you will participate in this survey and answer the questions as fully as possible because your perceptions are valuable to us and to this research.

What will I receive for participating?

You will not be paid for your participation in this study.

What will happen to the results of the research study?

A dissemination workshop will be carried out at the conclusion of the study. The study findings will be disseminated through presentations at national and international conferences and meetings and will be submitted to different journals for publication.

Who has reviewed the study for ethical issues?

This study has been reviewed and approved by the IRB of the Population Council and IRB of icddr,b.

What if I need more information?

If you have a concern about any aspect of the study, you should ask to speak to the researchers who will do their best to answer your questions. You may contact IRB Secretariat, RA, M. A. Salam Khan, phone No: 9827001-10, Ext. 3206 or Dr. Fauzia Akhter Huda, Phone: 9827001-10, Ext. 2257.

What if there is a problem?

Any complaint about the way you have been treated during the study or any possible harm you might suffer will be addressed. Please contact IRB Secretariat, RA, M. A. Salam Khan, phone No: 9827001-10, Ext. 3206 or Dr. Fauzia Akhter Huda, Phone: 9827001-10, Ext. 2257.

If you agree to our proposal of enrolling you in our study, please indicate that by putting your signature or your left thumb impression at the specified space below.

Thank you for your cooperation

Subject Statement

I have read the Informed Consent for this study. I have received an explanation of the planned research, procedures, risks and benefits and privacy of my personal information. I agree to be contacted at a later date and asked if I am willing to be interviewed. I understand that I do not have to agree and that if I agree now to be contacted in the future, I can always decide not to be interviewed at that time.

Now I agree to take part in this survey and I understand that my participation in this study is completely voluntary.

_____ _____

Your Signature or left thumb impression Date

_____ _____

Signature or left thumb impression of Parent/ Guardian/ Attendant

Date

Investigator or person who conducted informed consent discussion

I confirm that I have personally explained the nature and extent of the planned research, study procedures, potential risks and benefits, and confidentiality of personal information.

_____ _____

Signature of the PI or his/her representative

Date

(NOTE: In case of representative of the PI, she/he shall put her/his full name and designation and then sign)

Annex –IV

Consent Form for Married Adolescent Girls (18+ years)

(In-depth Interview)

Study Title: Effectiveness of the family planning intervention to improve reproductive health of married female adolescents in urban slums of Dhaka, Bangladesh: A Quasi-Experimental Study

Principal Investigator's name: Dr. Fauzia Akhter Huda

Organization: Maternal and Child Health Division, icddr,b

Assalamualaikum/Adab. I *(please tell your name)* have come from an international research centre called icddr,b (Cholera Hospital) in Mohakhali, Dhaka. You are invited to take part in a research study. Before you decide whether to participate, you need to understand why the research is being done and what it would involve. Please take the time to read or to listen as I read the following information. Please ask me if there is anything that is not clear, or if you would like more information. When all of your questions have been answered and you feel that you are clear about the study and have willingness and time to participate in the study, I will request you to sign the consent form. You will be given a signed copy of this consent form to keep. However, you are still free to decide whether you want to participate or not.

What is the study?

We are doing a research study related to the reproductive health of married adolescent girls in urban slums. There is very little knowledge about the barriers to accessing FP services that married adolescent girls in urban slums in Bangladesh face, especially who are living in poor, urban areas. We are currently conducting a study to help us better understand unintended pregnancy and need for FP services among married adolescent girls living in urban slums. This research will provide evidence for how we can improve access to FP services and reduce unintended pregnancy.

Why have I been invited to take part?

We are inviting you to participate in this study because you are a married girl between the ages 14-18, living in this area of Dhaka and you have a history of attending the *Knowledge Hub*, the club sessions in the married adolescent girls' club that had conducted in this area.

What will happen if I take part?

If you agree to be interviewed, and if you agree that we may also interview your husband, we will then ask your husband if he is willing to be interviewed. If you consent to this interview, we will ask a range of questions related to your age, schooling, religion, number of children you have, number of children you want, whether you use anything to prevent pregnancy now, or have used something to prevent pregnancy in the past, whether or not you and your husband talk about family planning etc. Although we will be interviewing both you and your husband, we will do our best to maintain both you and your husband's privacy. We will conduct

separate interviews of you and your husband. However, unless there is another location you suggest, the interviews will be conducted in your home. We do not know if the interview will be overheard or interrupted. However, if we are interrupted, we will stop and continue the interview at another time. We will not reveal the things you say to your husband, nor will we reveal to you what your husband says. We would like to record the interview on audio tape and take notes so that we don't forget the valuable information you give. Again, you do not have to be recorded if you are not comfortable.

How long will the interview last?

The interview would take about one hour to one hour and thirty minutes of your time.

Risks

By participating in this study, you will not be subjected to any physical risk. However, you may experience some emotional or psychological discomfort in answering some of the questions due to the sensitive topic of the study. You might feel some fear that if your husband or family members or community members find out that you are part of this study; some harm could come to you. If you feel any of these fears or have any hesitations, please let me know. A risk may be a breach of confidentiality (something you say is accidentally provided to others) but we will take precautions to see that this does not happen.

Benefits

There are no direct benefits or any direct financial compensation to you for participating in the study. You may find an indirect benefit in knowing you have participated in an important study that could help others in the future. In addition, findings of this study will be used to improve access to FP services for married adolescent girls living in urban slums.

Will my participation in the study be kept confidential?

The interview will not take place in the presence of your family members. We will take the interview in a private place at your home or any preferable place suggested by you so that you can feel comfortable responding to all questions without any hesitation and interruption. I assure that the information you provide will remain confidential and will be kept private. Only the study team will have access to study forms, which will be stored in locked cabinets at our offices. Three years after the study, forms will be destroyed. Your personal identification, including your name and address, will not be recorded in the questionnaire during data collection. We will not share any of your information with your husband, parents or anyone known to you. Your privacy, anonymity, and confidentiality will be maintained at all times and your name will not be used in any report.

What are my rights as a research participant/subject?

Participation in this survey is entirely voluntary. You have the option to accept or refuse participation. You can also choose not to answer any individual question, or stop the interview at any point in time. If you decide to take part, you are free to skip

any questions. If you choose not to participate, it will in no way affect you or the services you receive. However, we hope that you will participate in this survey and answer the questions as fully as possible because your perceptions are valuable to us and to this research.

What will I receive for participating?

You will not be paid for your participation in this study.

What will happen to the results of the research study?

A dissemination workshop will be carried out at the conclusion of the study. The study findings will be disseminated through presentations at national and international conferences and meetings and will be submitted to different journals for publication.

Who has reviewed the study for ethical issues?

This study has been reviewed and approved by the IRB of the Population Council and IRB of icddr,b.

What if I need more information?

If you have a concern about any aspect of the study, you should ask to speak to the researchers who will do their best to answer your questions. You may contact IRB Secretariat, RA, M. A. Salam Khan, phone No: 9827001-10, Ext. 3206 or Dr. Fauzia Akhter Huda, Phone: 9827001-10, Ext. 2257.

What if there is a problem?

Any complaint about the way you have been treated during the study or any possible harm you might suffer will be addressed. Please contact IRB Secretariat, RA, M. A. Salam Khan, phone No: 9827001-10, Ext. 3206 or Dr. Fauzia Akhter Huda, Phone: 9827001-10, Ext. 2257.

If you agree to our proposal of enrolling you in our study, please indicate that by putting your signature or your left thumb impression at the specified space below.

Thank you for your cooperation

Subject Statement

I have read the Informed Consent for this study. I have received an explanation of the planned research, procedures, risks and benefits and privacy of my personal information. I agree to be contacted at a later date and asked if I am willing to be interviewed. I understand that I do not have to agree and that if I agree now to be contacted in the future, I can always decide not to be interviewed at that time.

Now I agree to take part in this survey and I understand that my participation in this study is completely voluntary.

_____ _____

Your Signature or left thumb impression Date

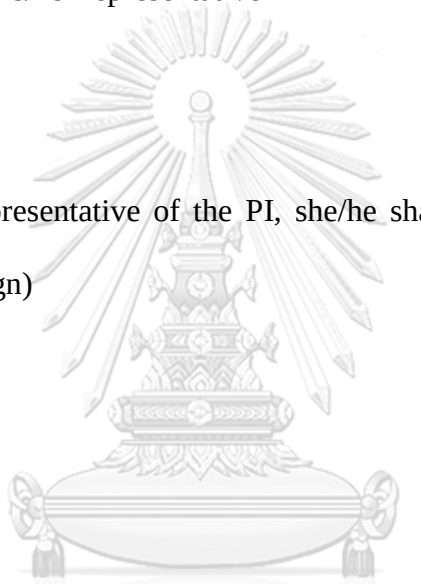
Investigator or person who conducted informed consent discussion

I confirm that I have personally explained the nature and extent of the planned research, study procedures, potential risks and benefits, and confidentiality of personal information.

_____ _____

Signature of the PI or his/her representative Date

(NOTE: In case of representative of the PI, she/he shall put her/his full name and designation and then sign)



Annex-V

Screening Questionnaire

Protocol Title: Study Title: Effectiveness of the family planning intervention to improve reproductive health of married female adolescents in urban slums of Dhaka, Bangladesh: A Quasi-Experimental Study

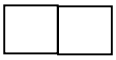
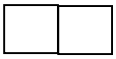
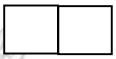
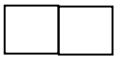
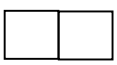
Principal Investigator's name: Dr. Fauzia Akhter Huda

Organization: Maternal and Child Health Division, icddr,b

Question Serial No. | | | | |

Interviewer's name and code : ----------		

Assalamualaikum/Adab. I *(please tell your name)* have come from an international research centre called icddr,b (Cholera Hospital) in Mohakhali, Dhaka. We are doing a research study related to the reproductive health of married adolescent girls. There is very little knowledge about the barriers to accessing family planning services that married adolescent girls in Bangladesh face, especially who are living in poor, urban areas. We are currently conducting a study to help us better understand unintended pregnancy and need for family planning services among married adolescent girls living in urban slums. This research will provide evidence for how we can improve access to family planning services and reduce unintended pregnancy.

01	Is there any married girl in your household aged between 14-19 years?	01=Yes 02= No → 	Go to next Household
02	What is her/your present marital status?	01=Currently married  02=Widow → 03=Divorced →	Go to next Household Go to next Household
03	How long have she/you been married?	----------months 	If married for < 3 months, Go to next Household
04	How long have she/you been living in this area?	----------months 	If living for < 1 month, Go to next Household
05	Can we talk with you/her (married girl aged between 14-19 years) about the research study?	01=Yes →  02= No →	Read out the consent form Go to next Household

Annex – VI

Quantitative survey questionnaire for married adolescent girls

Protocol Title: Study Title: Effectiveness of the family planning intervention to improve reproductive health of married female adolescents in urban slums of Dhaka, Bangladesh: A Quasi-Experimental Study

Principal Investigator's name: Dr. Fauzia Akhter Huda

Organization: Maternal and Child Health Division, icddr,b

Date of interview: ☐☐ ☐☐ ☐☐ Day Month Year	
Name of the slum: Slum A----------01 Slum B----------02 Slum C----------03 Slum D----------04	☐☐
Interview result: Completed Interview ----------01 Incomplete, reason----------02 Refusals, reason----------03	☐☐
Supervisor's Signature:----------Date: ---------/--------/20____	
Data Entry personnel's name & code: ----------	☐☐
Record interview starting time (Railway time)	☐☐ ☐☐ Hour Minute

No.	Question and filter	Coding categories	Skip
Section 1: Socio-demographic Information			
101	How old are you? (In completed years)	---------- (Years) ☐☐	
102	What is your religion?	01= Islam 02= Hinduism 03= Buddhism 04= Christianity ☐☐	
103	What is your completed year of education? **(In completed years)**	---------- (Class) ☐☐ (If No education then code 00)	
104	Aside from your household work, do you do any other work to earn money?	01=Yes ☐☐ 02= No →	106
105	If yes, what kind of work do you mainly do? ***(If the respondent does more than one work, code that one in which she spends more time)***	01= Maid servant 02= Garments worker/ other factory worker 03= Handicrafts ☐☐ 04= Tailor 05= Cleaner 06= Day labour 07= Poultry 08= Agriculture 09= Business 10= Government service 11= Private service 77= Others (specify)_____	
106	How old is your husband? (In completed years)	---------- (Years) ☐☐	
107	What is your husband's completed year of education? (In completed years)	---------- (Class) ☐☐ If No education then code 00)	

108	What is your husband's main occupation? ***(If her husband does more than one work, code that one in which he spends more time)***	01= Unemployed 02= Daylabour 03= Van/Rickshaw puller/ car or CNG driver 04= Works in restaurant/shop 05= Driver/helper 06 =Garments worker/ other factory worker 07= Tailor ☐☐ 08= Handicrafts 09= Servant 10= skilled labour 11= Cleaner 12= Agriculture 13= Poultry 14= Business 15= Government service 16= Non-Government service 17=Working abroad 77= Others (specify)_____	
109	What is your average monthly family income?	---------- (Taka) ☐☐☐☐☐	
Marriage			
110	How old were you the first time you got married?	---------- (Years) ☐☐	
111	Did you have a love marriage or an arranged marriage? (current marriage)	01= Love marriage in Kazi Office 02= Love marriage in Court 03= Love marriage by Huzur or purohit 04= Arranged marriage followed by affair 05= Arranged marriage ☐☐	→ 113

112	Did you agree to this marriage? (current marriage)	01=Yes 02=No ☐☐	
113	Can you tell me the date of your current marriage?	☐☐ ☐☐ ☐☐☐☐ Day Month Year (Can't remember=00) ☐☐	

Section 2: Pregnancy and Reproductive History

201	Have you ever got pregnant? 01= Yes 02= No → 201 ☐☐		
202 Now I would like to ask about all of your pregnancies	202 a Number of pregnancies According to chronological order	202 b Pregnancy out come (Applicable for all) 01=live birth 02= still birth 03 = Spontaneous abortion 04= Induced abortion/MR 99= Not applicable (if currently pregnant)	
	1		
	2		
	3		
	4		
	5		
203	Does your husband stay away?	01=Yes 02=No ☐☐	

204	Does your husband support the use of family planning method?	01= Support 02= Oppose 03=Don't know	

Section 3: Knowledge on Early Marriage, Early Pregnancy, and FP

301. Please answer the following statements:

No.	Statement	Yes	No
A	Ideal age of marriage for a male is 21 years		
B	Ideal age of marriage for a female is 18 years		
C	Ideal age for a man to have his first child is 24 years		
D	Ideal age for a woman to have his first child is 20 years		
E	Ideal span of time to wait to have another baby after giving birth is at least 2 years		
F	Oral pill is a temporary method		
G	Injection can be taken at 3 months interval		
H	Condom is a temporary method		
I	Implant is a long acting temporary method		
J	IUD is a long acting temporary method		
K	Tubectomy is a permanent method for females		
L	Vasectomy is a permanent method for males		
M	Emergency Contraceptive Pill is a family planning method		

Section 4: Awareness about Family Planning

401	Do you know of any places where you can obtain a method of family planning?	01=Yes 02=No	
402	Do you support the use of family planning method?	01= Support → 02= Oppose	404

403	Why do you not support the use of family planning method? ***(Multiple responses applicable***)	01= Religious prohibition 02= Fear of Side effects 03= Method failure /Method will not work 04= More children can support the family 77=Others---------- 88= Don't know	
404	Does your husband support the use of family planning method?	01= Support ⟶ 02= Oppose	501
405	Why does your husband not support the use of family planning method? ***(Multiple responses applicable***)	01= Religious prohibition 02= Fear of Side effects 03= Method failure /Method will not work 04= More children can support the family 77=Others---------- 88= Don't know	

Section 5: Attitude about Family Planning

501: Please answer the following statements:

No	Statement	Agree	Disagree
A	Adolescent mothers potentially might face health risk of		
B	Adolescent mothers potentially might face health risk of baby		
C	Early pregnancy can cause maternal death		
D	Early pregnancy can cause neonatal death		
E	More chances of having C/S delivery		
F	More chances of having miscarriages		
G	Adolescent mothers might not continue job		
H	Adolescent mothers education might stop		
I	Family planning method is needed for better health of mother		
J	Family planning method is needed for better health of		
K	It is easy to take care of children if there is interval between two births		

Section 6: Spousal communication

601	Have you and your husband ever talked amongst yourselves about FP methods?	01=yes 02=No →	605
602	When was the first time you talked about FP methods with your husband? (How many days after being married?)	00 = On the day of marriage 01= --- days before the marria 02= ----days after the marriage ☐☐ ☐☐☐ Days	
603	Who usually initiates the discussion about family planning methods?	01=You 02=Your husband ☐☐	

604	Have you and your husband talked about family planning in the last three months?	01=Yes 02=No ☐☐	
605	In your opinion, whose responsibility is to think and make decisions about family planning?	01= Woman's responsibility 02= Man's responsibility 03= Joint responsibility ☐☐	
Section 7 : Service utilization			
701	Are you/your husband currently using any FP method?	01=Yes 02=No ☐☐ →	703
702	What main method are you or your husband currently using?	01= Pill 02= Condom ☐☐ 03= Injectables 04= IUD 05= Norplant 06= Female Sterilization 07=Male sterilization 08= Periodic abstinence/safe period (counting days, calendar, rhythm method) 09=Withdrawal 77= Other (Specify)_____	
703	Would you like to have a baby in the next 2 years?	01=Yes 02=No 88=Unsure 99=Not applicable(If he or she sterilized)	

Section 8: Impact of MAG club			
801	Among the 12 MAG club sessions, in how many sessions have you participated?	----------no of sessions ☐☐	
802	Which topic/s did you like most in the MAG club? ***(Multiple responses applicable***)	01=Teaching 02=Staged drama ☐☐ 03= Enjoyed gossiping ☐☐ with others ☐☐ 04= Festons ☐☐ 05=Evaluation test ☐☐ and awards ☐☐ 06=Providing FP Pocket book with key ring 07=Family planning related other books 08=Arrangement of Ludo game 09= Arrangement of Snacks 77=Other (specify) _____	
803	When did you come to MAG club?	01=At morning 02=At noon ☐☐ 03=At afternoon	
804	Was this time convenient for you?	01=Yes → 02=No ☐☐	806
805	Then, which time would you prefer?	01=At morning 02=At noon ☐☐ 03=At afternoon 77=Others (specify)._____	

806	Did you face any trouble when you attending the club?	01=Yes ☐☐ 02=No →	807
807	What was / were the trouble/s? ***((Multiple responses applicable***)	01=Club is too far from home 02=Husband opposed 03=Father/Mother in law opposed 04=Didn't get time after working outside 05=Didn't get time after house hold work 77=Others (specify)_____ ☐☐ ☐☐ ☐☐	
808	What did you learn from the session of the clubs? (***Multiple responses applicable***)	01=Learned about correct age of marriage. 02=Learned about the time of a woman to have her first baby. 03=Learned about the reasons for unintended pregnancy 04= Learned about the side effects of unintended pregnancy 05= Learned about different family planning methods 06= Cleared misconceptions about family planning methods 07=Learned about the importance of birth spacing. 08= Learned about family planning service center. 09=Health awareness 10=Opportunity to introduce with many new married adolescent girls. 11=Discussed our problems 77=Others (specify)_____	☐☐ ☐☐ ☐☐ ☐☐ ☐☐ ☐☐

809	In your opinion what were the weak points of the club?	00=No weak point 01=Waiting outside for a long time as there was no own permanent space for the club 02=No arrangement of table and chair 03=Location of the club was not good 04= Structure of the room for club was not good 05=There was no well arrangement for drinking water. 06=There was no electricity 07=No arrangement for fan or light 08=There was no proper place for those babies who came with their mothers 77= Others (specify)_____	
810	Have you discussed with others what you have learned from the club after participation?	01=Yes 02=No →	End
811	With whom have you discussed? (***Multiple responses applicable***)	01=Husband 02=Mother in law 03=Sister in law 04=Friend 05=Neighbour 06=Sister 07=Mother 08=Other relative 77=Others (specify)_____	

B	**Record ending time**	☐☐ ☐☐ Hour Minute	
Thank you for giving us your valuable time			

Annex – VII

In-depth Interview (IDI) guideline for married adolescent girls

Study Title: Effectiveness of the family planning intervention to improve reproductive health of married female adolescents in urban slums of Dhaka, Bangladesh: A Quasi-Experimental Study

Principal Investigator's name: Dr. Fauzia Akhter Huda

Organization: Maternal and Child Health Division, icddr,b

Marriage and family related information

1. Please tell us about your married life (Hints: Time of marriage, age during marriage, age of husband during marriage; do you think you got married in appropriate time, if not then what is the appropriate time to get married; ask those who have children – do you think you had taken baby in appropriate time? If yes, why do you think so? If no, why do you think that was not the appropriate time? What is the appropriate time to take a baby?
2. When did you first come to know about family planning? Did you get any information related to family planning before you got married? If not, then after marriage when did you get information about family planning (Hints: exactly when/how many days after marriage); what information did you get (Hints: family planning, intended/ unintended pregnancy, use of family planning methods etc.)? How did you get that information (Hints: from whom)?

3. Did the information related to family planning help you in your married life (Hints: use of FP methods, selection of methods, reason behind choosing a method etc.)? Was there any discussion between you and your husband? Please tell me in details.

Married adolescent girls' club related information

4. From where did you come to know about married adolescent girls' club (Hints: From who did you came to know – club leaders, icddr,b members, brac community health volunteers, relatives, adolescent club members)? When did you join this club (Hints: After many days of knowing about the club you joined there?) Who influenced you to join this club? Was there any discussion between you and your husband? Did you attend all twelve club sessions? If not, why?
5. What did you learn from married adolescent girls' club (Hints: unintended pregnancy, delayed pregnancy, birth spacing, family planning methods etc.)? What new information did you learn regarding family planning, unintended pregnancy and its consequences after joining the club (Hints: Social, familial, religious and legal)?
6. Did you receive any pocket book key ring from the club? If not, did you see the book from others? Did you get any information from that book? What type of information did you get (Hints: unintended pregnancy, delayed pregnancy, birth spacing, family planning methods etc.)? Was this information helpful?
7. Did you discuss with your husband about the issues you learnt from married adolescent girls' club? What was the discussion? What was the reaction of

your husband? Do you observe any change (Hints: thinking/attitude related) in you/your husband after you joined the married adolescent girls' club?

8. What role did this knowledge played to make your decision on family planning? (Hints: To sensitize your husband and other family members regarding family planning, for choosing a method, birth spacing etc.).
9. Did you discuss any information you learnt from married adolescent girls' club with other members of your family? What was the discussion? Did this information help them?
10. Did you discuss any information you learnt from married adolescent girls' club with your relatives/neighbours? What was the discussion? Did this information help them?
11. How do you evaluate this married adolescent girls' club? What inclusions could have made these club sessions better? Do you have any further recommendation?

brac community health volunteer related information

12. Do you know the brac community health volunteer of your area? Did she communicate with you (Hints: regarding FP method/suggestion)? Did you receive any service from her (Hints: FP methods)? Which FP method did you receive from her? From where did you come to know about that method? What was the decision making process to use a FP method? Did you discuss with your husband/family members regarding this? What was their reaction then? Please state in details.

13. Were you satisfied with this service? Tell me why/why not? How this service can be improved further?

Annex VIII

Timeline of Activities (26 months)

Activities	**1-3**	**4-6**	**7-9**	**10-12**	**13-15**	**16-18**	**19-21**	**22-24**	**25-26**
Literature retrieval and review Development of proposal Proposal presentation Pretesting of the questionnaire IRB approval									
Stage 1: Preparatory phase :Informal consultation with brac programme people									
Stage 2: Formation of married adolescent girls clubs and finalization of its contents									
Stage 3: Selection, and training of brac community health volunteers									
Stage 4: Selection, and training of club leaders									
Stage 5: Identifying respondents for club participation									
Stage 6: Implementation of intervention									
Stage 7: Process documentation, monitoring, and supervision									
Stage 8: Evaluation of intervention									
Data entry, editing, coding									
Data analysis									

Report writing									
Manuscript writing and submitted in journal for publication									

Annex IX

Study Budget

Study Title: Effectiveness of the family planning intervention to improve reproductive health of married female adolescents in urban slums of Dhaka, Bangladesh: A Quasi-Experimental Study

Principal Investigator's name: Dr. Fauzia Akhter Huda

Organization: Maternal and Child Health Division, icddr,b

Line Items	Designation	Effort	Total USD
Personnel			
Fauzia Akhter Huda	Principal Investigator	100%	21,769
Zubaida Nasreen	Admin & Finance Manager	50%	11,351
Bidhan Krishna Sarker	Anthropologist	30%	6,682
Anadil Alam	Assistant Scientist	30%	7,270
Nafis Al Haque	Sr. Research Investigator	30%	8,883
Anisuddin Ahmed	Senior Statistician	30%	7,270
Sadia Afrin	Anthropologist	100%	9,370
Faisal Ahmmed	Senior Research Assistant	50%	6,330
SUB-TOTAL: Personnel			**78,925**
Data Management Cost			
Sushil Das Gupta	Data Administrator	30%	7,808
Shamim Sufia Islam	Data Management Assistant	30%	6,792

SUB-TOTAL : Data Management Cost			**14,600**
Travel Local			
Transport within Dhaka			3,500
SUB-TOTAL : Local Travel			**3,500**
Programme cost			
Field staff salary			
Hassan R. Mahmood	Field Research Manager	100%	16,507
Ataur Rahman	Field Research Officer	100%	7,536
Ms. Shima Sultana	Field Research Supervisor	100%	6,890
Abdus Salam	Field Research Supervisor	100%	6,890
To be recruited	Field Research Assistants (8)	100%	8,636
Rezaul Karim	Senior Field Assistant	100%	2,552
SUB-TOTAL: Field Staff Salary			**49,010**
Field conveyance cost			
Field conveyance			10,868
Travel cost to visit field			2,500
SUB-TOTAL: Field Conveyance Cost			**13,368**
Other Costs			
Key Ring			4,253
Club Decoration			1,500
Incentives (Club leaders & CHVs)			1,500
Club Session refreshment			4,468
Training costs			2,500
IRB Cost			1,070

Printing and Photocopying	2,600
Communications cost	1,141
Repair & Maintenance	473
SUB-TOTAL: Other Costs	**19,505**
SUB-TOTAL: Programme Cost	**81,883**
TOTAL: Direct Cost	**178,908**
TOTAL Indirect Cost (@15%	**26,837**
TOTAL COST	**205,745**

VITA

Fauzia Akhter Huda, Project Coordinator, Maternal and Child Health Division, icddr,b, is a medical graduate and public health expert having 23 years long track record of work experience with different tiers of the government's health system in Bangladesh and with icddr,b. She has substantially contributed to a range of studies on maternal health using both quantitative and qualitative research methods. Her research primarily focuses on the consequences of early marriage, early unintended pregnancy, family planning, capacity development in the sexual and reproductive health sector particularly addressing safe motherhood; and more generally on the underlying social determinants of health. She works in a research group at icddr,b that involves coordination of a multidisciplinary research team focusing on improvement of maternal health. Some important findings from the studies conducted under this research group has major achievements at the policy level and were instrumental in getting approval of several key recommendations in the related areas.She also works to empower researchers and program people with knowledge translation skill sets to maintain sustainable focus on knowledge translation in maternal health; this included conducting Knowledge Translation brief/policy brief writing course and development of a number of policy briefs. After completion of her Masters' in Public Health (E[idemiology) she had gained theoretical concepts on various research tools and methods, on statistical measures, quantitative and qualitative research technique and designing and implementing of health intervention programs. She continually participates in various national/international training programs and relevant high profile conferences to develop and update her concept and knowledge in her area of interest. Her contribution as first author and co-author in both international and national peer-reviewed journals may help to describe her commitment on different assignments related to research.

Date of Birth: 12 February 1969

Place of Birth: Bangladesh

Email address: fauzia@icddrb.org