Program Efforts to Delay Marriage Through Improved Opportunities: Some Evidence from Rural Bangladesh

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Abstract

Programs geared toward adolescents are increasingly the focus of NGOs and other organizations working in developing countries. Yet little documentation concerning the challenges and effectiveness of such programs exists. Using longitudinal panel data from an adolescent study in rural Bangladesh, this paper analyzes the impact of an adolescent livelihoods program using the propensity-score matching method. The data suggest that, while such programs can achieve delayed marriage, these changes can be limited to a small subset of girls with relatively unusual characteristics. The results suggest that programs working with adolescents might benefit from targeting vulnerable populations rather than heterogeneous groups. For example, the targeting of younger adolescents in poor areas may lead to greater success.

1. Introduction

Adolescence has only recently emerged as a distinct stage of life in Bangladesh. As in many other agricultural societies, transitions to adulthood have traditionally been abrupt. Children, especially girls, were expected to assume adult roles soon after puberty, and they spent relatively little time in the transitional stage of adolescence. As a result of increasing school enrollment and delays in marriage and child-bearing, however, more and more individuals are spending longer periods of time during this transitional phase when they are neither children nor adults. A growing recognition has developed that the needs of adolescents are distinct from those of children and of adults.

Kishori Abhijan ("Empowerment of Adolescent Girls Project"), a UNICEF-funded initiative on adolescent girls' livelihoods, was implemented by two development Bangladeshi NGOs, the Bangladesh Rural Advancement Committee[1] (BRAC) and the Center for Mass Education and Science[2] (CMES). The Bangladesh Institute of Development Studies in collaboration with Population Council conducted a three year investigation to document the project and its implementation.

This paper analyses data obtained from this intervention program. The program of research accompanying the intervention was designed to both (i) document the process of the development interventions, and (ii) assess their impact in the context of the rural society where they were taking place. The research takes a longitudinal quasi-experimental approach and qualitative[3] techniques (see Data section for more information).

The program was based on the expectation that positive education and livelihood experiences are essential to the well-being of adolescents—that they affect not only individuals' present well-being but also function as precursors for later experiences in adulthood. Moreover, young people's education and work are critically linked to their

[1] With support to its Adolescent Peer Organized Network (APON) program.
[2] With support to its Adolescent Girls' Program (AGP).
[3] The qualitative data was collected throughout this period in the form of detailed case studies in which 47 selected respondents were followed at various points in time.

decisions about the timing of marriage and, therefore, have important links with reproductive health and implications for population growth and momentum.

Program Objectives

The overall objective of *Kishori Abhijan* was to promote a gender equitable environment where girls can widen their choices, participate in empowering social and economic processes and realize their potential as agents for social change. Through the provision of life skills and livelihood skills the project sought to explore how adolescents can be empowered. Empowerment was measured in terms of their having improved control over decisions that are consequential for their lives.

The initial project proposal sought to support adolescent groups or networks in 14 selected rural districts in Bangladesh. The program had three components. These groups were to be mentored by nongovernmental organizations (NGOs) with demonstrated experience and capacity working with groups of adolescent girls, providing them with opportunities to develop their self-esteem and leadership skills (Component 1). In doing so, the girls could learn about gender and gender discrimination, health and nutrition (including hygiene, reproductive health and HIV/AIDS), and legislation and legal rights (regarding early marriage, girl's and women's rights, etc) (Component 2). In addition, significant focus would be placed on allowing adolescents to acquire livelihood skills. The initial plan called for training[4], after which girls would be linked with existing facilities for establishing savings accounts and obtaining credit (Component 3). This way, entrepreneurship development and internship opportunities in the local communities would be encouraged.

The NGOs worked with the Ministry of Women and Children Affairs/Department of Women Affairs of the Government of Bangladesh to carry out activities in the same communities where the adolescent interventions are taking place. Specifically, the office carried out sensitization and training activities with elected members of local governments, government officials, local elites, parents, and adolescent boys to help

[4] However, a series of difficulties were encountered in the implementation of the training component.

create a more supportive environment for adolescent girls. At this level, nationalwide exchange programs and workshops were held with adolescents from different districts in order to give them opportunities to share their experiences on a wider scale, build links with adolescents in other parts of the country, and be exposed to other role models. With UNICEF's support for these pre-existing structures and support for the government for the community- and national-level activities, a more enabling environment would be created for adolescent girls to become socially and economically empowered.[5]

Box 1: Description of *Kishori Abhijan*

Kishori Abhijan consisted of three separate programs run by the two NGOs (BRAC and CMES). BRAC ran the following two programs:

- APON (Adolescent Organized Peer Network): Girls were educated about issues such as health, legal rights, early marriage, and dowry. Group games (e.g. badminton, caram) were often played and books made available through a library system.
- APON/JVO (Junior Village Organization): Same as above. In addition, microcredit would be offered to qualified members.

CMES's program combined microcredit with education and awareness.

In order to disentangle the effects of the different programs, only one program would operate in any given village.

The project set out several goals:

i. To increase the median age at marriage of girls involved in the project by at least two years;

ii. To increase by at least 30 percent the independent economic activity by adolescent girls involved in the project in the 15–18-year age group;

iii. To increase enrollment and retention rates in primary and secondary schools of adolescents in the project by at least 30 percent;

iv. To increase primary-school completion rate of adolescent girls in the project by 20 percent;

v. To increase visibility of adolescent girls as a special interest group in the media and in national programs and policies at the national level.

[5] The project description is excerpted from UNICEF project documents.

The team of researchers responsible for research design of *Kishori Abhijan* took great care to ensure that the sampled population would represent the larger adolescent population of the study area. Recent research has shed light on the importance of adequate research design when studying programs that hope to improve the livelihood outcomes of its members, such as *Kishori Abhijan*. Steele, Amin, and Naved (2001) used panel data obtained from a study of microcredit/savings group formation consisting of two waves to show that analyses based on cross-sectional data did not adequately control for self-selection into programs. The authors found selectivity to operate on more than one level. First, programs might be placed in geographical areas that are more accessible to program personnel. Second, those who were attracted to the program were more likely to use contraception in the first place.

Given that studies of females in developing countries such as Bangladesh are limited to adult women, this study presents a unique opportunity to document the lives of adolescent girls, a group that is often left out of programs that focus on either children or adults. Current studies on adolescent programs in South Asia are few, and those that do exist generally show limited success (Mathur, Mehta, and Malhotra 2004 in Nepal; Mensch et. al 2004 in India).

This paper summarizes the major findings of the program. It is organized as follows: Section 2 contains a description of the data used in the analyses. Section 3 describes the methods used in the analysis of the survey data. Sections 4 through 7 discuss the survey findings concerning several key areas of adolescent livelihoods, such as marriage, work, schooling, and health awareness. Lastly, Section 8 contains a discussion of the major findings.

2. Data

The 2001 Survey

The initial survey was conducted from January to June of 2001 before the adolescent livelihood programs were initiated in the study areas. 6,000 respondents between the

ages of thirteen and twenty-two were chosen randomly. The survey used age 13 rather than the usual 10 as the starting point because the planned intervention was to target girls aged 13 and above. The ending age range was deliberately chosen to be later than the usual cutoff age of 19 for adolescent surveys because previous experience in adolescent research showed that age reporting is problematic, as many respondents who are younger or older report their age to be 20. This is particularly problematic when survey respondents do not know their age and the interviewer has to estimate it as was the case with most of our respondents. 5,024 were contacted successfully and completed these initial interviews. Respondents resided in 90 villages in three districts (Chapainawabganj, Chittagomg, and Sherpur), most of which were selected from lists provided by the intervention partners according to their plan of work. Seventy-five intervention villages were chosen randomly from a master list of villages where creation of adolescent groups was planned. Another fifteen villages were chosen from the vicinity as controls.

The 2003 Survey

The follow-up survey was conducted from January to June of 2003 after the programs had been implemented in the intervention villages. Due to budgetary constraints, only females were interviewed in the follow-up survey. 2,386 females respondents who had been successfully interviewed in the baseline survey were contacted for a follow-up interview, and 2,214 of these respondents were successfully interviewed. In addition, 584 of the 2386 respondents with whom follow-up interviews had been attempted had migrated, mostly due to marriage. Interviewers asked about the new location of these migrated respondents, and 476 were successfully interviewed. None of these respondents moved out of their respective district. A detailed community profile was also conducted at this time for each village in which the survey was undertaken. The community profile was based on interviews with at least three key informants from the community, including personnel involved in the particular program being discussed in this report.

Qualitative Data

Qualitative data was collected throughout the three-year study period in the form of detailed case studies in which 47 selected respondents were followed at various points in time.

The survey observed a strict set of ethical research guidelines to ensure informed consent, confidentiality and anonymity. Each respondent was read a paragraph that described the purpose of the research and the respondent's involvement and sought verbal consent before the interview began. Sensitive questions were asked towards the end of the interview and interviewers were instructed to ensure that confidentiality was preserved. Data storage was done in a way that separated personal identifiers from the responses to all questions.

More details on study design and site selection are available in a Report on the Baseline survey (Amin, Mahmud and Huq, 2002).

3. Methods

The main problem with the quasi-experimental design of surveys like those used to document Kishori Abhijan is ensuring that participants are sufficiently comparable to non-participants. This issue, known as selection bias, is especially problematic when programs require participants to meet certain eligibility criteria. For example, the programs run by BRAC allowed only girls with past or present school enrollment *to join.* Moreover, preference was given to girls enrolled in BRAC-run schools.

Survey results can exhibit bias if selection issues are not adequately addressed. This bias can operate in an "upwards" or "downwards" direction. For example, BRAC's preference to girls from families with a history of involvement in BRAC may lead to a member population that is more motivated to achieve program-related outcomes relative to non-members. In such a scenario, program success would be overstated—participants might already be more likely to achieve certain outcomes given their family history or

other background characteristics. In the second case, program effects may be *under*estimated if participants possess (lack) certain characteristics preventing (enabling) them from achieving program outcomes compared to other groups, all else held equal. For example, if participants in the *Kishori Abhijan* programs come from poorer families compared to non-participants, they might exhibit a relatively lower age at marriage due to their inability to pay the higher dowries that often accompany later marriage.

Selectivity issues in the *Kishori Abhijan* program design may have operated on the geographical and/or the individual level. The following two sections will deal with these issues.

Geographical selectivity

The sampling of villages included in the *Kishori Abhijan* survey included both villages where the intervention programs were planned to be implemented ("intervention" villages) as well as those villages where such programs would be absent ("control" villages). Table 3.1 contains baseline (2001) summary statistics of the two types of villages. The main differences between intervention and control villages seem to lie in the area of schooling—intervention areas have higher school enrollment rates as well as more years of schooling compared to control areas. This may be explained by BRAC's history of involvement in the villages where their programs were implemented, as BRAC runs an extensive network of schools in their program areas.

Member selectivity

Preliminary analyses of the 2003 data showed marked differences in the characteristics of those respondents who joined an intervention program compared to those who did not join.

Table 3.1. Baseline characteristics of intervention and control villages

	Intervention	Control
Mean age	16.7	16.8
Mean years of schooling	5.7	4.7
% married	43.6	46.3
% ever enrolled in school	82.3	70.8
% currently enrolled in school	43.6	25.3
Wealth		
% ranked in wealthiest quartile	26.8	19.6
% ranked in poorest quartile	25.8	32.7
Geographical distribution		
% from Chapai	41.3	30.0
% from Sherpur	32.5	35.4
% from Chittagong	26.2	34.7
N	1,901	310

Table 3.2 compares data on baseline (2001) characteristics such as age, marital status, and schooling between members and non-members. Respondents who joined a program were, on the average, 2.8 years younger than those who did not join. Members were also much less likely to be married. This finding is not surprising given that, among the three programs, only BRAC(APON & JVO) allowed married members to join. Thus, members were more likely to be younger than non-members. As for schooling, program participants exhibited greater levels of educational attainment—while members reported completing an average of 7.9 years of schooling, this figure drops to 5.9 years for non-members. And not only were members more likely to be enrolled in school at the time of the baseline survey (78.7 percent compared to 37.4 percent for non-members), but 100 percent of those who joined had ever enrolled in school, compared with 79.1 percent among non-members. The wealth status of members and non-members does not differ

greatly—similar percentages of both groups were ranked in both the wealthiest and poorest quartiles. Geographically, members were more likely to live in Sherpur compared to the other two districts included in the survey. In fact, almost 50 percent of members lived in Sherpur. On the other hand, non-members were concentrated in Chapai, with 43.4 percent living in this district.

Table 3.2. Baseline characteristics of respondents who joined an intervention program versus those who did not (intervention areas only).

	Members	Non-members
Mean age	14.3	17.1
Mean years of schooling	7.9	5.9
% married	6.9	50.2
% ever enrolled in school	100.0	79.1
% currently enrolled in school	78.7	37.4
Wealth		
% ranked in wealthiest quartile	2.6	26.9
% ranked in poorest quartile	19.9	26.0
Geographical distribution		
% from Chapai	29.8	43.4
% from Sherpur	44.5	30.4
% from Chittagong	25.7	26.3
N	445	1,456

In sum, compared to those respondent who did not join an intervention program, members were younger, more educated, less likely to be married, and more likely to live in Sherpur. These findings suggest significant differences between members and non-members to the extent that non-members do not represent a comparable group of observation.

Dealing with selection bias: Matching

Matched pairs analysis is often used by researchers to overcome selection bias. This process involves matching participants to non-participants on characteristics that are thought to be related to selection into a program or programs. For each member, a non-member is identified with identical or closely similar characteristics on key variables. By forming a comparable group of non-participants, matching presents an effective method for reducing bias resulting from differences in observed covariates.

However, matching can present certain drawbacks. As the number of covariates used in the matching process increases, the more difficult it becomes to find a suitable match. On the other hand, reducing the number of covariates, and thus enlarging the pool of potential matches, lessens the degree to which participants can be matched to similar non-participants.

Propensity-score matching is a method developed by Rosenbaum and Rubin (1983) to overcome this problem by allowing researchers to control for many background covariates simultaneously by matching on a single scalar variable, thus avoiding selection bias. Propensity-score matching essentially involves the following steps:

Running a logit or probit regression with program participation as the dependent variable and the covariates thought to be associated with participation as independent variables,
Matching members with non-members based on the predicted probabilities of membership (e.g. the propensity score) obtained in step 1, and
Comparing outcomes between members and the matched non-members.

Given the usefulness of propensity-score matching in controlling for selection using many covariates, it was determined that this method would used in the analysis of the *Kishori Abhijan* programs.

Given that data from respondents was collected at two points in time, the covariates used in the propensity-score matching process were taken from the first (2001) round of data

collection. The following variables were used in modeling the propensity score: age, marital status, district, wealth score, number of years of schooling, and current school enrollment.

The study population of 2,211[6] respondents consisted of the following five categories of respondents once the matching process was completed:

Matched members: This groups is comprised of program members for whom suitable matches were found (N=360).
Matched non-members: This group consists on non-members who were successfully matched to a program member (N=360).
Unmatched members: This groups consists of program members for whom a matched could not be found (N=85).
Unmatched non-members: This group consists of non-members who could not be matched to a program member (N=1,290), and
BRAC Library members: Many respondents reported membership in BRAC Libraries[7]. While none of them reported membership in a *Kishori Abhijan* program, we felt that their BRAC membership might distinguish them from the non-member population. Thus, they were excluded from the matching process and kept apart as a separate category (N=116).

Table 3.3 contains baseline data on background variables for the five respondent categories. As Table 3.3 makes clear, matched members and their matches share very similar characteristics as a result of the propensity-score matching process. Interestingly, unmatched members are not only younger than their matched counterparts, they have also on the average completed more years of schooling.

[6] 3 respondents from control villages who reported membership in an intervention program were dropped, leaving us with 2,211 respondents.
[7] Only one respondent who reported membership in a BRAC Library lived in a control villages—the rest lived in intervention villages.

Table 3.3. Baseline characteristics of respondent categories formed from the propensity-score matching process.

	Matched members	Matched non-members	Unmatched members	Unmatched non-members	BRAC Library members
Mean age	14.7	14.7	13.8	18.2	14.8
Mean years schooling	6.9	7.0	7.4	4.7	6.4
% married	7.5	7.2	0.0	68.5	9.5
% currently enrolled in school	76.7	73.6	95.3	18.2	75.9
% from wealthiest quartile	31.1	31.7	22.4	23.6	26.7
% from poorest quartile	11.4	11.7	9.4	20.9	12.9
% from Chapai	32.5	30.6	0.0	43.5	31.9
% from Sherpur	36.1	35.8	100.0	31.6	44.8
% from Chittagong	31.4	33.6	0.0	24.9	23.3
N	360	360	85	1,290	116

4. Marriage

Marriage plays a central role in the lives of females in Bangladesh. Adolescence as a distinct stage of life has emerged only recently as marriage age patterns have increased and the traditional transition from childhood to adulthood through marriage has been interrupted. However, age at marriage patterns in Bangladesh remain very low by international comparison, despite a legal age of marriage of 18.

Given the availability of data taken at two points in time, the survey presented us with a unique opportunity to compare marriage-related outcomes between the various

respondent categories. We refer to those girls who married in the interim between surveys (i.e. were unmarried at the time of the 2001 survey but were married by 2003) as *interim marriages*.

Table 4.1 presents summary data on the percentage of survey respondents married between 2001 and 2003, the mean age at marriage for these cases, as well as the number of interim marriage cases. Overall, approximately one-third of respondents who were unmarried in 2001 baseline were married by 2003 with a mean age of marriage of 16.1 years. Only slight differences in the interim marriage rate and age at marriage exist between program members and their matches.

Table 4.1. The percentage married, the mean age at marriage, and the number of cases among those respondents who were unmarried in 2001.

Respondent category	% married	Mean age at marriage	No. of interim marriages
BRAC Library	35.2	15.5	37
Matched non-members	27.5	15.5	92
Unmatched non-members	36.0	17.0	146
Unmatched members	15.3	14.9	13
Matched members	28.5	15.7	95
BRAC(APON)	*32.8*	*15.6*	*61*
BRAC(APON & JVO)	*12.2*	*15.4*	*5*
CMES	*27.4*	*15.9*	*29*
Total	30.3	16.1	383

However, substantial differences exist when comparing members by program type. For example, marriage rates range from 12.2 percent among BRAC(APON & JVO) members

to 32.8 percent among BRAC(APON) members. As for unmatched members, 15.2 percent became married at a mean age of 14.9 years. It should be noted that the high mean age at marriage among unmatched non-members can be explained by the higher mean age of respondents in this category.

To investigate the likelihood of marrying among the different respondent categories after controlling for a number of background variables, a logistic regression analysis was conducted using the 1,263 respondents who were unmarried at the time of the baseline survey. The dependent variable is a dummy equaling 0 if the respondent remained unmarried during the interim between the two rounds of data collection and 1 if the respondent became married during this period of time.

Matched non-members were designated as the base category to serve as a means by which the intervention program members can be compared. Program members were further categorized into the three individual programs: BRAC(APON), BRAC(APON & JVO), and CMES. As Table 4.2 shows, the only membership category exhibiting a significant[8] difference in the likelihood of becoming married during the interim period is that of the unmatched members. In this case, respondents in this group were less likely to become married (OR=0.4; p-value=0.1).

Other variables thought to exert considerable influence on the likelihood of entering marriage were also included in the model. In terms of geographical location, compared to respondents from the district of Chapai, only respondents from Sherpur exhibit a significant difference in the likelihood of becoming married—in this case, they were less likely to marry (OR=0.3; p-value=0.0). This finding is not very surprising given the higher wealth found in this area (families can afford the higher dowry payments that accompany delayed marriage). Also not surprising is the positive and significant impact of a one-year increase in age on becoming married (OR=1.2; p-value=0.0). Interestingly, rising wealth has a positive impact on the likelihood of marrying.

[8] At the 0.10 level.

Table 4.2. Results of a logistic regression analysis for interim marriages (n=1,263).

Variable	Variable description	OR	P>|z|
Membership categories	categorical		
BRAC Library		1.3	0.4
Matched non-members	(base)	-	-
Unmatched non-members		1.3	0.2
Unmatched members		0.4	0.1
BRAC(APON)		1.0	0.9
BRAC(APON & JVO)		0.5	0.3
CMES		1.1	0.7
District	categorical		
Chapai	(base)	-	-
Sherpur		0.9	0.8
Chittagong		0.3	0.0
Age	continuous	1.2	0.0
Wealth	categorical		
Poorest quartile: 1	(base)	-	-
2		1.3	0.3
3		1.6	0.1
Wealthiest quartile: 3		2.2	0.0
Years of schooling	continuous	0.9	0.0
Ever engaged in productive work?	binary	1.1	0.5
Ever engaged in paid work?	binary	0.8	0.5
Ever taken loan?	binary	0.5	0.2
Village type	dummy 1=intervention)	1.4	0.2

This finding seems counterintuitive—respondents from wealthier families should be able to delay marriage for a relatively longer period of time. However, respondents from older age categories at the baseline are able remain unmarried largely because their families

could afford to delay their marriage. In the same vein, respondents already married at the baseline were more likely to come from poorer families. Thus, respondents from wealthier families are more likely to enter marriage during the two years following the baseline survey since poorer respondents were more likely to be married at the baseline. The final variable exhibiting a significant change in the likelihood of entering marriage is schooling, measured in years. An additional year of school reduces the likelihood of marriage by a factor of 0.9 (p-value=0.0).

Dowry payments

Dowry payments (cash or kind given to the groom's family by the bride's family) are commonplace in rural Bangladesh. Not only is dowry practiced in areas where it did not exist a generation ago, but they have risen considerably over the past decade or so, a trend commonly referred to as "dowry inflation." In fact, dowries can represent multiple years' worth of a family's annual income despite their illegality.

NGOs in the area been working to reduce both the payment and increase of dowry. Many programs, such as those run by BRAC, have been creating awareness of the illegal nature of dowry and attempting to intervene in marriage negotiations to prevent dowries from being paid.

To examine differences in dowry payments among the various respondent categories, Table 4.3 presents the results of a regression analysis using the 383 respondents who married in the interim between the two survey rounds. Once again, unmatched members are the only respondent category to exhibit a significant difference in dowries paid—in this case, unmatched members are more likely to pay lower dowries (p-value=0.1), all else held equal.

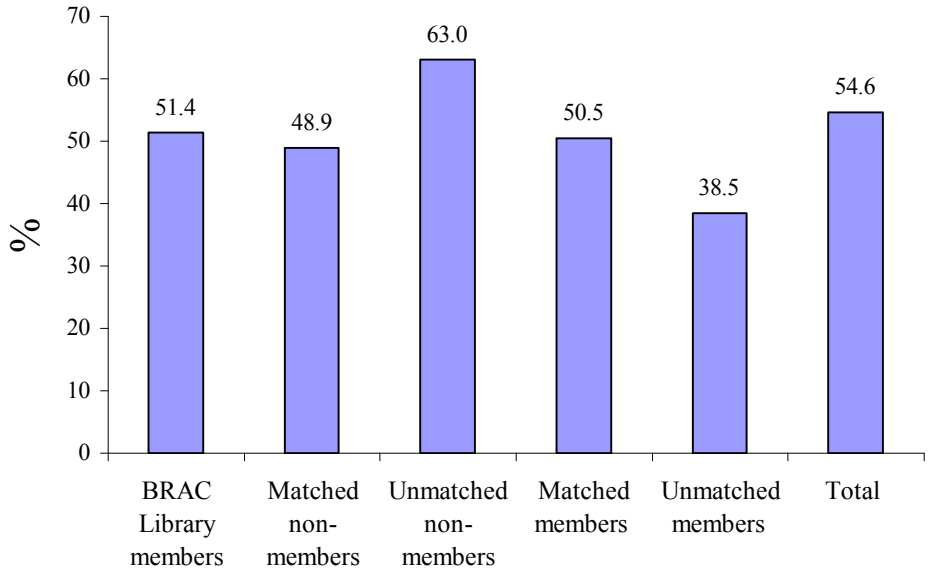
Table 4.3. Results of a regression analysis for dowry payments among interim marriages (n=383).

	Var. description	Coef.	P>|t|
Membership categories	categorical		
BRAC Library		-1181.2	0.7
Matched non-members	base	-	-
Unmatched non-members		-3252.2	0.3
Unmatched members		-7070.5	0.1
BRAC(APON)		-4188	0.2
BRAC(APON & JVO)		6064.1	0.6
CMES		-2743.5	0.5
District	categorical		
Chapai	base	-	-
Sherpur		7377.2	0.0
Chittagong		20778.3	0.0
Age	continuous	1052.3	0.1
Wealth	categorical		
Poorest quartile	base	-	-
2		1725.3	0.3
3		5715.7	0.0
Wealthiest quartile		10003.8	0.0
Years of schooling	continuous	118.3	0.8
Ever engaged in productive work?	binary	178.4	0.9
Ever engaged in paid work?	binary	-3892.4	0.5
Ever taken loan?	binary	-7141.7	0.2
Village type	dummy (1=intervention)	1163.7	0.6

Marriage arrangements

Arranged marriages are common in Bangladesh, particularly in rural areas. While none of the intervention programs explicitly dealt with the issue of arranged marriages, we felt it important to include other marriage-related indicators in this section. Figure 4.1 presents data on the percentage of interim marriages for which consent was taken from the bride.

Figure 4.1 Percentage of interim marriage cases from whom consent for marriage was taken.



5. Schooling

Schooling opportunities have increased for girls in rural Bangladesh thanks to a government stipend program that rewards families who enroll their daughters as well as an increase in the number of schools serving school-age children.

One of the goals of the *Kishori Abhijan* programs was to encourage enrolled females to stay in school. Table 5.1 contains schooling retention rates and the mean age at school

dropout among the various respondent categories. Data on program members are shown both overall and by type of program. Compared to their non-member matches, program members were slightly less likely to remain enrolled in school between the two rounds of data collection (64.5 percent versus 57.3 percent). However, school retention rates vary greatly by program type, ranging from 66.7 percent among BRAC(APON & JVO) members to 56.5 percent among CMES members to 55.9 percent among BRAC(APON) members. Intriguingly, unmatched members exhibit the highest rate of school retention at 87.7 percent.

Table 5.1. Schooling retention and mean age at school dropout among respondents enrolled in school at the baseline (n=945).

Respondent category	Schooling retention rate	Mean age at school dropout	N*
BRAC Library	64.8	14.9	88
Matched non-members	64.5	14.9	265
Unmatched non-members	51.9	16.5	235
Unmatched members	87.7	14.4	81
Matched members	57.3	15.1	276
BRAC(APON)	*55.9*	*15.3*	*161*
BRAC(APON & JVO)	*66.7*	*14.8*	*30*
CMES	*56.5*	*14.8*	*85*
Total	61.3	15.4	945

** Refers to number of respondents enrolled in school at the baseline.*

In order to further investigate the factors affecting the likelihood of remaining in school between the two survey rounds, a logistic regression analysis was performed with school retention as the outcome. The dependent variable was a dummy equaling 1 if the respondent remained in school and 0 if the respondent dropped out. Consistent with the

Table 5.2. Results of logistic regression analysis of school retention (n=945)

	Var. description	OR	P>|t|
Membership categories	categorical		
BRAC Library		1.2	0.7
Matched non-members	base	-	-
Unmatched non-members		0.6	0.0
Unmatched members		4.4	0.0
BRAC(APON)		0.9	0.8
BRAC(APON & JVO)		0.9	0.8
CMES		0.8	0.5
District	categorical		
Chapai	base	-	-
Sherpur		0.9	0.5
Chittagong		1.4	0.1
Age	continuous	0.8	0.0
Wealth	categorical		
Poorest quartile	base	-	-
2		1.6	0.2
3		1.6	0.2
Wealthiest quartile		1.9	0.1
Years of schooling	continuous	1.2	0.0
Ever engaged in productive work?	binary	0.2	0.0
Ever engaged in paid work?	binary	1.0	0.9
Ever taken loan?	binary	0.7	0.2
Village type	binary (0=control; 1=intervention)	0.8	0.5

data in Table 5.1, unmatched members exhibit a significantly higher likelihood of remaining in school (OR=4.4; p-value=0.0). The other category with a significant difference in the likelihood of remaining in school (compared to matched non-members) is that of the unmatched non-members. Respondents in this category were also more likely to remain in school.

Another aspect of schooling deserving of examination is the reasons for school dropout. Table 5.3 contains data on this topic among the 366 respondents who left school in the interim between the two survey rounds. Overall, lack of time (54.4 percent), poor school quality (14.8 percent), and expenses (8.5 percent) were cited as the top three reasons for school dropout.

Table 5.3. Reasons given for leaving school among those respondents who dropped out of school between 2001 and 2003 (N=366).

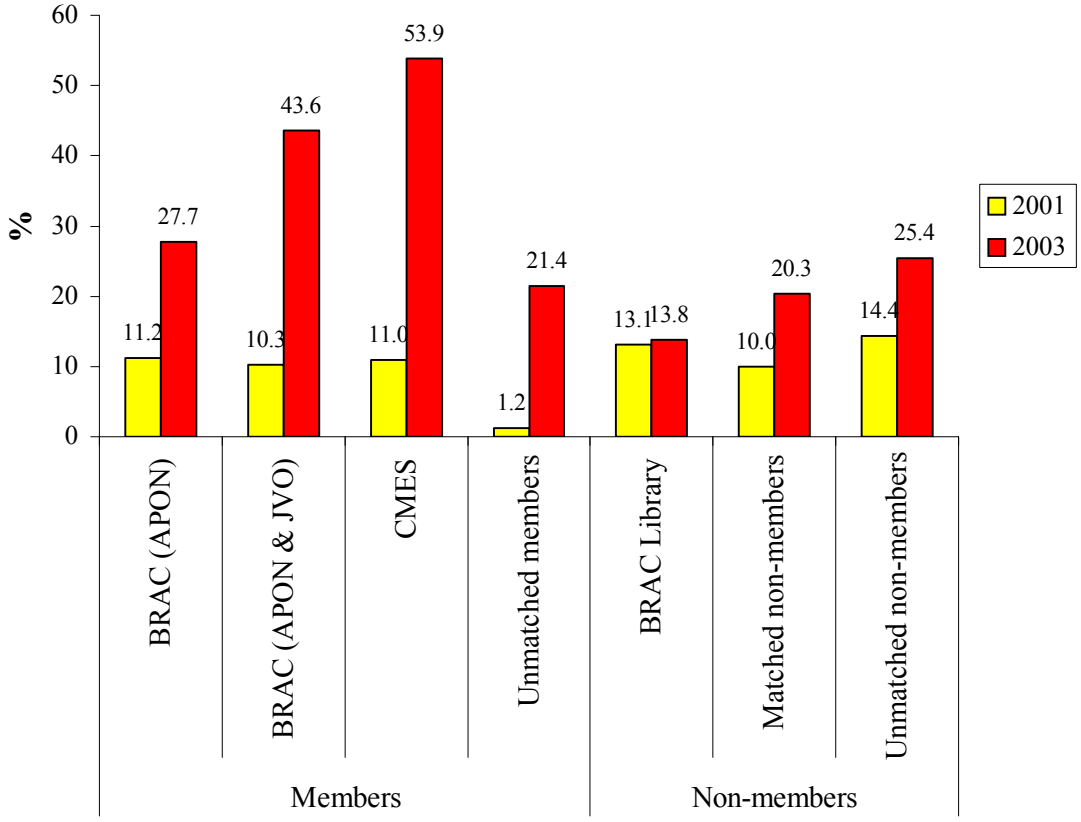
		BRAC Library members	Matched non-members	Unmatched non-members	Matched members	Unmatched members	Total
Expenses		0.0	8.5	10.6	9.3	0.0	8.5
Illness		3.2	3.2	7.1	2.5	0.0	4.1
Lack of time		67.7	57.5	53.1	49.2	60.0	54.4
Poor performance		6.5	7.5	6.2	5.9	0.0	6.3
Lack of interest		0.0	0.0	3.5	0.0	0.0	1.1
Marriage		0.0	2.1	2.7	2.5	0.0	2.2
Finished/grew up		3.2	0.0	1.8	0.9	0.0	1.1
Lack of security/fear		9.7	5.3	4.4	8.5	0.0	6.3
Poor school quality		9.7	16.0	8.0	19.5	40.0	14.8
Other		0.0	0.0	2.6	1.7	0.0	1.4
Total	%	100.0	100.0	100.0	100.0	100.0	100.0
	N	31	94	113	118	10	366

6. Work

Opportunities for paid work among females in Bangladesh have emerged only recently, usually in the form of employment in the many garment factories that have set up production in the country. Females generally make up the majority of garment factory workers, all the more striking given the cultural tradition of *purdah* that stresses women's role inside the home.

One of the goals of the *Kishori Abhijan* programs was to increase the economic activity of members. As the following figure demonstrates, the programs appear to have had success in this area.

Figure 6.1. Percentage of respondents working for pay in 2001 and 2003, by membership status.



In order to determine which factors influence the likelihood of participating in paid work, as well as differences among the various membership categories, a logistic regression analysis was performed using the 2,107 respondents who did not report working for pay when the initial survey was conducted. The dependent variable is a dummy equaling 1 if the respondent reported having ever worked for pay at the time of the midline survey and 0 if the respondent did not report the same. Table 6.1 presents the results of the analysis. Among the five membership categories, three groups of members exhibit a higher likelihood of working for pay compared to matched non-members: (i) unmatched members (OR=2.1; p-value=0.0), (ii) BRAC(APON) members (1.9; p-value=0.0), and (iii) CMES members (OR=3.2; p-value=0.0).

Other variables thought to affect the likelihood of working for pay were included as controls. Compared to respondents from Chapainawabganj, only those from Sherpur exhibit a significant difference in the likelihood of working for pay—in this case, they were less likely to report working for pay in 2003. Not surprisingly, age positively and significantly affects the likelihood that a respondent reported having worked for pay (OR=1.1; p-value=0.0). Also not surprising is the finding that those living in families with relatively higher wealth levels are significantly less likely to have worked for pay. Lastly, enrollment in school (OR=0.7; p-value=0.0) and marriage (OR=0.6; p-value=0.0) significantly decrease the likelihood of working for pay.

Table 6.1. Results of logistic regression analysis of work for pay (N=2,107).

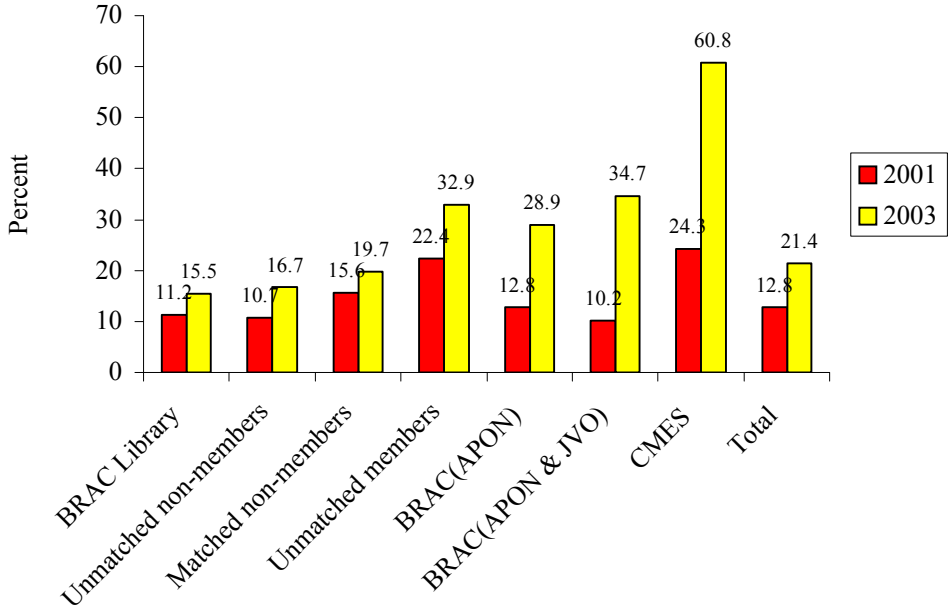
	Var. description	OR	P>|t|
Membership categories	categorical		
BRAC Library		1.0	0.9
Matched non-members	base	-	-
Unmatched non-members		1.1	0.6
Unmatched members		2.1	0.0
BRAC(APON)		1.9	0.0
BRAC(APON & JVO)		1.2	0.7
CMES		3.2	0.0
District	categorical		
Chapai	base	-	-
Sherpur		0.4	0.0
Chittagong		1.1	0.7
Age	continuous	1.1	0.0
Wealth	categorical		
Poorest quartile	base	-	-
2		0.9	0.9

3		0.7	0.1
Wealthiest quartile		0.6	0.0
Years of schooling	continuous	1.0	0.9
In school at baseline?	binary	0.7	0.0
Ever taken loan?	binary	2.5	0.0
Married at baseline?	binary	0.6	0.0
Village type	binary (0=control; 1=intervention)	0.8	0.2

Access to vocational training

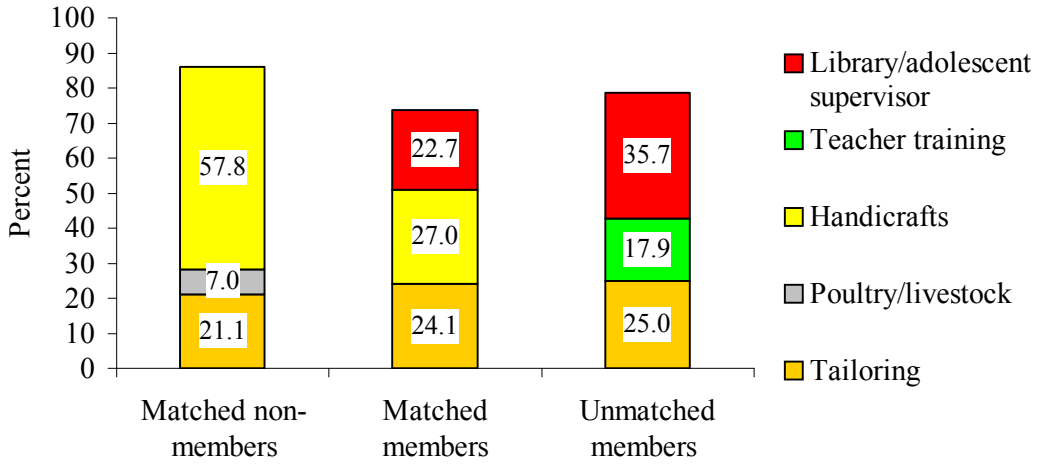
Another goal of the *Kishori Abhijan* programs was to provide training to qualified participants. Figure 6.2 compares the percentage of respondents from the various categories who reported receiving training in both 2001 and 2003 to compare members and non-members. While the percentage of matched non-members who received training increased only slightly from 15.6 percent in 2001 to 19.7 percent in 2003, increases among the program members were much more substantial. The percentage of BRAC(APON) members with training experience jumped from 12.8 percent in 2001 to 28.9 percent in 2003. Among BRAC(APON & JVO) members this figure increased from 10.2 to 34.7 percent and from 24.3 to 60.8 percent among CMES members. Lastly, the percentage of unmatched members who reported the same increased from 22.4 to 32.9 percent.

Figure 6.2. Percentage of respondents who reported receiving training, 2001 and 2003.



To compare the types of training received by members and non-members, Figure 6.3 displays the top three types of training received cited by respondents in the following three categories: (i) matched non-members, (ii) matched members, and (iii) unmatched members. Matched non-members were most likely to receive training in handicrafts (57.8 percent) followed by tailoring (21.1 percent) and poultry/livestock (7.0 percent). While matched members also reported receiving training in handicrafts (27.0 percent) and tailoring (24.1 percent), they differ from matched non-members in that a substantial percent (22.7) received training to become library/adolescent supervisors. Lastly, unmatched members differ in that, in addition to library/adolescent supervisor training, a high percentage (17.9) reported receiving teacher training.

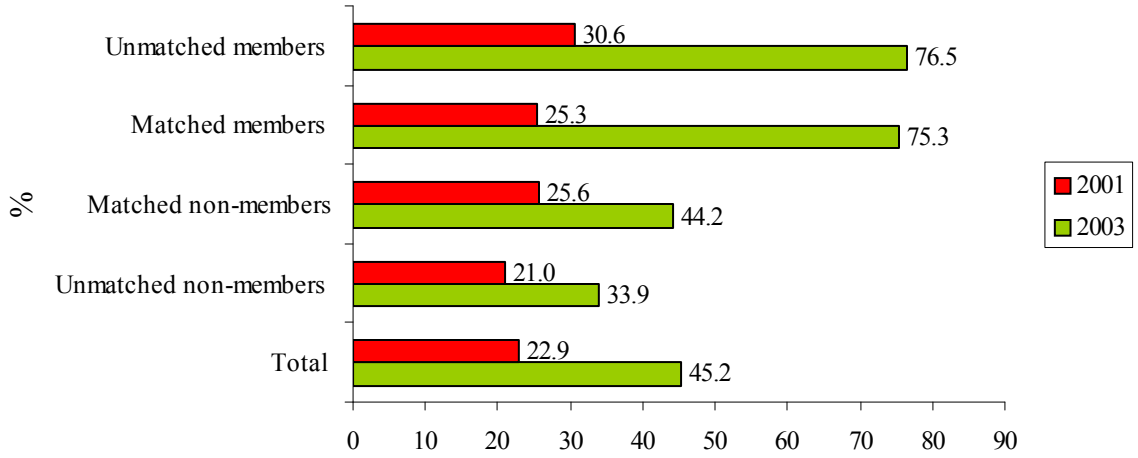
Figure 6.3. Top three types of training received by program members and their matches (2003).



7. Health Awareness

Improving awareness of issues such as AIDS and other health issues was another goal of the *Kishori Abhijan* programs. Figure 7.1 presents data on the percentage of respondents in the five membership categories who reported knowledge of sexually transmitted infectons (STIs). Figures for both 2001 and 2003 are shown to compare knowledge among members and non-members. Overall, the percentage of respondents with knowledge of STIs increased from 22.9 percent in 2001 to 45.2 percent in 2003. However, program members exhibit greater increases. Knowledge of STIs among unmatched members jumped from 30.6 percent in 2001 to 76.5 percent in 2003. In a similar fashion, among matched members this percentage jumps from 25.3 percent in 2001 to 75.3 percent in 2003. On the other hand, smaller increases are reported by non-members.

Figure 7.1. Percentage of respondents reporting awareness of STIs, 2001 and 2003.

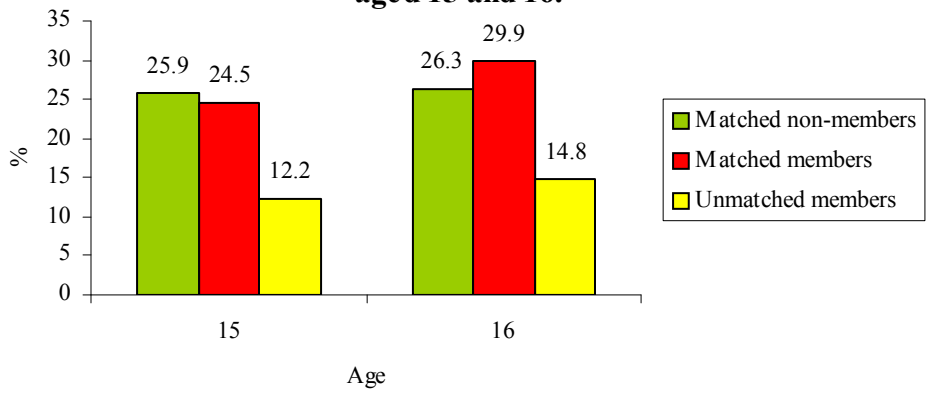


8. Discussion and Conclusion

One of the more striking findings of the analysis of the *Kishori Abhijan* programs is that positive outcomes are often limited to unmatched members, those respondents who participated in a program but could not be matched to a similar non-member in the study population. What is it about these unmatched members that make them more likely to achieve success in terms of school retention, delayed marriage, and economic participation? This question is all the more intriguing given that unmatched members share similar characteristics—they all live in the district of Sherpur, they are relatively young but at the same time have more education compared to their matched counterparts. The youth of the unmatched members seems particularly important given that their lower odds of marriages, as marriage is an age-related outcome. However, even when compared to respondents of similar ages in other categories, unmatched members still exhibit differences. For example, Figure 8.1 compares interim marriage rates among respondents aged 15 and 16[9].

[9] Ages were limited to 15 and 16 as they represent the only ages for which the number of unmatched members is greater than 30.

Figure 8.1. Interim marriage rate among respondents aged 15 and 16.



As Figure 8.1 makes clear, unmatched members still display improved outcomes (in the form of delayed marriage) *even when compared with respondents of a similar age range.*

At the same time, however, the finding that unmatched members were more likely to receive training as library/adolescent supervisors (i.e. training by the NGOs involved in *Kishori Abhijan*) compared to matched members (35.7 versus 22.7 percent) suggests the possibility that that these girls may have already shown promise at the time of program initiation. But the higher rate of library/adolescent supervisor training among the unmatched members could also be attributable to the fact that all of these girls resided in Sherpur. Since members were more likely to reside in Sherpur than any other district, the higher rate of training could have been a direct consequence of the high program participation rate in this district.

The finding that all the unmatched members live in the district of Sherpur, combined with the increased poverty of this district compared with Chapai and Chittagong, suggests that livelihood programs should think about concentrating their efforts to those the poor, especially in poorer areas, as they have the most to gain.

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