Should Interventions Address the Full Complexity of Transitions to Adulthood? Lessons from a Program Experience in India

Sanyukta Mathur[+](sanyuktam@yahoo.com / sm2892@columbia.edu)
Anju Malhotra[^^](anju@icrw.org)
Sreela DasGupta[^^]
Sushmita Mukherjee[^^]
Anjala Kanesathasan[^^]

[+] DrPH Candidate at Columbia University, Mailman School of Public Health
[^^] International Center for Research on Women (ICRW)

Abstract

This paper bridges academic understanding on the complexity of adolescent life course transitions with the practical lessons learned from implementation of field based programs to answer the question: should intervention programs be taking on the broad mandate of addressing the full range of life course transitions during adolescence, including education, employment, marriage, and childbearing? We use evaluation data from an integrated youth program in India from 2003-2008 to answer this question and map direction for researchers and policymakers. Our results show that even in challenging settings and in a short time, integrated programs can be implemented and result in behavioral change on marriage and childbearing. The results were less conclusive on empowerment and livelihood outcomes. Integrated programs are challenging to implement in environments with limited economic options, health infrastructure and NGO capacity and more creative and selective strategies may be required to implement ambitious multisectoral programs in developing country settings.

Introduction

As the world -and developing countries in particular- faces the largest generation of young people in history, policymakers are increasingly being asked to address the full challenges and complexity of the adolescent life course transitions in these countries. Demographic research shows that adolescence is a complex period of change, often involving major transitions in life including education, work, marriage, and childbearing (National Research Council & Institute of Medicine, 2005; Van Look, 2003). Moreover, given the social, economic, and political changes manifested by a globalizing world, young people in developing countries are increasingly experiencing these transitions in the context of shifting social and gender norms and expectations (Jimenez & World Bank., 2006; National Research Council & Institute of Medicine, 2005). Over the past decade, researchers and youth advocates have stressed the need for proactive policy and programmatic interventions to address and facilitate multiple aspects of life course transitions to adulthood (Brady, 2005; Mathur, Malhotra, & Mehta, 2001; Mensch, Clark, & Anh, 2003; National Research Council & Institute of Medicine, 2005; Van Look, 2003). It has often been argued that addressing the full range of youth needs at this critical stage of life is essential to lay the foundation for young people to lead healthier, more productive, and more empowered lives as adults (Jimenez & World Bank., 2006).

While there is a broader conceptual consensus around multi-sectoral needs in development programming, addressing multi-sectoral needs has not been an easy task. Even before this issue was considered from a reproductive health (RH) perspective, development programs aimed at poverty reduction, agricultural development and nutrition have attempted to stress and address multiple factors contributing to poor development outcomes. These approaches employed a multi-sectoral integrated perspective to program planning and implementation, to address various social, economic, and community development needs of the poor (Maxwell, 1997). Generally, these approaches have had mixed success and have been fairly resource intensive. In RH, the issue of integration has largely been concerned with the provision of sexual and reproductive health information and services with existing health care services. The rationale has been that integrated RH services would better meet the needs of clients and may improve both the efficiency and effectiveness of services (Hardee K & Yount KM, 1995; Hardee et al., 1999; Lush, Cleland, Walt, & Mayhew, 1999; Mayhew, 1996). While the rhetoric of integration has been promising, the challenge has been to implement health program components that have emerged from different agendas, have different managerial and human resources, distinct service delivery systems, and divergent political and financial support (Lush et al., 1999; Mayhew, 1996).

This paper is situated at the intersection of development and RH literature, with an explicit focus on meeting the needs of young people in a developing country context. The evaluation results presented here emerge from an intervention project in India that attempted to improve RH outcomes by addressing the reproductive health and non-reproductive health needs of youth. As such the project took on both the complexity of the substance of the intervention (youth RH) and the challenges associated with a complex development program. This assessment examines the successes and challenges of such an integrated approach and points to future program and policy recommendations.

Background

In the 1990s, the adoption of the International Conference on Population and Development (ICPD), Cairo agenda put the sexual and reproductive health (SRH) needs of

adolescents on the broader development agenda (National Research Council & Institute of Medicine, 2005). Further in the late 1990s, the spread of the AIDS epidemic brought even greater attention to the sexual practices of youth. During this time, programmatic and policy attention was directed toward addressing youth knowledge, attitudes, and behavior related to SRH. Young people's debut into marriage and childbearing also received broader development interest. While the volume of literature on youth has expanded in recent years, it has largely emphasized "traditional development imperatives, such as education and health" (National Research Council & Institute of Medicine, 2005). Thus, the majority of policies and programs directed at young people in most developing countries are frequently limited in scope.

In terms of RH, programming for young people has evolved substantially since the Cairo conference, and experiences range from fairly narrow single component programs to multi-component and comprehensive initiatives. School-based RH initiatives, mass media campaigns, peer promotion programs are examples of initiatives that emphasized the improvement in reproductive health outcomes through a narrow selection of activities. The majority of these programmatic efforts revealed modest successes. While most programs in developing countries were able to change youth knowledge and awareness about sexual and reproductive health issues, changing behavior, such as health care service use, has been more tenuous (National Research Council & Institute of Medicine, 2005; Speizer, Magnani, & Colvin, 2003). A few initiatives that integrated multiple components (school-based RH education with health care facility components for example) have yielded desired behavioral outcomes (National Research Council & Institute of Medicine, 2005). Research has also indicated that it is often difficult to address issues like contraceptive use among newly married adolescents or the timing of sexual initiation within fairly restrictive social, gender, educational and economic contexts and opportunities available to young people (Mathur et al., 2001; Mensch, Bruce, & Greene, 1998; Mensch et al., 2003). Multiple-component programs evolved from this growing recognition of social and institutional factors that influence young people's health and well-being. These multiple-component programs have included multiple reproductive health interventions (peer groups, RH education through schools, etc.) and worked with multiple groups (youth, parents, teachers, etc.) within communities to elicit changes in knowledge, attitudes, norms, and behaviors. A few such programs have shown positive outcomes, in terms of changing knowledge, attitudes, norms and behaviors, though their outcomes remain tempered by gender and other contextual constraints (Erulkar, Ettyang, Onoka, Nyagah, & Muyonga, 2004; Malhotra, Mathur, Pande, & Roca, 2005; Pande, Kurz, Walia, MacQuarrie, & Jain, 2006).

More recently emphasis on young people as community participants and decision-makers is emerging, leading to programmatic approaches that address a range of developmental needs of young people during their transition to adulthood (National Research Council & Institute of Medicine, 2005). An assessment of field-based programs that approached youth development from a more comprehensive perspective confirmed that reproductive and sexual behavior for adolescents is closely linked with their educational and economic options and that young people may benefit from simultaneous attention (Esim, Malhotra, Mathur, Duron, & Johnson-Welch, 2001). The assessment also revealed that the need for linked or integrated programs is not "driven solely by donor or professional interest, but is demand-driven, emerging from the grassroots" (Esim et al., 2001). The connections between economic conditions and health are fundamentally rooted in the lives of young people across continents. A common programmatic recommendation, thus, has been to implement comprehensive integrated youth programs rather than narrow vertical programs aimed at providing SRH information and services alone.

Integrated programs, however, are not a new concept in international development and have a long established history in the field of development. Rural development projects, popular in the 1970s, employed a multi-sectoral and multi-pronged approach to address the needs of the rural poor.[1] Global consensus of the multi-dimensional symptoms and causes of poverty led to attempts to integrate various components in rural development programs (Maxwell, 1997). Integrated rural development programs saw the poor as their clients, viewed development as holistic, used a broad definition of program objectives, and emphasized the importance of local initiative and resources in program viability (Aminuzzaman, 1985). Such integrated programs often included a variety of project activities, ranging from creating farm-to-market roads, family planning promotion, improving rural education and schooling, fostering group recreational and cultural activities, to broader community development activities (Ruttan, 1984). The attempt was to create a centralized structure through which multiple activities tapping into various sectors were implemented on a large-scale. The multi-pronged approach employed by integrated development programs provides a useful framework to conceptualize the multiple vulnerabilities of young people in poor rural areas in developing countries. Young people's reproductive health outcomes for instance, are influenced not just be their individual actions and aspirations, but by norms around early marriage and early childbearing, the absence of viable schooling and work opportunities, and the lack of access to health services (Mathur et al., 2001; Mensch et al., 1998). Thus, a program that attempts to achieve change in key reproductive outcomes like contraceptive use and health care service use may achieve only partial success through a sector-specific approach that minimally provides information to young people without changing the broader context and institutions within which they function.

In the field of reproductive health however, "integrated" usually refers to the integration of sexual and reproductive health within public health care services, such as integrating SRH with primary health care initiatives or integrating SRH with HIV/AIDS services (Bhutta et al., 2008; Hardee et al., 1999; Lawn et al., 2008; Mayhew, 1996). Again, the ICPD Cairo agenda was one of the critical factors in promoting this integration; it was viewed as an opportunity to provide the comprehensive RH to low-income countries, improve the quality of family planning, improve women's health, and mitigate the spread of HIV (Lush et al., 1999). The ideal was to building on existing primary health care services, so that clients could have one location at which to access their health needs (Hardee et al., 1999). While the integration of health service delivery remains a critical goal in public health programming, it remains largely a sector-specific approach to health. Most programs are designed and implemented vertically and few proactively incorporate the gendered dimensions of life course transitions, or the changing social and economic contexts within which these are increasingly taking place.

Integrating and linking reproductive health with non-health interventions to achieve desired health outcomes is a more recent field of interest. In part this attention emanates from the multi-dimensional vulnerability and impact of the HIV/AIDS epidemic. In certain locations where HIV/AIDS has created major social, demographic, and economic upheaval, there is a call to recognize the root causes of HIV/AIDS – poverty, livelihood insecurity, inequalities, poor infrastructure – and move beyond health specific responses to mitigate the spread and impact of the epidemic (Hemrich & Topouzis, 2000). Again the call is to "address broader development

[1] Before integrated rural development programs (IRDP), community development was the dominant paradigm of development initiatives in the 1950s and 60s. Post-IRDPs development emphasis has ranged initiatives like structural adjustment programs (1980s), to decentralized participatory "process" models (80s), to the human development approach (1990s) and most recently the Millennium Development Goals (2000s).

problems across sectors" (Hemrich & Topouzis, 2000), to achieve reproductive health goals. In response to this realization, various types of programs have started to link HIV education with their program initiatives. For example, in 2005 UNFPA released an advocacy document to urge the integration of HIV/AIDS education with micro-credit programs (Watson & Dunford, 2005). The idea is to maximize the micro-credit infrastructure and systems and to offer a more comprehensive solution to poverty for its clients.

Both the history of integrated rural development programs and the more recent experimentation into integrated programs in reproductive health are not without challenges. In fact, while several integrated rural development programs (IRDP) had shown successes, these initiatives fell out of favor with donors toward the end of the 1970s. Donors and governments became disenchanted with IRDPs due to inconsistent results across sites and the intensive and recurrent costs (Crener, Leal, LeBlanc, & Thebaud, 1984; Maxwell, 1997; Ruttan, 1984). Further, IRDPs often suffered from limited policy and political commitment, ineffective planning and strategy, and inadequate organization for action. For instance, Ruttan (1984) notes that often the targets of World Bank supported projects were "more ambitious than could be supported with existing technical and administrative capacity…." Further, smaller locally-responsive initiatives were difficult to replicate and expand. As these pilot projects expanded, they tended to lose their niche in local participation and building the capacity of local institutions for mobilization (Aminuzzaman, 1985; Ruttan, 1984). Crener and colleagues (1983) point to additional challenges, like inequitable distribution of revenue and benefits across components, rigidity of planning and implementation based on idealized social, economic and political contexts, and heterogeneous target groups disengaged from the conception and implementation of projects. Advocates of the micro-credit and health linkage also caution against the lack of consensus on how to facilitate this linkage, without severely increasing costs and burdens of the micro-credit institutions (Sebstad & Cohen, 2001). Additional components to the micro-credit infrastructure, they caution, may increase costs but not revenue, as clients may be unlikely to cover the costs of the social programs (Sebstad & Cohen, 2001). Further, it is difficult to measure impact of the social programs, reducing and confusing the accountability mechanisms of the micro-credit initiatives. The assessment of linked programs conducted by Esim and colleagues (2001) found that programs were mostly *attempting* linked strategies; there existed no models for such innovative mixture of programmatic efforts. As such the programs were only achieving marginal effectiveness in meeting both the reproductive health and livelihoods needs of young people (Esim et al., 2001). Overall assessments of integrated programs emphasize challenges related to local structures and opportunities, local capacity, genuine participation and decision-making by stakeholders/targets, the underlying social economic political and cultural context, and the nature of the goals of integrated programs.

Given this history, in the field of youth reproductive health attempts at integrated programs to address multiple transitional needs of young people – education, work, health - remain fairly nascent and largely experimental. This conceptual understanding of the multiple dimensions of poor reproductive outcomes for youth, has not necessarily translated into programmatic clarity regarding how and if programs should attempt to meet the multiple transitional needs of youth. A deeper understanding of the effectiveness and viability of integrated programs that try to improve RH outcomes by changing the context of young people's lives is needed. This paper attempts to fill this gap between theoretical understanding and practical best practices regarding the effectiveness and viability of integrated programmatic

approaches focused on youth reproductive health. The specific focus is if an integrated approach can:

- Succeed in improving outcomes related to multiple life course transitions for young people?
- To which degree was the implementation of the program itself a success, and what challenges were posed by the complex design and scope of the interventions?

Study Setting

To better understand the challenges and possible benefits of an integrated approach to youth reproductive health well-being, this paper is based on the outcome and process evaluation data from an initiative conducted in Bihar and Jharkhand, two states in India. These states present the full complexity of adolescent needs, but are also among the least developed states in India, characterized by high levels of poverty, low levels of development, and poor political and economic infrastructure and capacity.

The two adjoining states of Bihar and Jharkhand are located in north-eastern India and together represent just over 10% of the Indian population (Government of India, 2001). In the year 2000, the state of Jharkhand was carved out of 18 south-eastern districts from Bihar, representing the poorest and historically marginalized parts of Bihar (Government of India, 2001; The World Bank, 2005). Agriculture is the bedrock of Bihar and Jharkhand economies, employing over 80% of the workforce, however it is highly susceptible to annual ecological shocks like flooding. Further, after the split from Bihar, Jharkhand included most of the "revenue-yielding industrial and mineral resources" (The World Bank, 2005). In terms of development levels, there is a wide gap between Bihar and the rest of India. Bihar and Jharkhand are defined by persistent poverty (40% live below poverty line), high incidence of rural poverty, low urbanization rates (only 10% and 22% of the population respectively live in urban areas), and high illiteracy (48% and 54% respectively) (Government of India, 2001). Limited growth in Bihar (0 growth in the early 1990s, 1% per annum growth in per capita terms after 1994-95) has been a major challenge to development and led to declining investment in these states and high fiscal deficits (The World Bank, 2005). Challenges to development in these states are numerous. Social and political turmoil have left the state with corruption, sparse public investment in social and health infrastructure, and poor management of program resources (Kumar, 2007). Further a centralized and highly bureaucratic government system impedes decision-making and implementation.

Youth (ages 10-24) comprise one-third of the population in these states, and adolescent girls typically experience early marriage, early childbearing, poor ante- and post- natal care, and low rates of modern contraceptive use. The 2005-06 demographic and health survey indicated that 64 percent of girls in Bihar and 60 percent of girls in Jharkhand aged 18-29 years were married by age 18 (International Institute for Population Sciences (IIPS) & Macro International, 2007). The median age at marriage for these girls was only 15 years in both states, and half had given birth by age 19 (International Institute for Population Scienes (IIPS) & ORC Macro, 2000). Once initiated, childbearing typically proceeded with little spacing between children; only 3.8 percent of married girls aged 15-24 used modern temporary methods of contraception (International Institute for Population Scienes (IIPS) & ORC Macro, 2000). These fertility and contraceptive use patterns contribute to and reflected a climate of gender discrimination and limited options for young people, particularly girls, in Bihar and Jharkhand.

Despite clear evidence that improving access to sexual and reproductive health information and services is vital, government and civil society initiatives to address these needs are scarce and scattered. The government of India has not formulated specific programs for adolescents, but their needs area supposed to be addressed from several ongoing programs. The India National Youth Policy formulate in 2003 is the first attempt to create a multi-dimensional approach to youth development including education, health (and reproductive health), employment and work, arts and recreation, citizenship among others (Government of India, 2003). Further, while youth sexual and reproductive health had received increasing programmatic attention in several states in India during the previous decade (e.g. Maharashtra, Gujarat), such initiatives in Bihar and Jharkhand are still in a relatively nascent stage. As such, Bihar and Jharkhand present particularly challenging contexts to test an integrated project. However, such challenging settings abound in many places in the world. This application allows a practical assessment of what is feasible and not for integrated programs within such complex and challenging settings.

Study Design

In order to test the integrated approach to addressing the complexity of youth transitions in developing countries, the International Center for Research on Women (ICRW) and local partners designed, implemented, and evaluated the Development Initiative for Supporting Healthy Adolescents (DISHA). With an understanding of the interrelated and complex needs of young people, the project was conceptualized to directly address three aspects that directly and indirectly affect youth reproductive health outcomes. The hypothesis was that an integrated program will result in improved reproductive health outcomes for youth by achieving the following primary objectives:

- Increase the access of married and unmarried adolescents, aged 14-24 years, to information and modern family planning and reproductive health services;
- Delay marriage and childbearing among youth and strengthen their ability to make informed decisions about reproductive health matters, especially among girls; and
- Provide youth with alternatives to early marriage through livelihoods skills and options

Three programmatic components reflected DISHA's integrated approach to addressing both sexual and reproductive health and the sociocultural and economic factors that influence sexual and reproductive health outcomes among youth (see Figure 1).

The primary aspect was to *improve youth skills and capacity*. Here DISHA sought to increase youth skills and capacity on reproductive health issues, as well as skills and employment opportunities. The youth skills and capacity component focused on building skills in areas such as communication, negotiation, and leadership. It used a group formation and leadership strategy to develop safe spaces for young people, and foster a cadre of 828 volunteer peer educators (PEs) – married and unmarried males and females - for SRH information and referrals. This component also focused on livelihoods activities aimed to create income-generating opportunities for youth while building the skills necessary to develop and maintain viable enterprises. The second aspect was to *create an enabling environment* by building community support for meeting youth sexual and reproductive health needs. This was accomplished through establishing alliances with key community stakeholders, mass communication activities – street plays, wall writings, thematic fairs, rallies, mobile health clinics and sporting events – to sensitize and orient the community to issues such as the consequences of early marriage, and youth reproductive health needs, including contraception.

Additionally DISHA partners established adult groups in each village to discuss a range of topics, including the status of youth in their communities, to exploring the roles parents play in shaping their children's lives, and inter-generational conflicts. And final aspect was to ensure and enhance the quality, quantity and accessibility *youth-friendly sexual and reproductive health services*. DISHA partners trained 108 local private health care providers in reproductive health skills, service quality and youth-friendly services including general reproductive health counseling, contraceptive services, sexually transmitted infection (STI) diagnosis and treatment, and safe motherhood (e.g., antenatal care and safe delivery). To provide a more private, confidential access to contraceptives and counseling at the village level, DISHA also developed and trained a cadre of youth depot holders (YDH) comprising 313 youth, including married and unmarried males and females.

DISHA interventions were implemented by six non-governmental organizations (NGOs) with an established presence on the ground, three in Bihar and three in Jharkhand. All partners largely implemented the same integrated package of interventions, adapting details to local needs and contexts. These organizations engaged youth and community members to help design and implement the multi-pronged package of intervention activities. DISHA interventions were conducted in 176 villages over a two-year period, from 2005 to 2007.

Data and Methods

Overall, the study used a quasi-experimental design to evaluate the programmatic impact of DISHA. That is, we collected data immediately before (2004) and after (2007) program implementation from adolescents in intervention and control communities. The baseline and endline population-based household surveys included questions on demographic characteristics of respondents; contraceptive knowledge, attitudes and prevalence; and dimensions of empowerment. The endline included additional questions related to DISHA program exposure.

Multi-stage stratified random sampling was used to select survey respondents. First, villages in each of the six NGOs' catchment areas were stratified by development criteria into two groups: less developed and more developed based on indicators such as literacy levels, distance to a road, etc. Next, 18 less developed and 18 more developed villages were chosen at random to comprise the intervention group. Six villages were selected from each of the NGO's catchment area to participate in data collection (i.e., the total 36 villages were equally distributed between the implementing partners). Two of the six NGOs were asked to identify another 6 villages demographically and socioeconomically similar to the ones already chosen to be in the intervention group, to serve as controls. Next, within each village youth were stratified by sex and marital status (e.g. ever married or never married), and then using quota sampling, were systemically selected from within each established category to identify target respondents. At baseline 4,645 youth aged 14-24 years and 1,601 adults aged 30 years and over were sampled from the NGO catchment areas. The sample sizes for the youth and adults at end line were 4,323 and 1,562, respectively. No significant changes in youth and adult respondent characteristics were observed between baseline and endline (see Table 1).

Quantitative findings were enhanced by qualitative data collected through 36 focus group discussions (FGDs) with youth involved in DISHA youth groups and livelihood training groups (including young married women), adults, health service providers, and peer educators. Specifically, the FGDs, contextualized quantitative findings regarding changes in reproductive health knowledge, attitudes and behaviors; provided insights and feedback on DISHA program

interventions; and allowed youth to express their opinions on changes in reproductive health information, life skills and empowerment for normative and behavioral changes.

Additionally, ICRW and its six implementing partners generated on-going process evaluation data to assess project effectiveness and quality. These data are especially important for understanding how key project components (e.g., livelihoods, health service delivery) were implemented, as well as the project as a whole. Monitoring data used in the evaluation drew from multiple tools and reports, including: 1) NGO partner Quick Response Monitoring System used to track project progress by outcomes; 2) ICRW Quality Assurance tools and report cards used to monitor the quality of implementation; 3) ICRW and technical partner training reports; 4) reports to the US-based funding agency and local advisory councils; and 5) ICRW staff trip reports.

Analysis

A three-pronged approach was employed to analyze program impact on youth and adults. First, ICRW compared changes in outcome variables from baseline to endline in the intervention area.[2] Independent T-tests and ANOVAs were used to analyze mean differences in continuous variables and Pearson's Chi-Square tests were used to analyze proportions in categorical variables.

ICRW also estimated DISHA's program effect on outcome variables by using multivariate propensity score matching (PSM) techniques to compare DISHA participants to non-participants in the intervention and control groups at endline.[3] Of the 3,326 youth sampled at endline, 2,004 adolescents (60 percent) reported participating in at least one DISHA intervention activity.

Finally, the analysis examined the effect of depth of exposure to DISHA activities on key outcomes of interest using binary logistic and linear regression analysis. Two depths of exposure were measured and defined as:

1. *Mass or generalized* interventions (e.g., dramas, wall murals, community meetings, etc.) that had limited engagement with youth. Of the 2,004 adolescents in the youth sample who were exposed to DISHA, 1,428 reported only participating in a generalized DISHA intervention.
2. *Targeted or individualized* interventions (e.g., youth groups, livelihood groups, etc.) that provided a more interactive and frequent exchange with youth. Almost 30 percent, or 576 youth from the sample, reported participating in at least one individualized DISHA intervention activity.

Both youth and adult multivariate depth of exposure regression models controlled for age and state. Youth models also controlled for marital status and wealth; adult models controlled for sex. These analyses helped determine if the more targeted, individualized interventions resulted in greater impact than the mass, generalized interventions. Confidence intervals were calculated at 95 percent and statistical significance was reported at $p < .05$

Results

Program and process evaluation results show that the ambitious agenda attempted by the integrated project did yield some positive reproductive health outcomes, even in resource-poor and contextually constrained settings like Bihar and Jharkhand. Overall, the objectives that

[2] Political instability, floods and demographic shifts impeded endline data collection in some of the control sites thereby preventing an analysis of changes over time in the control group.

[3] For PSM analysis, youth respondents were matched on sex, age, marital status, number of children, education level, religion, social caste, wealth and state. Adult respondents were matched on sex, age, religion, social caste and state.

achieved the greatest impact were those where young people and other actors involved in the process of change had the greatest control. Action and change that was "locally-controlled" and where some existing infrastructure, capacity, and groundwork were already present, achieved the greatest success. Other objectives that were more heavily influenced by the "externally-controlled" environment, such as the socio-economic context and broader infrastructure, achieved less successful impacts. Table 2 summarizes the degree of success attained by the project on specific observed outcomes.

Strong positive outcomes on improving youth skills, capacity, and behavior related to RH

A primary goal of DISHA was to ensure that youth in the intervention areas were equipped with complete and accurate information regarding sexual and reproductive health options. DISHA successfully increased youth knowledge of all six modern contraceptive methods promoted by the program.[4] Changes in contraceptive awareness were most pronounced among females. For example, knowledge of condoms, the cheapest and most easily accessible contraceptive method, was already high among married males at baseline (90 percent). However, among married females, knowledge was much lower at baseline (48 percent), but increased significantly by endline to 68 percent.

In terms of improving youth attitudes about their use of contraceptives and reproductive health services, results were most profound among females in Bihar, where more than half of all female youth disapproved of contraceptive use among married couples at baseline compared to only 13 percent who felt this way at endline ($p<.0001$). The significance of depth of exposure was examined using multivariate analysis. Table 3 shows that exposure to the DISHA program significantly improved youth knowledge and attitudes regarding contraception, and individualized exposure had a stronger effect. For example, depth of exposure was important in shifting attitudes around contraceptive use. Females who participated in individualized interventions were more than twice as likely to think that contraception should be available to young married couples as those females who had only generalized exposure to DISHA. Typically, the individualized program effect seems to be twice as large as the generalized program effect, with odds ratio being 1.5 to 4 times higher.

Evaluation results clearly demonstrate that behavior change occurred in DISHA communities, despite the relatively short duration of the project and the challenging setting. Increasing contraceptive prevalence (including supply, access, and use by youth) was a cornerstone of DISHA. Reported current use of a method of contraception among young married couples increased significantly among both females and males in Bihar and Jharkhand from baseline to endline. The changes in Bihar were most stark. Reported current use more than doubled among both males and females (Figure 2). Program effects were significant for increased contraceptive use. Married youth exposed to DISHA were almost 60 percent more likely than similar youth who were not exposed to DISHA to report current use of a modern contraceptive method, providing evidence that increases in contraceptive use in married populations in the program areas is partly attributable to DISHA interventions. Thus, while contraceptive use has gone up in these areas of Bihar and Jharkhand overall during the time period of the project, it has gone up significantly more for young married men and women who were exposed to DISHA. Interestingly, the intensity of program exposure does not seem to make as much difference on young people's use of contraception as has been the case for attitudes and

[4] Modern contraceptive methods that DISHA focused on included: oral contraceptive pills, condoms, intrauterine devices, Depo-Provera © contraceptive injections and male and female sterilization.

knowledge. This is an unexpected finding and suggests that intensive interventions may not be necessary for contraceptive adoption, or at best the marginal returns of individualized interventions are fairly small for this type of behavioral change.

Positive outcomes in delaying age at marriage and creating an enabling environment for youth

Age at marriage increased by nearly two years to just shy of 18. At baseline, the mean age at marriage was 15.9, and more than 50 percent of girls in the sample were married, nearly 60 percent before the age of 18. In contrast, only 40 percent of the 411 girls married during the two-year DISHA program were younger than 18 at marriage. Despite this positive trend, on average, these girls were still younger than 18 when they were married (17.8 years). By endline, the average age at marriage among girls surveyed had increased by nearly two years to 17.8. However, small sample sizes, (i.e. not very many girls who were married during the life of the program also reported exposure to DISHA) prevented a comparison of actual age at marriage by program exposure. Significant changes in empowerment, among unmarried girls were also observed from endline to baseline. Unmarried girls were more than twice as likely to report being able to talk to their parents about when they wanted to get married at endline than at baseline and significantly more felt that their parents then took their wishes on when to marry into consideration when making decisions regarding their futures (Figure 3). However, it appears that in order to make real changes in girls' empowerment, in-depth, individualized intervention activities are needed (Table 4). The findings remain valid even after controlling for important demographic characteristics which might confound knowledge and attitude results such as sex, age, social caste and marital status.

DISHA evaluation findings also show largely positive results with respect to adult attitudes about youth life options. Although adults were not asked their opinions about girls' access to livelihood opportunities at baseline, at endline almost 70 percent believed it was acceptable for girls to engage in livelihood activities. Importantly, those who were exposed to DISHA were 20 percent more likely to hold this opinion than those who were not exposed (77.7 percent versus 57.9 percent). PSM showed significant program effects for this outcome, adults who were exposed to DISHA were 27 percent more likely to feel that it is acceptable for girls to engage in livelihood activities. With regard to youth access to sexual and reproductive health information and services, adult views were conservative at baseline. Only 45 percent of adults in Jharkhand felt that girls or boys ages 14-15 years should have access to contraceptive information. In Bihar, attitudes were even more conservative, with less than a quarter of adults believing that contraceptive information should be available to either boys or girls. In Bihar, adult attitudes on this issue improved significantly by endline, with an increase of 20 percent who believe contraceptive information should be available to both girls and boys. In Jharkhand, improvements were significant but less stark, with adults about 10 percent more likely at endline than baseline to approve of girls and boys ages 14-15 having access to contraceptive information. In-depth participation in DISHA activities at the individual level appears to have a greater impact on adult attitudes around youth access to contraceptives than participation in village-level activities only. Individualized exposure meant that adults were almost three times as likely to believe that contraception should be available to married couples compared to those with no exposure. However, even generalized exposure meant that adults were twice as likely to have supportive attitudes about contraception for young people when compared to those with no exposure (Table 5).

Moderate change on outcomes for enhanced economic opportunities and SRH services for youth

Despite the successes noted above, DISHA's success in building skills and employment opportunities and enhancing health care services and their use was much more tenuous. Specifically the shorter time of the implementation of these activities (6 months on average compared to an average of 22 months for the community mobilization, adult and youth RH-focused activities) prohibited viable assessments of the impact of the livelihood and health service interventions.

DISHA's evaluation design did not allow specific examination of the effect of the livelihoods intervention on overall RH outcomes. While the quantitative data showed increases in the total number of youth in Jharkhand (both male and female) with livelihoods training from baseline to endline, the overall numbers are too small for specific analysis with key rare outcomes like contraceptive use, delayed childbearing, delayed age at marriage, and use of services during pregnancy and delivery. The assessment of livelihoods activities instead focused on understanding changes in youth participation in livelihoods training and work. Program data show that out of the 676 youth that participated in livelihood activities, 473 (65 percent) launched new individual or group businesses. Project reports and focus group discussions provide rich insights into how youth, especially girls, responded to being engaged in livelihoods activities. Overwhelmingly, youth expressed that they valued the opportunity to acquire skills. Girls in particular felt that having such skills increased their value – both in the home and in the larger community:

> *Initially they [the family] used to say that we will make a loss of our investment [loss of investment in their daughters]. But when they found that we are producing and earning, they have become silent. Rather, they are helping us, with the hope that we will do very good business.* (Focus group discussion with girls, Bihar, 2007)

With livelihoods skills young people gained a greater sense of empowerment – in terms of how youth perceived themselves and their capacities, in their ability to communicate and make decisions for themselves, and in their freedom of movement inside and outside their village. The power of having skills and being able to earn money helped build youth agency, and girls shared examples of their new thinking about the roles and opportunities for girls like them – both within marriage and as an alternative to early marriage:

> *We do not want to be dependent on male members of the family. We learned to be self-dependent. Girls should earn on their own, like we have. After marriage, women should do household jobs and also move ahead to earn livelihoods.* (Focus group discussion with girls, Jharkhand, 2007)

While this is a promising beginning, the existing economic structures and financial infrastructure impeded real progress. Partner plans for micro-finance groups among youth were hampered by regulations prohibiting their formation among youth. Additionally, some banking institutions were not receptive to youth, especially girls, when it came to opening bank accounts. Despite efforts to focus livelihoods work on viable goods and services, it was not always possible for NGO partners to ensure secure and sustained markets for the youth. This was particularly challenging, given the economic situation in Bihar and Jharkhand. For some girls, the excitement at acquiring new skills disappeared when it became apparent that they were not making money. For others, the tasks of having to continuously seek affordable raw materials, secure capital, and find new markets proved too difficult:

We had lots of hope, but could not complete it. We are required to get raw materials from outside. After making the product, the price gets increased and these villagers cannot afford to buy at such prices . . . these can be sold in Delhi, but who will go there? (Focus group discussion with girls, Jharkhand, 2007)

Providing livelihoods in very poor, rural states is an immense challenge given subsistence economies in which employment is low, corruption is high, agriculture is dependent on seasonal weather patterns, and out migration is a mandatory survival option, particularly among the large, landless peasant population. In part, these restrictions limited the options of the kinds of employment and economic opportunities could be offered to young people in these communities. Where a majority of the workforce is engaged in daily agricultural labor (where they sometimes earn wages), there is a dearth of opportunities upon which to build options for work. While the DISHA project has laid the ground work for young people to access and demand better resources through improved skills and linkages, more resources and time, along with supportive infrastructure, are required for these efforts to yield economically viable options for young people.

DISHA had mixed results with interventions enhancing the SRH service options for young people. While qualitative feedback from young people and from the health providers indicated that youth contraceptive depot holders (YDHs) and service providers trained by the project were viable access points, program and endline quantitative data did not demonstrate actual uptake of services by youth. The intervention of youth contraceptive depot holders presents this mixed success. Quantitative endline and program monitoring data both indicated that only a few youth sought services from Youth Depot Holders(YDH). The endline survey only captured 6 youth from Bihar and 39 youth from Jharkhand who reported that they consulted with a YDH (90% of them seeking condoms, pills or emergency contraception); and of the survey respondents 9 in Bihar and 5 in Jharkhand were depot holders themselves. Over approximately eight months of operation (October 2006 – May 2007), DISHA's 219 YDHs sold 2,529 condoms and 1,034 contraceptive pills. These numbers seems large, but due to limited record-keeping by YDHs, there is no quantitative information regarding the customers for these contraceptives. While the survey and monitoring failed to adequately capture youth respondents who sought counseling and services from YHDs or from the trained providers, qualitative feedback and program data suggest otherwise. Some subsets of youth, especially unmarried girls, were seeking information, if not actual contraceptive products.

"*We ask a peer educator. Nowadays, information is available in villages.*" (Female youth, Bihar)

These findings highlight the possibility that such approaches may be creating access for young people who were previously unable to access the information or services. The project, unfortunately, did not track service records at private provider clinics; therefore, there is no program data to indicate even low utilization of youth-friendly service access points.

Health care service use results for pregnancy-related outcomes are less encouraging. Few changes were seen in uptake of antenatal care (ANC) or delivery services. At baseline, 58 percent of females reported having any ANC visits prior to giving birth to a child born in the two years prior to the survey. This increased only slightly to two-thirds of females who gave birth during the lifetime of the program. Though this increase in care is encouraging, corresponding increases in the number of ANC visits (the World Health Organization recommends three visits) were not seen. Similar results were found among pregnancy delivery services. At baseline, only

40 percent of females with a child born in the last two years reported having a trained professional help deliver the child. This increased only slightly to 46 percent among females who reported giving birth during the life of the program. Significant program effects were not observed for any safe-delivery outcomes when comparing females who were exposed to DISHA to similar females who were not. These findings suggest that in these poor, rural communities, the lack of public health infrastructure and the logistics of traveling to a health facility for an ANC visit – let alone to deliver – remained a major barrier for young women.

Discussion

The DISHA experience shows that, even in challenging settings and in a short time, integrated programs can be implemented and to create positive change on key life course transitions for young girls, as witnessed by our results on contraceptive use, community attitudes, and delaying marriage. In settings like Bihar and Jharkhand, where there are a dearth of programs addressing the health needs of adolescents, DISHA's generalized interventions were fairly successful in improving knowledge, creating demand, changing attitudes, and behaviors. The generalized input in DISHA embodied a multi-component approach, where each of the DISHA partners implemented a complex network of activities to reach the key target groups - married, unmarried boy and girls, male and female adults, and community leaders - in a variety of ways. The community mobilization strategies for all six partners have several features in common; they include group meetings of key adult stakeholders, IEC and edutainment activities, and large community-wide events. Within these common features, each of the partners tailored the activities to the local context and the community.

However, these successful outcomes on knowledge, attitudes, and behavior only came about after intensive investment of human resources, technical capacity building and innovative implementation. The major challenge for DISHA was that although NGO partners had previously worked in the area of adolescent reproductive health in some capacity, their perceptions on delaying marriage and childbearing were conservative and their exposure to international discourse and knowledge of development was low. The other continuing challenge was the sustained discomfort of the NGO partners and community members in acknowledging and articulating issues around sexuality, including marriage, chastity, pre- marital sex, and sexual pleasure. Such attitudes and perspectives became evident from initial interactions with partner NGOs and their unwillingness to upset cultural norms. Thus, ICRW worked intensively with partner's field and management staff to work through their own inhibitions about youth sexual and reproductive behaviors. ICRW and NGO investments in this area did have some positive results, with staff better able to interact with youth and adults on such sensitive topics.

Further, while the implementing organizations had a solid understanding of their communities and were skilled at designing detailed activities and leveraging opportunities to innovate and stretch limited resources; implementation was often spontaneous, experimental and ad hoc. Implementing an integrated program was a substantial challenge for the NGO partners because the organizations' experience was largely in implementing vertical programming. In order to focus project implementation efforts, DISHA introduced the concept of systematic project planning. ICRW taught NGO staff to develop a conceptual framework for project implementation, design strategies based on baseline findings and desired outcomes, prepare detailed implementation plans, and allocate staff and project funds effectively. Throughout the project process there was a distinct emphasis on the constant interaction between the planning,

implementation and the monitoring/evaluation. ICRW monitoring showed significant improvement in project planning and implementation.

One of the defining features of the DISHA interventions was the integration of non-reproductive health approaches with reproductive health approaches through the livelihoods component. DISHA partners come with a mixture of capacity to implement livelihoods interventions. Several NGOs came into DISHA with practical experience in livelihoods work, including use of market-oriented approaches, but for the majority, livelihoods activities were relatively new. This component of the initiative, more than any other, required a dynamic analysis and in-depth understanding of the complex economic and political environment in these states. As a result, the organizations required extensive capacity building training to get this component off the ground. ICRW addressed these gaps by conducting workshops on the linkage between reproductive health and livelihoods for adolescents. ICRW also contracted other technical partners who held capacity-building sessions for NGO partners on conducting market research, identifying marketable skills, identifying appropriate markets, identifying a feasible product, and preparing a business plan. Thus, it took time for DISHA partners to develop livelihoods activities that were relevant and viable in the local context. Some of the partner organizations succeeded in planning their livelihoods work in an entrepreneurial, market-based framework that had the potential to provide sustained economic returns. This was also one of the components where the implementing NGOs had trouble with devolution of control and authority. Several of the NGOs had difficulty in fully embracing the entrepreneurship approach and allowing the "risk-taker" (youth) to play a central role in the selection and execution of the enterprise. For instance, while a market-oriented approach was adopted by NGO partners, this did not always engage youth. In some cases, youth were not excited or interested in the specific skills or trades selected by the NGO (based on market needs and opportunities). Instead, young people were more engaged when they had input in determining their livelihood activity. The NGOs had a difficult time limiting their involvement to facilitation of the process, and consequently, youth never gained ownership of the livelihoods groups which hindered their success. However, the biggest challenge for the implementing partners was that such poor states are not conducive to economic activity by anyone, let alone youth, and without thriving government and private sector infrastructure in place, the task of creating livelihoods opportunities for youth may be beyond the scope of some NGOs.

Finally, DISHA aimed not only to increase demand for reproductive health care services, but also affect the supply. The selection of health service providers (HSPs) for the training was based on preferences and pattern of service use articulated by DISHA youth. The HSPs included in the training were identified by the youth. The qualitative baseline assessment had indicated that the private providers were geographically and logistically more accessible, and less likely to present negative attitudes towards providing care for married and unmarried young people. Baseline research had also showed that young people were not keen to access public health services frequented by their parents and other adult community members, particularly for contraceptive counseling and STD/RTI treatments. Further the project invested in youth depot holders as a strategy to reach young people in need of contraceptive counseling and contraceptives. However, these access points appear to have been valued and used by young people for information, but not for services. The low use of YDHs might reflect reluctance by youth to access peers within their villages for fear that their actions might be shared with others

(e.g. parents, friends). Girls faced particular challenges in filling the role of YDHs. For some, their families did not approve their role in sale and distribution of condoms. Thus, in some villages female YDHs only counseled on and disbursed oral contraceptive pills. Two additional challenges faced the YDHs, young people were not used to social marketing aspect and were thus, unable to approach and were not able to promote or sell contraceptives as planned. This may have been a reflection, in part, of the general reluctance of youth to pay for products that they were used to getting for free. Finally, erratic supply of social marketing products in deeply rural villages also created situations of unfulfilled demand at the community level.

While DISHA interventions may have successfully triggered increased use of contraceptives and other RH services, these services were not necessarily provided by the resources created by the project. Unlike the success of the intervention related to change in knowledge, community norms, and youth behavior, interventions aimed at service provision tapped capacity that the NGO partners did not posses for the most part. The NGO staff generally did not include medical professionals; and most groups were not well-connected with existing providers in their communities, or local and regional experts to train health care providers. The government infrastructure remained relatively inaccessible as a viable source of service provision for young people. Intensive efforts, however, were made to connect with the government system at the block/village level to set up referral mechanisms that linked the trained service providers, youth depot holders and government service providers. For the most part however, most of the NGO partners lacked the power and voice within Bihar and Jharkhand's extremely bureaucratic and hierarchical local and regional governments to advocate for the strengthening of existing public health systems. One exceptional example was an NGO partner in Jharkhand, who used community mobilization "pressure" groups to advocate with the public health center at the regional level to ensure that the Auxiliary Nurse and Midwife (ANM) visits the community regularly. They also advocated with the Block Development Officer to open up Anganwadi Centres with ANMs to make them functional.

In summary, the appreciable success of outcomes related to young people's attitudes, knowledge, behavior and the attitudes of adults on sexual and reproductive health were likely to be possible due to a confluence of factors: 1) the intervention activities linked to these outcomes built on the core strengths of NGO partners related to community mobilization; 2) the intensive human resource input included specific and innovative strategies to strengthen local capacity; 3) the multi-level approach to changing reproductive health gave both youth and adults multiple venues and avenues from which to receive and process RH information; and 4) the outcomes with positive results (while influenced by the broader environment of the community and the state) were largely under the control of the actors engaged in the process – in this case the youth, the adults, and the NGOs in these communities.

Within this framework of factors leading to success, in is no wonder that the livelihoods and health service intervention were both more difficult to implement and resulted in only moderate change. For both, the NGO lacked specific expertise and were particularly limited by the lack of infrastructure in the region and overall economic growth needed to support such efforts. In Bihar and Jharkhand, lack of options and infrastructure particularly constrained DISHA's efforts to roll out the livelihoods intervention and strengthen sexual and reproductive health service delivery. Thus, issues that require serious structural and systemic investments are not fully possible within shorter project timeframes, by NGOs alone, and without substantial public investment.

Conclusion

The key question raised here is if intervention programs be successful when taking on the broad mandate of addressing the full range of life course transitions during adolescence, including education, employment, marriage, and childbearing? The DISHA evaluation shows that in poor, rural communities with little or no infrastructure an integrated program yields mixed results, as expected. DISHA attempted to provide comprehensive reproductive health care integrated with broader development needs of youth (livelihoods and enabling environment). Given the nature of the type of interventions and integration that was attempted, given capacity, given context of Bihar and Jharkhand, DISHA had too ambitious an agenda. Integrated youth programs may be best implemented in settings with adequate levels of infrastructure, economic opportunities and implementation capacity. The key however is not to further neglect areas and regions with severe and complex developmental issues, but to think of more creative solutions to address the problems and to commit to deeper investment to reduce disparities. For DISHA, being mindful of the difficult context, restrained infrastructure and limited NGO capacity, was critical in achieving the positive outcomes that did result. Also key was the intensive human resource investment into these NGOs, by the NGO partners and intervention processes to facilitate these outcomes. As previous integrated rural development evidence shows however, the replication of such an intensive effort is not feasible on a larger scale. When scaled-up, such a program would lose the community-based prioritization and implementation that is key to the outcomes of these projects. Large-scale projects would have the tendency to become more top-down/vertical, with more standardized components that are inflexible to the demands of the context. Also on a large scale it is virtually impossible to maintain the same level of human resource investments.

One option thus may be to re-prioritize and strengthen vertical/sector-specific programs, thus continuing disconnected efforts at meeting the needs of poor, vulnerable youth. A more promising approach on the other hand, especially in less than ideal settings, might be to prioritize the specific areas of life course transitions that need the most urgent attention and more strategically select and implement program components. A key strategy would be to build on interests of communities and youth, and strengths of local partners to address priority areas of life course transition to achieve success. Recent literature in health infrastructure financing discusses the idea of "diagonal" programs (Ooms, Damme, Baker, Zeitz, & Schrecker, 2008) to suggest that vertical programs can only function when a broad supporting structure exists that allows the vertical program to function. In a way, a diagonal approach may be needed in extreme resource poor settings like Bihar and Jharkhand. Continued investment is needed to sequentially build-up the economic and health infrastructure upon which more specific programs, such as those that address adolescent health, can be built. Continued investment is also important for sustaining the capacity-building and investment efforts of smaller program approaches. Thus the program and policy efforts may need to shift towards combining both the vertical and horizontal approaches (Lawn et al., 2008). Future investments will have to be mindful of the traps that constrained integrated development projects of the past in order to create strategies that are locally relevant, flexible, increase participation and decision-making of the target groups, and strengthen the support and capacity of local institutions. All these have to be done within a context where there is real and sustaining political and financial commitment to building the underlying infrastructure and systems. Broad- based investment in and accountability of health systems, economic policies and programs is sorely needed to facilitate programs that attempt to address the complex and multi-sectoral needs of peoples' lives.

Figures and Tables

Figure 1. DISHA Integrated Program Design Framework

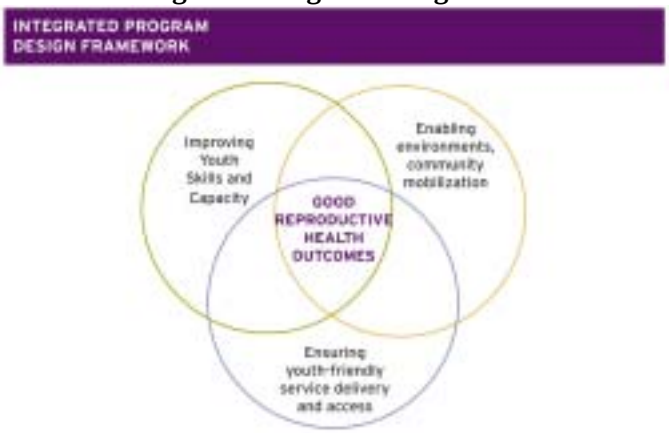


Table 1: Youth & Adult Respondent Characteristics

	YOUTH		ADULTS	
Variable	**Baseline % (n)**	**Endline % (n)**	**Baseline % (n)**	**Endline % (n)**
Sex				
Male	49.4(2292)	49.5(2142)	51.1(801)	48.9(767)
Female	50.6(2347)	50.5(2181)	50.1(798)	49.9(795)
State				
Bihar	49.4(2295)	52.6(2275)	51(816)	55(859)
Jharkhand	50.6(2350)	47.4(2048)	49(785)	45(703)
Caste				
Scheduled Caste/Scheduled Tribe	39.7(1781)	39.9(1727)	41.1(591)	38.9(605)
Other Backward Class (OBC)	53.6(2401)	54.5(2355)	58.6(838)	55.8(869)
Higher Caste	6.7(300)	5.6(241)	0(0)	5.3(82)
Education				
No education	28.9(1337)	25(1079)	58.8(940)	56.2(878)
Primary	12.2(567)	12.9(556)	7.9(126)	8.8(138)
Middle	32.2(1493)	31.7(1370)	17.1(273)	13.7(214)
Secondary or higher	26.7(1237)	30.5(1318)	16.3(260)	332(21.3)
Proportion Married	41.2(1912)	36.6(1581)		
Mean Age			43.64	43.3
Sample sizes	*4,645*	*4,323*	*1,601*	*1,562*

Table 2. Degree of success on DISHA primary objectives and outcomes

Key Anticipated Outcomes	Degree of Success	Environmental Influence
Improved knowledge among youth regarding SRH	++	Low
Positive attitudes among youth regarding contraceptive use	++	Low
Improved use of contraceptives among married youth	++	Low
Enhancing the supportive and enabling environment for youth	+	Moderate
Delayed age at marriage	+	Moderate
Increased quality and provision of SRH services	~	High
Youth engaged in economic opportunities	~	High

Legend
++ Strong positive outcome
+ Positive outcome
~ Moderate change

Table 3: Effect of program exposure on contraceptive knowledge and attitudes among youth

Variable†	Females Adjusted Odds Ratio‡	Males Adjusted Odds Ratio
Reproductive Health		
Knowledge of pills		
Generalized Program Exposure	3.03*	1.98*
Individualized Program Exposure	6.32*	7.50*
Knowledge of condoms		
Generalized Program Exposure	2.43*	2.08*
Individualized Program Exposure	6.91*	5.31*
Knowledge of source of pills		
Generalized Program Exposure	2.41*	2.02*
Individualized Program Exposure	5.45*	7.11*
Contraception should be available to married adolescents		
Generalized Program Exposure	1.77*	4.05*
Individualized Program Exposure	4.34*	7.14*

* $p<.05$
† Reference category for all outcomes: *no program exposure*
‡ Adjusted Odds Ratios have been adjusted for marital status, education, wealth, age and state

Figure 2: Current use of modern contraceptives among married youth, baseline and endline

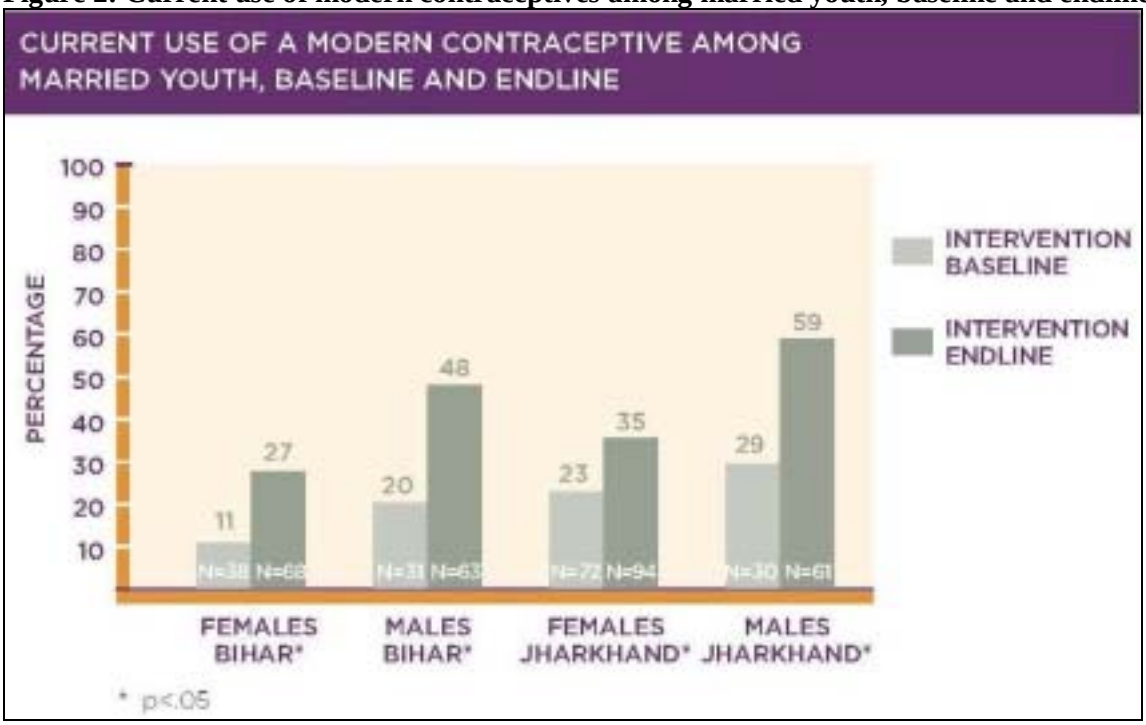
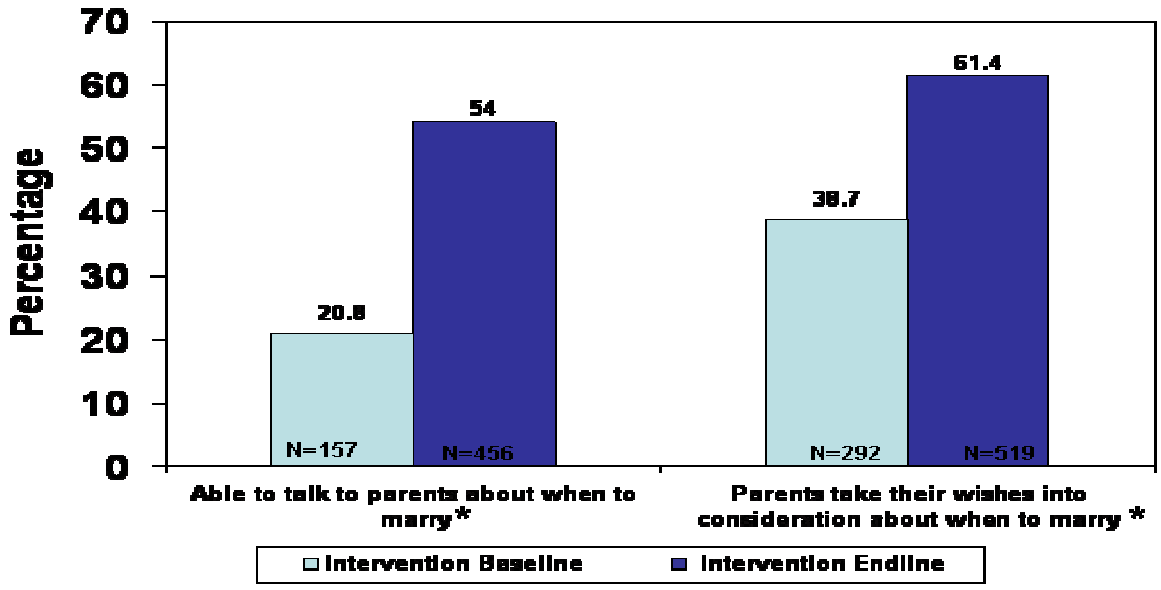


Figure 3: Unmarried girls' marriage empowerment, baseline and endline



* Denotes statistical significance at p<.05

Table 4: Effect of Program Exposure on Marriage Empowerment among Unmarried Youth

	Girls	Boys
Variable	**Adjusted Odds Ratio†**	**Adjusted Odds Ratio**
Can talk to elders about when to get married		
Community Level	1.00	1.13
Individual Level	1.87*	1.12

* Denotes statistical significant at p<.05
† Adjusted Odds Rations have been adjusted for state, marital status, caste, education, wealth and age

Table 5: Effect of program exposure on contraception attitudes among adults

Variable†	Adjusted Odds Ratio‡
Reproductive Health	
Contraceptive information should be available to young boys ages 14-15 years	
Generalized Program Exposure	1.79*
Individualized Program Exposure	3.48*
Contraceptive information should be available to young girls ages 14-15 years	
Generalized Program Exposure	2.01*
Individualized Program Exposure	3.33*
Contraception should be available for young married couples	
Generalized Program Exposure	2.04*
Individualized Program Exposure	2.98*

* p<.05
† Reference category for all variables: *no program exposure*
‡ Adjusted Odds Ratios have been adjusted for sex, education and state

References

Aminuzzaman, S. M. (1985). Design of integrated rural development programmes: some ideas and issues. *International Review of Administrative Sciences, vol. 51, no. 4, pp. 311-317, 1985*.

Bhutta, Z. A., Ali, S., Cousens, S., Ali, T. M., Haider, B. A., Rizvi, A., et al. (2008). Alma-Ata: Rebirth and revision 6 - Interventions to address maternal, newborn, and child survival: what difference can integrated primary health care strategies make? *Lancet, 372*(9642), 972-989.

Brady, M. (2005). Creating Safe Spaces and Building Social Assets for Young Women in the Developing World: A New Role for Sports. *Women's Studies Quarterly, vol. 33, no. 1-2, pp. 35-49, spring-summer 2005*.

Crener, M., Leal, G., LeBlanc, R., & Thebaud, B. (1984). *Integrated Rural Development: State of the Art Review, 1983/84*. Ottawa: CIDA.

Erulkar, A. S., Ettyang, L. I. A., Onoka, C., Nyagah, F. K., & Muyonga, A. (2004). Behavior change evaluation of a culturally consistent reproductive health program for young Kenyans. *International Family Planning Perspectives, 30*(2), 58-67.

Esim, S., Malhotra, A., Mathur, S., Duron, G., & Johnson-Welch, C. (2001). *Making it work: linking youth reproductive health and livelihoods*. Washington, DC: International Center for Research on Women (ICRW).

Government of India. (2001). Census of India. . from http://www.censusindia.net/

Government of India. (2003). India National Youth Policy. *Youth Policy Database* Retrieved March 2, 2009, from http://www.youth-policy.com/Policies/IndiaNATIONALYOUTHPOLICY2003.pdf

Hardee K, & Yount KM. (1995). *From rhetoric to reality: delivering reproductive health promises through integrated services.* Research Triangle Park, NC: Family Health International.

Hardee, K., Agarwal, K., Luke, N., Wilson, E., Pendzich, M., Farrell, M., et al. (1999). Reproductive health policies and programs in eight countries: Progress since Cairo. *International Family Planning Perspectives, 25*, S2-S9.

Hemrich, G., & Topouzis, D. (2000). Multi-sectoral responses to HIV/AIDS: constraints and opportunities for technical co-operation. *Journal of International Development, 12*(1), 85-99.

International Institute for Population Sciences (IIPS), & Macro International. (2007). *National Family Health Survey (NFHS-3), 2005–06: India: Volume I*. Mumbai: IIPS.

International Institute for Population Scienes (IIPS), & ORC Macro. (2000). *National Family Health Survey (NFHS-2): India 1998-99: India*. Mumbai: IIPS.

Jimenez, E., & World Bank. (2006). *Development and the next generation*. Washington, DC: World Bank.

Kumar, A. (2007). NGOs in Bihar: Voluntary Sector and its Credibility. *International NGO Journal, 2*(4), 82-84.

Lawn, J. E., Rohde, J., Rifkin, S., Were, M., Paul, V. K., & Chopra, M. (2008). Alma-Ata: Rebirth and revision 1 - Alma-Ata 30 years on: revolutionary, relevant, and time to revitalise. *Lancet, 372*(9642), 917-927.

Lush, L., Cleland, J., Walt, G., & Mayhew, S. (1999). Integrating reproductive health: myth and ideology. *Bulletin of the World Health Organization, 77*(9), 771-777.

Malhotra, A., Mathur, S., Pande, R., & Roca, E. (2005). Nepal: The distributional impact of participatory approaches on reproductive health for disadvantaged youth In D. R. Gwatkin, A. Wagstaff & A. Yazbeck (Eds.), *Reaching the poor with health, nutrition, and population services : what works, what doesn't, and why* (pp. xxi, 353 p.). Washington, DC: The World Bank.

Mathur, S., Malhotra, A., & Mehta, M. (2001). Adolescent Girls' Life Aspirations and Reproductive Health in Nepal. *Reproductive Health Matters, 9*(17), 91-100.

Maxwell, S. (1997). Implementing the World Food Summit Plan of Action: organisational issues in multi-sectoral planning. *Food Policy, 22*, 515-531.

Mayhew, S. (1996). Integrating MCH/FP and STD/HIV services: Current debates and future directions. *Health Policy and Planning, 11*(4), 339-353.

Mensch, B. S., Bruce, J., & Greene, M. E. (1998). *The uncharted passage: girls' adolescence in the developing world.* New York: Population Council.

Mensch, B. S., Clark, W. H., & Anh, D. N. (2003). Adolescents in Vietnam: Looking beyond Reproduction Health. *Studies in Family Planning, vol. 34, no. 4, pp. 249-262, Dec 2003.*

National Research Council, & Institute of Medicine. (2005). *Growing Up Global: The Changing Transitions to Adulthood in Developing Countries.* . Washington, D.C.: The National Academies Press.

Ooms, G., Damme, W. V., Baker, B. K., Zeitz, P., & Schrecker, T. (2008). The 'diagonal' approach to Global Fund financing: a cure for the broader malaise of health systems? *Globalization and Health 4*(6).

Pande, R., Kurz, K., Walia, S., MacQuarrie, K., & Jain, S. (2006). *Improving the Reproductive Health of Married and Unmarried Youth in India: Evidence of Effectiveness and Costs from Community-based Interventions. Final Report of the Adolescent Reproductive Health Program in India*. Washington, D.C.: International Center for Research on Women.

Ruttan, V. W. (1984). Integrated rural development programmes: a historical perspective *World Development, 12*, 339-401.

Sebstad, J., & Cohen, M. (2001). *Microfinance, Risk Management and Poverty*. Washington D.C.: CGAP, World Bank.

Speizer, I. S., Magnani, R. J., & Colvin, C. E. (2003). The Effectiveness of Adolescent Reproductive Health Interventions in Developing Countries: A Review of the Evidence. *Journal of Adolescent Health, 33*(5), 324-348.

The World Bank. (2005). *Bihar: Toward a Development Strategy*. Washington, D.C.: The World Bank

Van Look, P. F. A. (2003). On being an adolescent in the 21st century. In S. Bott, S. Jejeebhoy, I. Shah & C. Puri (Eds.), *Towards adulthood : exploring the sexual and reproductive health of adolescents in South Asia* (pp. viii, 244 p.). Geneva: World Health Organization.

Watson, A. A., & Dunford, C. (2005). *From Microfinance to Macro Change: Integrating Health Education and Microfinance to Empower Women and Reduce Poverty*. New York: United Nations Population Fund.