Impact of a social franchise intervention program on the adoption of long and short acting family planning methods in hard to reach communities in Myanmar

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ABSTRACT

Myanmar has experienced slowly rising levels of contraceptive use in recent years. Between 2014 and 2016, Population Services International (PSI)/Myanmar implemented a multi-pronged intervention to increase contraceptive use by leveraging its social marketing clinics and providers, and providing additional community outreach. The aim of this study is to explore trends over time in contraceptive uptake and assess whether exposure to the PSI program was associated with women adopting a method. Baseline and end line data were collected using a repeated cross-sectional survey of married women of reproductive age in 2014 and 2016. We find that use of the implant and intrauterine device (IUD) has increased among contraceptive users over time, although there was no significant association for short-term methods. There was also an increase in all types of method use between time periods compared to non-users of contraception. Women who reported seeing a PSI contraception pamphlet had increased odds of having adopted an IUD or implant in the study period. This suggests that interventions that address both supply and demand side barriers to contraception can have an impact on contraceptive uptake, especially more effective long acting methods.

Keywords health services, population-based and preventative services, public health

Introduction

A plethora of interventions around the globe have aimed to increase contraceptive uptake, both using demand side (such as mass media and improving interpersonal communications) and supply side (such as addressing access, cost, quality) approaches (or a mix). A systematic review of interventions found that the majority focused on demand generation, although in Asia more focused on supply side factors.[1] This systematic review also found that interventions that focused on supply side factors were most successful in increasing contraceptive use.[1] Many recent interventions have specifically targeted increased use of long acting reversible contraceptive methods (LARCs), due to the great potential impact of LARCs in decreasing unintended pregnancy and low use in most of the world.[2] Interventions aiming to increase LARC uptake, including the intrauterine device (IUD) and implants, have used many approaches, including (but not limited to) the use of voucher programs, providing methods for free, balanced counseling approaches, and multi-level approaches that combine service delivery and outreach, such as through social franchise networks.[3–5]

People often prefer to (and choose to) seek care in the private sector, and social franchise networks, such as Population Services International (PSI) aim to provide high quality, low cost and accessible products through existing private sector clinics and providers.[6] Social franchise networks have the ability to lower barriers to contraceptive use including cost, access, over-medicalization of guidelines (requiring doctors to insert IUDs, for example), poor or mis-information, etc., all of which have been noted barriers to contraceptive use.[7,8] A previous review of PSI programs

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using a social franchising approach to increase IUD uptake in 13 countries (including Myanmar) found that programs were successful in reaching younger and less educated women.[9] MSI had an effort to scale up its contraception methods, and found that most clients adopted LARCs, and many had not used a modern method in the last 3 months.[10] An analysis in Myanmar found that the longer duration of the social franchising contraception program had been operating in a specific community was associated with increased use of contraception at a community level.[11]

Myanmar has witnessed a steady increase in contraceptive use. Current use of any modern methods has increased from 13.6% in 1991 to 46% in 2011, with heterogeneity across the country.[12] The most popular contraceptive method are injections (27.5%), followed by the pill (11.5%).

PSI adopted a Public–Private Partnership (PPP) approach to leverage market-based approaches and methodologies to improve the health and lives of poor families in selected project townships through private sector channels of service delivery. These private sector channels included the social franchised clinics, community health workers, a sales and distribution network, a micro-franchising network of rural entrepreneurs and referral for long-term methods of contraception to public sector facilities. All of these channels distributed a range of contraceptives for women of reproductive age. PSI also developed demand generation activities through community health workers who conducted 28 550 health education sessions on reproductive health. Providers also gave health education sessions to an estimated 4166 participants through 193 sessions. During these health education sessions, community health workers handed out a brochure that described different types of contraceptive methods and eligibility for each method. Personnel also discussed pros and cons of each method, including side effects.

The present analysis has two specific aims. First is to examine the change in contraceptive use among currently married women between 2014 and 2016 residing in townships where PSI Myanmar implemented its contraception social marketing project. Along with trends, we aim to explore predictors of use. The second specific aim is to explore whether exposure to a PSI pamphlet about contraception (provided through the community health workers or providers) was associated with women at the end of the intervention period having adopted a new contraceptive method in the last 2 years (duration of the intervention).

Methods

We carried out two rounds of cross-sectional surveys:[1] a baseline survey in 2014 and[2] an end line survey in 2016. For both rounds we used multi-stage sampling. In the first stage of sampling we chose 10 townships using the Probability Proportional to population Size (PPS) from originally proposed 42 project townships. All townships were located in hard-to-reach areas of Myanmar, where there are fewer health services available and maternal and child indicators are especially poor. In the 2016 end line survey we chose 10 townships again using the PPS but from a smaller list of 34 townships in which the project had been implemented. Four townships overlapped between the two rounds. According to the latest census data the urban and rural populations constitute ~20 and 80%, respectively in these project townships.[13] Within the selected township we chose two urban wards and eight villages using simple random sampling. The total sample sizes were 1800 for baseline and 2284 for end line.

Surveys were conducted on women of reproductive age, meeting the following inclusion criteria who provided verbal consent to participate in the study: 18–49 years old, currently married and residing in the current place. Both baseline and end line surveys were approved by PSI's Research Ethical Board.

Analysis

First, we explored differences in socio-demographic indicators and contraception methods between the two surveys, using Pearson Chi square for significant testing. To explore the trend in contraceptive use over time more, we ran a set of logistic regression models to look at the odds of using various types of contraception (IUD, implant, injectable, pill) among contraception users, with the main predictor being the round of the survey (2016 end line compared to 2014 baseline). We controlled for the socio-demographic indictors. Next we ran a mLogit regression model to look at the odds of use of natural, short-term and long-term methods, compared to no method use, again with the main predictor being the round of the survey (2016 end line compared to 2014 baseline) and controlling for socio-demographic indictors.

To answer our second specific aim looking at the impact of exposure to a PSI contraception pamphlet on contraceptive uptake over the past 2 years, we ran a series of logistic regression models looking at the association between a woman reporting that she saw a PSI contraception pamphlet and the odds of her adopting a IUD/implant in the last 2 years; adopting a pill or injectable in the last 2 years; and adopting any modern contraceptive method among women who stated that they had never used a contraceptive method before.

To look at trends in contraception use between the two rounds of data collection, we created separate variables for current use of IUD, implants, injectables and pills among all

contraceptive users. We then created a categorical variable with non-users as the reference, followed by natural method users, short-term method users, and long-term method users. We included IUD and implant as long-term method; injectables, pills, emergency contraceptive and condoms as short-term methods and withdrawal, rhythm and LAM as natural methods.

For the second set of models to answer aim 2, we created a set of variables focused on women who reported that they started their most recent contraceptive method in the last 2 years to capture contraceptive adopters during the course of the intervention. We first created two variables, one for women who started a long acting method (IUD or implant) in the last 2 years, and the other for women who started a short acting method (pill or injectable) in the last 2 years. We then created a variable that looked at women who started either a long or short acting method in the last 2 years and who stated that they had never used a contraceptive method in the past. We were unable to look at women who switched from a short to a long-term method since our variable about past contraceptive use asked about any previous contraceptive use, rather than use directly before the current method. The main predictor variable for this model was whether a woman reported that she had seen or received a PSI contraception pamphlet. When the woman was asked this question, the interviewer showed her a physical copy of one of the PSI contraception pamphlets.

Results

Demographic characteristics
There were no significant differences in the mean completed age and age at first use of contraception between respondents in the baseline and end line (Table 1). The mean age at first marriage, education level, percent of women who had migrated, and wealth quintile were higher at end line. There were a greater percentage of women in the end line who were unemployed/housewives but also a greater percentage (albeit small) who were in professional occupations. The mean parity was higher at end line.

Changes in contraceptive use between 2014 and 2016
We found significant increase in current use of all four major contraceptive methods in the end line round compared to the baseline. IUD increased from 2.3 to 5.0%; implant increased from 0.6 to 3.7%; injectable contraceptives increased from 23.2 to 34.3% and pills increased from 7.2 to 10.8% (Table 1). The increase in current use was paralleled with increased in the knowledge of these methods.

The knowledge of IUDs increased significantly from 57.1 to 85.9% ($P < 0.001$); implants from 48.1 to 87.9% ($P < 0.001$); injectables from 84.9 to 97.9% ($P \leq 0.001$) and pills from 80.7 to 97.6% ($P < 0.001$).

In the end line 77.2% of the current users of long-term methods (66.4% for IUD users and 91.6% for implant users) started using their current method after the intervention project launched (Table 2). Moreover, 19.8% of the current long-term methods users were new users of modern contraceptive methods, i.e. they have never used any modern method before. Similarly, for the short-term methods like pills and injectables we found that 61.2% of the current users were recent adopters (adopted within the last 2 years) and 24% of current users of short-term methods were new users of modern methods.

Trends in contraceptive use over time
The first set of models looked at trends in contraceptive use among contraceptive users between the baseline and end line. There was a significant association between the round of the survey and implant use, with increased used in end line compared to baseline (OR = 4.14, $P < 0.01$) (Table 3). The odds of a woman reporting IUD use increased between baseline and end line by 1.42, at a marginally significant level ($P < 0.1$). There was no association between round of the survey and either type of short-term method (pill or injectable).

In the multinominal logistic regression model looking at the odds of different types of contraceptive use compared to no use, the odds of use between the two surveys of natural methods increased by 8.38 ($P < 0.05$), the odds of use of short-term methods increased by 1.57 ($P < 0.01$) and the odds of use of long-term methods increased by 1.85 ($P < 0.01$) (Table 4).

Association between PSI program exposure and contraceptive uptake during the study period
In the univariate models, having recently adopted a long acting method was significantly associated with a woman reporting that she saw or received a PSI contraceptive pamphlet (OR = 2.05, $P < 0.01$) (Table 5). After we controlled for socio-demographic factors, this relationship was still significant, although attenuated (OR = 1.92, $P < 0.01$).

Discussion

Main finding of this study
This study found that the use of long and short-term contraceptive methods, compared to non-use of contraceptives, increased between 2014 and 2016 in the 10 hard-to-reach

Table 1 Population characteristics and FP use from 2014 and 2016 surveys

Characteristics	2014 N (%) N = 1800	2016 N (%) N = 2284	P-value
Urban (compared to rural)	19.3	20.1	0.543
Age (years)			0.022
18–24 years (n = 548)	233 (12.9)	315 (13.8)	
25–30 years (n = 936)	417 (23.2)	519 (22.7)	
31–39 (n = 1399)	581 (32.3)	818 (35.8)	
40–49 (n = 1201)	569 (31.6)	632 (27.7)	
Mean age (years)	34.3	33.9	0.139
Age at marriage (years)			0.022
<18 years (n = 763)	367 (20.4)	396 (17.3)	
18–24 years (n = 2584)	1133 (62.9)	1451 (63.5)	
25–30 years (n = 605)	255 (14.2)	350 (15.3)	
31–39 (n = 121)	41 (2.3)	80 (3.5)	
40–49 (n = 11)	4 (0.2)	7 (0.3)	
Mean age at marriage (years)	20.5	21.2	0.000
Education			0.000
Illiterate/no formal education (n = 826)	563 (31.7)	263 (11.7)	
Primary (n = 1389)	568 (31.9)	821 (36.6)	
Secondary (n = 1556)	563 (31.7)	993 (44.3)	
University (n = 250)	84 (4.7)	166 (7.4)	
Occupation			0.000
Professional: management, supervisory, self-employed, business person (n = 139)	44 (2.5)	95 (4.2)	
Shop owners, family business (n = 290)	66 (3.7)	224 (10.0)	
Unskilled workers (n = 1494)	808 (45.4)	686 (30.6)	
Unemployed/housewife (n = 2098)	860 (48.4)	1238 (55.2)	
Age at first use of FP			0.375
14–24 years (n = 1129)	344 (55.0)	786 (59.0)	
25–30 years (n = 516)	179 (28.6)	337 (25.3)	
31–39 (n = 278)	92 (14.7)	186 (14.0)	
40–49 (n = 33)	11 (1.8)	22 (1.7)	
Mean age at first use of FP	24.6	24.4	0.505
Migrant (n = 776)	244 (13.6)	532 (23.3)	0.000
Parity			0.000
0–1 (n = 991)	405 (23.7)	586 (27.9)	
2–3 (n = 1790)	786 (45.9)	1004 (47.8)	
4–5 (n = 712)	347 (20.3)	365 (17.4)	
6+ (n = 319)	174 (10.2)	145 (6.9)	
Mean	3.0	2.6	0.000
Wealth quintile			0.000
Lowest quintiles (n = 820)	615 (34.2)	205 (9.0)	
Lower quintiles (n = 816)	439 (24.4)	377 (16.5)	
Middle quintiles (n = 818)	284 (15.9)	534 (23.4)	
Higher quintiles (n = 814)	249 (13.8)	565 (24.7)	
Highest quintiles (n = 816)	213 (11.8)	603 (26.4)	

Continued

Table 1 Continued

Characteristics	2014 N (%) N = 1800	2016 N (%) N = 2284	P-value
Knowledge of different methods (multiple responses possible)			
Female sterilization (n = 3345)	1294 (71.9)	2051 (89.8)	0.000
Male sterilization (n = 2412)	877 (48.7)	1535 (67.2)	0.000
IUD (n = 2988)	1027 (57.1)	1961 (85.9)	0.000
Implant (n = 2873)	866 (48.1)	2007 (87.9)	0.000
Injectables (n = 3765)	1528 (84.9)	2237 (97.9)	0.000
Pills (n = 3683)	1453 (80.7)	2230 (97.6)	0.000
Emergency contraception (n = 3074)	1133 (62.9)	1941 (85.0)	0.000
Male condoms (n = 1503)	438 (24.3)	1065 (46.6)	0.000
Female condoms (n = 1793)	642 (35.7)	1151 (50.4)	0.000
Current contraceptive users (n = 2015)	668 (37.1)	1348 (59.0)	0.000
Female sterilization (n = 105)	50 (2.8)	55 (2.4)	0.459
Male sterilization (n = 9)	6 (0.3)	3 (0.1)	0.172
IUD (n = 155)	42 (2.3)	113 (5.0)	0.000
Implant (n = 95)	11 (0.6)	84 (3.7)	0.000
Injectable (n = 1202)	419 (23.3)	783 (34.3)	0.000
Pills (n = 383)	137 (7.6)	246 (10.8)	0.001
Condoms (n = 9)	4 (0.2)	5 (0.2)	0.982
Any modern method (n = 1951)	662 (36.8)	1289 (56.4)	0.000
Natural method (LAM, rhythm, withdrawal) (n = 64)	5 (0.3)	59 (2.6)	0.000
Traditional methods (n = 1)	1 (0.1)	0 (0.0)	0.260

townships included in the PSI contraception intervention in Myanmar. While we do not know if this trend was associated with the PSI program, since we do not have control data from townships not exposed to the intervention, by controlling for demographic differences between base and end line, we have evidence that the increase in contraceptive use in the study population is not simply an artifact of the differences between townships selected in the two survey rounds.

We found that the use of any modern method increased from 36.8 to 56.4% between 2014 and 2016. This is slightly lower than the preliminary results from the very first DHS survey in Myanmar (MDHS), which reported that any modern methods use in 2016 was 51.3% for the country as a whole.[14] One striking finding from our study was that the use of LARC and other short-term hormonal methods were higher than they were reported in MDHS.

The second main finding is that women who reported seeing a PSI contraception handout had increased odds of having started an IUD or implant within the last 2 years of the study program. This provides some evidence that the PSI program might have had an impact on LARC uptake. Although ideally

Table 2 Past history and starting time of long acting modern method users from 2016 survey

Long-term methods	IUD	Implant	Total
Current users	113 (100%)	84 (100%)	197 (100%)
Started using within past 2 years	75 (66.4%)	77 (91.6%)	152 (77.2%)
Never used any modern method before	25 (22.1%)	14 (16.7%)	39 (19.8%)
Short-term methods	Injectable	Pill	
Current users	783 (100%)	246 (100%)	1029 (100%)
Started using within past 2 years	498 (63.6%)	132 (53.7%)	630 (61.2%)
Never used any modern method before	206 (26.3%)	41 (16.7%)	247 (24.0%)

many of these recent adopters might have been new users altogether, the findings from this study do not suggest that exposure to PSI contraception materials was associated with uptake of any method during the last 2 years among women who had never used a contraceptive method before. This suggests that most of the recent adopters are women who switched from another method of contraception.

What is already known on this topic

Past research in other countries has found that social franchise network programs aiming to increase contraception were successful in increasing contraceptive use; however, the use of methods provided through franchises has also been found to be associated with high rates of discontinuation.[15,16] Ours is the first known study in Myanmar to look at the impact of a social franchise program aimed to increased contraceptive use on uptake. More research will be needed to determine if methods adopted through this channel are continued in the future.

Past research has found that communication materials, such as handouts, have been successful means of increasing contraceptive use in other countries in Asia[17,18] as well as other parts of the world.[19] The findings of this study support these previous studies, suggesting that contraceptive use, especially the use of LARC methods, can be increased through communication programs and related materials. While we measure women's reports of having seen a PSI contraception handout, this could simply be a proxy for exposure to the PSI intervention as a whole, including health education sessions put on by the Community Health Workers, increase access to low cost contraceptive methods, a greater variety of or higher quality of providers, etc., and thus any measured change might not be due to the communications aspect in insolation.

Limitations of this study

Due to security issues, the sample of townships from which data was collected differed between the baseline and end line. Although the same distribution of rural and urban populations were sampled, there ended up being a greater number of townships from states that had better socio-demographic indicators in the end line compared to the baseline. Thus, some of the socio-demographic variables were significantly different between the two rounds. We were able to control for these in our models; however, it is possible that there were other characteristics that were not measured and that would impact contraceptive use that were not accounted for. Relatedly, both surveys were cross sectional, rather than longitudinal, and therefore we do not have data on how individual women's behaviors changed over time, potentially as a result of the PSI intervention. Additionally, we have no data collected in either time period from townships that did not receive the PSI intervention, hence, there is no control group. We attempt to account for this limitation by including a variable for the round of the survey in our first set of models and by looking only at women in Round 2 of the survey, and their contraceptive uptake during the time of the intervention in the second set of models. Finally, we are unable to disentangle the effects of PSI's social franchise program itself from the additional information provided, so are unable to claim a direct link between the additional materials themselves and changes in contraceptive uptake.

Ideally, we would have been able to calculate the number of women who switched from another method, and what method they were using previously. Unfortunately, we only collected data on current method use and methods ever used, not method used directly before the most recent method, and therefore are unable to look specifically at switching behavior.

What this study adds

Myanmar's contraceptive rate lags behind its neighboring South East Asian countries.[20] The estimated unmet need for contraception is 16% in Myanmar, however, it is as high as

Table 3 Logistic regression analysis of trends in modern contraceptive use between baseline and end line surveys (odds ratios)

	IUD use (among users of contraception)	Implant (among users of contraception)	Injectable (among users of contraception)	Pill (among users of contraception)
End line (compared to baseline)	1.42*	4.14***	0.85	0.83
	(0.29)	(1.42)	(0.09)	(0.11)
Age group (compared to 18–24 years)				
25–30 years	2.73**	1.10	0.87	1.04
	(1.28)	(0.41)	(0.15)	(0.21)
31–39 years	4.11***	0.75	0.62***	1.14
	(1.89)	(0.29)	(0.11)	(0.23)
40–49 years	3.85***	0.77	0.59***	0.78
	(1.87)	(0.35)	(0.12)	(0.19)
Education level (compared to none/illiterate)				
Primary	1.52	1.15	0.95	0.95
	(0.48)	(0.45)	(0.14)	(0.17)
Secondary	1.79*	1.16	0.85	0.98
	(0.56)	(0.45)	(0.13)	(0.18)
University	1.37	1.66	0.71	1.14
	(0.62)	(0.87)	(0.17)	(0.33)
Occupation (compared to professional: management, supervisory, self-employed, businessmen)				
Shop owners, family business	0.44*	0.95	0.97	2.11*
	(0.20)	(0.51)	(0.29)	(0.87)
Unskilled workers	0.55	0.75	0.96	2.22**
	(0.23)	(0.40)	(0.27)	(0.88)
Unemployed/housewife	0.45**	0.61	1.21	2.19**
	(0.17)	(0.30)	(0.33)	(0.83)
Parity group (compared to 0–1 children)				
2–3 children	0.85	0.82	1.07	0.89
	(0.20)	(0.22)	(0.14)	(0.13)
4–5 children	1.42	1.04	0.91	0.59**
	(0.41)	(0.40)	(0.15)	(0.13)
6+ children	1.64	0.48	0.70	1.34
	(0.69)	(0.38)	(0.19)	(0.43)
Migrant (compared to non-migrant)	0.79	0.59*	1.00	1.11
	(0.18)	(0.18)	(0.12)	(0.15)
Urban (compared to rural)	1.81***	1.78**	0.53***	1.24
	(0.41)	(0.52)	(0.07)	(0.20)
Wealth quintile (compared to lowest)				
Second lowest	0.70	1.11	0.78	1.42
	(0.27)	(0.54)	(0.15)	(0.32)
Middle	0.99	1.22	0.79	1.19
	(0.35)	(0.57)	(0.15)	(0.27)
Second highest	1.55	0.73	0.62***	1.19
	(0.53)	(0.36)	(0.11)	(0.27)
Highest	0.93	0.98	0.52***	1.70**
	(0.36)	(0.49)	(0.10)	(0.42)
State	1.19***	1.39***	0.90***	0.93*
	(0.07)	(0.10)	(0.03)	(0.04)
Constant	0.01***	0.00***	5.93***	0.14***
	(0.01)	(0.00)	(2.37)	(0.07)
Observations	1989	1989	1989	1989

***$P < 0.01$, **$P < 0.05$, *$P < 0.1$.

Table 4 mLogit Regression Analysis of odds of contraceptive use between survey rounds (odds ratios)

	Natural: rhythm, withdrawl, LAM	Short term: condom, pill, injectable	Long term: IUD, sterilization, implant
End line (compared to baseline)	8.38***	1.57***	1.85***
	(4.08)	(0.13)	(0.27)
Age group (compared to 18–24 years)			
25–30 years	0.53	0.97	1.65*
	(0.35)	(0.12)	(0.48)
31–39 years	1.81	1.09	2.58***
	(1.01)	(0.14)	(0.73)
40–49 years	1.66	0.46***	1.33
	(0.98)	(0.07)	(0.40)
Education level (compared to none/illiterate)			
Primary	1.18	1.05	1.29
	(0.51)	(0.11)	(0.27)
Secondary	0.74	1.07	1.65**
	(0.35)	(0.12)	(0.34)
University	1.52	1.40	1.73
	(1.15)	(0.30)	(0.58)
Occupation (compared to professional: management, supervisory, self-employed, businessmen)			
Shop owners, family business	0.00	3.23***	0.83
	(0.01)	(1.18)	(0.48)
Unskilled workers	0.81	1.38	0.86
	(0.57)	(0.34)	(0.28)
Unemployed/housewife	0.64	1.52*	0.64
	(0.42)	(0.37)	(0.19)
Parity group (compared to 0–1 children)			
2–3 children	1.11	1.74***	2.18***
	(0.43)	(0.17)	(0.39)
4–5 children	1.48	1.09	2.01***
	(0.65)	(0.14)	(0.45)
6+ children	0.35	0.68**	1.35
	(0.28)	(0.13)	(0.41)
Migrant (compared to non-migrant)	1.74*	1.17*	1.00
	(0.53)	(0.11)	(0.16)
Urban (compared to rural)	0.82	0.72***	1.52**
	(0.34)	(0.08)	(0.25)
Wealth Quintile (compared to lowest)			
Second lowest	2.37	1.68***	1.86**
	(1.40)	(0.20)	(0.49)
Middle	2.17	1.62***	2.44***
	(1.28)	(0.20)	(0.63)
Second highest	2.02	1.74***	3.81***
	(1.22)	(0.22)	(0.96)
Highest	3.74**	2.40***	4.42***
	(2.45)	(0.36)	(1.22)
State	0.67***	0.72***	0.96
	(0.08)	(0.02)	(0.04)
Constant	0.00***	0.34***	0.01***
	(0.00)	(0.11)	(0.00)
Observations	3795	3795	3795

***$P < 0.01$, **$P < 0.05$, *$P < 0.1$.

Table 5 Logistic regression of the association between exposure to PSI materials and adoption of a contraceptive method in the last 2 years among women in Round 2 (odds ratios)

	Recent IUD/implant adopter		Recent pill or injectable adopter		Recent adopter of short or long-term method who had never used a method before	
Saw a PSI handout	2.05***	1.92***	1.00	0.99	0.96	0.94
	(0.37)	(0.36)	(0.11)	(0.12)	(0.15)	(0.15)
Age group (compared to 18–24 years)						
25–30 years		1.60		0.64***		0.67**
		(0.56)		(0.10)		(0.13)
31–39 years		1.60		0.41***		0.35***
		(0.56)		(0.07)		(0.08)
40–49 years		0.83		0.17***		0.16***
		(0.33)		(0.03)		(0.04)
Education level (compared to none/illiterate)						
Primary		0.98		1.13		0.75
		(0.31)		(0.20)		(0.16)
Secondary		1.24		1.07		0.69*
		(0.39)		(0.19)		(0.14)
University		1.22		2.12***		0.98
		(0.55)		(0.57)		(0.36)
Occupation (compared to professional: management, supervisory, self-employed, businessmen)						
Shop owners, family business		0.70		1.17		0.95
		(0.30)		(0.37)		(0.47)
Unskilled workers		0.62		1.54		2.06
		(0.25)		(0.47)		(0.91)
Unemployed/housewife		0.48*		1.72*		1.58
		(0.18)		(0.50)		(0.68)
Parity group (compared to 0–1 children)						
2–3 children		1.44		1.48***		1.21
		(0.33)		(0.19)		(0.21)
4–5 children		1.67*		1.37*		2.01***
		(0.50)		(0.24)		(0.47)
6+ children		1.25		1.52		3.20***
		(0.58)		(0.40)		(0.98)
Migrant (compared to non-migrant)		0.66*		1.40***		1.15
		(0.15)		(0.16)		(0.18)
Urban (compared to rural)		1.41		0.57***		0.87
		(0.33)		(0.09)		(0.18)
Wealth Quintile (compared to lowest)						
Second lowest		1.33		1.54**		0.84
		(0.58)		(0.32)		(0.22)
Middle		1.49		1.24		1.05
		(0.61)		(0.25)		(0.26)
Second highest		1.29		1.30		1.12
		(0.54)		(0.26)		(0.28)
Highest		1.39		1.55*		1.11
		(0.62)		(0.35)		(0.32)
State		1.22***		0.96		1.16***
		(0.07)		(0.03)		(0.05)
Constant	0.06***	0.03***	0.38***	0.32***	0.14***	0.14***
	(0.01)	(0.02)	(0.02)	(0.13)	(0.01)	(0.07)
Observations	2284	2243	2284	2243	2284	2243

***$P < 0.01$, **$P < 0.05$, *$P < 0.1$.

20% or more in some of the hard-to-reach states included in this intervention, suggesting that more work is needed to improve access to and uptake of contraceptive methods.[14] This study confirms past research that contraceptive use is increasing in Myanmar, even in hard to reach townships where contraceptive use is lower compared to the rest of the country. Furthermore, there is uptake of long acting methods, which have great potential to reduce unintended pregnancy rates. Additionally, it seems that exposure to interventions that address both supply and demand side barriers to contraceptive use, such as the one implemented by PSI between 2014 and 2016, have the potential to increase the use of these methods in particular. Future research could include the long-term sustainability of such programs, continuation of methods over time and the cost effectiveness, in addition to studies with a control for comparison. This study provides support for expanding such programs to other areas in Myanmar in order to improve supply and demand side strategies for contraception.

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