

## DETERMINANTS AND TRENDS OF CONTRACEPTIVE USE IN PUNJAB: COMPARATIVE ANALYSIS OF PDHS 2012-13 & 2017-18

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### Abstract

**Background:** It is striking fact that unrestrained growth of population has unleashed multifaceted problems for the people of Pakistan. The Socio-Economic determinants such as educational level, respondent's age and number of living children have strong influence on the changing trends of contraceptive use in Punjab.

**Methods and Materials:** A multistage analysis process was used on Pakistan Demographic and Health Survey 2012-13 and 2017-18. The data set of PDHS 2012-13 covered 3800 married women of reproductive age in the Punjab. Similarly, the data set of PDHS 2017-18 covered 10825 married women of reproductive age in the Punjab. Univariate and Bivariate statistical analysis was executed by using SPSS version 25.

**Results:** The results of the research study reveal that respondent's educational level, age and number of living children are major determinants of contraceptive use among married women (15-49) in the Punjab. It is also proved that married women with higher educational level, older age and higher number of children are more likely to use contraceptive methods in both PDHS 2012-13 and 2017-18.

**Conclusion:** It can be concluded that women with higher education are more likely to use contraceptive methods and married women with age of 35 years or more than 35 years have greater exposure to current contraceptive use as compared to married women age of below 35 years. Similarly, married women who have five or more than five children uptake more contraceptive methods to prevent from unwanted pregnancy.

**Keywords:** Family Planning, Fertility Trend, Reproductive Health, Modern Contraceptive Methods, Contraceptive Prevalence Rate, Unmet Family Planning Needs.

### 1. Introduction

It is striking fact that unrestrained growth of population has unleashed multifaceted problems for the people of Pakistan. Low uptake of any methods of contraceptive use among married women has triggered the unbridled growth of population. It has posed serious challenges for the welfare and betterment of the population in Pakistan. According to the results of Pakistan Census 2017, the population of Pakistan increased 57 percent in past nineteen years. It reflects that uptake of contraceptive methods is shambolic in the country. Therefore, research wing of Population Welfare Training Institute, Punjab aims to explore the determinants and trends of contraceptive use in Punjab by comparing PDHS 2012-13 and 2017-18. A number of studies conducted on the same topic found that socio-economic factors are strong determinants

of family planning. These Socio-Economic determinants include educational level, respondent's age and number of living children have strong influence on the changing trends of contraceptive use in Punjab.

The Pakistan Demographic and Health Survey (PDHS) 2006-07 found that the CPR had actually fallen and contraceptive use had stagnated between surveys (Ali, Bhatti & Kuroiwai, 2008). Figures from the PDHS indicate only a modest increase in the CPR from 30 percent in 2006-07 to 35 percent in 2012-13 (NIPS & ICF International, 2013).

The increase in CPR over these two decades has been due to increases in the uptake of both modern and traditional methods. Both types of methods saw a threefold increase over this time period, with current use of traditional methods increasing from 3 percent to 9 percent and modern method use from 9 to 26 percent. In 1990-91, a quarter of current users were using a traditional method and by 2012-13 this proportion was the same, the only change was that the rhythm method gave way to withdrawal (Jain, Mahmood, Sathar & Masood, 2014).

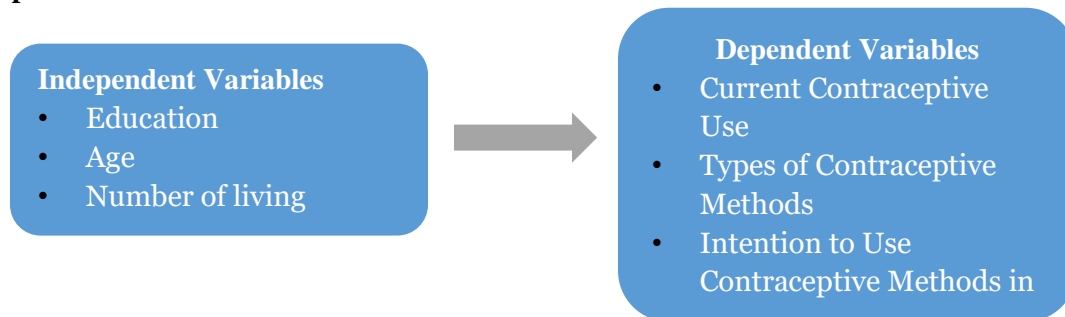
In Pakistan, 17% of married women have an unmet need for family planning: 10% want to delay childbearing, while 8% want to stop childbearing. Unmet need has slightly declined from 20% in 2012-13 (Mustafa, Afreen & Hashmi, 2017). Unmet need for family planning decreases with wealth, from 23% among married women in the poorest households to 14% among married women in the wealthiest households (Ahmad, 2017).

This scaling down of the use of any contraceptive methods pushed the researcher to explore the determinants and trends of contraceptive use among married women (15-49) in the Punjab, Pakistan. The findings of this secondary analysis based research provided a concrete and practical way forward to devise a provincial national action plan to enhance the uptake of current contraceptive methods among married women (15-49) in Punjab, Pakistan.

## 2. Research Objective

The research objective is to assess the determinants and trends of contraceptive use among married women (15-49) by analyzing PDHS 2012-13 and 2017-18 in the Punjab, Pakistan.

## 3. Conceptual Framework



## 4. Subjects and Methods

Secondary data was employed to assess the determinants and trends of contraceptive use in Punjab, Pakistan. A multistage analysis process was used on Pakistan Demographic and Health Survey 2012-13 and 2017-18. PDHS is a reliable and recognized national survey covering data on several demographic and health components including contraceptive use and unmet need of family planning. The data set of PDHS 2012-13 covered 3800 married women of reproductive age in the Punjab.. Similarly, the data set of PDHS 2017-18 covered 10825 married women of reproductive age in the Punjab.

Statistical analysis was executed by using SPSS version 25. Descriptive univariate analysis was performed to establish frequency distribution of demographic variables. Moreover, bivariate analysis was done to determine the relationship of independent variables and dependent variables. Significant association was assessed applying Chi-Square at P value<0.05. Additionally, bivariate analysis also applied to predict the influencing determinants of contraceptive use in the Punjab. In order to see the net effect of educational level and number of living children on intention to use contraceptive in future, the multinomial regression also done.

**Table:** Variable Description

Variables	Coding Categories
Education level	Illiterate (2) Primary (3) Secondary (4) Higher
Age	15-24 (2) 25-34 (3) 35+
Number of living children	None (2) 1-2 (3) 3-4 (5) 5+
Current Contraceptive use	Yes (2) No
Types of contraceptive methods	Traditional (2) Modern
Intention to use contraceptive methods in future by non-users	Use later (2) Unsure about use (3) No intention to use

## 5. Results and Discussion

### 5.1 Univariate analysis

**Table 1:** Univariate analysis of determinants of contraceptive use based on PDHS 2012-13 & 2017-18

Determinants	Categories	PDHS 2012-13		PDHS 2017-18	
		Percentage	N	Percentage	N
Education	Illiterate	47.8	1828	48.3	5227
	Primary	19.3	733	20.9	2265
	Secondary	22.5	855	20.5	2217
	Higher	10.4	394	10.3	1116
Age	15-24	18.8	713	6.3	687
	25-34	38.6	1467	34.6	3750
	35+	42.6	1620	59.1	6388
Living Children	None	13.9	528	.2	25
	1-2	30.3	1151	17.0	1845
	3-4	30.3	1150	40.3	4358
	5+	25.6	971	42.5	4597

#### A) PDHS Model 2012-13

##### I. Educational level

The above table depicts that 47.3 percent of all respondents were illiterate, 19.3 percent had primary educational level, 20.5 percent had secondary educational level and just 10.4 percent of the respondents had higher level of education. According to the descriptive analysis of PDHS 2017-18, 48.3 percent of the respondents were illiterate, 20.9 percent of the respondents had primary level of education, 20.5 percent of the respondents had secondary level of education and 10.3 percent of the respondents had higher level of education.

##### II. Age

The results indicates that 18.8 percent of the respondents had age between 15-24 years, 38.6 percent of the respondents had age between 25-34 years and 42.6 percent of the respondents had age more than 35 years. The number of respondents increased with the increasing of age in years.

##### III. Number of living children

The above descriptive analysis reveals that 13.9 percent of the respondents had no children, 30.3 percent of the respondents had 1-2 children, 30.2 percent of the respondents had 3-4 children and 25.6 percent of the respondents had 5 or more than 5 children.

#### B) PDHS 2017-18

### I. Educational level

According to the descriptive analysis of PDHS 2017-18, 48.3 percent of the respondents were illiterate, 20.9 percent of the respondents had primary level of education, 20.5 percent of the respondents had secondary level of education and 10.3 percent of the respondents had higher level of education.

### II. Age

The results indicates that 6.3 percent of the respondents had age between 15-24 years, 34.6 percent of the respondents had age between 25-34 years and 59.1 percent of the respondents had age 35 or more than 35 years. The number of respondents increased with the increasing of age in years.

### III. Number of living children

The above descriptive analysis reveals that .2 percent of the respondents had no children, 17.0 percent of the respondents had 1-2 children, 40.3 percent of the respondents had 3-4 children and 42.5 percent of the respondents had 5 or more than 5 children. The number of respondents who had 5 or more than 5 children are higher relative to other categories.

### 5.2 Bi-variate Analysis

**Table 2:** Bi-variate analysis of determinants and current contraceptive use among married women (15-49), PDHS 2012-13 & 2017-18

Variable	Categories	PDHS 2013-14 Current Contraceptive use				PDHS 2017-18 Current Contraceptive use			
		Using (%)	Not Using (%)	N	p-Value	Using (%)	Not Using (%)	N	p-Value
Education	Illiterate	36.5	63.5	1818	0.001	42.3	57.7	5227	0.000
	Primary	42.3	57.7	733		52.0	48.0	2265	
	Secondary	40.9	59.1	855		54.0	46.0	2217	
	Higher	43.1	56.9	394		59.1	40.9	1116	
Age in 5-year group	15-24	22.9	77.1	713	0.000	32.6	67.4	687	0.000
	25-34	41.1	58.9	1467		48.0	52.0	3750	
	35+	44.9	55.1	1620		50.6	49.4	6388	
Number of living children	None	0.8	99.2	528	0.000	8.0	92.0	25	0.000
	1-2	31.4	68.6	1151		29.5	70.5	1845	
	3-4	52.5	47.5	1150		49.9	50.1	4358	
	5+	54.1	45.9	971		55.1	44.9	4597	

The above table shows that percentage of the determinants with current contraceptive use is diverse such as educational level, age and number of living children. It is revealed that married women (15-49) with higher educational level, older age and higher number of living children uptake more contraceptive methods in the Punjab. It is significant that literate married women use more contraceptive methods relative to illiterate married women. It is also observed that current use of contraceptive methods increased with the increasing of educational level in both PDHS 2012-13 and 2017-18.

Comparatively, users of current contraceptive increased in PDHS 2017-18. The value of  $p < 0.000$  shows that there is a strong association between educational level and current contraceptive use in both PDHS 2012-12 and 2017-18.

The findings also reveal that current contraceptive use increased with the increasing of respondent's age. It is observed that younger married women have less likely to use of contraceptive methods as compared to older married women in both PDHS 2012-13 and 2017-18. It is also significant that users of current contraceptive methods among married women having age 15-24 years increased almost 10 percent in

PDHS 2017-18 as compared to the PDHS 2012-13 in Punjab. It is also proved that there is a strong association between respondent's age and current contraceptive use at  $p < 0.000$ .

Additionally, the bivariate analysis shows that number of living children and current contraceptive use is also significant at  $p < 0.000$  in both PDHS 2012-13 and 2017-18. The users of current contraceptive uptake increased with the increasing of number of living children among married women (15-49) in Punjab. The current contraceptive use is higher among married women who have five or more than five children as compared to lower number of living children in both PDHS 2012-13 and 2017-18.

**Table 3:** Bi-variate analysis of determinants and types of contraceptive methods using by married women (15-49), PDHS 2012-13 & 2017-18

Variable	Categories	PDHS 2013-14 Current Contraceptive Method				PDHS 2017-18 Current Contraceptive Method			
		Traditional (%)	Modern (%)	N	p-Value	Traditional (%)	Modern (%)	N	p-Value
Education	Illiterate	25.3	74.7	664	0.060	27.3	72.7	2220	0.017
	Primary	31.9	68.1	310		24.8	75.2	1177	
	Secondary	31.1	68.9	350		26.8	73.2	1197	
	Higher	32.4	67.6	170		31.7	68.3	660	

Table 3 shows that there is no significant association between the educational level and types of contraceptive methods (modern and traditional) at  $p > 0.06$  in PDHS 2012-13. It is elicited that married women with no education have greater uptake of modern contraceptive methods as compared to literate. In contrast, it is gauged by the findings that married women with education are more likely to use modern contraceptive methods relative to illiterate.

Here, it is proved that educational level of respondents has strong association with types of contraceptive methods (modern and traditional) at  $p < 0.01$ . Unfortunately, the married women with higher educational level have less use of modern contraceptive methods in both PDHS 2012-13 and 2017-18.

**Table 4:** Bi-variate analysis of educational level and intention to use contraceptive methods in future by non-users, PDHS 2012-13 & 2017-18

Variables	Categories	PDHS 2013-14 Intention to Use Contraceptive Methods					PDHS 2017-18 Intention to Use Contraceptive Methods				
		Use Later %	Unsure about %	No Intention %	N	p-Value	Use Later %	Unsure about %	No Intention %	N	p-Value
Education	Illiterate	32.2	17.1	50.7	1153	0.000	28.5	8.1	63.4	3007	0.000
	Primary	43.0	16.5	40.4	423		35.4	9.7	54.9	1088	
	Secondary	50.2	13.1	36.7	505		47.2	10.7	42.2	1020	
	Higher	48.4	14.8	36.8	223		43.0	9.0	48.0	456	
Age in 5-year group	15-24	55.6	21.6	22.7	550	0.000	56.2	18.8	25.1	463	0.000
	25-34	52.6	17.2	30.3	862		56.7	10.7	32.6	1951	
	35+	17.4	11.1	71.5	891		17.5	6.5	76.0	3157	
Number of living children	None	41.4	27.9	30.7	524	0.000	30.4	21.7	47.8	23	0.000
	1-2	45.5	14.2	40.3	789		42.2	12.5	45.2	1300	
	3-4	39.0	11.0	50.0	544		36.4	9.2	54.5	2184	
	5+	28.2	10.8	61.0	446		27.6	6.3	66.1	2064	

Table 4 reveals that respondent's educational level and number of living children have significant association with intention to use contraceptive methods later by non-users in both PDHS 2012-13 and 2017-18. It is observed that married women with education have more intention to use contraceptive methods late as compared to illiterate in both PDHS 2012-13 and 2017-18. It is also significant that intention to use later contraceptive methods increased with the increasing of educational level of non-users. The association between educational level and intention to use later contraceptive by non-users proved very significant at  $p < 0.00$  in both PDHS 2012-13 and 2017-18. Similarly, the non-users married women who have 1-2 children have strong intention to use later contraceptive methods as compared to non-users married women who have five or more than five children. It is also found that non-users who have five or more than five children have no intention to use contraceptive methods in future in both PDHS 2012-13 and 2017-18.

### 5.3 Multi-variate analysis

**Table 5:** Odds ratio from binary logistic regression analysis showing determinants associated with contraceptive use among married women (15-49) in Punjab, PDHS 2012-13 & 2017-18

Dependent Variable	Independent Variables	Categories	Model PDHS 2012-13			Model PDHS 2017-18		
			O.R	95 C.I		O.R	95 C.I	
				Lower	Upper		Lower	Upper
Current Contraceptive use 1=Yes 2=No	Education	Illiterate (Ref)						
		Primary	1.274	1.069	1.517	1.465	1.327	1.618
		Secondary	1.205	1.020	1.423	1.590	1.438	1.757
		Higher	1.319	1.057	1.645	1.760	1.719	1.960
	Age	15-24 (Ref)						
		25-34	1.355	1.222	1.446	1.450	1.305	1.563
		35+	1.554	1.365	1.745	1.615	1.490	1.784
	Number of living children	None (Ref)						
		1-2	.007	.004	.011	1.125	1.103	1.234
		3-4	.287	.253	.325	1.345	1.219	1.413
		5+	.715	.646	.791	1.513	1.324	1.730
Current Contraceptive Methods 1=Modern 2=Traditional	Education	Illiterate(Ref)						
		Primary	.722	.537	.971	1.141	1.120	1.341
		Secondary	.749	.563	.987	1.227	1.177	1.503
		Higher	.783	.591	.993	1.412	1.372	1.881

#### A) PDHS Model 2012-13

##### I. Educational level of Respondents and Current Contraceptive use

It is gauged by the binary logistic regression analysis that educational status of women has highly significant effect on the current contraceptive use. The literate women are more likely to current contraceptive use relative to illiterate. Similarly, women with higher educational level have greater probability of using contraceptive as compared to primary and secondary educational level with a significant odd ratio of 1.319.

##### II. Respondent's age and current contraceptive use

It is also evident that respondent's age has greater influence on the current contraceptive use. The married women with age of 35+ years are more likely to uptake contraceptive methods relative to age group 25-34 and 15-24 years with a significant odd ratio of 1.554. It means that older age of women are practicing more contraceptive methods. The odd ratio is decreasing with the decreasing of respondent's age.

### **III. Respondent's number of living children and current contraceptive use**

The results reveal that women with larger number of children are more likely to use contraceptive methods as compared to lower number of children. The odd ratio of current contraceptive use decreased with decreasing of number of living children. The analysis indicates that women with fewer children are less likely to use contraceptive methods relative to who have five or more than five children. The odd ratio of current contraceptive use is higher of women who have five or more than five children. It is significant with odd ratio of .715.

### **IV. Respondent's Educational level and types of contraceptive methods**

The respondent's educational level has significant effect on the types of contraceptive methods. Overall, literate women are more likely to use modern contraceptive methods as compared to illiterate women. Also, respondents with higher education are more likely to have uptake of modern contraceptive methods than respondents with no education with a significant odd ratio of 0.783.

#### **B) PDHS Model 2017-18**

##### **I. Educational level of Respondents and Current Contraceptive use**

The results show that educational status of married women has strong association with current contraceptive use. It is also gauged that women with primary education have 1.5 times (O.R= 1.465) greater uptake of contraceptive use relative to illiterate. Similarly, women with secondary education and higher education 1.6 times (O. R= 1.590) and 1.8 times (O. R= 1.760) respectively are more likely to current use of contraceptive as compared to illiterate women.

##### **II. Respondent's age and current contraceptive use**

It is also revealed that respondents with older age have positive association with the current use of contraceptive methods. The results show that married women with age of 25-34 years have 1.4 times (O. R=1.450) more use contraceptive methods as compared to married women with age of 15-24 years. Similarly, married women with age 35+ years have 1.6 times (O. R= 1.615) greater uptake of contraceptive methods relative to married women with age 15-24 years. The odd ratio odd current contraceptive use increased with the increasing of age.

##### **III. Respondent's number of living children and current contraceptive use**

The binary logistic regression analysis depicts that women with larger number of children are more likely to use contraceptive methods as compared to lower number of children. The analysis indicates that women with fewer children are less likely to use contraceptive methods relative to who have five or more than five children. The odd ratio of current contraceptive use is higher among married women who have five or more than five children. It is significant with odd ratio of 1.513.

##### **IV. Respondent's Educational level and types of contraceptive methods**

The respondent's educational level has significant effect on the types of contraceptive methods. Overall, literate women are more likely to use modern contraceptive methods as compared to illiterate women. Also, respondents with higher education are less likely to have uptake of modern contraceptive methods than respondents with primary and secondary education. The results indicate that married women with primary education have 1.1 times (O. R= 1.141) more use modern contraceptive methods as compared to illiterate and women with secondary education have 1.2 times (O. R= 1.227) more use modern contraceptive methods as compared to illiterate married women. The married women with higher education have 1.4 times (O. R= 1.412) more use of modern contraceptive methods as compared to illiterate women.

**Table 6:** Odd ratios from multinomial regression analysis showing determinants associated with the intention to use contraceptive methods in future by non-users, PDHS 2012-13 & 2017-18

Dependent Variable	Category	Independent Variable	PDHS 2012-13			PDHS 2017-18		
			O.R	C.I 95%		O.R	C.I 95%	
				Lower	Upper		Lower	Upper
Intention to use contraceptive methods in future by non-users 1= Use later 2= Unsure about use 3= No Intention (Ref)	Use Later	Education	1.277	1.160	1.407	1.361	1.276	1.452
		Age	.256	.218	.300	.185	.164	.208
		Living Children	1.249	1.113	1.403	1.204	1.178	1.548
	Unsure about use	Education	.597	.490	.617	1.159	1.049	1.279
		Age	.430	.357	.520	.270	.227	.321
		Living Children	.718	.622	.828	.773	.539	.927

**A) Respondent's Educational level, Age, number of living children and intention to use contraceptive methods in future PDHS 2012-13**

By applying multinomial logistic regression, it is observed that education has greater net effect on the intention to use contraceptive in future relative to age and number of living children with a significant odd ratio of 1.277. Women with education show intention to use later contraceptive methods.

Among respondent's education, age and number living children, education has greater association with intention to use later contraceptive methods. In the same ways, among respondent's age and number of living children, age has less effect on intention to use later contraceptive methods as compared to number of living children with odd ratio of .256.

It is also revealed that married women with education have .6 times (O. R=.597) more likely to unsure about use as compared to women who have no intention to use and women with number of living children have .7 times (O.R= .718) more unsure to use contraceptive as compared to women who have no intention. Respondent's age and intention to use contraceptive methods in future have not any relationship.

**B) Respondent's Educational level, Age, number of living children and intention to use contraceptive methods in future PDHS 2017-18**

By applying multinomial logistic regression, it is observed that education status of married women has greater net effect on the intention to use contraceptive in future relative to women with number of living children and age with a significant odd ratio of 1.361. Women with five or more children show greater intention to use later contraceptive methods relative to no intention. Married women with number of living children have 1.2 times (O.R= 1.204) more intention to use later contraceptive methods as relative to no intention to use.

It is also revealed that married women with education have 1.2 times (O.R=1.159) more likely to unsure about use as compared to women who have no intention to use and women with number of living children have .8 times (O.R= .773) more unsure to use contraceptive as compared to women who have no intention. Respondent's age and intention to use contraceptive methods in future have not any relationship.

**5.4 Comparative Analysis of PDHS Model 2012-13 & 2017-18**

The odd ratio of current contraceptive use with educational level increased in PDHS model 2017-18 as compared to the PDHS model 2012-13. Obviously, the married women with higher education have 2 times more likely to use contraceptive methods than illiterate in PDHS model 2017-18 as compared to married women with higher education who had 1.3 times more likely to use current contraceptive

methods than illiterate in PDHS model 2012-13. Overall, odd ratio of current contraceptive use increased with the increasing of educational status in PDHS model 2017-18 as compared to PDHS model 2012-13. In addition to it, the odd ratio of current contraceptive use with respondent's age decreased in PDHS model 2017-18 as compared to the PDHS model 2012-13. It is fact that current contraceptive use increased with the increasing of age in both PDHS model 2012-13 & 2017-18 but the net effect of increasing respondent's age on current contraceptive use is decreased in PDHS model 2017-18 as compared to PDHS model 2012-13.

Additionally, the odd ratio of current contraceptive use with respondent's number of living children decreased in PDHS model 2017-18 as compared to the PDHS model 2012-13. The results are evident that current contraceptive use is increased with higher number of children in both PDHS model 2012-13 & 2017-18 but the net effect of respondent's number of living children on current contraceptive use is also significantly decreased in PDHS model 2017-18.

As compared to PDHS model 2012-13, the use of modern contraceptive methods increased in the PDHS model 2017-18. Overall, the net effect of educational level on types of contraceptive methods increased in PDHS model 2017-18 relative to PDHS model 2012-13.

The net effect of respondent's educational level with intention to use contraceptive methods later in future increased in PDHS Model 2017-18 as compared to PDHS model 2012-13. These respondents were non-users of any contraceptive methods.

Similarly, the net effect of respondent's number of living children with intention to use contraceptive methods later in future increased in PDHS Model 2017-18 as compared to PDHS model 2012-13. The respondent's age with intention to use contraceptive methods later in future proved insignificant in both PDHS models 2012-13 & 2017-18. The number of non-users with no intention to use also decreased in PDHS model 2017-18.

## **6. Conclusion**

The findings of the research study can be concluded that respondent's educational level, age and number of living children are major determinants of contraceptive use among married women (15-49) in the Punjab. It is also proved that married women with higher educational level, older age and higher number of children are more likely to use contraceptive methods in both PDHS 2012-13 and 2017-18. Surprisingly, married women with age of 35 years or more than 35 years have greater exposure to current contraceptive use as compared to married women age of below 35 years. The reason is that married women had completed their desired family size before attaining age of 35 years. Similarly, married women who have five or more than five children uptake more contraceptive methods to prevent from unwanted pregnancy.

The findings also provide couples of recommendations to increase the current usage of contraceptive, modern contraceptive methods and uptake of contraceptive methods in future by non-users. Firstly, the incumbent government with all concerned stakeholders devise a provincial action plan to increase the uptake of current and modern contraceptive methods. Secondly, Population Welfare Department of the Punjab take concerted and holistic initiatives to expand its services delivery network in order to meet the unmet need of family planning. Thirdly, civil society and media play their constructive role in disseminating awareness of contraceptive use among married women. It is fact that socio-economic advancement of country will remain a distant dream without increasing uptake of current contraceptive methods.

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