

**THE IMPACT OF CONTRACEPTIVE USE AND  
EMPOWERMENT ON FERTILITY PREFERENCE USING  
PAKISTAN DEMOGRAPHIC HEALTH SURVEY 2012-13**

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Fall 2018

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## **ACKNOWLEDGEMENTS**

I have spent the last two and half years engaged in the study of Global Development at the Department of Health Promotion and Development at the University of Bergen. During my time I have been inspired by my colleagues and professors. I am grateful for all the opportunities I have had at the University of Bergen and all the individuals who enriched and supported my experience in the program.

I owe a gratitude to my supervisor Wenche Dageid, for the patience, guidance, encouragement and advice she has provided throughout my time as her student. She adeptly managed the delicate balance of challenging and encouraging me and her expertise, wisdom, and skilled advising were invaluable. I appreciate her help when I had difficult time in life.

I would like to thank Haldis Haukanes. Her excellence as a teacher and director, and her warmth, positivity and calmness of difficult situations was great help.

I must express my very profound gratitude to my friends. Completing this work would have been difficult them especially, Sehrish Mir, Raqual Barbosa Miranda, Raquel Bergaria de Oliveira, Bushra Ali and Victoria.

Finally, I could never had done this master program without the support of my family, especially my brother Waqar Ali and my parents. For providing me with unfailing support and continuous encouragement throughout my years of study and through the process of researching and writing this thesis I am so grateful, for all they have done for me and I hope to make them proud.

## ABSTRACT

**Background:** Fertility preference is an area of interest world over, particularly in the past five or six decades, given the prevalence of high fertility rates in many parts of the world. National and international organizations, governments, and policymakers have prioritized the issue by introducing and implementing policies and initiatives to control the rising fertility rates. Different national and international organizations, governments, and policymakers have highlighted the issue and have acted to address the rising fertility rates. In doing so, they have implemented initiatives and introduced policies to control the fertility rate among women. Typically, countries like China and India are renowned for this issue – whereas it is a matter of concern in Pakistan, to a comparatively lower degree. Pakistan is among the world’s many countries that are facing challenges in controlling population growth rates. There is evidence that a significant proportion of women do not want more children in Pakistan. However, a majority of these women do not use contraception to prevent future births. Therefore, it is important to evaluate women’s fertility preferences in a context-specific manner in Pakistan, where the concept of fertility preference differs vividly from that of other countries in South Asia. This study used the empowerment framework (resource, agency, and achievement) proposed by Naila Kabeer (1999).

**Research Objectives:** The objective of this study is to identify key constructs from previous literature and analyze data to understand the relationship between factors that correlate with each other. This study also aims to create a model to identify the factors that work as barriers to the exercise of choice by women in determining their own fertility preferences, such as wanting or not wanting to have more children.

**Data Material and Methods:** This study relied on a quantitative research design and used secondary data from the Pakistan Demographic Health Survey (PDHS) 2012-13. The Statistical Packages for Social Science (SPSS) version 25 was used to run various analyses. The sample in this study comprised 13,479 ever-married women aged between 15 and 49, who answered the questionnaire provided. First, variables were operationalized in the new subsets to make them

eligible for final analysis. Therefore, data cleaning, checking for outliers, deletion of duplicate cases, reverse coding of variables, and recoding of variables was done wherever necessary. Background, resource, and agency variables were drawn from the variables in the data. They were analyzed and described using univariate (descriptive) statistics to show their frequency distribution. Bivariate analyses were used to assess the relationship between the variables. Cross-tabulation with Chi-Square was used for categorical variables. Independent sample t-test was used for continuous variables. After preliminary analyses, binary logistic regression was conducted. Three basic models were tested before testing the final parsimonious model.

**Findings:** The study found significant differences between women who want more children and those who want no more children. With the increase in age, educational, and wealth, there is a decrease in fertility. Poorer people have more children than richer. The strongest odds for wanting more children were found in Balochistan OR=3.313, followed by Khyber Pakhtunkhwa OR=2.548. Higher odds for wanting no more children was found in the case of the variable “wanted the last child” OR=-2.435. As many as 65% of the respondents had not used any form of contraception. According to the results, decision-making variables do not make any significant contribution to fertility preference.

**Conclusion:** By increasing access to education in the country, fertility preferences will reduce. Cultural norms have a strong influence in society and restrict women from making significant contributions toward decisions specifically related to their health.

**Keywords:** fertility preference, empowerment, contraceptive use, decision-making, Pakistan Demographic and Health Survey.

## **LIST OF ACRONYMS**

**AIDS** – United Arab Emirates

**AJK** – Azad Jammu and Kashmir

**BMI** – Birth Mass Index

**DHS** – Pakistan Demographic Survey

**FANA** – Federally Administered Northern Areas

**FATA** – Federally Administered Tribal Areas

**HIV** – United Arab Emirates

**ICPD** - International Conference on Population and Development

**INFHS** – India National Family Health Survey

**MDG** – Millennium Development Goal

**NIPS** – National Institute of Population Studies

**NSD** - Norwegian Social Science Data Services

**PBS** – Pakistan Bureau of Statistics

**PCPS** - Pakistan Contraceptive Prevalence Survey

**PDHS** - Pakistan Demographic Health Survey

**PFS** - Pakistan Fertility Survey

**PLFMS** - Population Labor Force and Migration Survey

**PPDD** – Pakistan Planning and Development Division

**PRHFPS** - Pakistan Reproductive Health and Family Planning Survey

**SDG** – Sustainable Development Goal

**SPSS** – Statistical Packaged for Social Science

**STI** – Sexually Transmitted Infection

**TFR** - Total Fertility Rate

**TPS** – Teenage Pregnancy Strategy

**UAE** – United Arab Emirates

**UiB** – University of Bergen

**UK** – United Kindom

**UN** – United Nations

**UNESCO** – United Nation Educational Scientific and Cultural Kingdom

**USAID** – United States Agency for International Development

**WHO** – World Health Organization

# 1 INTRODUCTION

## 1.1 Background

Fertility preference is a worldwide health issue and in past five to six decades it was much higher than it is these days (Potter & Mundigo, 2005). The death rates declined faster than the birth rates in the 1950s and 1960s. In 1960s, more than half of the countries around the world had a high fertility and the median rate was 6.2 children per women (Casique, 2001), the increasing number of population became a global threat with some alarming outcomes in near future (Potter & Mundigo, 2005). The introduction of effective contraceptive method and better delivery services helped to a major change to reducing family size (Potter & Mundigo, 2005). Therefore, fertility planning became a universally accepted part of a couple's reproductive behavior and lifelong decisions (Potter & Mundigo, 2005). There is evidence that a significant proportion of women in Pakistan do not want more children (N. Mahmood & Ringheim, 1996). However, a majority of these women are not using any form of contraception to prevent future births (N. Mahmood, 1992b).

The rising population growth in developing countries in the middle of the 20<sup>th</sup> century led to a fear of "population explosion." Different national and international organizations, governments, and policymakers have highlighted and acted to address the rising fertility rates. In doing so, they have implemented initiatives and introduced policies to control the fertility rate among women. Hollerbach (1980) recommended that young people explore their fertility goals with the help of reproductive life planning.

## 1.2. Fertility Patterns across Time and Territory

In the 1960s, more than half of the countries around the world had high fertility rates, and the median rate was 6.2 children per women (Casique, 2001). Worldwide, the decline in fertility



rates gained momentum starting in the 1970s, and reached historically low levels in the period 2010 to 2015 (*The World Fertility Report*, 2015). In addition, the world's population is projected to increase from 6.7 billion in 2010 to 9.7 billion in 2050 (*The World Fertility Report*, 2015). While in the period 1970 to 1975 half of the countries in the world had levels of total fertility above 5.5 live births per woman, in the period 2010 to 2015, the median fertility stood at 2.3 births per woman (*The World Fertility Report*, 2015). Between 1990-1995 and 2010-2015, the global proportion of births to adolescent women declined by 1.5%, that is, from 10.7 to 9.2 (*The World Fertility Report*, 2015).

According to the estimates provided by World Family Planning (2017), 63% women within the reproductive age (15-49 years) who were either married or in a union were using some form of contraception. More than one in ten married or in-union women worldwide have unmet needs in family planning and affirm that they want to stop or delay childbearing but are not using any method of contraception to prevent pregnancy (*World Family Planning 2017 - Highlights*, 2017). In Africa, one in five women have unmet needs in family planning (*World Family Planning 2017 - Highlights*, 2017). The number of married or in-union women using contraception is projected to rise by 15 million globally, from 778 million in 2017 to 793 million in 2030 (median estimate) (*World Family Planning 2017 - Highlights*, 2017). The growth in the number of contraceptive users is likely to be higher in Africa and Southern Asia (*World Family Planning 2017 - Highlights*, 2017). Globally, the number of married or in-union women with unmet needs in family planning is projected to decline slightly, from 142 million in 2017 to 139 million in 2030 (*World Family Planning 2017 - Highlights*, 2017).

### **1.3. Fertility Patterns in Asia**

Fertility rates decreased in countries that had high rates, especially in Asia. In 2015, 52.2% Indian women were using modern contraceptive methods. The number of women using modern methods doubled from 58 million to 124 million in (*World Family Planning 2017 - Highlights*, 2017). Lower levels of contraceptive prevalence in Asia were recorded in Afghanistan (27%), Saudi Arabia (31%), and Timor-Leste (32%). In these three countries, unmet

needs in family planning were above 20% in 2013, which was also the case in six other countries in Asia, namely Maldives, Nepal, Oman, Pakistan, Tajikistan, and Yemen (*World Fertility Report 2013*). Since 1989, contraceptive use in Bangladesh increased by 74%, shifting from 31% to 54% (Kabir, Islam, & Patwari, 2004). Pakistan is among the world's many countries that are facing challenges in controlling their population growth rates. Birth rates have remained high and the rate of contraceptive use has remained low (M. S. Khan et al., 2015). It is necessary to explain the reason for the rapid fall in fertility rates in developing countries in recent decades, when compared with the slow decline in fertility rates found in developed countries. Furthermore, it is also necessary to explain why a country like Pakistan with low level of income, education, urbanization and other factors constituting to the high fertility pattern.

#### **1.4. Fertility Patterns across Time and Territory in Pakistan**

Efforts to reduce population growth rates in Pakistan started back in 1953 when the Family Planning Association of Pakistan (FPAP) began providing family planning services to women to stabilize population growth. The government of Pakistan also joined forces with FPAP and offered 0.5 million Pakistani rupees to the organization as part of country's first five-year plan (1955-1960) (PDHS, 2012-13). Realizing the effects of population growth on socioeconomic development, the next government made population control programs an integral part of the second five-year plan (1960-1965), but because of changes in the government's population policies changed every five to ten years (PDHS, 2012-13). Therefore, the desired results were not achieved. Another major shift in population planning was made in 2010, where the population program was taken to the provinces.

Pakistan's fertility levels have always been high (Z. Sathar & Zaidi, 2009). Demographers have struggled to reach a consensus on the exact level of estimates over the last 50 years (Z. Sathar & Zaidi, 2009). The Pakistan Fertility Survey of 1975 placed the fertility rate at 6.3 births per women in the mid-seventies (Z. Sathar & Zaidi, 2009). There was hardly any fertility control within marriage before the late 1980s, and therefore marital fertility did not experience a significant decline (Z. Sathar & Zaidi, 2009).

## **1.5. Demographic Surveys in Pakistan**

In the 1970s and 1980s, four major surveys established the trends in fertility, namely the Population Labor Force and Migration Survey (1979), Pakistan Contraceptive Prevalence Survey (1984-85), Pakistan Demographic Survey (1984-90), and Pakistan Demographic Health Survey (PDHS) (1990-91) (Z. Sathar & Zaidi, 2009). There were some variations in the data collected by all these surveys. For example, in the late 1980s PDHS reported a fertility rate of 5.4 children per women and PDS reported 6.5; while in the next PDHS, fertility rate was recorded as 6.1 children per women (Feeney & Alam, 2003). The Pakistan Reproductive Health and Family Planning Survey (2000-01) estimated a fertility rate of 4.8 for 1997-2000 and the PDS reported 4.5 by 1999 (Z. Sathar & Zaidi, 2009). There were significant differences recorded across regions (urban/rural) (Hagen, Fikree, Sherali, & Hoodbhoy, 1999). PDHS showed a total fertility rate (TFR) of 4.1 children per women for 2006-07 (Z. Sathar & Zaidi, 2009).

### **1.5.1. Pakistan Demographic Health Survey 2012-13**

The PDHS 2012-2013 is the third survey conducted so far in Pakistan under the global demographic and health survey (DHS) program (PDHS, 2012-13). The PDHS 2012-13 specifically collected information on knowledge and practice of family planning, fertility levels, marriage, fertility preference, domestic violence, empowerment etc. Information on the aforementioned topics was mainly collected from ever-married men and women (PDHS, 2012-13).

Overall, Pakistani women had about one child more than the number they desired (PDHS, 2012-13). This implies that the TFR of 3.8 children per women was 31% higher (PDHS, 2012-13). There has been a substantial increase in the number of planned births since 2006-07 from 7% to 84% (PDHS 2012-13). PDHS (2012-13) noted that 8% of adolescent girls aged between 15 and 19 are either already mothers or are pregnant for the first time. The mean ideal number of children among currently married women, that is 4.1 children, remained unchanged in the last two decades (PDHS, 2012-13).

Pakistan has clearly seen its peak in population growth rates and fertility rates. Contraceptive use helps couples and individuals realize their basic rights to decide freely and responsibly if and when they want to have children, and accordingly, how many they want to have. The growing use of contraceptive methods has resulted in not only improvements in health-related outcomes such as reduced maternal and infant mortality rates (Bhutta et al., 2014; Rutstein & Winter, 2015), but also improvements in schooling and economic outcomes, especially among girls and women (Canning & Schultz, 2012; Joshi & Schultz, 2013).

## **1.6. Purpose of the Study**

This study sought to integrate methodology likely to promote valid analyses in order to determine the quantitative impact between fertility preference (want more and do not want more children) with empowerment, contraceptive use and demographic/background variables by using data of Pakistan Demographic and Health Survey 2012-13. Also to assist Pakistan, recommend to policy-makers what factors they should be targeting in reducing overall fertility rates.

## **1.7. Research Objectives**

Health care systems across the world have faced major challenges in terms of achieving targets to meet goals in the shape of the Millennium Development Goals (MDGs), and currently aim to achieve the Sustainable Development Goals (SDGs). However, such targets related to fertility preference, contraceptive use have never been achieved due to several reasons. The objective of this study was to identify key constructs from previous literature on fertility preference and analyze data from PDHS 2012-13 to understand the relationship between factors that correlate with each other. These factors have either a direct or an indirect relationship with individual life, either in the form of state policy, or as a social norm. Therefore, these factors need to be understood and studied together as a group to identify the impact they have on each other. To identify and explore these factors, quantitative research justifies the outcomes with the help of statistical tests.

In addition, this study also aimed to work on country representative data that will help generalize the results for Pakistan. Creating a model to identify factors that work as barriers and deprive women of their choices and decisions concerning their fertility preferences is important. The study aims to identify the factors that can strengthen fertility goals.

## **1.8. Research Significance**

Most research on fertility preference in Pakistan has either been based on qualitative interviews with small sample sizes or descriptive. This study, on the other hand, aims to examine the fertility preference in Pakistan using quantitative data at the country level. It goes further to identify the dichotomy in responses to questions on fertility preferences among women. Quantitative analysis is based on several relevant indicators that contribute toward a sharper picture of the fertility preferences of women of Pakistan, which will probably serve as an important underpinning for future policies (Kravdal, 2001).

Therefore, it is important to evaluate women's fertility preferences in a context-specific manner in Pakistan, where the concept of fertility preference differs significantly from that of other countries in South Asia. In doing so, this is one of the few studies that have looked at measuring fertility preference choices among women at the individual level.

## **1.9. Contribution to Gender Development with a Health Promotion Perspective**

The health of women within the scope of gender development is a valuable resource, especially since women are half the total population around the world. Hence, the promotion of women's health enables women to access greater opportunities to control their bodies and to access resources to improve their health to the external environment (WHO, 1986). Health promotion is, therefore, a resource that can empower individuals (WHO, 1986). It enables the right to enjoy personal control over one's health, and to opt for healthy lifestyles at one's own discretion (WHO, 1986). For women, the right to control their fertility is a great means to control

their fertility preferences and choices. Education is considered a fundamental tool for one's health and well-being (WHO, 1986). Educating women about their right of control over their bodies and offering them the information that empowers them to make personal choices that affect their health is vital. If fertility control is a health promotion and gender development tool, then fertility preference can be used as a health promotion and gender development tool as well.

## **2 THEORETICAL FRAMEWORK**

### **2.1. Theory of Empowerment**

This study will focus on the framework proposed by Naila Kabeer in 1999, wherein she discusses empowerment as a process of change and the ability to make choices (Kabeer, 1999). This study focus will not be on the process or change but rather focus on the factors proposed by framework (resource, agency and achievement). Kabeer (1999) described disempowerment as being denied the right to choice. This concept focuses on empowerment as a process of moving toward change, building on resources (pre-conditions), and agency (process) for achievements (outcome). The main components of this framework of empowerment are resources (assets), agency (decision-making), and achievements (outcome). These components are interrelated and influence the ability to make strategic life choices such as the choice of livelihood, whom to marry, and whether to have or not have more children, etc. (Kabeer, 1999).

### **Conceptualizing Empowerment: Resources, Agency, and Achievements**

#### **2.1.2.1. Resources**

The first component, resources (pre-conditions), includes material resources such as economic, human, and social resources that serve as tools to enhance the process of making choices (Kabeer, 1999). Kabeer (1999) defined material resources in a broad sense as including social support gained from various social relationships that we experience in our daily interactions with different (human and social) domains such as family and society. Access to such resources indicates the standards and procedures that govern the ability to implement and set priorities such as education, wealth, contraceptive use and number of living children (Kabeer, 1999).

## **Agency**

The second component of this framework is agency. Kabeer (1999) stated that agency refers to the ability to define goals and act upon them. Agency, in this framework, includes observable actions which individuals bring to their routines to create motivation or add purpose to an action (Kabeer, 1999). Agency can be used positively or negatively when it relates to power. In the positive sense, it empowers one to take action in exercising their life choices and goals while in the negative sense, one tries to dominate the sense of agency of others, thus disempowering them (Kabeer, 1999). Mosedale (2005) defined women's empowerment as a process in which women redefines gender roles in ways that extend their possibilities for being and doing. She emphasized that empowerment has to be claimed by the group that wants to be empowered, that is, by women (Mosedale, 2005). Kabeer (1999) offered a definition that is more about individuals acquiring the ability to choose for example, women who have more influence on household decisions might also be able to influence fertility preference.

## **Achievement**

Achievements (outcomes) in Kabeer's (1999) framework refer to the behaviors or choices that women can and do exhibit or make. Kabeer's (1999) framework looks at the functional achievements of decisions made and highlights the possible inequalities that may exist in people's abilities to make choices rather than the differences in the choices made. This framework measures the basic fundamentals of survival and well-being, regardless of context (Kabeer, 1999). As achievement in this study is simply fertility preference and to what degree women could be able to make empowered choices about fertility.

## **Problem Statement**

The research questions in this study are framed in line with the above mentioned theory proposed by Kabeer (1999), to develop an understanding of the difference in fertility preference among those women who do not want more children and those who want more children. The current study aims to explore three major questions with the perspective of background variables, resource variables, and agency variables.



### **2.2.1 Research Question (Background Variables)**

1. To what extent does fertility preference differ in relation to the background variables such as: namely age, region, age of respondent at first childbirth, husband's education level, and past history of termination of pregnancy if any?

### **2.2.2 Research Question (Resources Variables)**

1. To what extent does fertility preference differ in relation to the resources such as: the educational attainment of the respondent, wealth index, number of living children, whether currently pregnant, whether currently living with the husband, using contraceptives, and whether the respondent wanted last child at the time it was born?

### **2.2.1 Research Question (Agency Variables)**

1. To what extent does fertility preference differ based on agency that includes decisions on: the use of contraceptive methods, spending based on the respondent's earnings, access to health care, making large household purchases, and spending husband earnings?

## **3 LITERATURE REVIEW**

### **3.1. Fertility Preference**

Over the past few decades, fertility rates world over have declined (Ramakrishnan et al., 2005) and changed (Lotfi, Naeeni, Rezaei, Farid, & Tizvir, 2017). According to data from the World Bank the fertility rate in Pakistan was an average 6.60 children per woman, which reduced to 3.48 children per woman in 2016 ("Fertility rate, total (births per women)," 2017). Pakistan ranks fourth in the world among countries with the largest contributions of fertility rates to the high population rate in the world, alongside other South Asian countries such as India and Bangladesh (*The World Fertility Report*, 2015). The World Fertility Report (2015) noted that Pakistan alone will contribute 60 million people in the period between 2010 and 2050. (*The World Fertility Report*, 2015).

This study fertility preference refers to the desire expressed by couples relating to childbearing, such as the preference for high fertility or the preference for sons. Oxaal and Baden (1997) indicated that the term fertility preference is often used interchangeably with ideal/ desired/ preferred/ intended number of children or desired family size. Amin and Mariam (1987) use the desire for additional children as a dichotomous variable and sex composition of existing children as a control variable to measure for son preference. The authors expected that if there was a higher proportion of daughters to sons in the sex composition of the current number of children, married women could express their desire to have more children.

#### **3.1.1. Fertility Preference Decision**

Women who participate at higher levels in fertility related decisions tend to have fewer children. Mason (1987) suggested that a higher level of women's independence led to better and more equal communication between wives and husbands, and therefore, resulted in decision-making on fertility regulation as well as a higher use of contraception. Therefore, the wife's

educational attainment and working status are important factors that affect household fertility decisions and women's actual contribution in making the final decision.

However, empirical research on women's participation in fertility preference decision-making in the household is quite limited. Decisions on family size, the number of children wanted, or the number of children wanted in addition to the existing number of children are made within the household (Hollerbach, 1980). Household decision-making power is a significant factor in shaping the ability of women to control their fertility (Afifi, 2007; Schultz, 2007; Shoaib, Yasir Saeed, & Shahid Nawaz Cheema, 2012). Shaikh (2010) indicated emerging evidence that suggested that family members' have a major influence on women's decisions on contraception.

Schultz (2007) suggested that decision-making in the community and participation in local government may also evolve as women gain the capacity to regulate the timing and number of births. Thus, women's participation in decision-making at the community and governmental levels may help them gain control over their fertility.

### **3.1.2. Role of Family Planning Programs**

Bradley (1995) claimed that the system through which education leads to lower fertility is often recognized as westernization, and that there is evidence that education may not alone lead to lower fertility. Similarly, Wu, Ye, and He (2014) in a study on declining fertility and women's empowerment in China concluded that the improvement of women's social status (in education and labor force) was not the key factor causing the decline in fertility in China since the 1970s. They found that it was a result of family planning policies that were governed and implemented by the Chinese government. White, Djamba, and Anh (2001) also proposed that government policies were the most influential factors causing the decline in fertility in Vietnam from the late 1980s onwards, until the early 2000s.

Carter (2001) suggested that the decline in fertility in developing countries was initiated mainly by social development and innovative ideas rather than by the effectiveness of population

policies implemented by executive authorities. Lee (2009) observed that the governments' strong family programs and other incentives and hindrances encouraged lower contraceptive costs and reduced fertility rates. Bongaarts (1994) explained that government interventions changed the number of children that people used to have in the past, as a result of which many unwanted births were prevented.

Schultz (2007) explained that either population policies can change the incentives and opportunities that encourage people to change their fertility decisions voluntarily, or can set governmental limits on fertility. Some governments also adopted involuntary population policies such as setting birth quotas in the hope that they can significantly change fertility behaviors and reduce birth rates quickly, as was the case of the Chinese government (Cai, 2010). The governments of China and Vietnam imposed restrictions on the number of children per couple (Cai, 2010). In China, each couple was allowed to have only one child, but this has been changed in recent times, whereby if either partner is an only child, then the couple can have two children. The number may depend on the couple's location and social position (Cai, 2010). In Vietnam, each couple is allowed to have no more than two children (Cai, 2010; Goodkind, 1995).

### **3.1.3. National Family Plan**

The first official national family planning program was launched as early as in 1952 in India (Rehman, 2013; Samal & Dehury, 2015; Sengupta, 2012; Vaz & Kulkarni, 2005). Family planning activities were introduced in the mid-1950s in Pakistan by the FPAP and other voluntary organizations through the health infrastructure (PDHS, 2012-13). Government subsidies can lower the cost of contraception, consequently making it more accessible to women who want to control their family sizes. Moreover, population propaganda and subsidy policies can help speed up the spread of contraceptive use.

#### **3.1.3.1. Impact of the National Family Plan on Contraceptive Use and Fertility Preference**

A large number of research studies have suggested that the implementation of national family planning programs in developing countries have led to substantial increases in contraceptive use and have contributed a great deal to the decline in average fertility rates.

Schultz (2007) discussed the impact of public population policies on fertility behaviors in detail. For example, in the text Schultz (2007) population policies can finance sex education programs, provide information on best practices in birth control methods, sponsor reproductive health training sessions, subsidize supplies and medical services, and promote reproductive health programs.

There is a strong emphasis in the literature on the relationship between sexual and reproductive control, women's empowerment, and egalitarian gender systems (Malhotra, 2012). Schultz (2007) noted that the invention of the birth control pill in the 1960s played a positive role in enhancing the independence of women as it separated sexual intercourse from childbearing. Similarly, Malhotra (2012) agreed that the separation of sexuality and reproduction represented an important breakthrough in women's fertility control and fertility decline.

### **3.2. Background Variables**

Health care systems across the world are facing pressure related to demographics ("Demographics," 2017). Background variables help understand direct and indirect relationships in individual daily life (Mehdizadeh, Shariat-Mohaymany, & Nordfjaern, 2018). These are the basic instruments that help understand the family's or household's access to resources such as education, income generation, health etc. (Hoogerheide, Block, & Thurik, 2012). This study borrows demographic variables from the PDHS 2012-13 to understand the relationship between these variables and fertility preference.

#### **3.2.1. Age of Respondent at First Birth**

The female mean age at first birth increased in both countries with low and high fertility rates world over for example, in high fertility countries in Sub Saharan Africa aged below 19 years and high fertility countries like Switzerland and Italy 30 years or older (*World Fertility Report* 2013). The global proportion of births to adolescent mothers declined by 1.5%, from 10.7 to 9.2 (between 1990-1995 from 2010-2015) (*The World Fertility Report*, 2015). Child marriage in South Asia decreased by over 40% between 2000 and 2017 (SDGs, 2018). Paswan et al.

(2017) stated that 40% women marry before the legal minimum age of marriage in India. A study conducted in Punjab (Pakistan) by Winkvist and Akhtar (2000) found that female participants included in the study had already been married at an age between 13 and 15, while those who had been married at an age between 20 and 25 had late marriages because of financial reasons. Early age childbirths are not good for women's health. Patchen, Leoutsakos, and Astone (2017) indicated that women who experienced their first birth at age 21 or younger had a higher birth mass index (BMI) than women who were older than 25 when they experienced their first birth.

Governments, policymakers, and child marriage act/laws can help delay the marriage of girls and women, and thus, delay their first childbirth. Paul Schultz (2004) highlighted that public intervention involves conditional transfers to families- engage in high-return investments, typically in human capital. For example, Nahar, Zahangir, and Shafiqul Islam (2013) indicated that Bangladesh introduced a secondary school scholarship program for girls, contingent on their not marrying before age 18. Mexico made transfers to poor mothers in rural and marginalized areas if their children enrolled in school and family members received recommended vaccinations and preventive health care. In the UK, wide geographical variations in patterns of teenage pregnancies were recorded, with higher pregnancy rates found in the most deprived areas and the proportion of contraception ending in abortion. Morley (2003) observed that conditional transfer programs are promising mechanisms when it comes to reducing poverty in the short run, while encouraging long-run investments in health and schooling of poor children.

### **3.2.2. Region and Fertility**

The region has been suggested as a possible cause among other socioeconomic factors for an increase or decline in fertility. There are differences in contraceptive use and fertility rates between rural and urban areas. For instance, the region in terms of where one is born can impact the values one is raised with (son preference). Arnold, Jayaraman, and Mishra (2009) indicated that son preference is extensively observed in most South Asian countries like Nepal, Pakistan, India, and Bangladesh. It is important to highlight that regional differences in fertility were

substantial of son preference within region fluctuate. Bhat and Zavier (2003) found a positive relationship between ideal family size and son preference in the context of South Asia. Kamal (2008) found that contraceptive use is discouraged among women in lower classes in Bangladesh because of the son preference, which has proven to be a strong obstacle in reducing fertility rates (Ghosh & Begum, 2015). Therefore, each time a woman gave birth to a girl, she experienced an unmet need for desired fertility. The annual population growth rate is 1.9% in India and its demographic situation varies across regions. For example, fertility rates are low in the south and the west and high in many states in the north and central regions (Olenick, 2000).

In agrarian economies, farmers need more hands to work, which thus increases the fertility preference of families involved in agriculture. Cai (2010) found a positive relationship between the population composition and fertility preference in China, wherein agrarian families had a higher fertility preference compared to non-agrarian families. De Silva and Tenreyro (2017) explained that in rural areas, children may be seen as a significant source of labor for agricultural production. On the other hand, urbanization can result in a decline in fertility rates when compared to rural areas because the cost of living and education are higher in cities than in rural areas, making larger families expensive (Das & Tarai, 2011; De Silva & Tenreyro, 2017).

### **3.2.3. Ever-terminated Pregnancy**

Rehman (2013) observed that the son preference is highly prevalent in South Asia. According to India's National Family Health Survey (NFHS-4) 2015-16 3% of all pregnancies in the five years preceding the survey resulted in 3% abortions and 6% miscarriages (Paswan et al., 2017). Rehman (2013) found that in Bangladesh there is a strong relationship between son preference and contraceptive use, and that son preference is a factor guiding prenatal sex identification and sex-specific abortion. Islam and Paul (2014) found that if the desired family size is large in Bangladesh, sex preference has less influence. Bairagi (2001) reported that the effect of son preference on abortion and fertility behavior in Bangladesh became stronger with declined fertility rates.

### **3.3. Resources**

#### **3.3.1. Contraceptive Use**

Contraceptive use helps couples and individuals realize their basic right to decide freely and responsibly on reproduction. Allendorf (2012) pointed out that the percentage of women at the reproductive age in developing countries using contraception rose from 9% in 1960 to 61% in 2009. Measurements of women's empowerment to date have considered contraceptive use one of the empowering factors to women. The Programme of Action of the International Conference on Population and Development (ICPD) in 1994 called for all countries to provide universal access to a full range of safe and reliable family planning methods by the year 2015. The Millennium Development Goals (MDGs) included an indicator on contraceptive prevalence rates and the unmet needs in family planning as a means to monitor targets. However, the targets set were not met. The reason for failing these goals were generally poorly monitored, evaluated and documented (Chandra-Mouli et al., 2015).

At the United Nations conference on Sustainable Development in Brazil (2012), UN member states adopted the outcome document “The future we Want”, to launch a process to develop a set of SDGs (“Sustainable Development Goals Knowledge Platform,”). Therefore, the global community has committed to taking action. These actions include guaranteeing the access to sexual and reproductive health, including family planning, and creating awareness on the reproductive rights for all people and presented new agenda (Chandra-Mouli et al., 2015). The 2030 Agenda for Sustainable Development or the Sustainable Development Goals (SDGs) includes two relevant targets for family planning goals: health and well-being of the population and the empowerment of women and girls (SDGs, 2018). Different family planning indicators have been included within the frameworks of the global development agenda (SDGs, 2018). The SDGs include an indicator that focuses on the proportion of women whose family planning needs have been satisfied by modern methods, which, in turn, capture the family planning component in global monitoring (SDGs, 2018).



### 3.3.2. Trends in contraceptive use in Pakistan and other South Asian countries

In a report titled the “Trends in Contraceptive use Worldwide” (2015) prepared by United Nation, it was found that contraceptives are used by a majority of married women in almost all parts of the world. The report also indicated that 64% of married women or women in union at a reproductive age were using some form of contraception. World Family Planning (2017) found that 63% women (married or sexually active) were using some form of contraceptives in 2017. The report also indicated that at least one in ten women who are either married or in-union in most regions of the world has an unmet need in family planning. Furthermore, it was also found in the report that 12% married or in-union women world over are estimated to have had unmet needs in family planning in 2015. Unmet needs in Pakistan family planning was above 20% (*Trends in Contraceptive Use Worldwide, 2015*). While these women either want to stop or delay childbirth, they do not use any form of contraceptives. As opposed to developed countries where a large number of women use contraception, there are more women who do not use any form of contraception in developing countries, 22%. Pakistan experienced an average annual increase of at least 1% point (from 19% to 20%) (*Trends in Contraceptive Use Worldwide, 2015*). Pakistan had a median of 38.5 in contraceptive prevalence, while the satisfaction of the demand for family planning using modern methods recorded a median of 47.3 (*Trends in Contraceptive Use Worldwide, 2015*).

The number of married or in-union women aged between 15 and 49 years who were using any method of contraception in Pakistan, in the year 2015 median was (in thousands 12200) and estimated median (20100) for year 2030 (*Trends in Contraceptive Use Worldwide, 2015*). The report also estimated the prevalence of contraception using any method among women in Pakistan as 38.5%, in neighboring countries like India as 59.8%, Bangladesh as 64.2%, Bhutan as 67.8%, Iran as 76.6%, Sri Lanka as 71.6%, and Afghanistan as 29.3% (*Trends in Contraceptive Use Worldwide, 2015*).

In countries with high fertility rates, there has been a dramatic increase in the contraceptive prevalence rate, with some cases where the increase was more than tenfold (*World*

*Fertility Report 2013*). Several countries, such as Iran, the United Arab Emirates, and Vietnam, experienced rapid declines in fertility rates over last two decades, moving from high to low fertility rates over the span of a single generation (*World Fertility Report 2013*).

### **3.3.3. Wealth Index and Fertility**

The wealth index used in this study has also been used by many DHS surveys to measure household characteristics. The wealth index serves as a tool to measure wealth at the household level. It takes better account of regional differences in indicators of wealth, such as the urban, rural, provincial, and national levels. Wealth is an important socioeconomic indicator of demographic status of the population (PDHS, 2012-13). Wealthy people are more likely to have access to education and are able to provide for their comparatively fewer children with superior resources than their poorer counterparts (Goel et al., 2015).

Declines in fertility rates cause income to increase, as women who are released from child-care responsibilities may also participate in work, thus acquiring productive assets to enhance their business opportunities (Schultz, 2007). The avoidance of “unwanted births” makes the family’s resources available for other activities, and results in a lifetime gain in wealth (Schultz, 2007). However, there are societies, especially in Pakistan, where there is a prevalent belief that having more children will help the family generate more income (Bentley, Kavanagh, & Smith, 2009).

### **3.3.4. Wealth policy and fertility**

Bentley et al. (2009) found that women in the lowest quintiles among the disadvantaged (poorest) populations were less likely to use contraception than women in the most advantaged quintiles (richest). These differences in pregnancy rates suggest variations in contraception use and in sexual activity among teenagers across the UK. In 1999, the “Teenage Pregnancy Strategy” was introduced across 148 geographic areas with funding allocated according to conception rates. Thus, this government initiative aimed to reduce teenage conception and lessen

the risk of long-term social exclusion of teenage parents from educational, employment, and other opportunities (Bentley et al., 2009). If women are provided more bargaining power in the family, their human capital capabilities increase, and this will enhance the economic value of their time and cause them to have fewer children while investing a greater amount in each child's human capital, holding the family's full income constant (Paul Schultz, 2001).

### **3.3.5. Number of Living Children**

Most women in Pakistan get married at a relatively early age, after which they want to have children. Thus, the age of the women and the number of living children they have are important factors in fertility control and contraceptive use. Hakim and Rukanuddin (2000) suggest that the number of living sons is a major factor influencing contraceptive use. Pakistani women are contributing to keep the number of children high because of women dependency on men as a bread-winner, and the expectation of providing protection against the risks of widowhood and help strengthen women position in the family (N. Mahmood, 1992a).

### **3.3.6. Education**

Data from UNESCO Pakistan (2014) shows that the adult literacy rate was 56.98% and that the literacy rate among female adults was 44.28% in 2014 (UNESCO, 2014). According to the Economic Survey 2017-18, the current literacy rate in Pakistan is 58% among adults in general, with 70% among males and 48% among females (Alvi, 2018). In 2017, there was a drop in the literacy rate by 2%, that is, it reduced from 60% to 58% ("No improvement in literacy rate," 2018). The national net enrollment for primary level for Pakistan is 54% (Punjab=59%, Khyber Pakhtunkhwa=53, Sindh=48% and Balochistan=33%) (Alvi, 2018). This study will examine how education plays a role toward facilitating a decline in fertility rates and fertility preference, and how education along with other factors contributes in fertility decline.

### **3.3.6.1. Female education, fertility, and fertility preference**

Naz, Daraz, Khan, Hussain, and Khan (2011) indicated that education is a key factor in empowering women and helping them gain control over their lives. Shoaib et al. (2012) highlighted education in Chiniot in Punjab, Pakistan, has helped women become more aware of their rights and freedoms. Dixon-Mueller (1993) advocated four ways in which education reduces fertility rates. First, in societies where extra-marital relationships are not common, more time spent on education decreases exposure to conception through delayed marriage. Longer time spent in education may also increase the chances of non-marriage. Second, couples with higher education may have higher objectives for their children, and may want to reduce their family size. Third, education increases the chances of women engaging in activities outside the family, especially employment, and therefore childbearing becomes a sacrifice for women who want to work. Finally, education exposes women to knowledge, particularly on practices relating to birth control, and encourages women to communicate with their husbands on their desired family sizes and contraceptive use. Furthermore, women with higher education are more likely to resist and try to attain more power in decision-making concerning conception.

A number of empirical studies have showed that higher levels of education among women is associated with lower fertility rates (Bongaarts, 2003; Das & Tarai, 2011; Lee, 2009). Gore (2010) drew upon results from the Turkish Demographic and Health Survey 2003 and noted that completed education is the most important measurement that affects the risk of birth in women. Lee (2009) suggested that public education and higher education have played a positive role in the empowerment and development of women, and has encouraged a decline in fertility rates in Taiwan. Women with higher education are more likely to have longer birth intervals (Al-Riyami & Afifi, 2003). Z. A. Sathar, Jones, and Rosenzweig (2000), study in Pakistan found four ways in which education affects fertility: it leads to later marriage, it encourages women to marry men with higher income, it helps women enter the formal employment sector, and also has a range of other unspecified effects on women's values and interests in lowering fertility rates.

Access to higher education among women is also found to be a determinant of fertility preference in favor of a smaller family. Bongaarts (2003) found that fertility preference was

inversely associated with education in that women with higher education tend to wish for a smaller number of children. Larsen and Hollos (2003) conducted a study in Tanzania and suggested that women's education made couples discuss their fertility preferences critically. However, it was found that husbands' education levels have no impact on the couples' fertility preference (Larsen & Hollos, 2003). Schultz (2007) arrived at a different conclusion in that the education of both men and women is critical in making a demographic transition as well as in facilitating changes in health and birth control practice. Women's education increases the chance of women's employment, and women's employment in turn, encourages lower fertility (Lim, 2002).

The education of women is positively associated with higher rates of using healthcare services and modern contraception for example, Subbarao and Raney (1995) found that education is a key factor in the usage of delivery services, especially prenatal and postnatal care. Women with higher education are more likely to have a better understanding of their health, have fewer children, and take better decisions related to their health (Axinn & Barber, 2001; Grown, Gupta, & Pande, 2005). For example, Kabeer (2005a) found that in Nigeria, more highly educated women were more likely to know about family planning and have an in-depth understanding of diseases and their prevention.

Education has been consistently found to be a strong predictor of the decline in fertility rates at both the individual and country levels. Hayase (2005) examined women's illiteracy rates and fertility rates in 82 developing countries using data from the World Bank for the year 2000. The results showed that at the country/macro level, there was a positive correlation between female illiteracy and the TFR. Countries with higher illiteracy rates among women are those that have higher fertility rates as well.

Research on women's empowerment and education has shown that higher education gives women greater control over their bodies and better access to and understanding of birth control services. Evidence can be found in studies on developing countries such as Grown et al. (2005) who found that primary education alone is not enough for women to overcome gender constraints, and thus, higher education is necessary. The study found that in societies with strong

son preference, girls face significant discrimination and higher mortality risks than do boys and secondary education is necessary in such societies to enable women to reject gender-biased norms and to access opportunities.

The overall theme in the literature on women's empowerment and education is that education is an influential factor in lowering women's actual fertility rates and desired fertility preferences. Higher education delays women's marriage and childbirth and gives them greater control over their economic status and better access to health care. On the other hand, the precise mechanism through which education lowers fertility has not been analyzed. Some authors propose that education may not play an important role after all, but the education of women in combination with their employment plays a highly critical role.

### **3.4. Agency**

#### **3.4.1. Empowerment**

The concept of women's empowerment has complex variation in its conceptualization (Hameed et al., 2014), and it has now become most debatable issue in the development world (Nosheen & Lodhi, 2012). According to Mosedale (2005) different people, research scholars, organizations use empowerment to mean different things. The extent of a woman's level of empowerment varies based on several factors such as her class, caste, ethnicity, wealth, age, and family position among others. Mosedale (2005) found that the empowerment of women influences their fertility preferences and their ability to make choices and take decisions toward their fertility preference. M. Desai (2010) explained that women's empowerment is difficult to measure M. Desai (2010) reviewed the definitions and concept of women's empowerment as proposed by various authors and highlighted the three most commonly found elements in all the definitions of women's empowerment: control over resources; agency, that is, a woman's ability to make the right choices for herself and her family; and the notion that women's empowerment is a process rather than an outcome.

Definitions of women's empowerment as framed by scholars often belong to either category of considering empowerment as a process, or as a goal. Most scholars consider empowerment as a process. It is a continuous process and not just a product and there is no final goal to it. Empowerment is a process where the subordinate is empowered to gain control over the circumstances in their lives. Sen and Batliwala (2000) indicated that empowerment includes control over resources and ideology.

The second viewpoint considers empowerment as a goal. This school of thought argues that empowerment is centrally focused on women's ability to control their health, their lives, and to change the world (Tengland, 2008).

Empowerment also considered both as a process and as a goal. For example, Desai (2010) explained empowerment as a process, it changes over time and as a goal, it is based on accomplishments. Odutolu, Adedimeji, Odutolu, Baruwa, and Olatidoeye (2003) argued that empowerment is context-specific and that it varies across cultures, situations, and women's life spans. For example, the use of contraception was once considered empowering in rural Bangladesh, but when more than half the married women started using it since the 1990s, it began to be considered a standard that does not necessarily imply empowerment (Malhotra, Schuler, & Boender, 2002).

The empowerment of women benefits not only the women themselves, but also the development of society as a whole (Malhotra et al., 2002). Thus, the empowerment of women not only brings benefits to themselves but also to the next generations.

Although there have been numerous proposals for a precise framework to study women's empowerment, the actual accurate measurement of the concept remains a challenge. Most measurements have only quantified the dimensions of control over resources and outcomes, while women's agency remains difficult to measure.

In this study, empowerment is measured by (a) the ability of a woman to make a choice on contraception without being controlled by anyone, (b) a woman's contribution in household

decision-making, (c) a woman's ability to decide how to spend her earnings, (d) a woman's ability to take a decision on her health care, and (e) a woman's ability to make major household purchases.

#### **3.4.1.1. Relationship between Empowerment and Fertility**

The relationship between the increase in the level of women's empowerment and decrease in fertility preference is commonly found in the literature. Different measurements of women's empowerment have been operationalized to study its relationship with fertility preference. When fertility is the outcome variable, women's empowerment at the individual level is critical to the analysis.

Previous studies find that the relationship between women's empowerment and fertility is a two-way process. Al-Riyami and Afifi (2003) indicated that women's empowerment results in lower fertility and the reverse relationship is also valid, that is, a decline in fertility may lead to an increase in women's empowerment, and thus, empowerment correlates inversely with fertility. Malhotra (2012) pointed out that the relationship between women's empowerment and fertility also emphasizes a reverse relationship in which fertility declines transform the gender system and empowers women. Wu et al. (2014) argued that women's empowerment is often hypothesized as a cause of decline in fertility rates. In their study, they examined the links between lower fertility rates and the empowerment of women in the next generation, that is, the empowerment of daughters when fertility is reduced. The authors suggested that the decline in fertility rates in China actually led to women's empowerment in the way that smaller numbers of siblings in the family enabled daughters to access better opportunities to continue their education, and thereby increasing their chances of having paid work.

Allendorf (2012) examined how a decline in fertility rates led to a more symmetrical gender system in the family, which then led to the empowerment of daughters in Indian families. She argued that as fertility declined, the number of families with children of identical genders increased, and thus resulted in more equal gender roles among sons and daughters. She argued



that daughters enjoyed greater freedom and equal opportunities alongside their brothers as a result of this.

### **3.4.1.2. Components of Women's Empowerment and Fertility**

Four components of women's empowerment as suggested in the previous literature include women's education, women's employment, women's household decision-making power, and contraceptive use and family-related policies. Fertility also includes four components: actual fertility (the actual number of children), desired fertility (the ideal number of children), birth intervals, and gender preferences of children. Even though cultural factors are not included as a dimension of women's empowerment, culture is an important common factor in this two-way relationship. Cultural norms that affect women's fertility may promote the preference for a large number of children or the preference for sons. These practices may have direct effects on components of women's empowerment as well as on aspects of fertility.

### **3.4.1.3 Women's Employment and Fertility**

Previous studies have found that fertility was negatively associated with women's education and employment (Axinn & Barber, 2001; Brewster & R. Rindfuss, 2000; Grown et al., 2005). An increase in women's education increases the chances of women's employment, which results in more economic independence, and initiates better access to health care and use of contraception (Kabeer, 2005b). The education and employment of women are two possible means of empowering women in society and strengthening their status within their families. Wu et al. (2014) found that education decreases a married woman's share of the housework.

At the individual level, a negative correlation characterizes the relationship between fertility and female labor force. Brewster and R. Rindfuss (2000) found that women who work for pay have fewer children on average than women who do not. Schultz (2007) indicated that women who are relieved of the responsibility of bearing and rearing more unwanted children may be more likely to engage in self-employment which can add to the family's resources and extend the opportunity value of women's time to other household activities.

At the individual level, most studies found that women's participation in the paid work force lowered fertility in several ways. First, women's participation in the labor force increases the role incompatibility between being mothers and being workers. Second, having paid employment brings more economic independence to women, enhances their decision-making power, and encourages their access to healthcare and contraception. Third, an increase in economic independence also leads to lower rates of remarriage and childbirth after marital dissolution. Finally, extensive labor can result in the deterioration of women's health, increase their burden at home and the workplace, and thus replace their potential for having several children.

However, not all types of working women are actually empowered. Based on data from the UN for the period between 2000 and 2006 on MDGs from 90 countries, women spent roughly three times more in unpaid domestic and care work than men (SDGs, 2018). Rural women have traditionally played a vital role in income-generating activities (Bano & Ghafoor, 2015). S. Desai (1994) clearly identified that unpaid activities such as fetching fuel and water, helping in agricultural operations and/or raising children, goes unacknowledged in comparison with the economic activities of men. Although female participation in such activities (agricultural) is very significant, it has never been accounted for in the form of economic benefits (Bano & Ghafoor, 2015). Thus, such activities do not improve the status of women in the household, employment in addition to the aforementioned work. Sometimes, working women's incomes are controlled by someone else, especially the male members in their families, and in such situations, paid employment does not really empower women in their households. Batliwala (1994) found that in family units in India where wives work for money, their male partners/husbands normally control their incomes. Nevertheless, women's paid employment is not necessarily associated with lower fertility (Batliwala, 1994).

Thus, the actual factor that must be measured to evaluate women's empowerment is the women's factor scores on household decision-making. This factor includes women's power in decisions related to health, to spending her earnings, and to large household purchases. Previous studies have consistently emphasized the role of women in making decisions related to their own health as one of the basic rights. Autonomy in spending decisions indicates the involvement of

women in the household in terms of economic responsibility. More autonomy in spending decisions means a higher level of empowerment there may be households where women may seemingly have autonomy, or may exercise temporary autonomy.

#### **3.4.1.4. Household Decision-making and Employment Role on Fertility Choices**

Women's participation in general household decisions is usually the result of three factors, namely age, education, and employment. Kabeer (2005a) found that in rural Bangladesh, educated women participated in a wider range of decisions than did uneducated ones. Uneducated women participated in an average of 1.1 decisions in the household. The number increases to 1.6, 2.0, and 2.3 among women who have primary, middle, and secondary education, respectively. In Oman, Al-Riyami and Afifi (2003), found a relationship between education and employment with a decision-making index and found that the women with university education had the highest scores in this decision-making index when compared to those who were illiterate or only had primary and elementary education. Employment is also a strong contributor in predicting women's decision-making index. Paid employment significantly increases women's scores in this index when compared to those who have no paid employment. Senarath and Gunawardena (2009) found that women who were employed and earned a steady income were more powerful in decision-making but women who were not working were participating lesser and poor women were less likely to contribute in decision-making than richer women. Previous studies found that a higher level of women's household decision-making is associated with a lower fertility preference (Afifi, 2007; Shoaib et al., 2012).

#### **3.4.1.5. Women's Participation in Household Decision-Making**

Women's participation in household decision-making pertains to two major categories: general decisions related to the household and decisions specifically related to her individual health, including fertility and birth control. Generally, a higher level of female participation in household decision-making is associated with lower fertility. Decisions on health and fertility are considered personal. Ideally, the couple should make these decisions together. However, the level of a woman's involvement in making such decisions varies across contexts. Al-Riyami and Afifi (2003) assessed women's autonomy using an index that measured participation in decision-

making pertaining to various household issues. Senarath and Gunawardena (2009) found that in South Asia most decisions on women's health are made by their husbands/partners or family elders, without their participation or involvement. Berer (1993) claimed that it is often the men, families, and society that decide how many children women should have, and not the women themselves; however, at the same time, women bear the responsibility and accept the decision made for them. Wives' participation in decision-making can range from being sidelined by their husbands to some amount of marginal participation in the decision-making process.

Acharya, Bell, Simkhada, Van Teijlingen, and Regmi (2010) explored the links between the position of women in the household and their autonomy in decision-making and found that nearly half of ever-married women took decisions on their own health themselves or jointly with their husband. Participation in healthcare decisions increases with age, education, and the number of children (Acharya et al., 2010; Senarath & Gunawardena, 2009).

#### **3.4.1.6. Decision-making on Using Contraceptive Methods and Fertility**

Kamran, Arif, and Vassos (2011) and Winkvist and Akhtar (2000) found that the permission of key decision-makers, particularly husbands, is a major factor influencing Pakistani women's intention to use contraception. There is no value attached to women's demands for and access to contraception in Punjab (Pakistan) because of social barriers from family members (Sirageldin, Norris, & Hardee, 1976) and pressure from relatives to have more children especially if they gave birth to girls (Winkvist & Akhtar, 2000). Mustafa et al. (2015) emphasized that the demand to have more children is a barrier to family planning. Most of the respondents agreed on women having more sons are more respected than other (Winkvist & Akhtar, 2000). Decision-making on using contraceptive use have also found the factors such as agreement with the husband/partner on the ideal number of children and support from in-laws are positively associated with the intention to use contraceptives (Agha, 2010; Hamid, Stephenson, & Rubenson, 2011; G. Khan, 2013). M. S. Khan et al. (2015), indicated that actual access to and knowledge on contraceptive methods is necessary in Pakistan, but is not sufficient to ensure the intention to use contraception.

The overall theme in the literature on women's decision-making in the household particularly in connection with healthcare, contraceptive use etc., is that decision-making by a woman is an influential factor in lowering the woman's actual and desired fertility. Women's participation in household decision-making gives them greater control over their choices and enables better access to health care. On the other hand, the precise mechanism through which decision-making lowers fertility has not been understood. Some authors propose that decision-making on access to healthcare or contraception may not work by itself, but may work in combination with other factors.

## **4 METHODS**

### **4.1. Design**

This study was conducted using a quantitative research design, with secondary data from the PDHS 2012-13.

### **4.2. Data**

The PDHS 2012-2013 is the third survey conducted so far in Pakistan under the global DHS program. The first survey was conducted in 1990-91 and the second in 2006-07. The PDHS was implemented by the National Institute of Population Studies (NIPS) however; the Pakistan Planning and Development Division (Islamabad) conducted it. The main goal of the DHS project is to provide decision-makers and policymakers with the information they need to make appropriate strategies and plans for development projects in Pakistan. The DHS program provides data for healthcare providers, policymakers, country leaders, researchers, and others who are in position to improve public health.

The PDHS 2012-13 collected data on knowledge and practice of family planning, fertility levels, marriage, fertility preference, domestic violence, empowerment programs, children's and women's health, infant mortality levels, nutritional status of women and young children, awareness of HIV/AIDS and other sexually transmitted infections (STIs) etc. Information on the aforementioned topics were collected using survey questionnaires, which were different for ever-married men and women.

### **4.3. Sample for PDHS**

#### **4.3.1. Sample Design**

The sample for the PDHS 2012-13 is representative of the population of Pakistan excluding the areas of Azad Jammu and Kashmir (AJK), the Federally Administered Tribal Areas (FATA), the Federally Administered Northern Areas (FANA), and restricted military areas due to law and order situation see Appendix 1. The sample includes all other provinces in Pakistan including Gilgit-Baltistan. The Pakistan Board of Statistics (PBS) developed the urban

area framework whereas and the list of villages developed through the 1998 population census (PDHS, 2012-13) was relied on for the rural areas. The list of villages, although prepared in 1998, still remains valid, because the regional structures have not changed since then.

All urban areas, that is, cities and towns, are divided into small areas that are mutually exclusive, known as enumeration blocks. Each enumeration block consists of about 200 to 250 households on average. The blocks are grouped into three categories, namely low, middle, and high-income. The urban area-sampling framework consists of 26,543 enumeration blocks, updated through the economic census conducted in 2003 (PDHS 2012-13).

In rural areas, lists of villages were used as the sample framework as drawn from the 1998 population census. In Balochistan, Islamabad, and Gilgit-Baltistan, urban areas were over sampled and proportions were adjusted by applying sampling weights (PDHS 2012-13).

#### **4.3.2. Sample Size**

The survey was conducted in 498 areas, in Pakistan comprising 248 urban and 252 rural areas. Sample sizes of 14,000 household (urban and rural) were estimated to provide a reasonable precision for the survey indicator estimations (PDHS 2012-13).

The second stage of sampling involved the selection of households. In all, 13,944 households were selected, of which 12,943 households were successfully interviewed. The response rate to the household questionnaire was 96% (PDHS 2012-13). A total of 14,569 women were selected out of which 13,558 were successfully interviewed, to provide 93%. Response rate from women whereas, the response rate was 79 percent response rate form men questionnaire obtained a sample of 3134 successful interviews (PDHS, 2012-13).

#### **4.4. Sample for the current study**

The sample for this study comprised 13,479 ever-married women aged between 15 and 49 years. The emphasis was on women who answered the questions in the questionnaire for women, focusing on matters relating to the household, empowerment, contraception, fertility,

and fertility preferences. The data were cleaned to remove the duplicate cases and select only the primary cases.

#### **4.5. Data Quality**

The PDHS (2012-13) data collection process adheres to the standards defined under the DHS. For instance, officers and field officers were trained before they were sent out onto the field and mock interviews were conducted to help the staff learn from their mistakes (PDHS, 2012-13). Such standards of collecting data and reporting are accepted worldwide (PDHS, 2012-13). The field officers were trained by the NIPS to collect the data from the field. Trainees who did not pass the training were excluded.

The investigator, along with senior staff from the NIPS monitored all the field staff to check the quality of the procedures and data collected. (PDHS, 2012-13). The investigator was appointed by DHS from among its staff to ensure quality. Any deviations from the standards set by the DHS were pointed out and rectified immediately by investigator (PDHS, 2012-13). These investigator were in charge of quality control, observed interviews while they were conducted, conducted further interviews when the need arose, cross-examined errors with team members, and trained weaker field staff on the spot to ensure reliability and validity of the data collected (PDHS, 2012-13).

Data processing began alongside fieldwork. Completed questionnaires were edited and data entry began immediately on field, and was carried out by field officers (PDHS, 2012-13). The internet file streaming system transferred data from the field to the central office (NIPS, Islamabad). The data were later sent by carrier, where they were entered again, edited, and then re-entered by trained staff. All data were entered twice for 100 percent verification (PDHS, 2012-13) to ensure data quality.



## **4.6. Variables**

### **4.6.1. Dependent Variables**

#### **4.6.1.1. Fertility Preference**

In this study, fertility preference was used as a dependent variable. In the PDHS, fertility preference represents the respondent's present and future fertility preferences. It was measured by asking the following question:

“Would you like to have (a/another) child, or would you prefer not to have any (more) children?”

The answers to this were scored as follows: having another=1, undecided=2, no more=3, sterilized (respondent or partner)=4, declared in fecund=5, and never had sex=6. In this study, “fertility preference” was recoded into two categories because the study aimed to understand whether a respondent was interested in having another child=1 or wanted no more children=0. Another reason for this was that a few cases fell in category 4 and 5 and also the interest of the study was to know whether a respondent interest of having more child=1 or want no more=0.

### **4.6.2. Independent Variables**

All the independent variables included in this study are categorized into three groups: background or demographic variables, resource variables, and agency variables.

#### **4.6.2.1. Demographic/Background Variables**

PDHS data provided information on background factors such as the current age of the respondent, the region, and the age of the respondent at the time of the first birth, ever-terminated pregnancy, and the husband's educational attainment.

The age was measured in years. Women aged between 15 and 49 were included in the sample.

The region was divided into six different zones as Punjab=1, Sindh=2, Khyber Pakhtunkhwa=3, Balochistan=4, Gilgit-Baltistan=5 and Islamabad =6).

This study used the education level of the husband or partner following the method used in (Sharma & Parthi, 2004). If the husband or partner had no education=0, while primary education=1, secondary education=2, higher education=3, and not knowing the education level=4. This was selected as the most appropriate education variable because it captured different levels of the education system in Pakistan. The variable is labeled as “husband's/partner's education level.”

The age of the respondent at the time of the first birth was measured in years, and is labeled as “age of respondent at first birth.” Ever-terminated pregnancy has options no=0 and yes=1, and the variable is labeled as “ever had a terminated pregnancy.”

#### **4.6.2.2. Resources**

##### **4.6.2.2.1. Contraceptive Use**

This variable measured the respondent’s current use of contraception based on the type. The participants were given multiple choices to pick from the questions. The question asked to gather this data was:

“What type of contraception are you using currently?”

The question was scored as follows: no method=0, folkloric method=1, traditional method=2, and modern method=3. This variable is labeled as “current use by method type.” This variable was recoded into two categories since the study aimed to know whether a respondent was using contraception or not (no method=0, using method=1), and if so, what kind of method.

##### **4.6.2.2.2. Respondent’s Education**

Education was measured by the “highest educational level,” and was measured as no education=0, primary=1, secondary=2, and higher=3.

#### **4.6.2.2.3. Current Marital Status**

Current marital status was measured by the categories: never in union=0, married=1, living with partner=2, widowed=3, divorced=4, and no longer living together or separated=5. This variable is labeled as “current marital status.”

#### **4.6.2.2.4. Currently Residing with Husband/Partner**

This variable is labeled “currently residing with husband/partner” and the answering options were: living with husband/partner=1, staying elsewhere=2. This was selected as a variable because they captured the cultural and living standards in Pakistani society most appropriately. This variable was recoded into staying elsewhere=0 and living with husband=1. This variable is labeled as “recoded currently residing with husband”

#### **4.6.2.2.5. Wealth Index**

The wealth index is an indicator of the economic status of the household. This variable was measured by the “wealth index” by poorest=1, poorer=2, middle=3, richer=4 and richest=5. This variable was recoded as follows: poorest=0, poorer=1, middle=2, richer=3, richest=4.

#### **4.6.2.2.6. Currently Pregnant**

This variable measured the “currently pregnant” status of women and it has the answering options 0=no or unsure and 1=yes.

#### **4.6.2.2.7. Number of Living Children**

This variable measured the number of children a participant has possibilities ranges from 0 to ‘n’ where n=number of children.

#### **4.6.2.2.8. Wanted Last Child**

This variable evaluated whether the respondent wanted the last child she had. It was measured as wanted then=1, wanted later=2, and wanted no more=3. The variable is labeled as “wanted last child.”

### **4.6.3. Agency**

#### **4.6.6.1. Empowerment**

Empowerment was measured based on the following aspects: the ability of women to make free and fully informed choices with respect to contraception without being controlled by anyone, the contribution of women in household decision-making, the ability of women to decide how to spend their earnings, and the ability of women to make decisions concerning their health care needs. The answers were drawn by asking the following question:

“Who usually decides how the money you (respondent) earn will be used?”

They were given the following options: respondent alone=1, respondent and husband/partner=2, respondent and other person=3, husband/partner alone=4, someone else=5, and family elders=6. This variable was recoded and the options were respondent alone=0, respondent and husband/partner=1, respondent and other person=2, husband/partner alone=3, and others=4. This variable is labeled as “spend respondent earning decision”.

“Who usually decides how your husband’s earnings will be used?”

They were given the following options were respondent alone=1, respondent and husband/partner=2, respondent and other person=3, husband/partner alone=4, someone else=5, other=6, husband/partner has no earning=7, and family elders=8. This variable was recoded and the options were as follows: respondent alone=0, respondent and husband/partner=1, respondent and other person=2, husband/partner alone=3, husband/partner has no earning=4, and others=5. This variable is labeled as “husband earning decision.”

“Who usually makes decisions about your health care needs?”

They were given the following options: respondent alone=1, respondent and husband/partner=2, respondent and other person=3, husband/partner alone=4, someone else=5, other=6, and family elders=7. This variable was recoded and the options were as follows: respondent alone=0, respondent and husband/partner=1, respondent and other=2,

husband/partner alone=3, and others=4. This variable is labeled as “respondent’s healthcare decisions.”

“Who usually makes decisions concerning making major household purchases?”

They were given the following options: respondent alone=1, respondent and husband/partner=2, respondent and other person=3, husband/partner alone=4, someone else=5, other=6, and family elders=7. This variable was recoded and the options were as follows: respondent alone=0, respondent and husband/partner=1, respondent and other person=2, husband/partner alone=3, and others=4. This variable is labeled as “decisions concerning major household purchases.”

“Who usually makes decisions concerning the use of contraception?”

They were given the following options: mainly respondent=1, mainly husband/partner=2, joint decision=3, and other=6. This variable was recoded and the new options were as follows: respondent alone=0, husband/partner alone=1, joint decision=2, and others=3. This variable is labeled as “decisions concerning the use of contraception.”

#### **4.7. Data Analyses**

The statistical analysis for this study was conducted using the Statistical Package for Social Science (SPSS) version 25 provided by the Faculty of Psychology at the University of Bergen. A systematic process was used to sort and analyze data. First, variables were checked to ensure that the percentage of missing values was not high. There were three variables with high percentage of missing values because they were not applicable to all respondents and because start-stop questions were included in the questionnaire for women. For example, in the question related to the respondent’s earning, if the respondent did not work, then further questions related to the respondent’s earning did not apply. The variables considered in this study were checked for outliers, and no illogical outliers were found. Reverse coding was done for some variables wherever it was deemed necessary.

Initially, frequency distributions were run to present descriptive statistics on the variables. Afterwards, bivariate analyses were used to assess the relationships among the variables. For categorical variables, cross-tabulations with Chi-Square were used because cross-tabulation is performed on categorical data, that is, data that can be divided into mutually exclusive groups (Field, 2003) and Chi-Square to check the significance of the variables with the dependent variable (Field, 2003). To perform Chi-Square, we required categorical variables with two or more categories in each variable (Pallant, 2016). In addition, for continuous variables, independent sample t-test was used because we have a dependent categorical variable with two categories (want no more children, want more children) and the independent variables is a continuous one (Pallant, 2016).

After preliminary analyses, binary logistic regression was conducted to assess the extent to which the independent variables predicted the outcome variable. Three separate models were tested for each research question to understand the relationship among individual model. Three basic models were tested before testing the final parsimonious model. The reason behind checking all the variables in the final model was to assess the relative contribution as one group. Initial logistic regression analyses were run to test the effects as a sub-model of resource, agency, and demographic variables. The final model includes all the predictors to assess the effect of each predictor on the other. This also followed a step in the process where the predictor variables were put in one after another to assess how much each variable affected the other in the regression model and to predict the outcome variable. Only Cox and Snell R square is used in the binary logistic regression models because it measures for binary logistic regression (Pallant, 2016). Predictor variables that were non-significant were removed from the final model.

#### **4.8. Ethical Considerations**

For the purpose of the dissertation, the data used in PDHS 2012-13 were extracted from the United States Agency for International Development (USAID) to perform the statistical analysis, because DHS program distributes data files for legitimate academic research at no cost. Data received from USAID were used for the dissertation purpose and all the retained information was already anonymous. Access to data was granted by the USAID after a formal

request. Since the study used secondary data, ethical clearance from the Norwegian Social Science Data Services (NSD) was not required to perform the study.

The data used from the PDHS 2012-13 were already approved for research work by the USAID. The purpose of using PDHS data 2012-13 was informed to the USAID through an email and USAID approved the request and sent the data files to the researcher. The researcher was not required to fulfill any ethical obligations toward collecting research data on field for this study. The PDHS is highly recognized as a source of data that fulfills the fundamental criteria regarding ethics in research.

Keeping in mind the challenges involved in collecting data on sensitive topics, the staff were given special training. The focus was on ensuring privacy and building rapport with the respondent to increase trust in the interviewer (PDHS, 2012-13). In cases where privacy could not be maintained, the interviewer stopped the interview. A consent form was handed over to the respondent before the interview. To ensure informed consent, the respondents were told that some questions may be sensitive and were reassured that confidentiality would be maintained (PDHS, 2012-13). An initial consent form was signed by all participants.

## **5 RESULTS**

The total number of respondents in this study was 13,944. The response rate varied from 18.3% to 99.9%. A majority of the variables included in the study had high valid response rates save for only three variables, namely “wanted last child,” “decisions concerning the use of contraception,” and “decision concerning respondent’s earnings”, which had high missing percentages because these questions were not applicable to all respondents. All respondents included in the study were married women in the age ranges of 15 to 49 years. There was an equal distribution of women in each wealth index bracket. Most of the women in the sample had no education. A majority of the women had two to five children and the mean age for women at

the time of the first birth was 20 whereas, the mean current age of the respondent was 34.12. A majority of the women lived with their husbands and had no idea whether they were pregnant at the time of taking the survey.

## 5.1. Univariate Analysis

### 5.1.1. Background Variables

Initial descriptive statistical analyses were run for all demographic variables considered in this study as background or demographic variables (N=13944). Background variables refer to the social and demographic information that are part of an individual’s life. Demographic variables included in this study are the current age of the respondent, the region, and the age of the respondent at the time of the first birth, ever-terminated pregnancy, and the husband’s educational attainment.

#### 5.1.1.1. Descriptive statistics of categorical variables

Two categorical demographic variables are included in this study, namely, “region” and “ever-terminated pregnancy.” There were six regions in all, of which Punjab, was home to 28.7% of the respondents and Islamabad (the capital city of Pakistan) was home to 6.30% of the respondents (Table 4.1). On the other hand, 62.2% of the respondents had never terminated their pregnancy (Table 4.1).

**Table 4.1: Descriptive statistics of categorical variables (region, ever terminated pregnancy)**

			Frequency	Percentage
Region	Valid	Punjab	3947	28.3
		Sindh	2948	21.1
		Khyber Pakhtunkhwa	3081	22.1
		Balochistan	1704	12.2
		Gilgit Baltistan	1381	9.9



		Islamabad	865	6.2
Total	(Missing)		13926 (missing, n=18)	99.9 (missing=.1%)
Ever	Valid	No	8680	62.2
Terminated				
Pregnancy				
		Yes	5246	37.6
Total	(missing)		13962 (missing, n=18)	99.9 (missing=.1%)

#### 4.1.1.2. Descriptive statistics of continuous variables

Three continuous variables are included as demographic information, namely the current age of the respondent, the age of the respondent at the time of the first birth, and the husband's educational attainment. The age of the respondent included in the sample ranged between 16 and 49 years (Table 4.2). The age of the respondent at the time of the first birth ranged between 12 and 44 years (Table 4.2). Furthermore, the husband's educational attainment ranged from 0 and 4 (Table 4.2).

**Table 4.2: Descriptive Statistics of continuous variables (respondent current age, age of respondent at first birth, husband education)**

	Valid	Missing	Mean	SD
Respondent current age	13926	18	34.12	8.044
Age at first birth	13926	18	20.60	3.965
Husband education	13926	24	1.52	1.190

## 4.1.2. Resources

In this study, resources included education, current marital status, living with husband, wealth index, current pregnancy status, number of living children, using contraception, and whether the last child was wanted or not. An initial descriptive analysis was run on all the resources to understand the distribution of frequencies and percentages of all categorical variables included in this study. Furthermore, minimum, maximum, mean, and standard deviation were presented for continuous variables.

### 4.1.2.1. Descriptive statistics of categorical variables

All respondents' included in this study were married at the time of the study (Table 4.3). A majority of the women (88.4%) were living with their husband or partner (Table 3). More than half the women were not using any form of contraception (Table 4.3). Approximately 10% of the women were pregnant at the time of the study (Table 4.3). Almost half the women wanted their last child at the time they got pregnant (Table 4.3). Almost 22% of the respondents were in the richest wealth index bracket (Table 4.3).

**Table 4.3: Descriptive statistics of categorical variables (wealth index, marital status, living with husband, using contraceptive method, currently pregnant, wanted last child)**

			Frequency	Percentage
Wealth index	Valid	Poorest	2750	19.7

		Poorer	2745	19.7
		Middle	2723	19.5
		Richer	2658	19.1
		Richest	3050	21.9
Total	(Missing)		13926 (missing, n=18)	99.9 (missing=.1)
Marital status	Valid	Married	13926	99.9
Total	(missing)		13926 (missing, n=18)	99.9 (missing=.1)
Living with husband	Valid	Staying elsewhere	1532	11.0
		Living with husband	12321	88.4
Total	(missing)		13853 (missing, n=91)	99.3 (missing=.7)
Using contraceptive method	Valid	No method	8973	64.4
		Using method	4953	35.5
Total	(missing)		13926 (missing, n=18)	99.9 (missing=.1)
Currently pregnant	Valid	No/unsure	12592	90.3
		Yes	1334	9.6
Total	(missing)		13926 (missing, n=18)	99.9 (missing=.1)
Wanted last child	Valid	Wanted no more	1095	7.9
		Wanted then	7074	50.7
		Wanted later	816	5.9
Total	(missing)		13926 (missing, n=18)	99.9 (missing=.1)

#### 4.1.2.2. Descriptive statistics for continuous variables

The resources included two continuous variables, namely the educational attainment of the respondent and the number of living children (Table 4.4). The respondent's educational attainment ranged from 0 to 3 (Table 4.4).

**Table 4.4: Descriptive statistics of continuous variables (respondent education and number of living children)**

	Valid	Missing	Mean	SD
Respondent education	13926	18	.77	1.067
Number of living children	13926	18	4.12	2.292

#### 4.1.3. Agency

This study used five independent categorical variables under the ambit of agency, namely decisions concerning the use of contraception, the respondent's earnings, healthcare decisions, making major household purchases, and spending the husband's earning.

##### 4.1.3.1. Descriptive statistics of categorical variables

It was found that in making decisions concerning the use of contraception, in 35.0% cases, the respondent and their husband/partner decide together. The question had a response rate of 42.1% (Table 4.5). However, in 9.5% cases, the respondent alone decided how to spend the money they earned (Table 4.5). It was found that 34.8% of the respondents took joint decisions with their husband/partner when it came to spending the husband's or partner's earnings, while in 39.7% cases, the husband/partner made decisions alone. It was found that 38.0% of the respondents made joint decisions with their husband/partner when it came to making major household purchases, and this was followed by 35.4% cases in which the husband/partners made

decisions alone. It was also found that 38.8% respondents make joint decisions concerning the respondents' health care needs, followed by 36.7% respondents for whom the husband/partner alone made decisions (Table 4.5).

**Table 4.5: Descriptive statistics of categorical variables (contraception use decision, respondent earning decision, healthcare decision, large household purchase decision and spending husband earning decision)**

			Frequency	Percentage
Contraceptive use decision	Valid	Respondent alone	514	3.7
		Husband alone	441	3.2
		Joint decision	4877	35.0
		Others	45	.3
		Total	(missing)	5877 (missing, n=8067)
Respondent earning decision	Valid	Respondent alone	1329	9.5
		Husband alone	804	5.8
		Joint decision	317	2.3
		Others	44	.3
		Total	(missing)	2494(missing, n=11450)
Respondent health care decision	Valid	Respondent alone	1639	11.8
		Respondent and husband	5409	38.8
		Husband alone	5122	36.7
		Others	1748	12.5
		Total	(missing)	13918 (missing, n=26)

Large household purchase decision	Valid	Respondent alone	1130	8.1
		Respondent and husband	5304	38.0
		Husband alone	4941	35.4
		Others	2546	18.3
Total	(missing)		13921 (missing, n=23)	99.8 (missing=.2)
Husband earning decision	Valid	Respondent alone	1062	7.6
		Respondent and husband	4849	34.8
		Husband alone	5534	39.7
		Husband no earning	2135	15.3
		Others	258	1.9
Total	(missing)		13921 (missing, n=23)99.8	(missing=.2)

## 4.2. Bivariate Analysis

Cross-tabulations were run for all categorical variables to find out the relationship between the dependent and independent variables.

### 4.2.1. Background Variables Cross-tabulation

This study had two categorical variables (region and ever-terminated pregnancy). Nearly 20% of the women living in Punjab did not want more children and more than 60% of the women in total did not want any more children (Table 4.6). It had a significant value in the  $\chi^2=231.667$ :  $CI=.05$ ,  $p<.000$ . Approximately 64% of the respondents did not want any more

children in the ever-terminated pregnancy cross-tabulation (Table 4.6) and it has a significant value  $\chi^2=127.157$ :  $CI=.05$ ,  $p<.000$  (Table 4.6).

**Table 4.6: Region and ever terminated pregnancy cross-tabulation with fertility preference**

		Fertility Preference			Total	p
		Want no more	want more			
Region	Punjab	Count	2696	1251	3947	
		PFP <sup>A</sup>	30.4%	24.7%	28.3%	
		PT <sup>B</sup>	19.4%	9.0%	28.3%	
	Sindh	Count	1650	1298	2948	
		PFP <sup>A</sup>	18.6%	25.7%	21.2%	
		PT <sup>B</sup>	11.8%	9.3%	21.2%	
	Khyber Pakhtunkhwa	Count	2130	951	3081	
		PFP <sup>A</sup>	24.0%	18.8%	22.1%	
		PT <sup>B</sup>	15.3%	6.8%	22.1%	
	Balochistan	Count	923	781	1704	
		PFP <sup>A</sup>	10.4%	15.4%	12.2%	
		PT <sup>B</sup>	6.6%	5.6%	12.2%	
	Gilgit Baltistan	Count	866	515	1381	
		PFP <sup>A</sup>	9.8%	10.2%	9.9%	
		PT <sup>B</sup>	6.2%	3.7%	9.9%	
	Islamabad	Count	601	264	865	
		PFP <sup>A</sup>	6.8%	5.2%	6.2%	
		PT <sup>B</sup>	4.3%	1.9%	6.2%	
Total		Count	8866	5060	13926	.000
		PFP <sup>A</sup>	100.0%	100.0%	100.0%	
		PT <sup>B</sup>	63.7%	36.3%	100.0%	
Ever terminated pregnancy	No	Count	5216	3464	8680	
		PFP <sup>A</sup>	58.8%	68.5%	62.3%	
		PT <sup>B</sup>	37.5%	24.9%	62.3%	
	Yes	Count	3650	1596	5246	
		PFP <sup>A</sup>	41.0%	31.5%	37.7%	
		PT <sup>B</sup>	26.2%	11.5%	37.7%	
Total		Count	8866	5060	13926	.000

PFP <sup>A</sup>	100.0%	100.0%	100.0%
PT <sup>B</sup>	63.7%	36.3%	100.0%

Note: 1. PFP<sup>A</sup>= percentage within fertility preference, 2. PT<sup>B</sup>= percentage within total

#### 4.2.2. Independent Sample T-test for Continuous Background Variables

There are three continuous background variables respondent current age, husband education and respondent age at first birth. In the variable respondent's current age (CI=.05)  $p=.000$ , is statistically significant for women who want no more children ( $m=37.35$ ,  $SD=7.047$ ) is greater than woman who want more children ( $m=28.45$ ,  $SD=6.375$ ) see table 4.7. Husband education level has 95% confidence interval ( $p=.000$ ) indicates that the difference between the two mean is statistically significant ( $df=13900>t=4.723$ ) and CI=95%  $p=.000$ , is statistically significant for women who want no more children ( $m=1.49$ ,  $SD=1.187$ ) is greater than woman who want more children ( $m=1.59$ ,  $SD=1.193$ ) see table 4.7. Respondent age at first birth, women who want no more children has mean score little less than women who want more children and a  $p=.000$  (CI=.05) indicated that the data is statistically significant ( $t=16.398>df=13924$ ) which means data is significantly different between women who want no more children than women want more children (table 4.7).

**Table 4.7: Independent sample t-test for background variables with fertility preference**

	M	95% CI difference		df	t	p
		SD	SE			
Age	37.35	7.047	.075	11409.126	76.244	.000
Husband education	1.49	1.187	.013	10462.477	-4.717	.000
Birth	20.18	3.766	.040	9625.015	-15.925	.000

Note: birth=age of respondent at first birth, age=respondent current age, 0=want no more children, 1=want more children.



### 4.2.3. Cross-tabulation of Resource Variables

This study has five categorical variables, namely living with husband, wealth index, currently pregnant, using contraception, and wanted the last child. The wealth index shows that 22% of women belong to the richest class and total 63.7% women want no more children (Table 4.8) and it has a significant value in the  $\chi^2=101.864$  :  $CI=.05$ ,  $p<.000$ . Almost 90% of the women are living with their husband/partner (Table 4.8) and have a significant value in the  $\chi^2=16.527$  :  $CI=.05$   $p<.000$ . Among the currently pregnant women, 36% wanted more children (Table 4.8) and have a significant value in the  $\chi^2=67.553$  :  $CI=.05$ ,  $p<.000$ . It was found that no contraception was used to prevent pregnancy in 59% of the women who did not want any more children (Table 8). However, 27.3% of the women who wanted more children were using some form of contraception (Table 4.8), and had a significant value in the  $\chi^2=281.250$  :  $CI=.05$ ,  $p<.000$ . Almost 36% of the women who did not want any more children wanted their last child when they last got pregnant (Table 4.8) and had a significant value in the  $\chi^2=1076.767$  :  $CI=.05$ ,  $p<.000$ .

**Table 4.8: Cross-tabulation of living with husband, wealth index, currently pregnant, using contraceptive method and wanted last child with fertility preference**

			Fertility Preference		Total	p
			Want			
			no more	want more		
Wealth Index	Poorest	Count	1540	1210	2750	
		PFP <sup>A</sup>	17.4%	23.9%	19.7%	
		PT <sup>B</sup>	11.1%	8.7%	19.7%	
	Poorer	Count	1719	1026	2745	
		PFP <sup>A</sup>	19.4%	20.3%	19.7%	
		PT <sup>B</sup>	12.3%	7.4%	19.7%	
	Middle	Count	1824	899	2723	
		PFP <sup>A</sup>	20.6%	17.8%	19.6%	
		PT <sup>B</sup>	13.1%	6.5%	19.6%	
	Richer	Count	1744	914	2658	
		PFP <sup>A</sup>	19.7%	18.1%	19.1%	
		PT <sup>B</sup>	12.5%	6.6%	19.1%	
Richest	Count	2039	1011	3050		
	PFP <sup>A</sup>	23.0%	20.0%	21.9%		
	PT <sup>B</sup>	14.6%	7.3%	21.9%	.000	
Total	Count	8866	5060	13926		

		PFP <sup>A</sup>	100.0%	100.0%	100.0%	
		PT <sup>B</sup>	63.7%	36.3%	100.0%	
Currently pregnant	No or unsure	Count	8154	4438	12592	
		PFP <sup>A</sup>	92.0%	87.7%	90.4%	
	PT <sup>B</sup>	58.6%	31.9%	90.4%		
	Yes	Count	712	622	1334	
		PFP <sup>A</sup>	8.0%	12.3%	9.6%	
		PT <sup>B</sup>	5.1%	4.5%	9.6%	
Total		Count	8866	5060	13926	.000
		PFP <sup>A</sup>	100.0%	100.0%	100.0%	
		PT <sup>B</sup>	63.7%	36.3%	100.0%	
living with husband	No	Count	903	629	1532	
			PFP <sup>A</sup>	10.2%	12.5%	11.1%
		PT <sup>B</sup>	6.5%	4.5%	11.1%	
	Yes	Count	7915	4406	12321	
		PFP <sup>A</sup>	89.8%	87.5%	88.9%	
		PT <sup>B</sup>	57.1%	31.8%	88.9%	
Total		Count	8818	5035	13853	.000
		PFP <sup>A</sup>	100.0%	100.0%	100.0%	
		PT <sup>B</sup>	63.7%	36.3%	100.0%	
Use C.M	No method	Count	5257	3716	8973	
			PFP <sup>A</sup>	59.3%	73.4%	64.4%
		PT <sup>B</sup>	37.7%	26.7%	64.4%	
	Using method	Count	3609	1344	4953	
		PFP <sup>A</sup>	40.7%	26.6%	35.6%	
		PT <sup>B</sup>	25.9%	9.7%	35.6%	
Total		Count	8866	5060	13926	.000
		PFP <sup>A</sup>	100.0%	100.0%	100.0%	
		PT <sup>B</sup>	63.7%	36.3%	100.0%	
Last child	Wanted no more	Count	1079	16	1095	
			PFP <sup>A</sup>	22.9%	0.4%	12.2%
		PT <sup>B</sup>	12.0%	0.2%	12.2%	
	Wanted then	Count	3206	3868	7074	
		PFP <sup>A</sup>	68.1%	90.5%	78.7%	

	Wanted later	PT <sup>B</sup>	35.7%	43.0%	78.7%	
		Count	425	391	816	
		PFP <sup>A</sup>	9.0%	9.1%	9.1%	
		PT <sup>B</sup>	4.7%	4.4%	9.1%	
Total		Count	4710	4275	8985	.000
		PFP <sup>A</sup>	100.0%	100.0%	100.0%	
		PT <sup>B</sup>	52.4%	47.6%	100.0%	

Note: 1. PFP<sup>A</sup>= percentage within fertility preference, 2. PT<sup>B</sup>= percentage within total, Use C.M= Use contraceptive method

#### 4.2.4. Independent Sample T-test for Continuous (Resource) Variables

There are two continuous (resource) variables, namely, the educational attainment of the respondent and the number of living children. The number of living children has (CI=.05)  $p=.000$  and is statistically significant mean score for women who want no more children is greater than woman who want more children and the difference between two means is small ( $M=.088$ ,  $SD=1.109$ ) (Table 4.9). The educational attainment of the respondent has a 95% confidence interval ( $p=.000$ ) which indicates that the difference between both means is statistically significant ( $M=21.32$ ,  $SD=4.194$ ) (Table 4.9).

**Table 4.9: Independent sample t-test for respondent education level and number of living children,**

	95% CI					
	M	SD	SE	df	t	p
Education	.088	1.109	.019	9959.365	-8.635	.000
Children	21.32	4.194	.023	9625.015	-15.925	.000

Note: children=number of living children, education= respondent's education

### 4.3. Agency

This study has five independent categorical variables under “agency,” namely the decisions concerning the use of contraception, the respondent’s earnings, healthcare needs, making major household purchase decisions, and spending the husband’s earnings.

#### 4.3.1. Cross-tabulation of Agency Variables

The respondent alone makes a decision concerning the use of contraception in 5.7% cases where the woman does not want any more children. In 47% cases, the decision was taken jointly (Table 4.10) by the respondent and their husband/partner, and had a significant value  $\chi^2=16.481$  :  $CI=.05$ ,  $p<.001$ . Approximately 36% of the women who did not want any more children usually made decisions on their earnings for themselves. The husband/partner made decisions concerning the respondents’ earnings in 12% cases (Table 4.10) which had a significant value  $\chi^2=44.262$  :  $CI=.05$ ,  $p<.000$ . In 40.2% cases, decisions concerning the husband’s earnings were made by the husband himself. On the other hand, 36.3% of the decisions were made by the respondent and the husband/partner jointly (Table 4.10) and had a significant value  $\chi^2=934.950$ :  $CI=.05$ ,  $p<.000$ . As many as 18.4% of the total number of decisions concerning major household purchases were made neither by the husband/partner nor the respondent but rather by others. However, only 6.4% of women who wanted more children made decisions concerning major household purchases on their own (Table 4.10) and this had a significant value  $\chi^2=1115.272$  :  $CI=.05$ ,  $p<.000$ . As many as 27.2% decisions concerning women’s health care were taken by the husband/partner alone. In 9.3% cases, women made decisions concerning their health care on their own (Table 4.10) and this had a significant value  $\chi^2=768.166$  :  $CI=.05$ ,  $p<.000$ .

**4.10: Cross-tabulation of agency variables (contraception use decision, respondent earning decision, healthcare decision, large household purchase decision and spending husband earning decision) with fertility preference**

			Fertility Preference		Total	p
			Want no more	want more		
Contracepti	Respondent	Count	334	176	510	

ve method use	alone	PFP <sup>A</sup>	10.0%	7.0%	8.7%	
		PT <sup>B</sup>	5.7%	3.0%	8.7%	
	Husband alone	Count	241	196	437	
		PFP <sup>A</sup>	7.2%	7.8%	7.5%	
	Joint decision	PT <sup>B</sup>	4.1%	3.3%	7.5%	
		Count	2757	2116	4873	
	Others	PFP <sup>A</sup>	82.25	84.3%	83.1%	
		PT <sup>B</sup>	47.0%	36.1%	83.1%	
	Total	Count	22	21	43	
		PFP <sup>A</sup>	0.7%	0.8%	0.7%	
	Total	PT <sup>B</sup>	0.4%	0.4%	0.7%	
		Count	3354	2509	5863	.001
Total	PFP <sup>A</sup>	100.0%	100.0%	100.0%		
	PT <sup>B</sup>	57.2%	42.8%	100.0%		
Respondent t Earning	Respondent alone	Count	896	433	1329	
		PFP <sup>A</sup>	53.7%	52.5%	53.3%	
	Joint decision	PT <sup>B</sup>	35.9%	17.4%	53.3%	
		Count	563	241	804	
	Husband alone	PFP <sup>A</sup>	33.7%	29.2%	32.2%	
		PT <sup>B</sup>	22.6%	9.7%	32.2%	
	Others	Count	201	116	317	
		PFP <sup>A</sup>	12.0%	14.1%	12.7%	
	Total	PT <sup>B</sup>	8.1%	4.7%	12.7%	
		Count	10	34	44	
	Total	PFP <sup>A</sup>	0.6%	4.1%	1.8%	
		PT <sup>B</sup>	0.4%	1.4%	1.8%	
Total	Count	1670	824	2494	.000	
	PFP <sup>A</sup>	100.0%	100.0%	100.0%		
Total	PT <sup>B</sup>	67.0%	33.0%	100.0%		
	Count	903	629	1532		
Respondent health care	Respondent alone	PFP <sup>A</sup>	10.2%	12.5%	11.1%	
		PT <sup>B</sup>	6.5%	4.5%	11.1%	
Joint decision	Count	PFP <sup>A</sup>	7915	4406	12321	
		PT <sup>B</sup>	89.8%	87.5%	88.9%	
Husband alone	Count	PFP <sup>A</sup>	57.1%	31.8%	88.9%	
		PT <sup>B</sup>	3161	1961	5122	
Total	PFP <sup>A</sup>	PT <sup>B</sup>	35.7%	38.8%	36.8%	
		PT <sup>B</sup>	22.7%	14.1%	36.8%	

Total	Other	Count	647	1101	1748	.000	
		PFP <sup>A</sup>	7.3%	21.8%	12.6%		
		PT <sup>B</sup>	4.6%	7.9%	12.6%		
		Count	8862	5056	13918		
		PFP <sup>A</sup>	100.0%	100.0%	100.0%		
		PT <sup>B</sup>	63.7%	36.3%	100.0%		
Purchase decision	Respondent alone	Count	889	241	1130	.000	
		PFP <sup>A</sup>	10.0%	4.8%	8.1%		
		PT <sup>B</sup>	6.4%	1.7%	8.1%		
		Joint decision	Count	3861	1443		5304
			PFP <sup>A</sup>	43.7%	28.5%		38.1%
			PT <sup>B</sup>	27.7%	10.4%		38.1%
	Husband alone	Count	3184	1757	4941		
		PFP <sup>A</sup>	35.9%	34.7%	35.5%		
		PT <sup>B</sup>	22.9%	12.6%	35.5%		
	Others	Count	929	1617	2546		
		PFP <sup>A</sup>	10.5%	32.0%	18.3%		
		PT <sup>B</sup>	6.7%	11.6%	18.3%		
Count		8863	5058	13921			
PFP <sup>A</sup>		100.0%	100.0%	100.0%			
PT <sup>B</sup>		63.7%	36.3%	100.0%			
Husband earning decision	Respondent alone	Count	825	237	1062	.000	
		PFP <sup>A</sup>	9.4%	4.7%	7.7%		
		PT <sup>B</sup>	6.0%	1.7%	7.7%		
		Joint decision	Count	3500	1349		4849
			PFP <sup>A</sup>	39.8%	26.8%		35.0%
			PT <sup>B</sup>	25.3%	9.7%		35.0%
	Husband alone	Count	3537	1997	5534		
		PFP <sup>A</sup>	40.2%	39.6%	40.0%		
		PT <sup>B</sup>	25.6%	14.4%	40.0%		
	Others	Count	162	96	258		
		PFP <sup>A</sup>	1.8%	1.9%	1.9%		
		PT <sup>B</sup>	1.2%	0.7%	1.9%		
Count		8798	5040	13838			
PFP <sup>A</sup>		100.0%	100.0%	100.0%			
PT <sup>B</sup>		63.6%	36.4%	100.0%			

Note: 1. PFP<sup>A</sup>= percentage within fertility preference, 2. PT<sup>B</sup>= percentage within total.

#### 4.4. Logistic Regression of the First Model (background variables)

Fertility preferences are influenced by different socioeconomic and demographic background characteristics of the respondents. Thus, it is important to include a set of background variables in the regression model. In this study, the relationship between fertility preference and background variables is examined after controlling for the current age of the respondent, the region, the husband's educational attainment, ever-terminated pregnancy, and the age of the respondent at the time of the first birth.

Logistic regression was performed to assess the impact of a number of factors (demographic/background variables) on the likelihood that the respondents would be likely to report their fertility preferences and indicate whether they wanted more children or did not want any more children. The model contained five variables, namely the respondent's current age, the region, ever-terminated pregnancy, the husband's/partner's educational attainment, and the age of the respondent at the time of the first birth. The full model containing all predictors was statistically significant,  $\chi^2(5, N=13,902) = 6207.506, p < .05$ , indicating that the model was able to distinguish between respondents who reported that they did not want any more children. The model as a whole explained 36.0% (Cox and Snell R square) of the variance in fertility preference status and classified 80.3% of the cases correctly.

As shown in Table 4.11, only one continuous variable (husband's/partner's educational attainment) does not make any significant difference in the model while all the remaining variables made unique statistically significant contributions. The strongest predictor of reporting was the region, which recorded an Exp (B) (odd ratio (OR) = 3.785) (Balochistan). This indicated that Balochistan was likely to report 3.785 times more about fertility preference (wanting more children). Furthermore, since this OR falls in the range of 3.248 to 4.410, there is a 95% confidence that the actual value of OR for region 3 lies somewhere between this range and is thus statistically significant at  $p < .05$  (Table 4.11).

However, for Sindh, OR=2.453 and for Khyber Pakhtunkwa, OR=1.799. On the other hand, OR=1.250 for the age of the respondent. The OR of the age of the respondent at the time of the first birth indicated that the age of the respondent, as a predictor, will be 1.250 times more likely to report about want more children. The current age of the respondent is a slightly weaker predictor with OR=.789 (Table 4.11). This OR indicates that the respondent is .789 times less likely to report about fertility preference (want more children), that is, the more children women get the less likely they are to report wanting more children.

Moreover, the negative B value of the variable “ever-terminated pregnancy” indicates that an increase in the score will result in a decreased probability of wanting no more children in the dependent variable.

**Table 4.11: First model logistic regression (Background Variable)**

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
								Lower	Upper
Step 1 <sup>a</sup>	Respondent's current age	-.236	.004	3154.123	1	.000	.789	.783	.796
	Region			443.471	5	.000			
	Region(1)	.897	.066	184.814	1	.000	2.453	2.155	2.791
	Region(2)	.178	.066	7.318	1	.007	1.195	1.050	1.359
	Region(3)	1.331	.078	291.249	1	.000	3.785	3.248	4.410



Region(4)	.587	.084	49.417	1	.000	1.799	1.527	2.119
Region(5)	-.225	.102	4.864	1	.027	.799	.654	.975
Age of respondent at 1st birth	.223	.006	1182.209	1	.000	1.250	1.234	1.266
Ever had a terminated pregnancy(1)	-.120	.048	6.258	1	.012	.887	.808	.974
Husband/partner's education level	.028	.019	2.126	1	.145	1.029	.990	1.068
Constant	2.036	.151	180.963	1	.000	7.662		

a. Variable(s) entered on step 1: Respondent's current age, Region, Age of respondent at 1st birth, Ever had a terminated pregnancy, Husband/partner's education level.

#### 4.5. Logistic Regression of the Second Model (resources)

Fertility preferences are influenced by different resource characteristics of the respondents. Thus, it is important to include a set of resource variables in the regression model. Logistic regression was performed to assess the impact of a number of factors (resource variables) on the likelihood that respondents would likely report fertility preference indicating that they wanted more children or did not want any more children.

The model contained seven variables, namely highest education level, wealth index, currently pregnant, number of living children, using contraception, wanted the last child, and the number of living children. The full model containing all predictors was statistically significant with  $\chi^2 (7, N=8,930) = 4294.907, p < .05$ , indicating that the model was able to distinguish between respondents who reported wanting more children and who reported not wanting more children. The model explained the 38.2% (Cox and Snell R square) variance in the fertility preference status, and correctly classified 78.6% of the total number of cases.

As shown in Table 4.12, only one category of categorical variables, namely “wanted the last child” in the second category does not make any significant difference in the model. All the remaining variables make unique statistically significant contributions to the model. The strongest predictor of reporting was “currently pregnant (wanted then)” recording an Exp (B) = 2.507 (currently pregnant (wanted then)). This indicated that respondents who were currently pregnant were likely to report 2.507 times more about fertility preference (want more children). Furthermore, since this OR falls in the range of 2.128 to 2.953, there is a 95% confidence that the actual value of OR in the population lies somewhere between 2.128 and 2.953, and therefore, this result is statistically significant at  $p < .05$  (Table 4.12).

However, OR=2.109 for the variable “using contraception (yes)”. This OR indicates that the respondents are 2.109 times more likely to report wanting more children. The highest educational level attained is a slightly weaker predictor with OR= .888 (Table 4.12). The OR of the highest educational level attained by the respondent indicates that the respondent is .888 times less likely to report her fertility preference (want more children), that is, the more children the respondent has, the less likely the respondent will be to report that they want any more children.

Moreover, the negative B value of the variable “number of living children” (-.793) indicates that an increase in the score will result in a decreased probability of want no more children in the dependent variable (Table 4.12).

**Table 4.12: Logistics regression second model (resources)**

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
								Lower	Upper
Step 1 <sup>a</sup>	Highest educational level	-.119	.033	12.990	1	.000	.888	.832	.947
	Wealth Index			68.186	4	.000			
	Wealth Index(1)	-.321	.088	13.384	1	.000	.725	.611	.862
	Wealth Index(2)	-.611	.089	46.648	1	.000	.543	.455	.647

Wealth Index(3)	-.698	.095	54.090	1	.000	.498	.413	.600
Wealth Index(4)	-.632	.107	34.881	1	.000	.532	.431	.656
Currently pregnant(1)	.919	.084	120.993	1	.000	2.507	2.128	2.953
Number of living children	-.793	.020	1642.883	1	.000	.453	.436	.470
Using contraceptive method(1)	.746	.064	134.809	1	.000	2.109	1.859	2.392
Wanted Last Child			137.162	2	.000			
Wanted Last Child(1)	-2.998	.270	123.665	1	.000	.050	.029	.085
Wanted Last Child(2)	.035	.087	.160	1	.689	1.035	.874	1.227
Living With Husband/Partner(1)	-.460	.084	29.865	1	.000	.631	.535	.744
Constant	2.159	.154	196.427	1	.000	8.660		

a. Variable(s) entered on step 1: Highest educational level, Wealth Index, Currently pregnant, Number of living children, Using contraceptive method, Wanted Last Child, Living With Husband/Partner.

#### 4.6. Logistic Regression of the Third Model (agency)

Fertility preferences are influenced by the agency of the respondents. Thus, it is important to include a set of agency variables in the regression model. Logistic regression was performed to assess the impact of a number of factors (resource variables) on the likelihood that respondents would be likely to report fertility preference indicating that they wanted more children or did not want any more children. The model contained four variables, namely decision concerning contraception, decision concerning the respondent's health care needs, decision concerning making major household purchases, and decisions concerning the husband's/partner's earnings). The variable "decision concerning respondent's earnings" is not included in the model.

The full model containing all predictors were statistically significant, with Chi-Square ( $\chi^2$ ) (4, N=5,823) = 515.680,  $p < .05$ , indicating that the model was able to distinguish between respondents who reported wanting more children and who reported not wanting more children. The model explained the 8.5% (Cox and Snell R square) variance in the fertility preference status and classified 64.9% of the cases correctly.

As shown in Table 4.13, two categorical variables, namely decisions concerning the respondent's health care needs and the husband's/partner's earnings did not make any significant difference in the model. All the remaining variables made unique statistically significant contributions to the model. The strongest predictor of reporting was the decision concerning contraception, which recorded an Exp (B) = 1.529 (contraceptive use decision (respondent alone)). This indicated that respondents who made decisions concerning contraception themselves were likely to report 1.529 more times about want more children. Furthermore, this OR falls in the range of 1.162 to 2.013, there is a 95% confidence that the actual value of OR in the population lies somewhere between 1.162 and 2.013. Therefore, this result is statistically significant at  $p < .05$  (Table 4.13).

Moreover, the negative B value of the variable "decisions concerning making major household purchases" (-1.224) indicates that an increase in the score (household purchase decision) will result in a decreased probability of the case recording a score of 1 (wanting no more children) in the dependent variable (Table 4.13).

**Table 4.13: Logistic regression of third model (agency)**

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
								Lower	Upper
Step 1 <sup>a</sup>	Contraceptive use Decision			15.604	3	.001			
	Contraceptive use Decision(1)	.425	.140	9.205	1	.002	1.529	1.162	2.013

Contraceptive use Decision(2)	.396	.102	15.154	1	.000	1.487	1.218	1.815
Contraceptive use Decision(3)	.453	.332	1.866	1	.172	1.574	.821	3.017
Respondent's health care decision			11.631	3	.009			
Respondent's health care decision (1)	-.282	.167	2.840	1	.092	.755	.544	1.047
Respondent's health care decision (2)	-.052	.141	.135	1	.713	.949	.720	1.252
Respondent's health care decision (3)	.138	.143	.939	1	.333	1.148	.868	1.519
Large household purchase decision			80.263	3	.000			
Large household purchase decision(1)	-1.224	.180	46.406	1	.000	.294	.207	.418
Large household purchase decision(2)	-1.110	.128	74.629	1	.000	.330	.256	.424
Large household purchase decision(3)	-.886	.127	48.815	1	.000	.412	.321	.529
Husband earning decision			17.320	4	.002			
Husband earning decision (1)	-.081	.233	.120	1	.729	.922	.584	1.457
Husband earning decision (2)	-.078	.207	.141	1	.707	.925	.617	1.388
Husband earning decision (3)	.019	.203	.009	1	.925	1.019	.684	1.519
Husband earning decision (4)	.472	.214	4.867	1	.027	1.603	1.054	2.437
Constant	.109	.231	.223	1	.637	1.115		

a. Variable(s) entered on step 1: Contraceptive use decision, Respondent's health care decision, Large household purchase decision, husband earning decision.

#### 4.7. Logistic regression of the Final Model

The final parsimonious model contained all the variables included in the study, except “decisions concerning the respondent’s earnings.” Although all variables were checked in three separate groups, it is a good practice to put everything together to assess the relative contribution of each individual variable as one group. Since it is a contribution by two variables in a relationship, for example if A causes B then B causes A, it is also possible that a third variable C may cause both A and B (Pallant, 2016). Accordingly, logistic regression was performed to assess the impact of all the factors (background, resource, and agency variables) on the likelihood that the respondents would be likely to report fertility preferences indicating that they either wanted more children or did not want any more children.

The full model containing all predictors were statistically significant, with Chi-Square ( $\chi^2$ ) (16, N=3,888) =2050.471,  $p < .05$ , indicating that the model was able to distinguish between the respondents who reported wanting more children and who reported not wanting more children. The model explained the 41.0% (Cox and Snell R square) variance in the fertility preference status and classified 80.1% of the cases correctly.

As shown in Table 4.14, the agency variables (in decisions concerning contraception, husband’s/partner's educational attainment, respondent's health care needs, and husband’s/partner’s earnings) do not make any significant difference in the model. However, only one variable, namely, decisions concerning major household purchases has a significant impact (Table 4.14). The background variable on the history of terminated pregnancies also made no significant contribution to the model. One variable, namely living with husband, did not make any significant contribution to the model either. All the remaining variables made unique statistically significant contributions to the model. The strongest predictor of reporting was region (Khyber Pakhtunkwa), with OR=3.313. The second strongest was the current pregnancy (yes) status with OR=2.584, which indicated that the respondent was 2.584 times more likely to report want more children. Furthermore, since this OR falls in the range of 1.994 to 3.349, there

is a 95% confidence that the actual value of OR in the population lies somewhere between 1.994 and 3.349, and therefore, this result is statistically significant at  $p < .05$  (Table 4.14).

However, region recording  $\text{Exp}(B) = 2.548$  (region Balochistan). This indicated that Balochistan is 2.548 more likely want more children. Furthermore, since this OR falls in the range of 1.906 to 3.405, there is a 95% confidence that the actual value of OR in the population lies somewhere between 1.906 and 3.405, and therefore, this result is statistically significant at  $p < .05$  (Table 4.14). Highest educational attainment is a slightly weaker predictor with  $\text{OR} = .888$  (Table 14). The OR of the highest educational attainment of the respondent indicates that the respondent is .888 times less likely to report about fertility preference (want more children).

Moreover, the negative B value of the variable “number of living children” (-.587) indicates that an increase in the score will result in a decreased probability of wanting no more children (Table 4.14). Furthermore, the negative B value of the variable “wanted last child then” (-2.435) indicates that an increase in the score will result in a decreased probability of wanting no more children in the dependent variable (Table 4.14).

**Table 4.14: Logistic regression final model**

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
								Lower	Upper
Step 1 <sup>a</sup>	Respondent's current age	-.097	.014	47.267	1	.000	.908	.883	.933
	Region			84.518	5	.000			
	Region(1)	.929	.128	52.260	1	.000	2.531	1.968	3.255
	Region(2)	.410	.129	10.101	1	.001	1.507	1.170	1.941
	Region(3)	.935	.148	39.939	1	.000	2.548	1.906	3.405
	Region(4)	1.198	.183	42.928	1	.000	3.313	2.315	4.740
	Region(5)	.703	.206	11.705	1	.001	2.020	1.350	3.022
	Highest educational level	-.133	.055	5.728	1	.017	.876	.786	.976
	Wealth Index			28.805	4	.000			

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Wealth Index(1)	.400	.176	5.146	1	.023	1.492	1.056	2.108
Wealth Index(2)	.018	.169	.011	1	.917	1.018	.730	1.418
Wealth Index(3)	-.321	.157	4.174	1	.041	.725	.533	.987
Wealth Index(4)	-.232	.143	2.628	1	.105	.793	.599	1.050
Age of respondent at 1st birth	.092	.017	29.164	1	.000	1.096	1.060	1.133
Currently pregnant(1)	.949	.132	51.558	1	.000	2.584	1.994	3.349
Number of living children	-.532	.043	154.486	1	.000	.587	.540	.639
Ever had a terminated pregnancy(1)	.117	.093	1.565	1	.211	1.124	.936	1.350
Using contraceptive method(1)	.618	.103	36.320	1	.000	1.856	1.518	2.269
Wanted Last Child			63.125	2	.000			
Wanted Last Child(1)	-2.435	.368	43.680	1	.000	.088	.043	.180
Wanted Last Child(2)	.282	.132	4.539	1	.033	1.326	1.023	1.718
Living With Husband/Partner(1)	.067	.150	.201	1	.654	1.070	.797	1.436
Contraceptive use Decision			7.254	3	.064			
Contraceptive use Decision(1)	-.930	.650	2.047	1	.152	.395	.110	1.410
Contraceptive use Decision(2)	-.546	.650	.704	1	.401	.579	.162	2.073
Contraceptive use Decision(3)	-.521	.635	.675	1	.411	.594	.171	2.060
Husband/partner's education level	.044	.038	1.398	1	.237	1.045	.971	1.125
Respondent's health care decision			1.446	3	.695			
Respondent's health care decision (1)	-.150	.259	.336	1	.562	.861	.518	1.429

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Respondent's health care decision (2)	.024	.206	.013	1	.909	1.024	.684	1.532
Respondent's health care decision (3)	.098	.206	.228	1	.633	1.103	.737	1.652
Large household purchase decision			6.557	3	.087			
Large household purchase decision(1)	-.706	.297	5.643	1	.018	.494	.276	.884
Large household purchase decision(2)	-.235	.196	1.439	1	.230	.790	.538	1.161
Large household purchase decision(3)	-.076	.191	.160	1	.689	.927	.638	1.346
Husband earning decision			3.208	4	.524			
Husband earning decision (1)	-.127	.421	.091	1	.763	.881	.386	2.010
Husband earning decision (2)	-.375	.373	1.011	1	.315	.687	.331	1.427
Husband earning decision (3)	-.186	.363	.264	1	.607	.830	.408	1.689
Husband earning decision (4)	-.075	.369	.041	1	.839	.928	.450	1.914
Constant	2.036	.815	6.242	1	.012	7.663		

a. Variable(s) entered on step 1: Respondent's current age, region, highest educational level, wealth Index, age of respondent at 1st birth, currently pregnant, number of living children, ever had a terminated pregnancy, using contraceptive method, wanted last child, living with husband/partner, contraceptive use decision, husband/partner's education level, respondent's health care decision, large household purchase decision, husband earning decision.

## 6 DISCUSSION

The objective of this study was to develop a methodology from a critical analysis by studying the phenomena. The methodologies developed were based on an analysis performed on a diverse literature. For example, in order to improve upon existing methodologies the sample included all the women who were currently married between the age group 15-49. However, the nature of the study sample is a key constraint, because it is a country representative data.

This study used the framework proposed by Kabeer (1999) and tested three questions, which are as follows:

1. To what extent does fertility preference differ in relation to background variables such as current age, region, age of respondent at the time of the first birth, the husband's/partner's educational attainment, and history of terminated pregnancy?
2. To what extent does fertility preference differ in relation to resources such as respondent's educational attainment, wealth index, number of living children, current pregnancy status, living with husband, using contraception, and wanting last child at the time it was born?
3. To what extent does fertility preference differ based on agency exercised in the context of decisions on contraception, spending the respondent's earning, health care needs, making major household purchases, and spending the husband's/partner's earnings?

Initially, univariate analyses were performed (Chapter 5), following which bivariate analyses (Chapter 5) were carried out. All variables included in this study were statistically significant. After these preliminary analyses, binary logistic regression was conducted to assess the extent to which the independent variables predicted the outcome variable. Three basic models were tested before testing the final parsimonious model (Chapter 5).

## **6.1. Evaluation of Research Questions**

In the first question, some demographic variables have been included to determine the effect on fertility preference and to examine how fertility preferences differ in relation to background variables. In this study, background variables include current age, region, the age of the respondent at the time of the first birth, the husband's/partner's educational attainment, and history of terminated pregnancies.

### **6.1.1. The Current Age and the Age of at the time of the First Birth**

The age of the respondent at the time of the first birth plays a significant role in determining the level of fertility of women in countries where marriage is treated as a sanction for sexual relations and childbirth (Bongaarts, 1987). Nevertheless since women generally marry at an early age in Pakistan, they tend to experience early childbirth and have high fertility. In this study, the age of most at the time of the first birth was 12, with the OR=1.250. The odds for the age of women at the time of the first birth with respect to wanting more children were 1.250 times higher than the odds of not wanting any more children. Winkvist and Akhtar (2000) conducted a study in Punjab (Pakistan) and found that women had already been married at an age between 13 and 15 and had already had children before they attained the legal marriage age. Similar results were found in other South Asian countries such as Bangladesh (Islam & Paul, 2014; Nahar et al., 2013), Nepal (Adhikari, 2010), and India (Paswan et al., 2017; Samal & Dehury, 2015). The reason why people in Pakistan and other South Asian countries want more children is that after marriage, women want to strengthen their positions in their new homes, and that can only be achieved after having children, especially sons. Winkvist and Akhtar (2000) found that if women have daughters, their in-laws or relatives may pressure them to have more children until they have sons. Therefore, if women marry at an early age, the lifespan of their fertility will last longer, and as a result, they will have more children.

When women marry at an early age, they do not know how many children they desire. As they grow older, they have a clearer picture on the number of children they want. Secondly,

marrying at an early age does not give women a chance to access good education. It is found among Muslim women that they marry in early age, have less education or illiterate and economically disadvantage (Rehman, 2013). Research in Bangladesh by Nahar et al. (2013) found that most women from Muslim society are illiterate or poorly educated and this results in early marriage. They found that the mean age at the time of their first marriage is very low and cannot rise to the expected level. Women who marry in their teenage years also experience low birth intervals (Samal & Dehury, 2015; Winkvist & Akhtar, 2000). Finally, having the first child at an early age affects the health of the women and their children adversely, and puts them at high levels of risk. Patchen et al. (2017) found that teenage girls are at a greater risk for poor maternal health and birth outcomes compared to women who are older than 25 (Patchen et al., 2017).

In current study respondent current age is statistically significant with  $OR=.789$  showed that women want more children, which means when age increase fertility decreases. Delaying the age of marriage and of having the first child can reduce the population growth. Kishor and Lekha (2008) found that older women were more empowered to take decisions on their own about their healthcare needs, thus resulting in a reduced fertility rate. Research conducted in Pakistan by Hameed et al. (2014) explored the significance of women's age and economic status.

Similar to our findings, a research carried out in Nepal examined the same results that an increase in the age at first marriage has an adverse effect on high fertility (Adhikari, 2010). Reason in the context of Pakistan is explained in research conducted in Karachi. Kazi, Sathar, and Shah (1986) argued that women not only experience sexual relationship with her husband but also the beginning of exposure to childbearing. Further, this could be an important measure of women's status, if she marries in an older age, more likely that she has attended school or been employed, and more chances of having an equal relationship with her husband (Kazi et al., 1986). The findings in this current study are similar to those in many other studies with respect to the fact that being older at the time of the first marriage played an important role in reducing the fertility rates and in enabling women to exercise their agency in deciding not to have more

children (Alam, 1968; Alene & Worku, 2008; Sibanda, Woubalem, Hogan, & Lindstrom, 2003).

In Pakistan, the legal age of marriage for a woman is 16 years. Taking Sindh's progressive child marriage legislation as a model, namely the federal Child Marriage Restraint Act 1929, and the Punjab Child Marriages Restraint Act 2015 must both be revised (Junaid, 2017). In 2017, the Senate standing committee of Pakistan rejected a bill that proposed to increase the minimum age of marriageable girls from 16 to 18 years on the grounds of its "un-Islamic demands" (Junaid, 2017). This acceptability of child marriage within the law is a major hindrance in enabling girls and women to access education and other routes for economic independence.

Some consequences that may need attention are low marital age, low age at first pregnancy as well as the healthcare, and inadequate family planning services. Delaying the age at marriage and first childbirth could reduce the impact of population growth.

### **6.1.2. Region**

Among other factors, region is also a possible cause for increase or decrease in fertility. This study finds that women living in all regions in Pakistan that were studied want more children, but there is some variation with respect to the odds of wanting more children. The study calculated the odds as follows: 2.531 = Punjab, 1.507 = Sindh, 2.548 = Balochistan, 3.313 = Khyber Pakhtunkwa, and 2.020 = Gilgit-Baltistan. The findings show a variation in the desire for more children and are consistent with findings in previous studies (Adhikari, 2010; Allendorf, 2012; Islam & Paul, 2014; Rehman, 2013; Tadesse, Teklie, Yazew, & Gebreselassie, 2013).

This result shows that the desire to have more children in Pakistan is high across all regions studied. This is the reason why Pakistan has never been able to control its goals around enabling a decline in fertility rates. One of the reasons why people want more children could be that Pakistan is an agrarian country and in agricultural regions, families are generally large (Cai, 2010). A second reason maybe the fact that early and child marriages though outlawed, are

culturally acceptable and practiced in all regions in Pakistan (Junaid, 2017). Another reason can be that people do not use contraception. Previous research has showed that fewer people living in rural areas use contraceptives than do people living in urban areas (Adhikari, 2010; Das & Tarai, 2011; Rehman, 2013). But, opposite findings has been found by Z. Sathar and Zaidi (2009) in Pakistan that there was high proportion of contraceptive use in rural areas than urban areas in 90s, later there was a divergence in trend in absolute terms in 2007 there was not much higher prevalence of contraceptive use in rural areas. Lastly, the prevailing son preference in South Asian countries (Adhikari, 2010), Pakistan included, results in pressure from relatives and the husband to increase the family size (Winkvist & Akhtar, 2000).

Therefore, different regions have different odds of fertility preference of wanting more children. However, societal changes such as urbanization can reduce the demand for bigger families because of the high cost of living in urban areas.

### **6.1.3. Currently Pregnant and History of Terminated Pregnancies**

The demographic demand for a male child is not a secret in South Asian countries, and Pakistan is no exception. Sex preference has led to major demographic imbalance in the ratios of male to female populations (Rehman, 2013). The notions of seeing the son as a bread-winner and the belief that a son will take care of his family and parents, in contrast with the perception of girls and women as burdens owing to the dowry owed at the time of their marriages, are rather deep-rooted in Pakistan (Winkvist & Akhtar, 2000). Current study show the OR of .887 representing that women want more children, ultimately ends up with the termination of pregnancy. This finding is similar to the findings in Bairagi (2001). Only difference in our finding and Bairagi finding is that in Bangladesh finding specifically infer (termination/abortion) to declined fertility choices, whereas in our context fertility decline does not specifically refer to termination of pregnancy or abortion.

Sex-selective abortions are illegal and are against the law in Pakistan, except when it is performed to save women's lives. Thus, as Z. Sathar and Zaidi (2009) when illegal abortions are

performed, they are carried out using poorer services. However smaller studies and informal accounts indicate that many women seek abortions rather than give birth to children that they cannot afford to bring up, or that they do not want (Z. Sathar & Zaidi, 2009). Son preference has also been reported as an important reason for the use of prenatal sex identification tests and sex-selective abortions (Rehman, 2013).

This study found that currently married women are 2.584 times more likely to want more children. This finding is similar to the findings in Mahmood and Ringheim (1996) (N. Mahmood & Ringheim, 1996). There is an evidence for high desired family size and strong son preference among Pakistani couples (N. Mahmood, 1992a).

The son preference may be associated with a predominantly agricultural economy where male children are valued highly for being contributors to agricultural work. A majority of the population in Pakistan resides in poor areas with inadequate basic infrastructure and education, and these circumstances make them typically vulnerable to low contraceptive use (N. Mahmood & Ringheim, 1996). Fertility, a clearer understanding of the role of social and cultural forces, the joint provision of family planning supply services, provides an important basis to variations in contraceptive use across different population groups (N. Mahmood, 1992b). Many people (and perhaps more women than men) continue to have more children than they desire (Ramakrishnan et al., 2005). The percentage of women who claimed that they had more children than they desired, number of children still also increased with age, and although there were no differences between urban and rural areas (Ramakrishnan et al., 2005). From these findings, it can be inferred that all unwanted pregnancies may end in an abortion. Still religious believes play a vital role in terms of unwanted child or abortion.

#### **6.1.4. Education**

The dynamics of education have a universally negative association with fertility preferences. Women's education is often associated with better opportunities for occupation and economic independence after finishing school. Women have better knowledge of their

reproductive health, and nurse higher ambitions for their children, all of which may lead to a preference for a smaller family. This study found that with an increase in educational attainment, women do not want more children or tend to want fewer children, that is, they aim to have smaller families. This finding in the study is consistent with the findings in the larger body of literature that has been suggesting that education is associated with lower fertility rates and aspects of fertility including fertility preference (Bongaarts, 2003; Das & Tarai, 2011; Dixon-Mueller, 1993). Studies on women's empowerment in other developing countries such as Turkey, Taiwan, and Tanzania also found similar results (Gore, 2010; Larsen & Hollos, 2003; Lee, 2009).

Increases in women's educational attainments have been universally found to be associated with a lower fertility preference (Bongaarts, 2003; Brewster & R. Rindfuss, 2000; Larsen & Hollos, 2003). Some studies focusing on developing countries such as Tanzania and Indonesia found that the wife's educational attainment is a more significant factor in the couple's fertility than the husband's educational attainment (Adhikari, 2010; Larsen & Hollos, 2003). Loffi et al. (2017) arrived at similar findings in Iran indicating that there was a statistically significant relationship between the age of marriage and the first birth interval, and noted that with an increase in the age of marriage and education levels, the first birth interval increased (Lotfi et al., 2017).

This study hypothesized that illiterate women are more likely to have a high number of children than literate women. The study found that with an increase in educational attainment, women are more likely to engage in birth control practices. This could be because education increases the chances of women gaining employment, which, in turn, encourages lower fertility (Lim, 2002). Education also empowers women by making information accessible and making them aware of their own health and the health of their children, all of which are negatively associated with the number of children during the reproductive lives of women. Zarate (1967) conducted a study in Mexico and found similar results in that educated women are more likely to postpone marriage, have smaller families, and use contraception than are uneducated women.



Husband's/partner's educational attainments in this study were not statistically significant with fertility preference. On the other hand, education will give women more exposure to the job market and enable them to have high aspirations for their children. Women will know their rights and freedoms. Thus, it can be inferred from the findings of this study that education can play a positive role in fertility control and in enabling a reduction in fertility rates in Pakistan.

#### **6.1.5. Wealth Index and Number of Living Children**

In this study, it was hypothesized that the poorest women would have higher fertility rates than would the richest women. An inverse relationship was observed between wealth status and fertility, with significantly lower fertility rates among the richest women when compared to the poorest women. This study arrived at the odds of .725 for wealth index (richer) and .793 for wealth index (richest) showing that .793 times less likely to want more children. This finding is consistent with the findings in studies conducted in India by Goel et al. (2015) and in Sri Lanka by Bishai (2002) and Weerasinghe and Parr (2002). Further, the findings in this study are consistent with findings in previous studies on the region in that wealthy people are more likely to have access to higher education and are able to financially provide for their comparatively fewer children with superior resources than their poorer counterparts (Goel et al., 2015; Weerasinghe & Parr, 2002). Rehman (2013) found in the context of wealth index, significant result found that the rich use more contraceptive methods than the poor do. Women who married at younger ages were relatively less wealthy when compared to those who married at 25 years or after (Weerasinghe & Parr, 2002). Weerasinghe and Parr (2002) also found that wealthier people tended to marry later than poorer people. When people become wealthy, they increase the quality of their lives, and access better education and health care, and therefore, there is a reduced number of children (Bishai, 2002).

The results in this study show that the number of living children also has a significant relationship with wealthy people, in that wealthy people desire to have fewer children than do poor people. This study also found that people who are poorer want to have more children. Our finding has similar result to previous finding (Bentley et al., 2009). Poor people have lesser

earnings and are therefore less likely to use contraception. This, thus, results in more pregnancies and larger families. One of the factors is early marriage. Furthermore, regions, which are predominantly rural or tribal settings with poor infrastructure and electricity supply. People living in these areas have poor life standard, less educational level, and have high fertility rate (Mustafa et al., 2015; Samal & Dehury, 2015). Adhikari (2010) explained that this could be a result of the belief among poor people that children are a source of income, which comes from the need for more labor in helping with agricultural activities to earn a sustainable income. Kavanaugh and Jerman (2018) found that women aged 35 years and above and having had three or more births had increased odds of using contraception, while those who were not married or cohabiting had decreased odds. This study also arrived at similar findings. Thus, it can be concluded that with an increase in wealth, education, and age, fertility preference decreases.

#### **6.1.6. Use of Contraception and Wanting the Last Child**

Much of the decline in fertility rates in developing countries was achieved through an increase in the use of contraceptives (Allendorf, 2012). For example, in Bangladesh contraceptive use once considering as an empowering tool for women when women start using it, it became normative. This study found the opposite to be true in the Pakistani case, since contraceptive use is still not a norm in Pakistan.

This study found that contraception was a significant factor for fertility preference specifically for women want more children, indicating  $OR=1.856$ . Women who are currently using any form of contraception were still 1.856 times likely to want more children. Whereas, the  $OR = .088$  for women who wanted their last child indicated that when they got pregnant with their last child, they were .088 times less likely to have wanted the last child at the time of pregnancy. These findings are similar to those in Bankole and Audam (2011) who conducted a study in Sub-Saharan Africa and found that men tend to desire more children than women in the region and that real or perceived knowledge of the husband's opposition to family planning may prevent a woman from using contraception even when she wants to stop childbearing. Ramakrishnan et al. (2005) found that the trend of using contraception in India was higher

among younger women than among older women. Mason and Smith (2000) explored the impact of gender on the desire for additional children and the use of contraception among married women, and stated that the desire for more children appears to influence the couples regardless of whether contraception is used or not. Kamran et al. (2011) and M. S. Khan et al. (2015) conducted studies in Pakistan and found that the opposition of the husband and family members can affect the intention to use contraception even when the women themselves want to do so, and have sufficient knowledge and access to family planning services. Based on the data from a large population council survey in Pakistan estimated 30% of cases opposed to family planning by husbands and detected an odds ratio of 2 (that contraceptive non-intenders were twice likely to report husband's opposition to contraceptive intenders) (A. Mahmood, 2012). Women who are educated and fall in the wealthy bracket do not favor large families even if their husbands demand them. Dyson and Moore (1983) offer an explanation for this, in that women who have autonomy in decision-making are more likely to use contraception use and have lower fertility preferences.

The fertility preferences are the fundamental source of interest of a couple, which is a necessary sign of decline in actual fertility. Therefore, this shows that the use of contraception either to space births or to limit family size is significant with the couple interest and fertility preferences (Bankole & Audam, 2011). Nevertheless, the success of having smaller families depends on how responsive the husbands' fertility preferences are. In some cases, women who are strongly motivated to limit their family size may be using contraception without the knowledge of their spouses (Bankole & Audam, 2011). Rehman (2013) conducted a study in India and found that women with no sons were less likely to use contraception, and also found that, even though rich people use more contraceptives than do the poor, the son preference still exists among rich people. In India and Bangladesh, women use contraception to stop fertility, limit their family or increase the gap between birth intervals. However, in Pakistan, it is quite interesting to note that women who are using contraceptive method still want more children; this contradictory finding may be explained because of cultural and country differences or the religion factor. As people living in Pakistan, majority of them are Muslims, and contraceptive use and abortions are restricted in Islam.

Religion can be another significant factor resulting in low contraceptive use and high fertility rates. For example, women who use some form of contraceptive method are still 1.856 times more likely want more children. Even though, they are using some sort of contraceptive method still they want more children. Islamic doctrine' provides a poor basis for interpreting Muslims' fertility behavior, the use of contraception is permissible only if there is a legitimate excuse, as when a woman is weakened by repeated childbearing.

From the above findings, we can infer that there is a strong relation between son preference and contraceptive use. The preference of sons will lead to the less use of contraceptives. So here, we can clearly see that there is strong sex preference and the use of contraception depends upon people's choices about the sex of the child they want. When the couples get the desired sex of the child and desired number of child, they start practicing contraceptive use. This leads to a negative effect on family planning policies thus, making it difficult to control the population. Thus, this can be concluded that the contraceptive use and last child wanted does have strong influence on the decision to use contraceptive in the midst of other resources and factors of empowerment in Pakistan.

### **6.1.7. Decision-Making**

None of the decision-making variables shows significant results in the final model. However, there were three significant variables in the baseline logistic regression model which indicated that there are some factors influencing women's empowerment. It is expected that a higher level of involvement of women in household decision-making is universally associated with lower fertility rates. However, Pakistan neither has low fertility rates nor does it have a culture that includes women in decision-making.

Decision-making behaves differently than expectation. It is expected that higher levels of involvement of women in household decision-making are universally associated with lower fertility preference, although the relationship is not significant with fertility preference. In the initial logistic regression model, decisions related to contraception, the health of the respondent,

and making major household purchases contributed significantly. However, in the final model when agency had to deal with resources and background variables, the impact of background variables and resources affected the relationship between agency and the dependent variable. This is why all the variables were run in the parsimonious model to find out how these components differ together with fertility preference.

Previous studies have looked at the education of women, region, wealth index, the current age of the respondent, current pregnancy, number of living children, history of terminated pregnancies, using contraception, and whether the last child was wanted, and their effects on fertility preference. However, only a few have looked at all aspects of fertility preference and women's empowerment as a fully conceptualized notion. To date, previous studies have proposed a negative relationship between each of the factors affecting women's empowerment and fertility preference, that is, women with higher educational attainment, higher employment status, and greater wealth tend to prefer having fewer children.

The conceptual framework used in this study is strongly reflected in the results obtained. Naila Kabeer's framework suggested that if one (a woman) is exposed to resources of empowerment and has a good sense of agency, then one (the woman) will be able to attain some achievement or outcome. These interrelated components are reflected in this study, as women are not fully exposed to resources and do not have a good sense of agency because they are either not exercising or are not being allowed to exercise their agency (decision). This study finds that resources such as education, wealth, and contraception are not sufficient for women to exercise their agency, as their husband's/partners' approval plays a major role in family planning and fertility preference, and background/demographic variables such as age and region also affects the exercise of agency by women in Pakistan. Thus, women are not empowered to exercise their agency in making decisions concerning their health, contraceptive use, major household purchases, and spending their husband's/partner's earnings. Thus, Kabeer's (1999) framework is practical in explaining the concept of empowerment in relation to fertility preferences among women in Pakistan.

## 6.2. Conclusion

In Pakistan, the number of children ever born is high and there has always been high fertility rate in the past. Many factors contribute to this phenomenon, of which age at the time of the first birth, the number of living children, the educational attainment of the women, and the wealth status, are strong predictors affecting fertility. Despite the legal restrictions imposed on marrying at a young age, child marriage is common in Pakistan. Therefore, programs should focus on creating awareness on marriage laws and the disadvantages of early marriage and larger families. Policymakers, planners, program managers, governmental authorities, and non-governmental organizations need to prioritize addressing the issue of child marriage to minimize the number of girls who never attend school or drop out to become wives. The government should also work on improving the current family planning system to empower women.

The results of the study indicate that of all family members and relatives, the husband has the strongest effect on a woman's intention to use contraception and to keep the family size small. Since the opinions of the husband and the husband's family are strong determinants of a woman's intention to use contraception in Pakistan, the slow process and progress on the use of contraception can only be improved by employing strategies that effectively generate support for family planning among these key actors, in dismantling the barriers in the path toward enhancing agency in women.

Strengthening family planning has become a priority of the Government of Pakistan and respective stakeholders (NGOs, INGOs). Contraceptive use has increased. There have been some improvements in family planning programs and contraceptive prevalence since 1990s. However, the process is slow and lacking clarity or structure, also there are unprepared / ill-equipped officials on ground, which has negative consequences and therefore, there is a need for rapid improvements in family planning and contraceptive prevalence. Health workers need to be trained and equipped to provide counseling and healthcare education, and also engage in promotional activities to increase awareness on fertility and women's agency at the community level.

Clearly, societal changes such as rapid urbanization, increased educational attainment, and wide propagation of information through television and other communication channels have changed social values. These influences are believed to underlie the changes in marriage behavior, with rising age at female marriage affect the reproductive intentions more directly with the large rise on desires to control fertility within marriage and the high proportions of women who either want more children or want no more children. The most shocking and alarming fact is that family planning services have not gained recognition or acceptance in Pakistan. The high unmet need for family planning services, the high levels of unwanted fertility, and rearing unwanted children are reflections of this high rate of fertility reality. These outcomes are largely a result of women, couples, and families not having easy and affordable access to good quality information and services.

### **6.3 Limitations of this Study**

It is important to note from the study that the predictor variables were significant in relation to the outcome variable and predicted good and accurate relationships between women's empowerment, contraceptive use, and fertility preferences in Pakistan. The agency variables did not appear significant in the parsimonious logistic model and this tends to limit the strength of the study. The variables used in the PDHS, 2012-13 did not use any scale to measure and quantify for instance, the empowerment variables. In PDHS 2012-13 to assess women's empowerment status is calculated based on the number of decisions in which women participate and the index included some demographic and health outcomes including contraceptive use, ideal family size, and the unmet need for contraception. However, it does not calculate the variance in empowerment with varying fertility preferences among women.

### **6.4. Recommendations for Future Research**

Future research should be more watchful when considering fertility preference decision as one of the empowerment factor for women in countries where contraception is eventually

accessible difficultly and factors contributing to restrict women make choices for her reproductive health.

The literature suggests that the relationship between fertility and women's empowerment can take two different directions and cyclical in nature. This means that while a higher level of women's empowerment can effect changes in fertility, on the other hand, a decline in fertility preference leads to higher levels of women's empowerment. This study focused on only one direction in this cyclical relationship. Future studies must focus on the reverse direction.

In the context of Pakistan, parents are accountable for the early age marriage of women with a collaboration of social pressure and culture. Future research should focus on issues such as parental settings that lead to early marriages and fertility preferences that actually promote an increase in fertility rates. Moreover, research must examine the relationship between early marriage and fertility through an age analysis, specifically of women aged above 35 who completed their fertility and decided not to have more children in the future and women aged below 35 who continue their fertility and wanting to have more children. This will help understand the trend in fertility preferences and contraceptive use among the older and the younger generation since the educational attainments have increased over the years.

Qualitative and quantitative (mixed method) studies must be carried together to focus on non-users in order to shed more light on the issue of fertility rates and explore it in the context of this study.

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