THE IMPACT OF WOMEN EMPOWERMENT AND SOCIAL PROTECTION ON MOTHER AND CHILD WELLBEING: THEORETICAL AND EMPIRICAL INVESTIGATION

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2023

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Dedication

This Effort is Dedicated to My Mother and My Late Father.

ACKNOWLEDGEMENT

First, I am grateful to Almighty Allah the most compassionate and the most gracious who gave me the strength to accomplish this task. I must express my sincere gratitude to my late father Muhammad Latif Kiani and my mother Jamila Latif for teaching me self-discipline, love, encouragement and their priceless support since my birth and their prayers made it possible for me to stand here.

I wish to express my sincere gratitude and appreciation to my supervisor Dr. Nasir Iqbal, Associate Professor, Pakistan Institute of Development Economics for his excellent guidance, brilliant ideas, scholarly advice, moral support, and hospitality during my research work. I am also highly thankful to my co-supervisor Dr. Saima Nawaz for her support, encouragement, scholarly advice, and excellent guidance which led to the completion of this study. It has been a great pleasure to work with her.

Muhammad Mohsin Latif Kiani

ABSTRACT

The goal of the study is to investigate how women's empowerment affects mothers and children's well-being after accounting for the role of social protection, particularly cash transfers. Theoretically, the study extends the collective household model to integrate the role of cash transfers, which is empirically explored using the PDHS 2017-18 data. The study found that, empowered women have more control over the resources, which motivates them to make decisions that are good for the family and their own health.

According to the study, women's empowerment has a favorable impact on the use of maternal; health services, children health, children schooling and intimate partner violence. Women' attitude towards health, her age, household size, exposure to media, wealth, and ease of access are favorably connected with maternal health care. In case of children health; child size at birth, breast feeding, mother's use of antenatal care, sex of household head, location of household and wealth status are the contributing factors. Model for child schooling reveal that mother and father education has a favorable impact on child enrollment. The educational attainment level of household head, and wealth among other things, is important. Finally, women's own education, employment before marriage, and her husband's alcohol use were found positively associated with the incidence of intimate partner violence. But, husband's education and employment is inversely related to the prevalence of violence.

Finally, according to the findings, cash transfers shows promising effect in all the cases i.e., maternal health, child health, child schooling and intimate partner violence.

Keywords:

Women Empowerment, Maternal Health, Cash Transfers, Child School Attendance, Children Health, Collective Household Model, Intimate Partner Violence, Education, and Pakistan.

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LIST OF ABBREVIATIONS

BISP	Benazir Income Support Program
CCT	Conditional Cash Transfers
UCT	Un-Conditional Cash Transfers
CTP’s	Cash Transfer Programs
UNICEF	United Nations International Children's Emergency Fund
WHO	World Health Organization
MDG’s	Millennium Development Goals
SDG’s	Sustainable Development Goals
UN	United Nations
DHS	Demographic and Health Survey
IPV	Intimate Partner Violence
PDHS	Pakistan Demographic and Health Survey

CHAPTER 1

INTRODUCTION

1.1 Background

Household welfare through women empowerment is connected with low global poverty and increased family health (Pratley, 2016; Nieuwenhuijze & Leahy-Warren, 2019). Women empowerment is supported by women's ability to efficiently use household resources especially in favor of children (UNICEF, 2005; Cuberes & Teignier, 2014; Malapit *et al.*, 2019). Empowerment provides such an enabling environment where new horizons are opened for the vulnerable groups. The empowerment process applies to both sexes, but women's dis-empowerment is more common since it cuts through class and other social divides, making it even more significant (Malhotra & Schuler, 2005). Women's empowerment and economic development have a two-way connection (Duflo, 2012). Economic development can be achieved by closing the gender gap and improving women wellbeing through improved health, education and work opportunities. Additionally, the process of empowering the women can help attain the higher levels of development in terms of child and maternal health and in the form of lesser domestic violence (Mayoux, 2006; Hatzimasoura *et al.*, 2017). This is also an area of research with increased focus due to Sustainable Development Goals which include specific targets on the issue of women empowerment and gender equity.

Furthermore, eradicating poverty and improvement in household welfare is an important objective of development, which in turn requires better understanding of factors contributing to household welfare (Arif & Farooq, 2012). Increasing women empowerment is recognized as an essential strategy for ensuring important life outcomes such as increased income, improved welfare (e.g., non-material commodities

such as self-esteem, health, and service access, etc.), less vulnerability (e.g., greater resiliency as a result of improved asset state), better food security (e.g., increased cash resources for food purchases), and utilization of natural resources in a more sustainable manner (e.g., property rights that are appropriate), and advancements in child nutrition and self-identity (Moyo *et al.*, 2012). According to Asante (2002) and Alsop *et al.* (2006), empowerment enables people or group of people (i.e. family) to make well-informed judgments and turn them into desired actions and outcomes. As a result, the ultimate objective of empowerment seems to attain their desired household livelihood results.

With cash transfers available to women and mothers, the issue of how women's empowerment influences household wellbeing, such as better maternal health, child health, and education, arises. Recent literature recommends women's empowerment as a key to well-being, which also covers health and education aspects (Peterman *et al.*, 2021). Health is also important in the sense that women can better manage household affairs and their care giving responsibilities if they are healthy (Reinhard *et al.*, 2008). Better usage of maternity care is directly linked with women's after health, only then they can effectively participate in decisions relating to household matters and can enjoy their basic rights (Kamiya, 2011; Ghose *et al.*, 2017). Women's health during pregnancy is correlated with their education, financial independence, their location, wealth position of their family and most importantly number of children they already have (Tarekegn *et al.*, 2014; Yang *et al.*, 2015). Women's restricted movement is an international issue harming their access to the health services (Upadhyay *et al.*, 2014). Opportunities for women are few and often they are compelled to take low paid jobs which in turn creates hurdles in accessing the health care (Cook & Dong, 2011). Such women who contribute to household income are able to receive better health and delivery services (Furuta & Salway, 2006). Furthermore, financially independent women can better manage their planning method (Reed *et al.*, 2016). Research suggests that

health of mother is associated with child health and other related activities (Ramakrishnan *et al.*, 2012).

Women are less empowered, while all over the world, specifically in developing countries they are facing gender-based violence and mistreatment. Likewise, Pakistan is experiencing an alarming rise in the prevalence of violence against women in intimate relationship. The misappropriation of native cultures, social, and religious practices has long forced women to endure discrimination, subordination and violence in their lives (Tahir *et al.*, 2021). Literature also shows that both in and outside South Asia higher rate of intimate partner violence is linked with reproductive health outcomes, miscarriages, stillbirths, and low birth weights (Bates *et al.*, 2004; Ellsberg *et al.*, 2008). Empirical research has established links between women empowerment and the incidence of IPV. These include the effect of women employment (Heath, 2014), intra-household wage gap (Henke & Hsu, 2020), cash transfers directed to women (Hidrobo *et al.*, 2016), and changes in women decision making power (Amaral, 2017). It is assumed that women are more vulnerable to IPV in countries with persistent gender biases. Thus, an improvement in a woman's economic empowerment is expected to enhance her intra-household bargaining power and lowers her risk of IPV. However, in case of developing countries the link between women empowerment and experience of IPV is ambiguous. For example, , Yilmaz (2018), Schuler and Nazneen (2018), and Sethuraman *et al.* (2006) have found that an increase in women empowerment is negatively associated with the incidence of IPV in Pakistan, Turkey, Bangladesh and India respectively. But, Murshid and Critelli (2017), Eswaran and Malhotra (2011) and Heath (2014) have reported that increased women autonomy is positively connected to the experience of IPV in the patriarchal societies of Pakistan, India and Bangladesh respectively.

Children are the most vulnerable and powerless part of a family. Life time achievements of children heavily depend on their early age development which critically depends on parent's decisions (Duflo, 2003). Children's well-being is linked to human capital development and long-term labor productivity (Alderman *et al.*, 2006). Empowering women through control over household income and sharing the decision power in a household will ultimately result in better child welfare (Echeverria *et al.*, 2019). According to the evidence from developing countries, domestic food budget is increased if wife's income relatively increases (Hoddinott & Haddad, 1995; Arranz *et al.*, 2006) or improvement in the health and nutrition of children (Thomas *et al.*, 1990). Evidence also shows that Significant cash transfers to mothers are linked to a stable or greater proportion of food expenditures, which can be explained as the greater proportion of resources available to mothers (Armand *et al.*, 2020).

1.2 Motivation of the Study

Motivation of the study comes from the mixed evidence on the impacts of women empowerment on health care access and children wellbeing, which suggests that though cash transfers are further empowering women yet these are unable to fully translate these effects in the form of family wellbeing. Recent literature focuses mainly on the incidence of and factors behind women's empowerment (Akram, 2018; Sen & Nilima, 2018). Some studies also develop links between the incidence of women empowerment in the presence of a cash transfer program and reveals that cash transfer helps women empowerment in certain dimensions (Molyneux & Thomson, 2011; Yoong *et al.*, 2012; Ambler & De Brauw, 2017). However, research also finds contradicting evidence on effects of cash transfers in improving women access to family health and employment opportunities (Jalal, 2017).

The main research question of the thesis is: Does cash transfer have an effect on household wellbeing in the context of women empowerment? Since, BISP is one of the largest UCT program running in Pakistan, with women as the primary receivers, makes it potential research area to investigate. Therefore, study proposed that; women's empowerment ameliorate the wellbeing of the household in terms of maternal health utilization, reducing intimate violence, children's health & nutrition, and education. The study will also investigate the unconditional cash transfer program of Pakistan i.e., Benazir Income Support Program (BISP), and how it affects women's empowerment and household well-being.

1.3 Objectives of the Study

The overall objective of this thesis is to examine the influence of women's empowerment on mother and child well-being after controlling for the role of social protection, mainly cash transfers assistance. More specifically, study has following objectives:

i. To provide a conceptual framework based on the collective household model to comprehend how cash transfers affect the relationship between women's empowerment and household well-being.
ii. Empirically examine the influence of women empowerment on maternal health care.
iii. An empirical analysis of how women's empowerment affects intimate partner violence.
iv. An empirical examination of how women's empowerment affects children's health and school enrolment.
v. Using cross-sectional data, examine how the Benazir Income Support Program (BISP), an unconditional cash transfer program, contributes to the

understanding of the connection between women's empowerment and the wellbeing of mothers and their children.

1.4 Significance of the Study

This study contributes to the literature in many ways. First, the study attempts to fulfill the literature gap by evaluating possible channels through which women's empowerment has an impact on the wellbeing of women and children with cash transfers. Secondly, this study extended the collective household model to capture the impact of cash transfer on household welfare. Moreover, the study has utilized the most recent data available i.e., PDHS 2017-18.

The study aptitudes to fulfill the probable literature gap by shedding light on yet under-explored research areas. The study aims at investigating the utilization of maternal health services with the help of women's empowerment being a source of motivation.

1.5 Structure of the Study

Chapter 2 presents review of the literature after addressing a thorough introduction in Chapter 1. The conceptual framework and research model are covered in Chapter 3 of the study. The econometric specification of the model, data source, and variable generation were all covered in Chapter 4. Chapter 5 presents the results of the estimated models, and Chapter 6 presents the policy discussion. Finally, chapter 7 will cover the conclusion of the study.

CHAPTER 2

LITERATURE REVIEW

Strengthening women has become globally relevant in the recent decades and it is even more important in a developing country context since the share of women in populations is increasing and this is high time to increase the engagement of women in every walk of life. Linkages between women empowerment and other variables like maternal health and child wellbeing have been empirically tested (Bloom *et al.*, 2001; Carlson *et al.*, 2015; Hatlebakk & Gurung, 2016) and found significant. In the same way factors that determine women empowerment have also been an important research area (Annan *et al.*, 2021).

This chapter is dedicated to the survey of the literature which is done in a systematic way according to the dimensions of women empowerment covered in this thesis.

2.1 Women Empowerment and Maternal Health

In recent years' research on women empowerment and maternal health nexus is focused on a comparison of achievements with respect to Millennium Development Goals (MDGs). For example, (Alkenbrack *et al.* (2015) collected evidence on the MDG 5 to check the progress of women empowerment in Pakistan. In the same way WHO (2015) found that, keeping SDGs in mind, Pakistan is not on track as far as the achievement of women empowerment is concerned, resulting in a steady decrease in the MMR over the previous decade.

Women's contributions are rarely recognized in developing countries, and women are frequently denied development chances. When women are not included in the decision-making process, it has a direct impact on their reproductive life (Fonjong, 2001). On the other hand, if women have better access to the domestic assets then they can make

good health choices (Beegle *et al.*, 2001). Women's empowerment is hampered by social and cultural hurdles. Women who belongs to poor households, have inadequate educational facilities and limited control on their lives and hence have negative impacts in their own and family health. Women's poor status, lack of education, and lack of control over their own lives and bodies have a detrimental influence on their and their family's health. Qureshi and Shaikh (2007) with a focus on Pakistan argues that there is a strong connection between women's use of healthcare and empowerment in the context society's four foundations of power: the family, the community, health care system and the state.

In research, variety of variables are used to explain the impact of demographics, socioeconomic position, cultural factors, health risk behaviour, and access to health care influences how often women use healthcare services. Women form the high income families are twice likely to use health services during pregnancy than women from low income families (Nisar & White, 2003). In the context of Bangladesh, Chowdhury *et al.* (2009), finds that women living in urban areas and having higher education are more likely to use maternal health services. Study also concluded that older age and greater economic status increase the use of maternal health services. Bloom *et al.* (2001), found out that in India, utilization of health services like antenatal care was likely to be higher for women with greater economic status, education, awareness regarding pregnancy complications, and greater ability to move. In the case of Nepal, the quality of health care is directly related to the distance of health facility (Acharya & Cleland, 2000; Hotchkiss, 2001). Similarly, Dhakal *et al.* (2007), argued that educated and employed women have a substantial impact on their usage of postnatal healthcare services in Nepal. Moreover, in comparison to less empowered women, more empowered women are twice likely to deliver at a health care facility. In

contrast, Matsumura and Gubhaju (2001), in their study for Nepal highlighted a negative relation between women's employment and usage of maternal health care services. Similar results were reported for different countries including Nigeria and Indonesia (Iyaniwura & Yussuf, 2009; Titaley & Dibley, 2015). According to Ahmed *et al.* (2010), women who are educated are five times more likely to use a skilled birth attendant at the time of delivery.

Also, women's empowerment has a substantial influence on maternity healthcare usage. Similarly, Titaley *et al.* (2010), conducted a research for Indonesia and found out that women with substantial awareness regarding precautions and risks during delivery were more inclined to use health centres than the women who were not aware. Poudel and Pitamanaket (2010), validated these findings by concluding that working women in Nepal exhibited a lower probability of seeking maternal healthcare. Additionally, working women are 50% less likely to use healthcare services at the time of delivery and 36% less likely to use health care facilities during pregnancy than non-working women. Woldemicael and Tenkorang (2010), also discovered that working women are 47 percent more likely than non-working women to use maternal health care facilities. Moreover, Woldemicael (2010), found that women's independence in making decisions about visiting friends and family and taking care of household expenses had a positive and significant impact on the usage of prenatal care in Eritrea and Ethiopia. In addition to finding a significant connection between a woman's education and the use of maternal health care services, Dhakal *et al.* (2011), also found that the husband's education, the husband's having a skilled professional, and the husband's history of illness were all positively correlated with the wife's utilization of health care facilities. Other empirical studies suggested that a husband and wife making decisions together improved the chance of maternal health services being used (Hailu *et al.* (2011).

Further, Singh *et al.* (2012), suggested that a family's financial position strongly influence their access to maternal healthcare in India. Study reveals that wealthy women are twice likely to visit health facilities during pregnancy. Furthermore, low usage of prenatal care services is due to a lack of understanding about the perks of examinations throughout pregnancy, illness, embarrassment, and distance to the facility.

Using Pakistan Social and Living Standards Measurement (PSLM) Survey Hou and Ma (2013) have examined the effect of household decision-making on women's use of reproductive health care and observed that women's decision-making capabilities correlates with the adoption of reproductive health care, whereas influential males' decision-making power had the opposite impact. Nearly a quarter of pregnant women are found not using any prenatal health care, and half of all women do not give birth in a proper healthcare facility (Bhutta *et al.* (2013). Tsegay *et al.* (2013), found that a woman's education and age, as well as her husband's employment, had a positive effect on her decision of using a maternal health care facility in Ethiopia. Additionally, Neupane and Doku (2013), reported that Nepal experienced higher demand for postnatal related healthcare by educated and wealthy women. In addition to structural barriers, orthodox traditions such as the role of the 'daai' (traditional birth attendants), women's limited geographical mobility, family autonomy, and the perceived irrelevance of medical attention during pregnancy also hamper pregnant women's utilization of health facilities (Farooq & Kayani, 2014).

Rashid and Antai (2014), identified the factors that impact healthcare utilization in Namibia. The results reveal that education, income level, geography, and marital status all have a role in maternal health care utilization. The income level was the only consistently significant predictor of all maternal health service factors. When it came to accessing maternal health care services, women's age and occupation had unclear

results. In Albania, Sado *et al.* (2014), investigated the impact of women's empowerment on the use of prenatal and postnatal care. The study used two types of empowerment indicators—decision-making power and attitudes toward domestic violence— and they have found that women's participation in decision-making and perceptions of domestic violence influence how often they use maternal health care services. Moreover, Solnes Miltenburg *et al.* (2015), argued that women's empowerment was limited and that they were commonly deprived of decision-making regarding their health care in the case of Nepal and Ethiopia. Wang and Hong (2015), investigated the levels of healthcare utilization across the healthcare system. The study found that women's use of prenatal care in Ethiopia is influenced by the mother's age, education level, urban location, family wealth, and lower birth order.

Women's empowerment, according to Ross *et al.* (2015), is the key to unlocking women's productive potential in Africa. The health of women has a significant impact on their contribution to agriculture. Some major empowerment measures for enhancing women's health and production capacities are initiatives concentrating on expanding women's involvement in social and economic groups, facilitating women's access to credit, and raising women's incomes. Their findings show how gender-sensitive policies and public-private partnerships may lead to better health outcomes for women and increased capacity to fulfil Africa's future food and agriculture requirements.

Women's empowerment improved the decision-making power of women when it comes to health-seeking behaviour (Mainuddin *et al.*, 2015). The authors used a multi-stage sampling approach and a face-to-face interview to conduct cross-sectional research among 200 rural married women in Bangladesh. Data on socioeconomic factors, women's mobility, and power of decision-making related to healthcare utilization were gathered. They found out that barely 12% of women felt empowered

to make healthcare decisions on their own, and only 8.5 percent were empowered to seek healthcare for their children. Social determinants of health and women's empowerment in family planning in Iran have been studied using a multistage cluster sampling method focused on 400 women who visited health clinics (Kiani *et al.*, 2016). Study concluded that self-esteem and educational attainment are the most significant factors influencing women's ability to make reproductive decisions.

According to Reed *et al.* (2016), married women in India who did not want children were more likely to utilize family planning methods if they had access to their own money. The relationship persisted even after other factors were taken into account, such as women's ability to make reproductive decisions and access to healthcare. Using the PDHS (2013) data set, Zakar *et al.* (2017), examined the relationship between maternal healthcare usage and socio-demographic variables among Pakistani reproductive-age women. The number of antenatal care (ANC) visits, delivery support by a qualified health professional, and delivery in a healthcare facility were the three dependent variables used by the author to assess maternal healthcare usage. A little over 36.6% of women had attended to four or more ANC visits, 59.6% had medical professionals help at the time of delivery, and 55.3% had given birth in a hospital. According to their findings, all three factors were positively related to the level of income and education, while inversely related to women's autonomy and birth order.

Sheikh *et al.* (2017), used data from the Pakistan Demographic and Health Survey (2013) to investigate how education affects family planning in Pakistan. The empirical findings supported the hypothesis that educated women use contemporary contraception more often, resulting in lower total fertility rates. The quantity–quality trade-off and the opportunity cost of time were defined by some substantial correlations between female education, contraceptive usage, and fertility. Female education

promoted maturity and knowledge of family size, both of which are required for making important economic decisions.

In a study for Sub-Saharan and Asian nations, Adjiwanou *et al.* (2018) found that partners' education, particularly when partners have secondary or higher levels of education, had a substantial impact on their wives' use of maternal healthcare. Women whose partners had higher education were 32% more likely to use modern contraceptives, 43% more likely to attend at least four antenatal care visits, and 55% more likely to deliver their most recent child with a healthcare provider than women whose partners had no education, even after adjusting for individual and community-level covariates. After adjusting for maternal and socio-demographic factors, a study in Indonesia by Rizkianti *et al.* (2020), found that Women's Participation had a direct relation with proper prenatal care service utilization, but no influence on skilled birth attendance and facility-based delivery. Women who reported being more independent were 1.7 times more likely to demand prenatal care. Women over 35, as well as those with higher levels of education and economic status, used prenatal care services, had birth attendance, and had facility-based deliveries to a larger extent than their peers.

As per Omer *et al.* (2021), Delays in obtaining care were linked to poor socioeconomic position, inadequate knowledge about maternity care, and low rural incomes. Women were less empowered due to their poor stature and male dominance. Furthermore, early marriages and a lack of family planning as a result of cultural beliefs, religion, and customs prevented young females in Pakistan from receiving maternal healthcare. Ahmmed (2021), reported that more empowered women use healthcare services more frequently. Women empowerment, on the other hand, was shown to be inversely related to delivery in a proper facility but directly associated with postnatal examinations in the case of Bangladesh.

The findings by Nguyen and Neal (2021), study suggested that having a higher educational level and having a higher Income status enhanced the chance of contraceptive uptake and usage. Women were persuaded to utilize contraception, particularly contemporary contraception, to avoid undesired pregnancy due to media exposure to family planning and spousal communication. Contraception use was more prevalent among women who had experienced gender-based violence than it was among women who had not. Cornish *et al.* (2021), used in-depth interviews and focus groups with both men and women to study the relationship between women's economic empowerment and health decision-making in rural Sierra Leone. The results suggested that the traditional male dominance structure within families greatly affects outcomes of healthcare utilization as most males have more influence on decisions regarding their family's matters, including the use of healthcare services. And men remained domestic authority figures, particularly when it came to health decision-making, despite women's economic empowerment reportedly reduced marital conflicts.

2.2 Women Empowerment and Intimate Partner Violence

The prevalence of domestic violence and abuse (DVA) or intimate partner violence (IPV) highlights how serious the problem is. Domestic violence is more prevalent in some countries than others, though. Each country has unique traits that affect the type of domestic violence that exists there (Walker, 1999). Due to social factors such as acceptance of domestic violence, poor social status of women, authoritarian political structures, repressive fundamental religious beliefs that disparage women, civil unrest, and the presence of states of war, domestic violence is subsequently more common than previously thought to be the case throughout the world (Walker, 1999). IPV/DVA has a serious adverse impact on a variety of social life domains by worsening financial and relational bonds with friends, families, children, and victims. Women who have

suffered emotional, sexual, or physical abuse may face a number of health issues and can go unrecognized. Since IPV/DVA affects women's health over the long term and is connected with acute mortality or noxiousness, it has received substantial attention as a critical "public health issue" (Lewis-O'Connor & Chadwick, 2015).

According to Usta *et al.* (2012) IPV is defined as the type of violence which is executed by the person with whom victim is living in intimate relationship. However, the World Health Organization (WHO) states that the terms "intimate partner violence" and "domestic violence" are interchangeable, with the later potentially including various types of family violence against younger and older members of the family as well (World Health, 2012). Additionally, women are not the only subject to domestic violence but men also face violence from their intimate partners (Coutinho *et al.*, 2015; Semahegn & Mengistie, 2015). Nevertheless, women are the most affected victim of domestic violence (Dardis *et al.*, 2018).

In this domain of literature, researchers believed that; resources – educational level, income and work experience – are the key factor associated with victim's risk of facing violence. Thus, the two social structural concepts that are frequently used to describe domestic violence against women are Resource Theory and Relative Resource Theory. Relative Resource Theory refers to married men who own fewer resources than their partners, while Resource Theory addresses married men who have few resources to contribute to their partner (Atkinson *et al.*, 2005; Cools & Kotsadam, 2017). Lower levels of education have been linked by these theories to an increased risk of violence against women (Shuib *et al.*, 2013; Coutinho *et al.*, 2015). Others counter that women with higher levels of education are not protected to violence (Cools & Kotsadam, 2017). These findings demonstrate that women's level of education did not help them reduce their chance of experiencing intimate violence.

The effect of gender and the likelihood that a woman may experience violence has also been extensively studied using the Gendered Resource Theory. According to this theory, Tokuç *et al.* (2010) found that; additional risk factors for physical abuse of women include their low socioeconomic status and lack of financial independence. Naved (2013), analyzed the nature of violence against women in rural and urban Bangladesh. He discovered that women with lower incomes families solely rely on their spouses for financial support, which ultimately decreases their negotiating power and hence lessen the capacity of physical aggression. Similar results are reported by Cools and Kotsadam (2017), where he argues that; although it is believed that violence against women happens across all social and economic groups, those who are poor are more prone to experience it because stress is psychologically related to poverty. As an example, Mahapatro *et al.* (2012) found that, Indian women from lower income households are more likely to experience violence as compared to their counterparts. In order to keep their partner under control, abuser use a range of tactics like enforcing physical, emotional and financial dependence for the sake of persistent fear among their intimate partners and hence not challenge their actions. The interdependence theory[1] Rusbult and Van Lange (2003) and marital dependency theory[2] Vyas and Watts (2009) asserts that women are entrapped in relationships and are at a higher risk of experiencing violence. This is why, economic reason is one of the major reason women find it so difficult to leave an abusive relationship. However, Rahman *et al.* (2011) is of the view that; empowerment does not necessarily act as a shield against violence and abuse. Relatively more resources owned by women causes stress and increase violence due to the instability in the house (Gracia & Merlo, 2016). But that's not always the

[1] For details, see; Rusbult and Van Lange (2003)
[2] For details, see; Gelles (1976) and Hornung *et al.* (1981).

case; Cools and Kotsadam (2017) found that empowerment helps women against violence.

It was also reported that, victims of violence are either high-income earners (Khawaja *et al.*, 2008) or permanent employee (MacGregor *et al.*, 2016). The rational reasoning for the act of violence is that the aggressor lacks resources and must thus use to violence as a means of obtaining compliance and submission (Atkinson *et al.*, 2005). In his study, Leonardsson and San Sebastian (2017) argues that; women who justify violence are the ones who use to witness violence from the young age. The majority of academics have endorsed these conclusions (Khawaja *et al.*, 2008; Devries *et al.*, 2011; Semahegn & Mengistie, 2015). Rahman *et al.* (2012) found that; women's belief of herself as low status and economically dependent on her husband is the reason behind the supportive attitude towards wife beating. To put it another way, women who are not as resourceful and have a favorable opinion of wife beating are more likely to experience intimate partner violence. On the other hand, Johari (2017) revealed that having a short temper, drug problems, and financial difficulties are the common risk factors that lead to perpetrators. Another risk factor for the perpetrators' aggressive behavior is their personal history of abuse and violence (Gil-González *et al.*, 2008).

Evidence from Pakistan suggests that violence against women, particularly IPV, is similar to the other countries in the region. A report by Human Rights Commission of Pakistan HRCP[3] (2000), discovered that, more than 35% of hospitalized women in Punjab acknowledged to having their husbands beat them. According to the PDHS 2017–18, 34% of ever-married women have been subjected to physical, emotional, or sexual violence by their intimate partners. Emotional violence (26%) and physical violence (23%) are the two types of violence that are reported most frequently.

[3] Human Rights Commission of Pakistan (2000) '*State of human rights in 1999*'. Lahore: HRCP.

However, just 5% of women have admitted to having been sexually abused. Similar findings were reported earlier by Masood Ali (2003), which states that; the most frequent type of violence experienced by women in Pakistan is emotional/psychological violence and the least reported is physical violence. Ali *et al.* (2015) found that a considerable percentage of women (43.9% in their lifetime and 87.1% reported any sort of abuse) have suffered physical, emotional, and sexual violence using a sample of 759 women. But the number of instances of violence against women has recently increased, and it's likely that this rise is due to women's decisions to seek help. Additionally, studies have found that regular exposure to IPV is significantly linked to poor maternal and mental health outcomes, as well as a decrease in health-seeking behavior (Zakar *et al.*, 2016). In addition, due to the cultural and traditional background, women begin to accept men's dominant roles from an early age and believe they should be in subservient roles (Rahman *et al.*, 2011). The patrilocality post-marriage residence system, in which the married couple resides with the husband's extended family, also serves as a deterrent to IPV among women married into such households in South Asian countries, including Pakistan, according to a further nationally representative study by (Khalil & Mookerjee, 2019). Theoretically, the connection between women empowerment and incidence of IPV is ambiguous. The theory of expressive violence states that women empowerment is likely to decrease the incidence of IPV but theory of instrumental violence states it otherwise. Mavisakalyan and Rammohan (2021a) found in a recent study that female autonomy in the household is likely to reduce the prevalence of sexual and emotional abuse. These results are consistent with the theory of expressive violence.

2.3 Women Empowerment and Children Well-Being

The relation between children's well-being and women's empowerment is a key component of the Sustainable Development Goals. The fact that gender equality is the

sole subject of the "State of the World's Children report: excluded and invisible" demonstrates the importance of this relationship (UNICEF, 2005). It is because of this relationship that gender equality is more than just a moral imperative. Gender equality takes on the dual role of being both a fundamentally significant development objective and a useful development instrument. The fact that women are the primary care provider for their children means that they are also the first to notice indications of disease and seek treatment for them.

Based on some empirical findings, mother's education, women's decision-making ability, mother's housekeeping, and child's sex were major predictors of infant mortality in rural India (Das Gupta, 1990). Similarly, Durrant and Sathar (2000), have found that several female autonomy-related characteristics, such as availability to financial resources, the flexibility of mobility, absence of purdah restrictions, and decision-making autonomy on child-related problems, turned out to be of great relevance while determining child mortality rate in rural Punjab.

The Egypt Labour Market Panel Survey (2006) was utilized by Namoro and Roushdy (2009), to assess and evaluate the impact of parent-specific variables on children's wellbeing, including educational attainment and contributions made by the mother and father to marital expenditures. According to the findings, the qualities of mothers and dads have a distinct influence on children's schooling. Unlike the father, the mother's contribution to household expenditures has a favourable impact on children's schooling.

In Pakistan, Aslam and Kingdon (2012), explored the impact of parents' schooling and healthcare utilization on child health. father's education was turned out to be directly related only to vaccination decision but mother's education was more significantly associated with long-term health. Mothers' health-related awareness and empowerment in decision making turned out to be the channels via which her education

influenced her child's height and weight, respectively. The relationship between empowerment and children's wellbeing is an essential component of the issue of women's empowerment (Wong, 2012). In Malawi, Griffis (2012), demonstrated that traditional measures of women empowerment, such as money and education, can be quite effective in lowering child death rates.

Lépine and Strobl (2013), found a linkage between women's power to bargain and child nutrition status in Senegal. The findings suggested that women's bargaining power is a crucial indicator of children's nutrition status. Furthermore, policies aimed at increasing women's power can be very helpful in stimulating women's well-being while also generating positive externalities for children, particularly the most vulnerable. Sharma and Kader (2013), found that women's decision-making ability in domestic matters turned out to be positively associated with the infant's birth weight. Luz (2014), found similar results in rural areas of Mozambique when it came to the influence of women empowerment on child mortality rates.

Ibrahim *et al.* (2015), looked into the impact of women's empowerment on the health of children in the contexts of Nigeria and India. The investigation of women's empowerment in both regions focused on the autonomy of domestic decision-making. The welfare, development, and health status of children appeared to be highly affected by women's decision-making power regarding child health. Another study by Hossain *et al.* (2015), found out that women's empowerment, as assessed by their degree of education, freedom of mobility, and power of decision-making, had a substantial and negative influence on infant deaths in Bangladesh. Stiyaningsih and Wicaksono (2017), estimated the impact of women's empowerment on infant mortality in Indonesia. The Indonesia Demographic and Health Survey produced a total of 9754 women. The findings revealed that more empowered mothers were less likely to have infant

mortality. Islam and Hyder (2018), reached similar conclusions about how crucial it is for women to be empowered in order to reduce child mortality in a number of South Asian nations and advocated for increasing women's decision-making authority in domestic matters, particularly those that are related to health.

In order to examine the impact of women's empowerment on children's health for families with varied income levels, Khan *et al.* (2018), conducted a study based on the Pakistan Social and Living Standard Measurement survey (2011-12). The findings showed that woman empowerment increase the likelihood of child health care, regardless of the financial level of the family. Gender of the children, mother's education, female headship, prenatal care, and location turned out to be the factors that were likely to improve child health care.

De Hoop *et al.* (2018), provided a simple model to illustrate the various ways in which women's empowerment might influence children's welfare. The analysis is focused on a cluster-randomized experiment to see how children were influenced by a program that provided capital and training to mothers in Nicaragua's underprivileged rural areas. Children in recipient families are more likely to attend school one year after the intervention ends, according to the authors. The program's beneficial effect on school attendance appeared to be aided by a rise in women's power regarding family decisions.

Malapit *et al.* (2019), employed nationally representative data from the Bangladesh Integrated Household Survey (2012) to examine the nexus between spouse empowerment disparities, children's nutritional status, and education. The study used the recently articulated Women's Empowerment index to evaluate spouses' relative empowerment. Further, gender disparities in empowerment were found to be marginally linked with children's nutritional status and father’s and

mother's empowerment had varied impacts on investment in education and health of the children.

In Argentina, Echeverria *et al.* (2019), focused on child welfare in two-parent and single-parent homes. The author provided the country's first evidence of intra-household inequality and degrees of individual poverty. The findings suggested that family structure has an impact on intra-household distribution and also revealed gender biases while allocating family income towards male and female children. However, when women have more negotiating power in the allocation process then children of both genders were more likely to be better off. Heckert *et al.* (2019), investigated how the four facets of women's empowerment —purchasing decisions, healthcare decisions, family planning decisions, and spousal communication— helped the program's impact on reducing wasting and increasing haemoglobin in children aged three to twelve months at the start of the two-year nutrition-sensitive program. Improvements in women's empowerment in the areas of spousal communication, purchasing decisions, healthcare decisions, and family planning decisions—with spousal communication being the most crucial—were linked to the program's influence on waste reduction. The children's haemoglobin levels did not, however, rise as a result of women empowerment.

Similarly, Farooq *et al.* (2019), identified a link between mothers' education and child malnutrition in Pakistan. According to the study, urban women without a formal education are more likely than rural mothers to give birth to babies who are stunted and underweight. Stunted infants turned out to be more likely to be born in underprivileged rural areas as compared to the children born in urban areas having even moderate stable economic conditions. However, only urban women of low socioeconomic position had a higher risk of having underweight children than mothers of higher socioeconomic

status. Furthermore, Shafiq *et al.* (2019), examined the effects of women's empowerment on child malnutrition using cross-sectional data from the Pakistan Demographic Health Survey (PDHS) 2012–2013. The results of the study showed an inverse relationship between child malnutrition and indicators of women's empowerment, such as the mother's employment status and level of education. However, Women's liberty to visit family and friends turned out to be unrelated to Child malnutrition. Results further showed that child malnutrition was reduced as a result of better economic standing. Furthermore, an increase in family size was linked to child malnutrition positively and substantially. Additionally, BIBI *et al.* (2020), used a sample of 24,201 Pakistanis to assess women's empowerment by looking at their educational attainment, employment position, asset holdings, and decision-making ability. The findings revealed that women's empowerment had a substantial impact on infant mortality.

Kaffenberger and Pritchett (2021), examined the impact of female basic education (six years of schooling) and literacy on fertility, child survival, and empowerment using Demographic and Health Surveys (DHS) from 129 survey rounds in 54 countries. Female basic education (completing six years of schooling) is expected to lower child mortality by 21%, with literacy accounting for 36% of the improvement in child survival, 50% of the reduction in fertility, and 80% of the rise in female empowerment, based on completed years of schooling. Women are the primary caretakers for children in the family, and their intra-household dynamics have an influence on individual well-being, according to a review of prior studies. Therefore, Women's empowerment improves children's nutritional condition and access to school, leading to improved prospects for the children's welfare and development.

2.4 Cash Transfers

In low- and middle-income countries, cash transfers are employed extensively for social security programmes and the alleviation of poverty (Barrientos *et al.*, 2014; ILO, 2014; Honorati *et al.*, 2015). Unconditional cash transfer (UCT) programs adoption rates are especially high in Africa, where 40 out of 48 countries in Sub-Saharan Africa now have a UCT, more than doubling the total since 2010. Around 130 low- and middle-income countries have at least one non-contributory unconditional cash transfer (UCT) programme (including poverty-targeted transfers and old-age social pensions). Similarly, 63 countries currently have at least one conditional cash transfer program, compared to two in 1997 and 27 in 2008 (Honorati *et al.*, 2015). This expansion has been matched by an increase in the number of assessments, resulting in a larger body of knowledge about the effects of various initiatives on individual and household well-being.

Some contradicting results were observed in studies undertaken in Brazil, Honduras, Guatemala, and Uruguay. The Bolsa Alimentacao program in Brazil had no discernible impact on the initial scheduling of prenatal appointments or the overall number of visits. However, statistical power to detect effects was insufficient due to the small sample size (287 women). In Honduras, a two-year conditional cash transfer program increased the number of women receiving five or more prenatal care visits by 18 to 19 percentage points, with no effect on postnatal care visits. However, the effects of prenatal care were not evenly distributed at the outset, and statistics from government facilities contradicted this conclusion, casting doubt on it (Morris *et al.*, 2004). Moreover, the influence of cash transfer programs on women's empowerment and inclusion in decision-making processes is ambiguous in the current research (Valencia, 2008). The

program's advocates believe that providing cash transfers to women enables women to bargain with their husbands in family decision-making processes.

In Peru, Ecuador, and Bolivia, Molyneux and Thomson (2011), looked into the relationship between cash transfers, gender parity, and women empowerment. The Juntos Program in Peru, Bono de Desarrollo Humano in Ecuador, and Bono Juana Azurduy in Bolivia were investigated. The study found that conditional cash transfer programs enhance gender equity and women's empowerment. Conditional cash transfer programs gave a financial subsidy to severely poor families in exchange for their children attending school and their moms and new-born having their health checked.

Both broad poverty-targeted programs and narrowly specialized maternal health voucher programs were included in a comprehensive analysis connecting conditional cash transfers to maternal and infant health outcomes (Glassman *et al.*, 2013). It was shown that CCTs were somewhat effective at reducing obstacles to service use, such as prenatal care, skilled attendance, and facility births, as well as outcomes such as maternal tetanus toxoid immunization and low birth weight. However, neither detectable effects on fertility nor maternal or neonatal mortality was discovered by the authors. Baird *et al.* (2016), explored whether the Zomba Cash Transfer Program in Malawi aided in the short-term empowerment of teenage girls. The initiative effectively enhanced beneficiaries' access to financial resources, improved their education outcomes, reduced adolescent pregnancies and early marriages, improved their health, and overall helped beneficiaries to strengthen their household status.

Furthermore, Manley and Slavchevska (2016), examined twenty cash transfer programs, twelve of which were from Sub-Saharan Africa. Although such initiatives have improved household nutrition levels and agriculture in certain situations, yet these

have not necessarily benefited child health. A broader perspective that focused on the first 1000 days of life, on the other hand, shows greater chances of being effective. The study further added that the ability to empower young women through education and reduce adolescent pregnancy rates, in particular, can enhance the health of African children.

Finally, Amarante *et al.* (2016), used administrative data to indicate that Uruguay's Program reduced low birthweight, which they believe is due in part to mothers' better nutrition during pregnancy. The number of prenatal visits did not change, however, there was a 3.1 percent increase in delivery in public facilities and a 2.8 percent decrease in births monitored by a medical practitioner.

Particularly among indigenous mothers, the CCT in Guatemala had a favourable effect on skilled attendance and prenatal care (Díaz & Saldarriaga, 2017). Al-shami *et al.* (2018), Amanah Ikhtiar Malaysia (AIM) has had an effect on women's empowerment in Malaysia. Based on propensity score matching, the study discovered that having access to AIM small loans had a positive effect on women's monthly income. Additionally, microcredit gave women more control over their mobility, daily spending, children's schooling, health care costs, and loan order decisions. The impact of the cash transfers program offered by the Tanzania Social Action Fund (TASAF) on the empowerment of women was evaluated by Kinyondo and Magashi (2019). TASAF focused on disadvantaged families and found a big influence on women's empowerment. Singh (2019), evaluated gender discrimination in India's rural areas using data from the National Family Health Survey (NFHS) for the years 2015–2016. It also analysed the relative efficacy of the cash transfer programs currently being implemented for the welfare of the female child. Gender continues to have a substantial influence on indices of child well-being and nutrition, such as the average length of

breastfeeding and intra-household food allocation. According to the findings of the study. Cash transfer programs have no statistically sound influence on indices of child malnutrition in the state.

Another study by Bourdier (2019), identified the link between polygyny and children's nutrition, as well as how women's bargaining power may play a role. Polygyny can be related to poor weight-for-height z-scores in children under the age of five but there was no such association with height-for-age or weight-for-age z-scores, as per the results. The research also suggested that women's empowerment in agriculture affects child nutritional status and food quality differently in polygynous and monogamous families, with different aspects of empowerment having distinct effects on child nutritional status. Waqas and Awan (2019), investigated the influence of Pakistan's cash transfer program on women's empowerment. Overall, the study found that having access to a grant is the most significant component in making social protection programs effective and that women's participation in family matters has risen as a result of the grant. Furthermore, the author asserted that the family and social environment are the primary reasons for women's non-participation in such decisions. Adoption of such techniques that provide women with comprehensive access to grants can boost women's empowerment and their involvement in family choices.

According to a study by Iqbal *et al.* (2020), the BISP improved the socioeconomic well-being of the women who benefited from it. Women's mobility and voting patterns have improved as a result of it. A significant contribution has been made in the areas of socioeconomic and political empowerment, as well as women's mobility over time and over time. Armand *et al.* (2020), investigated the impact of directing cash transfers to men or women on the structure of non-durable family spending. The study investigated a policy intervention in the Republic of Macedonia that has provided social

protection to vulnerable families in exchange for the enrolment of their children in schools. The beneficiary of the transfer is selected randomly across towns, with payments going to either the child's mother or father. According to estimates, the recipient's gender has an impact on the structure of spending shares. Cash transfers to women increased the expenditures on diet by 4 to 5 percent. Further, a study revealed that families shift towards a more nutritious diet in case cash transfers were directed towards women. The findings of Rasella *et al.* (2021), for Brazil indicated that a consolidated and long-lasting conditional cash transfer program can reduce maternal mortality, with the long-term benefits being greater among poor women who received conditional cash transfers during their youth and adolescence. A long-term conditional cash transfer scheme might help to minimize health disparities and contribute to the Sustainable Development Goals.

The effectiveness of Pakistan's Benazir Income Support Programme (BISP) on child labour and school performance was investigated by (Churchill *et al.*, 2021). UCTs have a favourable and statistically significant influence on school enrolment and grade advancement, but have no effect on school dropout rates in the short term, according to the findings. The BISP policy intervention boosts grade progression for boys but not for girls. In the short term, the BISP decreases dropout rates for boys while the dropout ratio for girls witnesses a raise. In terms of child labour, the study revealed that the BISP policy intervention has no effect in the short run; however, cash transfers assisted in reducing child labour among both boys and girls in the medium to long run. However, the BISP promoted child labour among females but not boys in the short term. Thus, it can be concluded that the basic justification for cash transfers is that poverty is caused by a lack of money rather than a lack of knowledge and that underprivileged individuals are best qualified to determine what to do with the money.

They would be able to invest more in health and education, among other things, if they had more money. It is thought that social protection can substantially enhance children's well-being, particularly in the domain of nutrition and health, and therefore contribute to breaking the poverty cycle across generations.

2.5 Conclusion

Numerous research examining the effects of women's empowerment on children's health and education were included in the literature review in this area. Findings are inconsistent on whether women's empowerment always results in better maternal health care, though. Studies in Bangladesh and Nepal, for example, did not support this argument. Furthermore, there are some mixed results in terms of overall child well-being and women empowerment. Women's empowerment is identified as a key factor in child nutrition, but father employment plays an important role in child schooling. Finally, cash transfer is believed to be a key tool not only to empower women but also benefits household welfare. However, the majority of the studies found have mainly concentrated on conditional cash transfers rather than unconditional cash transfers. However, it remains unclear how women's empowerment affects maternal health outcomes, children's health, and schooling in the presence of cash transfers.

The theoretical framework for the study is presented in the next chapter. The theoretical model and conceptual framework are thoroughly discussed. The conceptual framework will be covered in the first part of the chapter, and the existing model of intra-household decisions will be developed in the second part. The chapter will also discuss about how the current model can be extended to incorporate cash transfers.

CHAPTER 3

THEORETICAL FRAMEWORK

The theoretical framework and model employed in the study were explained in this chapter. The chapter is divided into two parts: 1) the theoretical framework and 2) the model. The first section outlines the theoretical foundation for women's empowerment, women's health care utilization, intimate partner violence, children's health, and education. The model of the study, which is based on current literature and empirical research, will then be discussed in the second section.

3.1 Conceptual framework

The conceptual and theoretical framework of the study has been covered in this section of the study. This section includes the conceptual framework for women's empowerment, maternal health utilization services, intimate partner violence, children care, and cash transfers.

3.1.1 Women Empowerment

Two approaches, focusing on women's empowerment and development, have evolved in the present discussion about gender equity approaches. Women's Role in Economic Development, a pioneering study by Easter Boserup (1970), set the stage for the creation of a women's development perspective (Dickler, 1971). As a result, the 1990s saw the growth of a women's empowerment stance, which gained popularity at the Beijing Conference. Many academics have explored it as a source of human potential, particularly for women's empowerment. At first, Caroline Moser (1993), discussed it as a power redistribution (Jain, 1995). However, the term 'empowerment' is frequently used but rarely defined as a concept. The definition of the concept as it has been used

by writers and researchers in different contexts should be reviewed in the study in order to obtain a strong sense of empowerment.

Dismantling harmful social constructs is an essential component of empowerment so that people see themselves as capable of taking action and having a say in their decisions (Rowlands, 1998). (Rowlands, 1998). According to Kabeer (1999), this results in a shift of the balance of power between men and women, with women having more influence over their personal lives. Furthermore, Kabeer (1994), believes that "self-esteem and a sense of being an active agent" are the underlying principles of empowerment, and she elaborates on this by noting that "empowerment should be considered a component of recognizing oneself as an active agent capable of making decisions." Young (1993) asserts that empowerment enables women to take charge of their own lives, set their own goals, unite together to support one another, and make demands of the government for support and of society at large for change.

Scholars have analyzed empowerment via a gender lens and established it as a criterion for measuring women's development after it has been discovered. Though it's difficult to draw a clear distinction between progress and empowerment. It was also discovered in Chen and Mahmud (1995), clarification when they defined empowerment as women's progression. According to Chen and Mahmud (1995), empowerment is a positive transformation process that improves women's bargaining strength and fallback position within patriarchal structures and identifies a variety of causal channels of change, including material, cognitive, perceptual, and relational.

In short, empowerment is a procedure that results in greater participation, decision-making control and authority and transformative action by expanding understanding and growing capacity. Furthermore, empowering women is both an individual and a

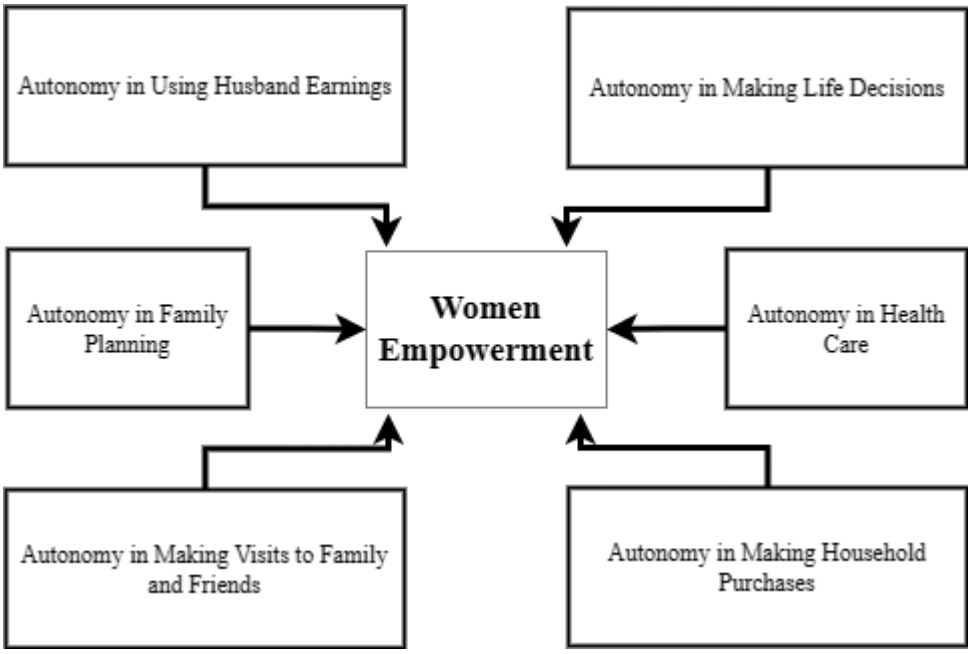
community process. People as groups are sometimes involved, and they begin to develop their consciousness and ability to organize to act and effect change.

According to the United Nations, "being empowered" increases a person's capacity for change. According to Kabeer (2001), the concept of women's empowerment is rooted in three basic dimensions: resources (pre-conditions), agency (process), and achievements (outcomes) (Cornwall, 2016). Malhotra and Schuler (2005) however, simply highlight the process and agency as two crucial components of women's empowerment. Malhotra and Schuler (2005) also advocated for separating the measurement of women's empowerment at the individual, community, and national levels. The ability to control one's destiny and be independent is the basic idea of women's empowerment, which is a human trait and a multidimensional phenomenon (Haque *et al.*, 2011). Theoretical and empirical literature use different definitions, and the assessment of women's empowerment depends only on the definition used in a particular study (Taylor & Pereznieto, 2014; Hossain *et al.*, 2019)[4].

Numerous socioeconomic and sociodemographic aspects have been identified in the literature as influencing the extent of women's empowerment. These include the educational background a woman holds, her job's nature or status, her age, her household's income, her level of religiosity, her dowry, the ownership of property, her political participation, her husband's support & his education (Akram, 2018). Since the beginning of the 21st century, Demographic Health and Survey (DHS) have been collecting data across the world (Habibov *et al.*, 2017). The research based on DHS data set covered three key aspects of women's empowerment: men's influence over women, women's acceptance of gender roles and norms, and women's participation in

[4] Based on an analysis of 70 empowerment evaluations, Taylor and Pereznieto (2014) define empowerment as a process in which women and girls experience changes in power, agency, and economic advancement.

household decisions (Kishor & Subaiya, 2008). The evidence of women's empowerment in a household setting can be explained by these three dimensions. Women's education, age, location, wages, relative age difference, and relative earning difference are the main resource factors or predictor variables (Habibov *et al.*, 2017).



Source: Author's Illustration

Figure 3.1: Flow Chart for Women Empowerment

The concept of women's empowerment is multidimensional, diverse, and contextual. Due to the sociocultural variances between countries, what is appropriate in one country may not be appropriate in another (Thandar *et al.*, 2019). Therefore, it becomes important to take into account the various viewpoints on women's empowerment. In a recent study, Akram (2018) measured women's empowerment in Pakistan along four aspects found in the PDHS (2012–2013): autonomy in health care, which he termed "empowerment in health," visiting family and friends, which he termed "empowerment in the social contract," household purchases, which he termed "empowerment in household decision making," and use of husband's income, which he termed "empowerment in financial decision making". By introducing two additional aspects of

women's empowerment, such as empowerment in family planning and empowerment in making life decisions, the study has redefined women's empowerment in six dimensions. These two crucial factors will make the women's empowerment measure even stronger.

Figure 3.1 is an attempt to show that; these six dimensions can be translated to define women empowerment in this study. The study proposed that an empowered woman enjoys autonomy in health care, make visits to her friends and family easily, can able to decide about her important life decisions (marriage), can decide about the number of children (family planning), able to influence the household purchase decisions and, she has a hold on her husband earnings to make financial decisions as well.

3.1.2 Health Services Utilization

This study proposed that understanding how to use maternity health services requires women's empowerment (Pratley, 2016; Nieuwenhuijze & Leahy-Warren, 2019)[5]. The idea that empowerment is "a process of change" or "the procedures by which those who have been denied the ability to make choices gain that ability," as defined by Kabeer (1999), suggests that the social, political, and economic options available to women must be improved as part of the empowering process. The process may require men to deliberately share some of their power over women, which in turn benefits both men and women and ultimately benefits society (Ehrhardt *et al.*, 2009). Maternal health indicators include the ability to choose when to marry when to have children, and how many pregnancies and births to have (Upadhyay *et al.*, 2014; Pratley, 2016). The study

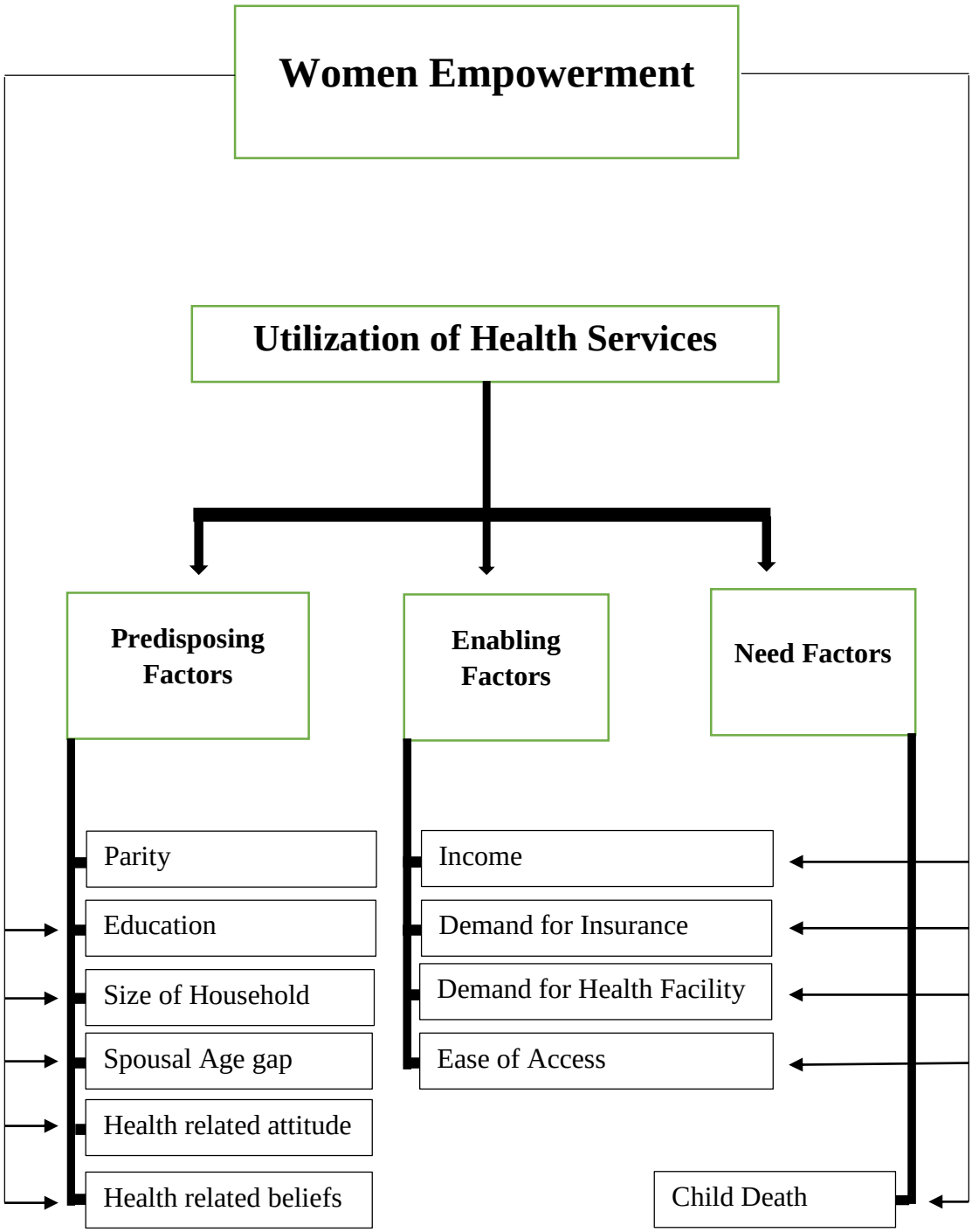
[5] A systematic evaluation of 67 papers by Pratley (2016) found that, in developing economies, women's empowerment is typically associated with favorable outcomes for maternal health.

hypothesized that when women gain more authority, they will use more prenatal, delivery, and postnatal care services.

The study has utilized the behavioral model of health service utilization, initially proposed by (Andersen, 1968). Fellow researcher of Andersen and Newman (1973), Aday and Andersen (1974), and Aday et al. (1980) later refined the model, and it is still utilised by many researchers today[6]. Three distinct characteristics—predisposing, enabling, and need factors—make up the model's foundation. Each of the above-mentioned features displays different family characteristics while using health services. Predisposing factors – demographic factors, parity, and health-related attitude – reflect the fact that different families approach health services differently. While enabling factor – income and ease of access to a health facility – highlights the role of resources a family must assess to make use of health services (Andersen & Newman, 1973; Stein *et al.,* 2007). The most immediate cause is the need factor which initiates families to use health services. The perceived health status of mothers can be the push factor to seek health services. For a mother, predisposing and enabling factors may not be sufficient to pursue health services if she did not think of a particular health issue as damaging her health.

The two conceptual frameworks of women's empowerment and the behavioral model for health care use were used in the study to determine the association between women's empowerment and their use of health services after controlling for other variables. The proposed relationship between women's empowerment and the usage of health services is illustrated in Figure 3.2.

[6] Several recent research, including those by Ntoimo et al. (2020); Rashid and Antai (2014); Pandey et al. (2012); Surood and Lai (2009); and Chowdhury et al. (2009), have used the theoretical health care model proposed by Andersen and Newman (1973).



Source: Author's Illustration

Figure 3.2: Flow Chart for Health Care Model and Women Empowerment

Figure above shows how empowering women can affect need, enabling, and predisposing factors to increase the use of maternal health services during three important phases i.e., prenatal, delivery, and postnatal respectively. It is important to mention here that the study incorporates only those factors from predisposing, enabling,

and need factors; which are most probably affected by women empowerment. So that the desired link can be established to carry out the analysis.

3.1.3 Intimate Partner Violence

Launching a global campaign on violence against women in 2008, UN Secretary General Ban Ki-Moon in his speech, states that; “there is one universal truth, applicable to all countries, cultures and communities: violence against women is never acceptable, never excusable, never tolerable.” According to World Health (2012), Physical aggression is described as, "slapping, kicking, hitting, and beating". On the other hand, sexual violence is defined as, “forced sexual intercourse and other forms of sexual coercion”. While, psychological abuse is defined as, “insult, belittling, constant humiliation, threats of harms, and threat of take away children. Approximately one in four women in relationships between the ages of 15 and 49 have experienced physical or sexual abuse by a partner, according to global estimates of violence against women. 20% of the Western Pacific, 22% of Europe and high-income countries, 25% of America's WHO territories, 31% of the Eastern Mediterranean, and 33% of Africa & South East Asia WHO regions are affected by intimate partner violence (World Health, 2013). Report also tells us that, the act of violence affects the physical, mental and economic well-being of the victim, and repeated exposure to physical violence will traumatize them in the long run. The annual health care costs for victims of intimate partner violence were found to be 19% higher than those for non-victimized women in a survey of more than 3000 women in the United States. Hence, intimate partner violence puts a high cost to the society as a whole as well (Fry *et al.*, 2012; García-Moreno *et al.*, 2013).

The world's most severe gender inequality is found in South Asia. In a ranking of 15 locations around the world, South Asia has the highest rates of domestic violence

(Jejeebhoy *et al.*, 2013). The high rates of IPV can be better understood in light of the South Asian geography's historical backdrop. Researchers claim that the formation of structural hierarchies and the collapse of the culture were consequences of colonialism. Given that several nations have invaded this region since it was first inhabited in 2500 BC. As a result, the historical context is more important in this context. Scholars have asserted, for instance, that more than 200 years of British control and 500 years of Mughal rule combined to create a severe drop in women's freedom and literacy rates, which went from 90% in 1847 to 12% in 1947 (Ahmad *et al.*, 2009). Solotaroff and Pande (2014) estimates of IPV revealed that South Asia had the greatest regional prevalence of IPV (43%), compared to all other areas in the world. According to Solotaroff and Pande (2014) analysis of the top 15 nations with the greatest levels of IPV worldwide; Bangladesh comes in second place, only behind the Republic of Congo, Pakistan and Nepal are ranked 11th and 14th, respectively, while India comes in at seventh on the list.

The Pakistani society's strong patriarchy provides as a theoretical foundation for investigating IPV. Both men and women have different values. Women are expected to marry, have children, care for the home, and nurture their offspring while men are largely expected to work, earn money, and support their families. Patriarchy, together with the unequal power, social norms, rights, and obligations that go along with it, provides the basis for gender disparity in Pakistani society. In this environment, males construct and embody masculinities that express their identities, aspirations, and ideals in their social relationships with women.

Domestic abuse has a huge financial impact on the world's health care system. Domestic violence puts women at risk for adverse health outcomes including physical damage, mental health problems, sexually transmitted diseases like HIV&AIDS, and unwanted

pregnancies globally, according to the World Health Organization (WHO). Additionally, these negative health effects are made worse by the ongoing cultural pressure that many societies place on women & keep putting up with domestic abuse (Potter *et al.*, 2021).

3.1.4 Child Care

Literature demonstrates the strong correlation between women's empowerment and spending money on the health and education of children (M. R. Shroff *et al.*, 2009; Bhagowalia *et al.*, 2012; Cunningham *et al.*, 2015). Father's and mother's empowerment affects children well-being differently i.e., father's empowerment is associated with younger children's nutrition and schooling; however, mother's empowerment is crucial for girl's education and older boys and girls (Malapit & Quisumbing, 2015; Malapit *et al.*, 2019). Studies also provide evidence in favor that; women owning assets and more control over income tend to allocate resources that benefit children as well as themselves e.g., food and health (Rubalcava *et al.*, 2009; LaFave & Thomas, 2017). Based on these results, the study propose that women's empowerment is an important factor in lifting the overall wellbeing of children, especially investment in health and education.

3.1.4.1 Children Health

Undernutrition among children at the early stages of life is the main factor behind child mortality around the world. Children's nutritional status is the most fundamental outcome in human development. Stunting, wasting and underweight are the short, middle, and long-term adverse effects of nutrition among children under five years of age (Assaf & Pullum, 2018). Low nutritional status at early stages (before 2 years) of children's life are considered permanent (Shafiq *et al.*, 2019). These nutritional effects can cause reduced cognitive development and faltering growth, which will restrict the

future economic potential among malnourished children. The consequences of inadequate nutrition begin in the womb and last for generations. The WHO set goals to reduce the number of stunted children by 40% and keep childhood wasting at less than 5% by 2025 (McGuire, 2015). These goals have been highlighted by the second Sustainable Development Goal (Nations, 2016).

Investment in children's health is the most fundamental decision made by parents (Khan *et al.*, 2018). A healthy child will show better school enrolment in the future and other achievements in life, while poor health will affect his/her ability to learn adversely. Developing countries face a serious threat of health issues related to children. Estimates reveal that globally 19.4 million children did not receive any immunization at all and 60% of them live in 10 countries including Pakistan (Peck *et al.*, 2019). Despite the hard work and awareness at the national level, polio cases still exist in Pakistan (Bhutta, 2014).

The relationship between a mother's characteristics and child health remained a topic of interest among most of the researchers. Regardless of wealth and income, children are better-off in female-headed households (Allendorf, 2007; Kumar & Ram, 2013; De Hoop *et al.*, 2019). Increased number of schooling years for mother shows a direct positive impact on children health as compare to an increased number of schooling years of the father (Khan & Aslam, 2017). Women's education affects child mortality both directly and indirectly, i.e., through gender equality and women empowerment (Alemayehu *et al.*, 2015). The decision power of women is positively associated with children's health (M. Shroff *et al.*, 2009; Bhagowalia *et al.*, 2012). Empirical findings from 36 studies suggest that better child care came up along with the increased status of women i.e., women with higher status provide a high quality of health services to their children. However, among developing countries, South Asian children face a high

level of malnutrition due to some socioeconomic factors; women's status is one of them (Smith *et al.*, 2005).

Study proposes that; women are primary caregivers for children, hence, investment in children's health care heavily depends on intra-household decisions and allocations, which further depends on relative bargaining power between men and women in a household setting. Household where women play a vital role in decision making, the resource share for child care remains high and vice-versa.

3.1.4.2 Child Education

The most essential means for improving a country's human capital is education, and the cornerstone for the growth of a skilled labor force is early childhood education. Childhood education affects a person's ability to achieve and enjoy themselves as well as the quality of the work force and their capacity for invention, which determines a country's potential for progress (Heckman, 2011). Education is the basic right of every individual and it plays an important role in achieving lifelong goals. In a household setting the most important decision is to get an education for the children along with other decisions. Children are more likely to attend school from families where women influence household decisions (De Hoop *et al.*, 2018). Empowered and educated mothers are more likely to keep their children in school (Malapit *et al.*, 2019). Children's educational attainment is also considered a significant tool to break the vicious cycle of poverty (Grantham-McGregor *et al.*, 2007).

Strengthening women's economic capacity is not only crucial for achieving gender equality and elevating poverty but it also remains vital in children's wellbeing (World-Bank, 2011). The rationale for improving women's economic capacity is to increase their access to financial resources and refining their role in intra-household decision

making (Dunbar *et al.*, 2013; De Hoop *et al.*, 2018). Household investment in children's education shows an increase if the bargaining power of women increases (Reggio, 2011; Cunningham *et al.*, 2015). It was found that narrowing the gender gap through women empowerment is likely to increase education for girls and boys. Better educated mothers choose a better educational plan for their children as compared to mothers with less education or no education at all (Malapit *et al.*, 2019). In Pakistan, women empowerment, or women higher status, positively affect the investment in children (Durrant & Sathar, 2000). Another study claims that both parents may not always have the same preferences towards sons or daughters. However, the outcomes of children, particularly child schooling, are favorably correlated with women's control over family resources and decision-making (Namoro & Roushdy, 2009). It's essential to address gender gaps in educational attainment and access to education, according to the UN Sustainable Development Report (Nations, 2016). Paul Schultz (2002) noted that education for girls and women is vital for promoting growth and development; nevertheless, Nussbaum (2004) contends that education for girls and women is essential for the advancement of their creative potential. Gender differences in education are usually more pronounced at the secondary level than at the primary level in poor countries.

Numerous studies have shown that women's access to and control over household resources is essential for ensuring the welfare of children (Thomas *et al.*, 1990; Hoddinott & Haddad, 1995; Smith *et al.*, 2005; C. Doss, 2013). Another growing body of empirics highlights that child-raising is a women domain in parenting, and investment in early childhood brings brighter results in the later period of their life (Lavy & Schlosser, 2011; Macours *et al.*, 2013; Blimpo *et al.*, 2016). Das and Dutta (2016), found that women empowerment is directly associated with children's

educational attainment in India. Education is one of the fundamental rights and should be available to all (Ifijeh & Odaro, 2011). Children being dependent solely on their parents, their educational attainment heavily depends on the decisions made by both fathers and mothers. Keeping in view the above-stated discussion, study propose that; women's empowerment plays a significant part in early childhood education.

3.1.5 Impact of Cash Transfer

Cash transfer programs are designed to reduce poverty and improve the living standards of the vulnerable group (poor households) of society. The main objective of these programs is to make beneficiaries capable of sustaining improved living standards. Policy interventions through demand-side financing such as cash transfers have become popular in recent times (Glassman *et al.*, 2013). Cash transfer schemes are justified economically by the fact that they effectively tackle market failure and target the neediest populations (Fiszbein *et al.*, 2009). Targeting women in cash transfer programs is not expecting to make it gender-sensitive but it is intended to achieve the overall goals of the program (C. R. Doss, 2013).

Studies showed health improvements associated with cash transfers as well. Cash transfer when directed to women rather than man tends to improve the use of preventive health facilities. The overall impact is somehow small but statistically significant in some of the cases (Behrman & Parker, 2013). Improvements in child health care are also found significant (Fernald *et al.*, 2008; Behrman & Parker, 2013; Buser *et al.*, 2014).

In developing nations, the effects of cash transfers have shown that putting money in women's hands can substantially raise the budget share spent on children's clothing Attanasio and Lechene (2010), enhance children's health and education Rubalcava *et al.* (2009), and boost child development Macours *et al.* (2013). Cash transfer appears

to have a strong positive effect on child health and education if cash transfers are directed towards women (Duflo, 2003; Yoong *et al.*, 2012; Benhassine *et al.*, 2015; De Hoop *et al.*, 2018). A sizeable cash transfer to mothers is believed to increase the resource share controlled by mothers which in turn increases the share of food expenditure (Armand *et al.*, 2020). Reducing poverty among children can be attained if cash transfers are targeted towards women (Echeverria *et al.*, 2019).

The Benazir Income Support Program (BISP) is one of the major Unconditional Cash Transfer (UCCT) initiatives currently in operation in the country. The program covers all the four provinces of Pakistan as well as the federal administrated areas including Azad Jammu & Kashmir. BISP was initiated in 2008 and along with the economic development of the poor household, it seeks to empower women by directing cash transfers to women. Directing cash towards women not only empower women in the sense that she had control over income but also makes her financially literate and inclusive through electronic means of cash transfer being used by BISP. Following a recent study by Ambler and De Brauw (2017), the study utilizes the data of BISP and found that cash transfers show a substantial and positive impact on women's empowerment.

In order to determine how women's empowerment affects household wellbeing in the presence of cash transfers, the study formulates the collective model. The rational basis for this formulation is that if cash transfers assist in achieving the desired results in the case of women's empowerment, their significance must be observable in the context of household welfare, such as improved maternal health, decreased IPV, improved children's health, and improved children's education, respectively.

3.2 Model

Traditional consumption models presume that the household functions as a single unit. A budget constraint and a single utility function are maximized within the household as a single decision unit (Samuelson, 1956; Becker, 1974; Becker *et al.*, 1991). The unitary approach is the term coined to such models by Alderman *et al.* (1995)[7]. According to the unitary household model, each member is supposed to be at the same degree of well-being and resources are distributed among them equally according to their needs. As a result, the construction process does not include resource allocation processes. However, there is unanimity that choices should be represented at the individual level and that interactions within households should be considered when examining decision behaviors (Chiappori, 1992b; Chiappori, 1997; Chiuri, 2000; Vermeulen, 2002).

The extension of the unitary framework was done by (Chiappori, 1988; Chiappori & Bourguignon, 1992). He provided a theoretical household model called the collective model that recognizes the existence of several decision-making units with potentially different preferences within the family. In this system, a household is defined as a collection of people, each with a certain objective function, that interact to make decisions at the household level. Since individual utility functions are well-behaved and budget sets are convex, it is impossible to make a decision that will improve the welfare of one member without improving the welfare of the other members. According to Pareto-efficiency, the consumption equilibrium will be on the family's Pareto frontier[8]. This presumption is supported by the fact that efficient allocations are more likely to

[7] These models are often known as "benevolent dictator" models or "common preferences" models in literature.

[8] Most recent work by Donni and Molina (2018) have discussed the theoretical and empirical advancements of the model. In the study they have mentioned that hypothesis of pareto efficiency is theoretically justified. They added that it can be challenged, but remains the bench mark hypothesis of the model.

occur in situations where individuals may make legally binding agreements and have full knowledge, such as in a utility-maximizing household.

The core of collective models is the sharing rule, which is a function that describes interactions between household members and the decision-making procedure for intra-household resource distribution. The sharing rule is based on exogenous characteristics that influence family members' bargaining power in allocation decisions but not individual preferences. In the literature, these variables are referred to as *distribution factors*. Browning *et al.* (1994), used expenditure data to incorporate Chiappori (1992b); Chiappori and Bourguignon (1992) *collective* model in a consumption framework, allowing for individual-level welfare comparisons rather than household-level comparisons. Bourguignon (1999), first demonstrated how to derive the sharing rule between parents and children by assuming that children have bargaining power. These models' main problem is that they were designed in a way that prevents them from taking into account intertemporal aspects of household behavior.

The main motivation of this study is to analyze the women's role in household decisions and this can be captured using the collective model[9]. Sharing rule of the collective model allows us to carry out the investigation in this progression.

3.2.1 Collective Model

Following the structural approach put forward by Chavas *et al.* (2018) and Echeverria *et al.* (2019), the study reconstruct the sharing rule that controls the intra-household distribution of consumption expenditures among household members. Study continue by defining two working-age individuals' husband (H) and wife (W) in the household.

[9] Collective models are being used by many researchers till date. In-fact, collective model is the most famous model used when intra-household settings are framed. Some important mentions are: Bargain *et al.* (2014); Browning *et al.* (2014); Bertocchi *et al.* (2014) and Chavas *et al.* (2018).
For further details please see: Donni and Molina (2018).

Contrary to the unitary approach, both the members have their own set of rational preferences. Preferences are defined in such a way that; they count for each other's consumption and leisure. Both members purchase "m" non-assignable private goods i.e., $C = (C_1, C_2, \dots\dots, C_m)$ and "n" assignable private goods $C^j = (C_1^j, C_2^j, \dots\dots, C_n^j)$[10]. Assignable goods are those private goods that represent the specific consumption bundle of each household member i.e., husband and wife in this case. While non-assignable goods are those whose consumption can be observed at the household level[11].

The connected price vectors for assignable and non-assignable goods are $P_C^j = (P_{C1}^j, P_{C2}^j, \dots\dots, P_{Cn}^j)$ and $P_C = (P_{C1}, P_{C2}, \dots\dots, P_{Cm})$, respectively. A set of demographic characteristics captures the observed heterogeneity $D = (d_H, d_W, d_h)$ comprising the vector $D_j = (d_{j1}, d_{j2}, \dots\dots, d_{jR})$ specified for each member "j" with "R" elements and vector of household features common among the family members $D_K = (d_{h1}, d_{h2}, \dots\dots, d_{hK})$ with "K" elements. Finally, the family faces a liner and convex budget constraint.

Chiappori (1988); Chiappori (1992a) and Browning and Chiappori (1998), provided a solution to this problem in the form of a collective household model that is formally comparable to the family income sharing model, where decisions are taken in two stages. In stage one, the household decisions about the division of total household income, Y, between "j" members say $\emptyset_j$ of the total resources. hence the sum of these individual resources is equal to the total household expenditures, $Y = \emptyset_H + \emptyset_W$,

[10] Superscript j= H & W; represents separate set of private goods for husband and wife.
[11] When a private product, such as food, is consumed without competition in undetected proportions by some or all members of a household, it is referred to as a non-assignable good. An assignable good, on the other hand, is one in which a private product is consumed by some identified member of a household and its price differs from the price of other goods used by households, such as each member's clothing.

where $\emptyset_j$ represents the shadow individual income of both household members[12]. In stage two, both members will choose their consumption bundle to maximize their utility function given the budget constraint.

Chiappori (1988), assumed that the optimal behavior of households in the collective model shows that the results of this model will be Pareto efficient. The only need for Pareto efficiency is that each person's consumption bundles be selected in a way that prevents an increase in either household member's wellbeing without a consequent reduction in the welfare of the other members. The following is the Pareto optimum allocation of consumption bundles;

$$\max_{C,C^j} U^W(\ C, C^j, d_H, d_W, d_h) \tag{3.1}$$

Subject to

$$U^H = \left(C, C^j, d_H, d_W, d_h\right) \geq \overline{U^H} \tag{3.2}$$

$$P_C C + P_C^j C^j \leq \emptyset_H + \emptyset_W = Y \tag{3.3}$$

The Pareto efficient constraint is the first, where $\overline{U^H}$ is some fixed amount of the husband's utility. As a result, the well-being of the wife is maximized, subject to some pre-existing level of welfare linked with her husband and the entire household budget. By varying $\overline{U^H}$ all the Pareto efficient outcomes can be tracked. The utility possibility set, which represents all achievable points, is strictly convex if both members' utility functions are strongly concave and the household budget restriction is convex. As a result, with some positive welfare for both family members, it is possible to locate all

[12] It must be greater than zero in a consumption model since it denotes a spending.

the Pareto efficient allocations as stationary points of a linear welfare social function (Vermeulen, 2002; Silvennoinen, 2008).

A collective model framework's solution of the consumption allocation problem is the following:

$$\underset{C,C^j}{\text{Max}}\ \omega = \vartheta u^W\left(C, C^j, d_H, d_W, d_h\right) \tag{3.4}$$

$$+ (1 - \vartheta)u^H\left(C, C^j, d_H, d_W, d_h\right)$$

Subject to

$$P_C C + P_C^j C^j \leq \emptyset_H + \emptyset_W = Y \tag{3.5}$$

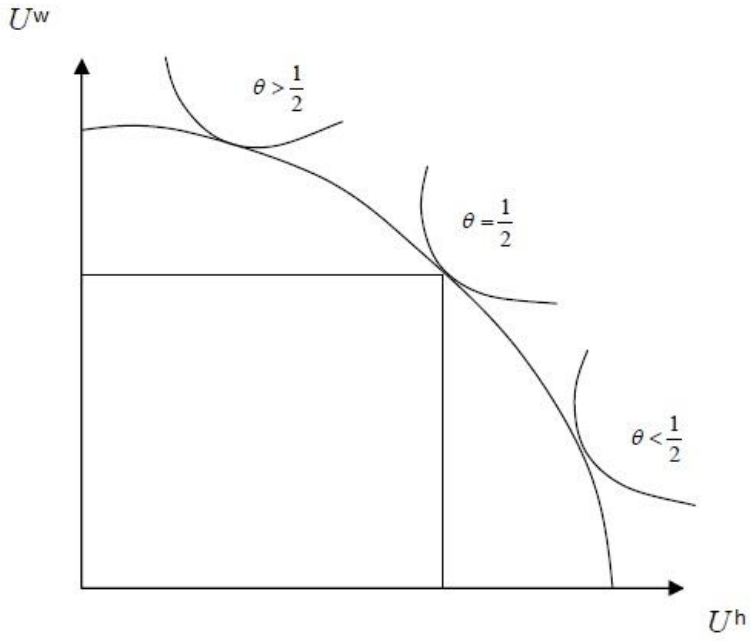


Figure 3.3: Initial Utility Possibility Set

In figure 3.3, it can be observed that household consumption allocation points on the utility possibility set. The allocation of the consumption bundle depends on ϑ. Where ϑ is the weight specified for wife's preferences in the optimization process of total household utility. The Pareto frontier specified for each household utility function is

the household budget restriction. On this Pareto frontier, outcomes of the household utility maximizing process will be located. The final location of the utility maximization point depends on the welfare weight ϑ[13]. Welfare weights generally depend on income "Y" and prices "P", i.e., $\vartheta(P_C, P_C^j, Y)$. The welfare weight of wife $\vartheta(P_C, P_C^j, Y)$ is bounded between zero and one, which gives us insight into her influence in the household demand decisions. For the extreme values, when $\vartheta = 1$, the household utility can be expressed as $\omega = u^W$; describing a female dictator household. When $\vartheta = 0$, the household utility can be expressed as $\omega = u^H$; suggesting a male dictator household. Any intermediate values of ϑ will ensure us that there is some bargaining power associated with each of the household members.

Finally, the Marshallian demand functions derived from the above-stated maximization problem are as follows;

$$\widehat{C^j} = c^j\left[P_C, P_C^j, Y, \vartheta\left(P_C, P_C^j, Y\right), D\right] \tag{3.6}$$

For j= H & W

The optimal consumption of assignable and non-assignable goods is determined at the household level as a function of the sharing rule, relative decision power, prices, and demographic factors. The aforementioned finding indicates that, in in addition to the standard income and substitution effects, there is now an effect brought on by the change in household decision-making power that will also affect the welfare status of the household when ϑ and $(1 - \vartheta)$ changes.

In the above model setting, it is shown that household welfare is affected by the decision-making ability of members of the household i.e., ϑ. The study termed this

[13] It can be observed on Figure 3.1 on page 37

decision-making power as women empowerment. Hence, it can be said that increase in women's empowerment will be translated into increased welfare of the household especially children (Echeverria *et al.*, 2019). Women empowerment due to increased decision-making power and control over household resources will eventually increase the overall household welfare. Empirical evidence suggests that; in developing countries when a mother's share of income increases, she spent more on child food and health (Thomas *et al.*, 1990; Hoddinott & Haddad, 1995).

3.2.2 Extension of the model

The model stated in the previous section explains the household decisions when each member[14] is given some bargaining power to maximize their utility and overall household welfare. In this section, the study will reshape the budget constraint by introducing a cash transfer directly into household resources. Cash transfers are a lump-sum payment made to eligible households to lift their overall welfare status. The new budget constraint, which incorporates the cash transfer, will likely increase the resource share of household members i.e., $\emptyset_j$. Increased resource sharing among household members will consequently affect the household's ability to make decisions, which will be essential for improving the welfare status of the household as a whole.

In the case under consideration, cash transfers are made in such a way that; it increases the resource share of the wife in the household, therefore, increases her bargaining power to maximize her utility level (Schady & Rosero, 2008; Attanasio & Lechene, 2010; Armand *et al.*, 2020). Study redefined the household resource share by adding a cash transfer element in it i.e., γ. The addition of cash transfers will likely change the

[14] Husband and wife in this case

overall resource equation of the household. Therefore, the new resource equation will be as follows;

$$Y^{\circ} = \emptyset_H + \emptyset_W + \gamma = \emptyset_H + \emptyset_W^{\circ} \tag{3.7}$$

Where Y° represents the new level of resources now available to households after the cash transfer is made and $\emptyset_W^{\circ}$ represents the increment in wife resources after cash transfer. Above equation i.e., $\emptyset_W^{\circ}$ indicates that cash transfers are directed towards the wife, therefore, now the wife will be having more bargaining power (decision-making power) to maximize her utility. In the previous section, the study has defined ϑ as the decision power of the wife, and with the inclusion of γ, now, the wife will likely have more decision power. Also, the decision power of the wife will now depend on the cash transfer element as well and will have the following relationship to define ϑ;

$$\vartheta(P_C, P_C^j, Y^{\circ}, \gamma) \tag{3.8}$$

The addition of cash transfer in the model will redefine the maximization problem as follows;

$$\underset{C,C^j}{\text{Max}}\ \omega = \vartheta u^W\left(C, C^j, d_H, d_W, d_h\right) \tag{3.9}$$

$$+ (1 - \vartheta)u^H\left(C, C^j, d_H, d_W, d_h\right)$$

Subject to the new constraint

$$P_C C + P_C^j C^j \leq \emptyset_H + \emptyset_W + \gamma = \emptyset_H + \emptyset_W^{\circ} = Y^{\circ} \tag{3.10}$$

The inclusion of γ into the maximization setting will allow the model to analyze household welfare in the presence of cash transfers. Therefore, the result of the maximization problem will behave a little bit differently as compared to the one stated in the previous section. The solution to this maximization problem will yield the Marshallian demand functions of husband and wife. The demand function of the

husband will remain unchanged however, the wife's demand function will be as follows;

$$\widehat{C^W} = c^W\left[P_C, P_C^W, Y^\circ, \vartheta\left(P_C, P_C^j, Y^\circ, \gamma\right), D\right] \tag{3.11}$$

The Marshallian demand function for wife now contains the cash transfer element i.e., γ, this γ will now help her to lift her welfare status as compared to one discussed in the previous section. The positive impact of this cash transfer can be shown with the help of the following results i.e., $\frac{\partial \widehat{C^W}}{\partial \gamma} > 0$.

The welfare gain, in this case, is presented in figure 3.4.

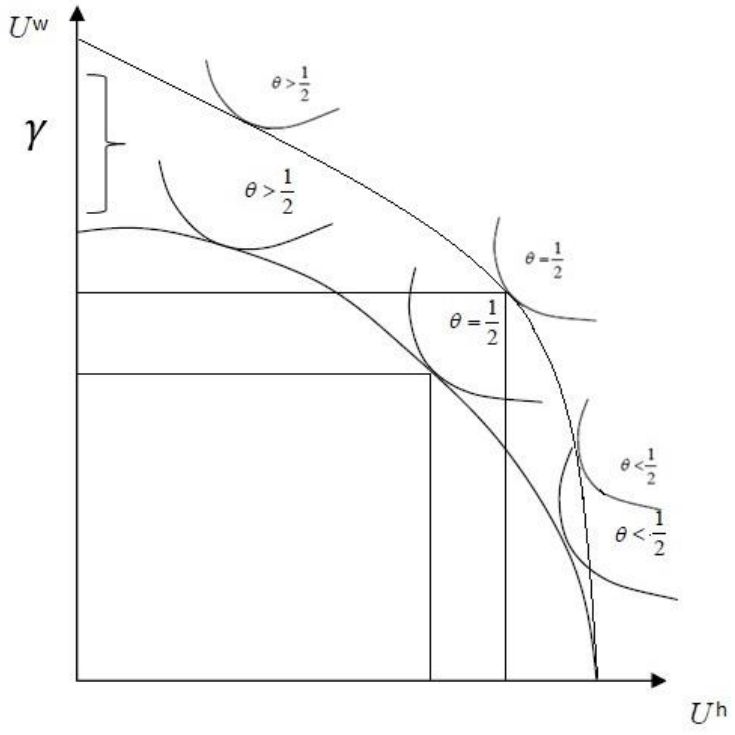


Figure 3.4: New Utility Possibility Set

The gain in the welfare of women through cash transfers can be observed from the figure (3.4) presented above. The addition of cash transfers in women's shares shifts the

utility possibility set in such a way there is a gain in welfare at each level of utility possibility set. However, the more shift toward women indicates the fact that if women control and manage their share in the budget, they will be on a higher level of satisfaction. The difference between the old and new utility possibility sets is a result of the cash transfers, which are indicated in the figure 3.4.

This chapter comprehensively discusses the study's conceptual framework, as well as the core collective model and model extension. The following chapter will discuss the study's data and methodology.

CHAPTER 4

DATA AND METHODOLOGY

This chapter has covered the model's econometric specification, data and its sources, and variable construction. The chapter is divided into three parts. The first section discusses the model's econometric specification as well as an econometric approach used in the estimation process. The data set and its sources were discussed in the second section. The final section discusses variable description and construction.

4.1 Econometric specification of the model

The final equations (3.6 and 3.11) of the model presented in the previous section explain the following relationship.

$$\widehat{C^J} = c^j\left[P_C, P_C^j, Y, \vartheta\left(P_C, P_C^j, Y\right), D\right]$$

$$\widehat{C^W} = c^W\left[P_C, P_C^W, Y^\circ, \vartheta\left(P_C, P_C^j, Y^\circ, \gamma\right), D\right]$$

In the model $\widehat{C^J}$ is a set of variables such as demand for health (maternal health and child health respectively), demand for education, and demand for no violence respectively.

Equations 3.6 and 3.11 were utilized in the study to determine the relationships between a set of dependent and independent variables. Equations 4.1, 4.2, 4.3, and 4.4 are based on the relationship defined in equation 3.6, and equations 4.5, 4.6, 4.7, and 4.8 represent the relationship defined in equation 3.11.

$$MH_i = \alpha_1 + \alpha_2\vartheta_i + \alpha_3 X_i + \mu_i \quad \textbf{4.1}$$

$$CH_i = \beta_1 + \beta_2\vartheta_i + \beta_3 Y_i + \mu_i \quad \textbf{4.2}$$

$$CS_i = \tau_1 + \tau_2\vartheta_i + \tau_3 Z_i + \mu_i \quad \textbf{4.3}$$

$$IPV_i = \Omega_1 + \Omega_2\vartheta_i + \Omega_3 Q_i + \mu_i \quad \textbf{4.4}$$

$$MH_i = \alpha_1 + \alpha_2\vartheta_i + \alpha_3\pi_i + \alpha_4 X_i + \mu_i \quad \textbf{4.5}$$

$$CH_i = \beta_1 + \beta_2\vartheta_i + \beta_3\pi_i + \beta_4 Y_i + \mu_i \quad \textbf{4.6}$$

$$CS_i = \tau_1 + \tau_2\vartheta_i + \tau_3\pi_i + \tau_4 Z_i + \mu_i \quad \textbf{4.7}$$

$$IPV_i = \Omega_1 + \Omega_2\vartheta_i + \Omega_3\pi_i + \Omega_4 Q_i + \mu_i \quad \textbf{4.8}$$

Where; MH_i, CH_i, CS_i and IPV_i represents maternal health, children health, children schooling, and intimate partner violence of i^{th} household respectively, ϑ_i represents women empowerment for i^{th} household and π_i represents the i^{th} household's status of cash transfers. X_i, Y_i, Z_i, and Q_i represents the set of demographic characteristics and other explanatory variables for i^{th} household is included in the analysis.

As discussed in the previous section (3.1.2 above), utilization of maternal health care is influenced by three main factors, including those that are predisposing, enabling, and needed. The model includes predisposing factors such women's age, parity (the number of prior pregnancies), household size, attitude toward health, and beliefs about health. The demand for insurance, the primary information source, and accessibility are enabling factors. Only the experience of a child's death in a previous pregnancy is considered in the study's need factor. The justification behind including all of these variables is that, as shown in *Figure 3.2*, they can all be affected by women empowerment.

To quantify the impact of women's empowerment on demand for maternal health the study employs the following econometric specification.

$$\boldsymbol{Maternal\ Health} = \boldsymbol{f}(\boldsymbol{WE}, \boldsymbol{W_{Age}}, \boldsymbol{HH_{Size}}, \boldsymbol{H_{Insurance}}, \boldsymbol{H_{Belief}}, \boldsymbol{H_{Attitude}}, EX, Pr, W_{Information}, SED, C_{Death})$$

The econometric representation based on the above relationship is presented by equation 4.9.

$$MH_i = \alpha_1 + \alpha_2 WE + \alpha_3 W_{Age} + \alpha_4 HH_{Size} + \alpha_5 H_{Insurance} + \alpha_6 H_{Blief} + \alpha_7 H_{Attitude} + \alpha_8 EX + \alpha_9 Pr + \alpha_{10} W_{Information} + \alpha_{11} SED + \alpha_{12} C_{Death} + \mu_i \quad \textbf{4.9}$$

The following econometric specification is set for the inclusion of cash transfer;

$$\boldsymbol{Maternal\ Health = f(WE, CT, W_{Age}, HH_{Size}, H_{Insurance}, H_{Belief}, H_{Attitude}, EX, Pr, W_{Information}, SED, C_{Death})}$$

The econometric model presented by equation 4.8 is used to estimate the role of cash transfers in the analysis;

$$MH_i = \alpha_1 + \alpha_2 WE + \alpha_3 CT + \alpha_4 W_{Age} + \alpha_5 HH_{Size} + \alpha_6 H_{Insurance} + \alpha_7 H_{Blief} + \alpha_8 H_{Attitude} + \alpha_9 EX + \alpha_{10} Pr + \alpha_{11} W_{Information} + \alpha_{12} SED + \alpha_{13} C_{Death} + \mu_i \quad \textbf{4.10}$$

Above mentioned equations are the final equations used for estimation purposes. The study has estimated the effect of women's empowerment on the use of maternal health services, both with and without cash transfers, using these two equations.

Where; α_0 is the intercept term, $\alpha_1 - \alpha_{12}$ in the equation 4.9 and $\alpha_1 - \alpha_{13}$ in equation 4.10 denotes regression coefficients relating to the explanatory variables considered in the study and μ_i denotes the error term. The model's error term preserves simplicity while capturing the effects of omitted variables, measurement errors, and the intrinsic randomness of human behavior (Gujarati, 1999).

Moreover, the study has measured maternal health as antenatal care, delivery care, and postnatal care. All three measures for maternal health are defined as a binary outcome. Either the women are using the health care services or not. The study has estimated

equations 4.9 and 4.10 separately for the three measures of maternal health i.e., antenatal care, delivery care, and postnatal care.

The following relationship is used to develop the model for women empowerment and children health;

$$\boldsymbol{Child\ Health = f(WE, Location, Diarrhea, Gender, H_{Attitude},}$$
$$HH_{Wealth}, M_{Edu}, An_{Care}, Size_{birth}, Breast_{Feed},)$$

The model used to examine the effects of women's empowerment on children's health and nutrition also includes a number of explanatory variables. Selected explanatory variables are composed of mother-related factors and child-related factors. Such as mother attitude towards health, location i.e., urban/rural, household wealth index, child gender, child-size at birth, antenatal care, diarrheal incidence recently, and breastfeeding status.

The model is specified as follows;

$$\begin{aligned} CH_i = {} & \beta_1 + \beta_2 WE + \beta_3 MH_{Att} + \beta_4 HH_{Wealth} + \beta_5 Location \\ & + \beta_6 Gender + \beta_7 An_{Care} + \beta_8 Size_{Birth} \\ & + \beta_9 Diarrhea + \beta_{10} Breast_{Feed} + \mu_i \end{aligned} \qquad \textbf{4.11}$$

Incorporating cash transfers, will give the following relationship;

$$\boldsymbol{Child\ Health = f(WE, CT, Location, Diarrhea, Gender, H_{Attitude},}$$
$$HH_{Wealth}, An_{Care}, Size_{birth}, Breast_{Feed},)$$

Model specification for cash transfers will be as follows;

$$\begin{aligned} CH_i = {} & \beta_1 + \beta_2 WE + \beta_3 WE + \beta_4 MH_{Att} + \beta_5 HH_{Wealth} \\ & + \beta_6 Location + \beta_7 Size_{Birth} + \beta_8 Gender \\ & + \beta_9 An_{Care} + \beta_{10} Diarrhea + \beta_{11} Breast_{Feed} + \mu_i \end{aligned} \qquad \textbf{4.12}$$

The above-mentioned equations are the final equations used for estimation purposes. Using these two equations the study has quantified the impact of women empowerment on child health with and without cash transfers. Where; β_0 is the intercept term, $\beta_1 - \beta_{10}$ in the equation 4.11 and $\beta_1 - \beta_{11}$ in equation 4.12 are regression coefficients of explanatory variables and μ_i is the error term.

Furthermore, study has measured child health using WHO (2019), guidelines[15] to define stunting, wasting, and being under-weight. The study has then defined child health as a dummy variable using all three measures i.e., stunting, wasting and underweight. Same as in the previous case the equations 4.11 and 4.12 are estimated separately for child health.

Likewise, the following relationship between women empowerment and child school attendance is considered;

$$\boldsymbol{Child\ School\ Attendacne} = \boldsymbol{f}(\boldsymbol{WE}, \boldsymbol{H_{Edu}}, \boldsymbol{Gender}, \boldsymbol{HH_{Wealth}}, \boldsymbol{F_{Edu}}, \boldsymbol{M_{Edu}}\ SED, Location)$$

The relationship between women's empowerment and child enrolment is examined through the child schooling model. Along with women empowerment, some explanatory variables are also part of the model. These variables are the education of the father, education of the mother, family type, location (urban/rural), employment status of the father, employment status of the mother, dependency ratio, educational difference of partners, household wealth, and gender.

Econometric specification of children education is as follows;

[15] Country Profile Indicators for the Nutrition Landscape Information System (NLIS): Interpretation Guide
https://www.who.int/nutrition/nlis_interpretation_guide.pdf

$$CS_i = \tau_1 + \tau_2 WE + \tau_3 H_{Edu} + \tau_4 F_{Edu} + \tau_5 M_{Edu} + \tau_6 Gender + \tau_7 Location + \tau_8 HH_{Weatlh} + \tau_9 SED + \mu_i \quad \textbf{4.13}$$

The inclusion of cash transfers is as follows;

$$Child\ Education = f(WE, CT, H_{Edu}, Gender, F_{Edu}, M_{Edu} HH_{Wealth}, SED, Location)$$

Model specification is as follows;

$$CS_i = \tau_1 + \tau_2 WE + \tau_3 CT + \tau_4 H_{Edu} + \tau_5 M_{Edu} + \tau_6 F_{Edu} + \tau_7 SED + \tau_8 Gender + \tau_9 Location + \tau_{10} HH_{Weatlh} + \mu_i \quad \textbf{4.14}$$

Equations 4.13 and 4.14 are the final equations used to quantify the relationships among women's empowerment and child education with and without the inclusion of cash transfers in the model. Where; τ_0 is the intercept term, $\tau_1 - \tau_9$ in the equation 4.13 and $\tau_1 - \tau_{10}$ in equation 4.14 are regression coefficients for explanatory variables of the model.

Study has defined child education as child school attendance in the current year. Like the previous model, the dependent variable in the model as dichotomous. Either child is attending the school or not.

Finally, study established the following link between women empowerment and intimate partner violence;

$$\boldsymbol{Intimate\ Partner\ Violence = f(WE, W_{Emp}, W_{EBM}, MBI, W_{Edu}} H_{Edu}, H_{Emp}, H_{Alcohol}, Location)$$

Econometric specification for IPV is as follows;

$$IPV_i = \Omega_1 + \Omega_2 WE + \Omega_3 W_{Emp} + \Omega_4 W_{EBM} + \Omega_5 W_{Edu} + \Omega_6 H_{Edu} + \Omega_7 H_{Emp} + \Omega_8 MBI + \Omega_9 H_{Alcohol} + \Omega_{10} Location + \mu_i \quad \textbf{4.15}$$

The inclusion of cash transfers is as follows;

$$\boldsymbol{Intimate\ Partner\ Violence} = \boldsymbol{f}(\boldsymbol{WE}, \boldsymbol{CT}, \boldsymbol{W_{Emp}}, \boldsymbol{W_{EmpBMarriage}}, \boldsymbol{MBI}, \boldsymbol{W_{Edu}} H_{Edu}, H_{Emp}, H_{Alcohol}, Location)$$

Model specification is as follows;

$$IPV_i = \Omega_1 + \Omega_2 WE + \Omega_3 CT + \Omega_4 W_{Emp} + \Omega_5 W_{EBM} + \Omega_6 H_{Edu} + \Omega_7 H_{Emp} + \Omega_8 W_{Edu} + \Omega_9 MBI + \Omega_{10} H_{Alcohol} + \Omega_{11} Location + \mu_i \quad \textbf{4.16}$$

Equation 4.15 and 4.16 are the final equations used for estimating procedure. Where; Ω_0 is the intercept term, $\Omega_1 - \Omega_{10}$ in the equation 4.15 and $\Omega_1 - \Omega_{11}$ in equation 4.16 are regression coefficients of explanatory variables included in the analysis and μ_i is the error term. Additionally, the three categories of physical violence, emotional violence, and sexual violence are used to construct IPV as a dummy variable.

The next section will discuss the econometric technique utilized to perform the required empirical investigations for analysis.

4.1.1 Endogeniety

Data analysis employed the Instrumental Variable Probit regression model. If one or more independent variables are endogenous, this model is recommended (Skeels & Taylor, 2015). If the potential endogeniety issue is not properly addressed, the Probit regression model that is used to estimate this model will have inconsistent parameter estimates. The following is a standard Probit regression model:

$$Prob(Y_i = 1/X) = \int_{-\infty}^{X_i\beta} (2\pi)^{-1/2} \exp\left(-\frac{t^2}{2}\right) dt = \phi(X_i\beta) \qquad \textbf{4.17}$$

The cumulative distribution function ϕ of a standard normal variable is represented by in Equation (4.17). This function operates in a way that is superior to the linear probability model in that estimated probabilities p_i satisfy the constraint $0 \leq p_i \leq 1$. Furthermore, X denotes the vector of explanatory variables, and β denotes the vector of explanatory variable parameters. Equation (4.17) can be rewritten as follows after the addition of an endogenous regressor:

$$Y_i = \alpha + \sum_{i}^{k} \beta_i X_i + \gamma Z_i + e_i \qquad \textbf{4.18}$$

In Equation (4.18), X_i is a vector of explanatory variables, Z_i is a presumed endogenous variable, and Y_i is a dependent variable coded as cero and one. Additionally, the estimated parameters are α, β_i, and γ. Endogeniety is not a concern if $Cov\ (e_i\ , Z_i\ ) = 0$. The condition, however, might not hold because the dependent variable and the suspected endogenous variable might share the same explanatory variables that were left out of the equation (4.18). This suggests that endogeniety could provide a challenge for equations (4.18). In order to specify the model, instrumental variable(s) must be used. Equation (4.19) is a representation of the situation:

$$Z_i = \delta + \sum_{i}^{k} \partial_i X_i + \mu Ins_i + \nu_i \qquad \textbf{4.19}$$

The endogeniety issue was fixed by restating Equation (4.19) as follows:

$$Y_i = \alpha + \sum_{i}^{k} \beta_i X_i + \gamma Z_i + \tau\nu_i + e_i \qquad \textbf{4.20}$$

The variable Ins_i in equation (4.19) is the instrumental variable for Z_i. Although choosing the right instrument is a significant challenge when estimating models with

endogenous regressors, one important rule of thumb is applicable. The chosen instrument or instruments must be correlated with the endogenous regressor in equation (4.20) but not with the dependent variable.

Furthermore, Wald's test of exogeneity is employed. If the coefficient of Wald test turns out to be statistically significant, the null hypothesis of exogeneity is to be accepted. This also implies that the parameter of the residuals from Equation (4.19), (τ) in equation (4.20) is not statistically significant ($p > 0.05$). However, if it is statistically significant, the null hypothesis of exogeneity should be rejected and implies that Z_i is truly endogenous, and estimating the model with standard Probit regression model would produce inconsistent parameters.

Land and property ownership empowers women by providing income and security. Lacking resources like land, women have little say in household decisions (Mishra & Sam, 2016; Kehinde *et al.*, 2021). According to a recent study by Hussain and Jullandhry (2020), the majority of women in Pakistan do not have ownership rights to immovable property, such as land and houses, and so have no say in decision making process. That is, women's empowerment and ownership of fixed property are linked directly. Women's empowerment will improve when land and home ownership among women increases, and vice versa. This would allow the analysis to use women's land ownership and home ownership as an instrument for women's empowerment.

4.2 Data and variable construction

This section is subdivided into sub-sections; the first sub-section is about data and its sources and the second sub-section is for variable construction and description of the variables.

4.2.1 Data sources

For the estimation process, the study has used the Pakistan Demographic and Health Survey (PDHS) 2017–18. The data set offers a wide range of information of the key variables of the study. The survey asks specific questions about prenatal, delivery, and postnatal care for women's health. Indicators for constructing variables commonly used in health care models, such as predisposing factors, enabling factors, and need factors, are also provided by the survey. Therefore, the PDHS data set delivers all the necessary information for conducting the estimation process.

4.2.2 Pakistan Demographic and Health Survey (PDHS 2017-18)

The Pakistan Population and Housing Census 2017, which includes a complete list of enumeration blocks (EBs), served as the basis for the PDHS 2017–18 sampling frame. The Pakistan Bureau of Statistics (PBS), in collaboration with the Pakistan Institute of Population Studies (NIPS), provided support for the survey's sample design. Azad Jammu and Kashmir (AJK) and Federally Administered Tribal Areas (FATA) were included in the Pakistan Demographic and Health Survey (PDHS) 2017–18, which gave a reliable representation of Pakistan's population[16]. Data from the Pakistan Demographic and Health Survey were used in the study. The most current survey (2017–18) included 16, 240 households from across Pakistan. The sampling design for PDHS 217-18 is a two-stage stratified sampling design. A total of 16 strata was created organizing eight urban and eight rural areas. A two-stage selection approach is then used to pick samples from each stratum separately.

The first step involves selecting sample areas (clusters) that contain EBs. With a probability proportional to their size, or the number of households residing in each EB at the time of the census, a total of 580 clusters were selected. In the second stage, a

[16] Not a part of PDHS 2012-13

systematic sample of households was included. A precise number of 28 households from each of the chosen clusters were chosen using an equal probability systematic selection technique, yielding a total sample size of roughly 16,240 households. The NIPS data processing office carried out the household selection. Only pre-selected households were questioned by the survey teams. No substitutions or modifications to the pre-selected households were permitted throughout the implementation stage in order to remove prejudice.

The women that participated in the 2017–18 PDHS ranged in age from 15 to 49. Participants could be either permanent residents or visitors who spent the night before the survey at the chosen households. All ever-married men in these families between the ages of 15 and 49 participated in the men's survey, which was completed in one-third of the sample households. One eligible woman from each family was chosen at random to receive additional questions about domestic violence. Similar to the man's survey, only the families that were selected for it had information on the height and weight of eligible women between the ages of 15 and 49 and children between the ages of 0 and 59 months.

4.3 Variable Construction

The first sub-section discusses the construction of the women empowerment, which is followed by sub-sections on maternal health, intimate partner violence, children's health, children's education, cash transfers, and explanatory variables. In each of these sub-sections, study has defined the variables first, followed by an explanation of how these variables are developed.

4.3.1 Women Empowerment

The study has constructed women empowerment in six dimensions based on the detailed discussion provided in the previous section 3.1.1. These aspects of

empowerment include: empowerment in the context of health; empowerment in household decision-making; empowerment in the domain of finances; empowerment in the domain of the social contract; empowerment in the domain of family planning; and empowerment in the domain of marriage. The PDHS (2017–2018) [17] female questionnaire can be used to track all of these aspects. With Section 6 (Employment and Gender Roles), Section 7 (Marriage and Sexual Activity), Section 8 (Fertility Preferences), and Section 9 (Husband's Background and Woman's Work), PDHS offers a wide range of sections to explore all these dimensions.

Questions regarding decision-making about women's health, household purchases, financial decision making, visiting family & friends, and family planning are Likert scale questions with five usual responses. Respondent alone, respondent and partner, partner alone, someone else, and others are the appropriate responses. Study has converted them into two responses by assigning '1' if the respondent alone and respondent & partner is involved in decision making and '0' otherwise. However, decision-making regarding marriage is already defined as a binary outcome. The study defined the binary variable "women's empowerment" using these six measures of women's decision-making. The variable is assigned the value '0' if women are not involved in any of the six decisions and it is defined as 'no empowerment at all. Value '1' is assigned if she is involved in at-least one decision-making activities and is defined as a 'women empowerment.

4.3.2 Maternal Health

The study examined three key aspects of maternal health, including prenatal, delivery, and postnatal care. Questionnaire provides access to a variety of questions from the

[17] https://dhsprogram.com/pubs/pdf/FR354/FR354.pdf
Questionnaire is available in Appendix F

PDHS 2017–18 data for these three dimensions, like section 4 (Pregnancy and postnatal care). To ensure that data is available and that there are as many responses as possible, and then defined these variables for each dimension. This will help prevent information loss.

Antenatal care is defined as the preventive healthcare adopted by women during their pregnancy period. It includes a set of routine checkups followed by pregnant women without any symptoms to avoid diseases and complications which may occur during the time of delivery. The binary variable used to quantify prenatal care is "0" for respondents who reported having no antenatal appointments, and "1" for those who reported having more than four antenatal visits in the previous 12 months.

In the analysis, the skilled birth attendant is defined as "a qualified health professional - such as a doctor, nurse, or midwife - who has been trained and educated in the skills needed to treat normal/complicated pregnancies.". The study characterized delivery health care as a binary variable, with "0" being recorded for the response if a woman gives birth at home and "1" denoting a hospital delivery.

Several studies have been conducted to measure postnatal care (PNC) in various ways. The third regression model's dependent variable (PNC) is assessed as follows: A mother is regarded a non-user of postnatal care if she leaves the birth facility within 24 hours, and is therefore denoted by "0". If she did remain at the birthing center for more than 24 hours, she is regarded as having used postnatal care and is represented by "1" in the binary definition (Manote & Gebremedhin, 2020).

4.3.3 Intimate Partner Violence

According to the study, intimate partner violence includes physical aggression, psychological abuse, and sexual violence. The study has constructed a binary variable for intimate partner violence based on these three dimensions. Physical violence is

constructed as a binary variable using the following three questions asked in the survey. Ever suffered eye injuries, sprains, dislocations, or bruises as a result of your partner's behavior. Ever suffered wounds, broken bones, or other major injuries as a result of your partner's behavior. Likewise, psychological violence is also constructed as a dummy variable using the following questions from survey. Ever felt bad about yourself after your husband or partner made you feel bad, threatened you with danger, or insulted you. In order to establish a dummy variable for sexual violence, the following questions are used. Ever been physically compelled into having unwanted sex, forced into other unwanted sexual actions, or physically forced into performing sexual acts respondent did not want to conduct by husband/partner.

Once these three variables are defined, the study then created a dummy variable for intimate partner violence. If the respondent has experienced at least one form of violence in her lifetime, the variable assigns her a '1'; otherwise, she receives a '0'.

4.3.4 Children health

The study has adhered to the custom of identifying children's health in terms of stunting, wasting, and underweight in children. According to the World Health Organization, weight for age Z score (underweight), weight for height Z score (wasting), and height Z score (stunting) are used to define children's health and nutrition (WHO, 2019). The dietary inequalities among children under five are reflected by these measures.

When a child's growth and development are hampered by an unhealthy diet and frequent illnesses, this is referred to as stunting. Long-term nutritional restriction also causes stunting, which can impair intellectual capacity, delay brain growth, and poor academic performance. Inadequate nutrition or chronic diseases increase the risk of sickness and mortality in stunted children.

Wasting is a sign of acute malnutrition in children, which can be brought on by insufficient food intake or a high prevalence of illnesses, notably diarrhea. Wasting also lowers immune system performance, which raises the intensity and length of infectious diseases, as well as a person's vulnerability to them and the risk of mortality.

Underweight is the situation where a child's body is too low to be considered healthy. Under-weight children may be stunted or wasted or both.

Stunted children have heights for their ages that are more than two standard deviations below the median of the WHO Child Growth Standards. When a child's weight-to-height ratio falls more than two standard deviations below the WHO Child Growth Standards median, it is said to be "wasting." A child is considered underweight if his or her weight-for-age is more than two standard deviations below the WHO Child Growth Standards median.

PDHS questionnaire gives us detailed information of children under age five regarding age, weight (kg), and height (cm). This information can be traced easily in the Bio Maker questionnaire PDHS 2017-18. The hard work of calculating z scores[18] was already done and provided to us in PDHS 2017-18 dataset. Using the definition of stunting, wasting, and under-weight the study constructed these variables. The information for height-for-age, weight-for-height, and weight-for-age z scores are given in the household member file (PR). Stunting is constructed by assigning '1' if the height-for-age z score is less than 2 SD below the mean and '0' otherwise. Similarly,

[18] According to the WHO Child Growth Standards, which take into account sex, age (determined by the difference between the interview date and the birth date, both of which are accurate to the day of the month), height in centimeters, and weight in kilograms, anthropometric z-scores are assigned using an interpolation function (precise to 100 grams). As part of the procedure, variables containing the z-scores are computed and included to the recode file. Software based on the WHO Anthro program and macros for statistics package, which may be accessed at the following website URL, were used to calculate the z-scores;
http://www.who.int/childgrowth/software/en/.

wasting is marked ‘1’ for the cases where weight-for-height z score is less than 2 SD below mean and ‘0’ otherwise. The number of children whose weight-for-age z-score is less than 2 SD below the mean are assigned ‘1’ and treated as under-weight and ‘0’ otherwise. Last but not least, study defined child health as a dummy variable, where ‘0’ is assigned if the child is not considered stunted, wasted, or underweight, and '1' is assigned if the child is either stunted, wasted, or underweight.

4.3.5 Child education

Child education is measured as the child's school attendance during the current year. The information can easily be availed from PDHS 2017-18 section one i.e., household module. The question usually asked in this regard is “did name attended school at any time during this year”? The reference age of the children regarding this question is 5 - 14 years. The response to this question is recorded as yes or no, making it a binary variable and assigned ‘1’ if the child is currently attending school and ‘0’ in case the child is not attending the school during the current year.

4.3.6 Cash transfer

Cash Transfers are the financial assistance directly provided to eligible people. PDHS 2017-18 questionnaire has asked the respondents if they receive any cash assistance through BISP. Study defined this variable for the female beneficiaries only. Information regarding this aspect is available in the female section using the question; “do you receive any cash/kind benefit from BISP”? The variable is assigned ‘1’ to the beneficiaries of the program and ‘0’ otherwise.

4.3.7 Explanatory variables

The explanatory variables used for the maternal health service utilization model are; household size, health belief, health attitude, women’s age, location, the experience of child death, ease of access, parity, and source of information. The dependent variables

used in the children health model are; location of household, diarrhea, sex of the child, mothers' attitude towards health, household wealth index, mothers' antenatal health care, child-size at birth, and breastfeeding. The list of response variables used in the child education model is; sex of child, father's educational attainment, mother's educational attainment, head's educational attainment, spousal educational difference, location of the household and household wealth index. Additionally, the list of predictors used in IPV model are; women's employment status, husband's employment status, marriage to birth interval, respondent's educational attainment, husband's educational attainment, women employment status before marriage, husband's use of alcohol and location of household. Construction of these variables is as follows:

Household Size (HH_{Size}) is measured as the number of household members and is already given in the household member (PR) file. This variable as a continuous variable in the analysis.

Mesele (2018), has conducted a thorough investigation into African cultural, religious, and other health beliefs. Similar to this, Kahsay *et al.* (2019), created a health belief model based on women's perceptions about giving birth in medical facilities and difficulties associated to giving birth. However, the study defined health beliefs according to women's awareness regarding Hepatitis and HIV. Survey asked women; can hepatitis/HIV be cured? How did it spread? What are the safety measures to avoid people with hepatitis/HIV? all these responses are included in the construction of health belief variable. Study propose that women who are aware of the disease will likely improve their maternal health care. Study has measured Health Belief (H_{Belief}) based on women's knowledge and awareness regarding HIV. Women with a piece of good knowledge about the disease transmission are assigned '1' and women with no knowledge are assigned '0'.

Health Attitude ($H_{Attitude}$) among women is measured as their smoking or drug habit and this variable is constructed as a dummy variable. Women who use to smoke and use the drug are assigned '1' and '0' for the women not involved in these activities.

Women Age (W_{Age}) is directly given in the data set and this variable is also used as a continuous variable in the analysis.

Experience of Child Death (C_{Death}) in the previous pregnancies is measured as a dummy variable. The information used to construct this variable is; baby born alive or dead or lost before birth. The variable is assigned '1' if she reports baby born dead or lost before birth and '0' otherwise.

Respondent's Education (W_{Edu}), Husband's Education (H_{Edu}), Father's education (F_{Edu}), and Mothers' Education (M_{Edu}) is measured as a categorical variable and the information used is 'highest level of education'. These variables are assigned '0' for no education, value '1' is assigned for primary level of education, '2' is marked for secondary education and '3' represents a higher level of education.

Spousal Educational Difference (SED) is measured by simply taking the difference between their educational level. If the outcome is zero it means, there is no difference. If the outcome is positive, it means the husband's educational level is higher than wife and negative outcome means that the wife's educational level is higher than the husband's education. The variable is used as a categorical variable, and assigned '0' for no difference, '1' if the husband's education level is higher and '2' if the wife's educational level is higher.

The well-being of households is significantly influenced by household income. There is no direct source of household income in the data set. However, the data collection already includes household wealth quintiles (HH_{Wealth}), which are divided into five

categories: poorest, poorer, middle, richer, and richest. In the analysis, this variable served as a categorical variable.

The total number of children born to a woman is termed as parity (Pr). This variable has been measured in three categories: low, medium, and high parity. Three is the median number of children a woman has ever had. The study has constructed these categories using median as an average. Low parity contains the number of children between zero and two and marked this category as '0'. Medium parity bears three and four children and is assigned '1'. More than 5 children are treated as high parity and assigned '2'.

Ease of Access (EX) is used to capture the obstacles women face while visiting health centers. DHS questionnaire regarding this issue includes four factors that prevent women to visit the health facility i.e., getting permission to go to the doctor, getting the money needed for advice or treatment, the distance to the health facility and not wanting to go alone. This variable is measured as a categorical variable and constructed it in five dimensions including not an issue along with the other four factors mentioned above. Variable is assigned '0' if the women did not face any issue while visiting the health facility, '1' refers to getting permission to go to a doctor, '2' refers to getting the money needed to visit a health facility, '3'refers to distance to the health facility and '4' refers to not wanting to go alone.

Women's Source of Information ($W_{Information}$) is used to express the effect of women's exposure to media and its effect on health outcomes. The variable includes newspaper, radio, television, and the internet as a source of information for women. The variable is constructed in four categories including no source in the above-mentioned information source list. Variable is assigned '0' in case women did not have access to any of the mention sources. The number of responses among newspaper and

radio is low and hence merged the two categories into one and marked them as '1'. Exposure to television is marked '2' and the internet is marked '3'.

Diarrhea is one of the leading factors which cause death among children under five years of age. Children under five years of age, who have experienced diarrhea recently are more likely to lose weight and high risk of under-nutrition in the process that can lead to undesirable results like death. Recent diarrheal incidence is used as a dummy variable with yes or no as a response. In case of a recent diarrheal incidence, variable is marked as '1' and '0' otherwise.

Antenatal care among mothers (An_{Care}) is used to highlight the role of antenatal visits. Mothers who perform antenatal visits frequently have better information regarding their child growth and development, reduces the risk of pregnancy-related complications, and reduces the risk of maternal and child mortality. The variable is defined the same as the study has defined it for the first model and constructed this variable as a dummy variable. Variable is assigned '1' if the mother reported 4 or more antenatal visits and '0' otherwise.

Low birth weight of the children is considered one of the factors related to child under-nutritional status. The problem with developing countries is that majority of births did not happen in a proper health facility and hence proper weight measures are not available. Information provided child size at the time of birth ($Size_{birth}$) is based on the mother's perception about her children's size. The question in this regard recorded five responses of mothers i.e., very small, smaller than average, average, larger than average, and very large. Study constructed this variable in three categories only i.e., small, average, and large. Variable is assigned '0' if the child is considered small, '1' for average birth size, and '2' for large birth size. Some recent studies conducted for developing countries have used DHS data set and stated that mother's recall on baby

size at birth can be used as a proxy because these reported sizes are 75% correct (Sreeramareddy *et al.*, 2011; Haque *et al.*, 2015; Khanal *et al.*, 2015).

Breastfeeding ($Breast_{Feed}$) has significant positive long-term health benefits for both infants and mothers. All newborns should be exclusively breastfed for six months or longer, according to the World Health Organization, and nursing should be continued for two years or longer. To construct this variable, study used information regarding the "duration of breastfeeding" asked from mothers. Three responses are reported in this regard i.e., ever breastfeed but not currently breastfeeding, never breastfeed, and currently breastfeeding. The study has constructed this variable as a dummy variable by merging every breastfeed but not currently breastfeeding and currently breastfeeding into one category as breastfeed and assigned it '1'. And have assigned '0' if the mothers' response to the question is "never breastfeed".

Household location ($Location$) is an important factor in accessing health and other basic facilities. Health and other facilities are usually better in urban areas as compared to rural areas. Study has measured the location of the household as a dummy variable. Variable is assigned '1' if the household is in a rural area and '0' in case the household is in an urban area.

Marriage to Birth Interval (*MBI*) is defined as a categorical variable. If women have their first child within five years of her marriage, variable is assigned it '0'. '1' is assigned if the women have her first child between five and ten years of marriage. And '2' is assigned if the women have her first child after ten years of marriage.

The sex of the child is also measured as a dummy variable where variable is assigned '0' if the child is male and '1' if the child is a female. Husband's use of Alcohol is also

defined as a dummy variable, where; ‘1’ means husband is using alcohol and ‘0’ otherwise.

Parents' employment status plays a significant role in achieving child school attendance. Parents with paid work are more likely to support their children's school expenses as compared to their counterparts. Father’s employment status (F_{Emp}) and mother’s employment status (M_{Emp}) is also measured as a dummy variable. If the mother (father) is working for a paid job, she (he) is treated as employed and assigned ‘1’ in the construction process of the variable. In case she (he) is not working for any paid job then the study treated her (him) as unemployed and assigned ‘0’.

CHAPTER 5

RESULTS & Discussions

This chapter discusses the findings for maternal health care, children's health status, children's education (child school attendance), and intimate partner violence (IPV). The study used an instrumental variable probit (ivprobit) model to examine the associations between cash transfers and women's empowerment, healthcare for mothers, child health, child school enrollment, and intimate partner violence.

5.1 Descriptive and Summary Statistics

The study used data from the 2017-18 round of the PDHS, which interviewed 14,540 households from both rural and urban areas[19]. The households were chosen in a centralized manner at the NIPS data processing office. Ever-married women aged 15 to 49 are included in the PDHS 2017–18. The PDHS 2017–18 survey's two-stage stratified sampling design was used to accomplish it. The PDHS 2017–18 is a nationally representative household survey that collects data on a variety of demographic, health, and nutritional indicators.

5.1.1 Descriptive Analysis

In Pakistan, 42% of children under the age of five are registered, 36% of those under the age of five have a birth certificate, and 84% of those 18 and over have a National Identity Card, according to the Pakistan Demographic and Health Survey 2017–18. The average household size is 6.6, and rural areas have a larger average household size (6.8) than urban areas (6.3). The net attendance ratio (NAR) is 59% at the primary level and 38% at the secondary/middle level. Compared to men, more than half of women lack a

[19] Interviewed households are equally distributed between urban and rural population.

formal education, whereas only 34% of men do. Contrary to individuals who live in urban areas, men and women in rural areas are more likely to lack a formal education.

Table 5-1: Summary Statistics

Variable	Mean	Median	Min	Max
Women Empowerment	0.48	0.5	0	1
Antenatal Care	0.84	1	0	1
Delivery Care	0.59	1	0	1
Postnatal Care	0.40	0	0	1
Intimate Partner Violence	0.30	0	0	1
Household Size	6.6	6	1	44
Women Age	32.31	32	15	49

Source: Author's calculation

In Pakistan, there are 51% women and 49% men, with the majority living in rural regions, according to the PDHS 2017–18. With 38% of the population under the age of 15 and only 4% of the population over 65, Pakistan has a dependent population of 42%. The wealthiest households are mostly located in urban regions (42%), although the majority of the population in rural areas (57%) is in the lowest quintiles of the wealth index. According to the PDHS 2017-18, 86% of women who gave birth received skilled antenatal care (ANC), up 13 percentage points from the previous round i.e., PDHS 2012-13. At least four prenatal visits were made by 51% of women. 69% of deliveries are carried out by skilled birth attendants, and 66% take place in a medical facility. Only six out of ten women and newborns had a postnatal care check within two days of birth.

Table 5.2, shows the demographic, economic, and geographic characteristics of maternal health service utilizer and non-utilizer. Results reported here are the mean values of maternal health utilizer and non-utilizer and study test the difference using a two-sample t-test (Ahmed *et al.*, 2021). A maternal health utilizer, as opposed to a non-utilizer, is defined as a woman who received prenatal, birth, and postnatal care. Women

who use maternal health care have a significant advantage over women who did not use these services. Women who actively use maternal health care have a high mean value of women empowerment when comparing to women who do not use maternal health services. Maternal health utilizer has a smaller household size, belong to urban areas, and are treated among the wealthiest of the households. The educational attainment of the active health utilizer group is significantly high and has a smaller educational difference with their husbands. Women who use maternal health services are more likely to purchase health insurance, have good knowledge about major diseases like HIV/AIDS, and are not classified as smokers or drug users.

Table 5-2: Characteristics by Maternal Health Care

Variables	Maternal Health		Two Sample T-Test
	Utilizer	Non-Utilizer	
WE	1.93	1.62	-8.51 ***
HH_{Size}	8.44	9.01	3.77 ***
$H_{Insurance}$	0.019	0.010	-1.93 *
H_{Belief}	0.45	0.32	-7.09 ***
$H_{Attitude}$	0.014	0.027	2.86 ***
$Location$	0.49	0.27	-12.99 ***
W_{Age}	29.20	29.47	1.32
C_{Death}	0.68	0.68	-0.08
W_{Edu}	1.60	0.78	-20.89 ***
HH_{Wealth}	3.71	2.62	-23.14 ***
EX	2.32	2.84	7.65 ***
$W_{Information}$	1.93	1.16	-21.47 ***
Pr	1.61	1.95	12.60 ***
SED	0.71	0.73	0.74

Source: Author's estimates based on PDHS 2017-18

Note: Critical values for two-tailed t-test at 90%, 95%, and 99% confidence level is 1.64, 1.96, and 2.58 respectively. The symbol *, **, and ***; denote statistics significance at 10%, 5% and 1% levels respectively.

Disruptive factors which affect women's mobility to reach health facilities like getting permission from family members, not having money, distance from the home and not wanting to go alone, are more likely to be among the non-utilizer group. Women from the active health utilizer group have better media exposure and a low number of previous pregnancies. However, both groups are equally likely to experience child death, and there is no substantial difference in women's age between utilizer and non-utilizer of maternal health services.

Table 5-3: Characteristics by Child Nutritional Status

Variables	Child Nutritional Status		Two Sample T-Test
	Healthy	Under-Nutrition	
WE	0.94	0.88	-2.94 ***
Age_{FB}	22.34	20.97	-11.05 ***
M_{Emp}	0.14	0.20	5.12 ***
$Location$	0.40	0.30	-6.84 ***
$Diarrhea$	0.28	0.32	2.56 **
$Gender$	1.52	1.46	-3.70 ***
$H_{Attitude}$	0.028	0.053	4.60 ***
M_{Edu}	1.45	0.77	-19.25 ***
HH_{Wealth}	3.41	2.65	-17.15 ***
An_{Care}	0.94	0.85	-9.76 ***
$Size_{birth}$	1.83	1.76	-4.70 ***
SED	0.84	0.86	0.61
C_{Mrg}	0.58	0.69	7.24 ***
$Breast_{Feed}$	0.53	0.54	0.66

Source: Author's estimates based on PDHS 2017-18

Note: Critical values for two-tailed t-test at 90%, 95%, and 99% confidence level is 1.64, 1.96, and 2.58 respectively. The symbol *, **, and ***; denote statistics significance at 10%, 5% and 1% levels respectively.

Using a composite measure for child nutritional status, the study has done the same exercise for child nutritional status. Study consider a child to be healthy if he is not

stunted, wasted, or underweight, but an under-nutrition child falls into all three categories, i.e., stunted, wasted, and underweight. Table 5.3, presents the demographic, economic, and geographic characteristics for healthy and under-nutrition children. A substantial difference between both groups can be observed from the table. Healthy children are more likely to belong to mothers with a higher mean value of women empowerment.

Mothers who have their first kid at a slightly older age have healthy children, but they are less likely to be employed. A healthy group of children is more likely to live in urban areas and belong to wealthy families. Under-nutrition children are more likely to live with mothers having smoking & drug problems and married to their first or second cousin. Also, under-nutrition children are more likely to experience episodes of diarrhea. Mothers whose educational attainment records are better to have healthy children, however, study has not observed a significant role of spousal educational differences in the case of child nutritional status. Mothers who make regular visits for antenatal care have healthy children but there is no statistical difference for breastfeeding practice. Child size at birth also plays a significant role in nutritional status, children born large are more likely to be among a healthy group of children. However, female children are more likely in the healthy group of children.

Table 5.4, shows the characteristics of children who are currently enrolled in school or who are not. Children who use to attend school during the current year are living with empowered mothers in comparison with children not attending school currently. Children who are enrolled in school live with parents who are employed and have higher educational attainment, whereas children who are not enrolled in school live with non-working parents who are also less educated. In households with non-enrolled children and living in a joint family system, a higher dependency ratio is also a common

trait. Female children are the most vulnerable among those who are not enrolled in school. Non-enrolled children come from rural locations and come from underprivileged homes. Fathers are more likely than mothers to have a higher educational degree in a family with children enrolled in school during the current year.

Table 5-4: Characteristics by Child School Attendance

Variables	Child School Attendance		Two Sample T-Test
	Attending	Not Attending	
WE	1.04	0.92	-11.17 ***
F_{Emp}	0.96	0.97	4.54 ***
M_{Emp}	0.22	0.20	-3.12 ***
F_{Edu}	1.62	1.32	-22.41 ***
M_{Edu}	1.06	0.90	-11.33 ***
$Gender$	1.48	1.52	5.79 ***
Dep_{Ratio}	0.82	0.85	4.60 ***
HH_{Wealth}	3.33	2.83	-29.72 ***
$Location$	0.43	0.33	-17.27 ***
F_{Type}	0.30	0.52	37.48 ***
SED	0.81	0.68	13.74 ***

Source: Author's estimates based on PDHS 2017-18

Note: Critical values for two-tailed t-test at 90%, 95%, and 99% confidence level is 1.64, 1.96, and 2.58 respectively. The symbol *, **, and ***; denote statistics significance at 10%, 5% and 1% levels respectively.

The characteristics of women who have or have not experienced intimate partner violence are outlined in Table 5.5. Results show that women who lack empowerment are more likely than empowered women to experience intimate partner abuse. Women who worked before getting married are more likely to experience abuse from intimate partners. In addition, educated women are more likely to experience intimate relationship abuse than are illiterate women. Women whose husbands are educated, however, did not reveal the prevalence of violence towards intimate partners. The same is true for women whose husbands are professionals. But, the husband's drinking habit

and the women's experience of violence in intimate relationships are associated. However, the women's own employment and residence did not have any notable results.

Table 5-5: Characteristics by Intimate Partner Violence

Variables	Intimate Partner Violence		Two Sample T-Test
	Yes	No	
WE	0.94	0.82	2.34 **
W_{Emp}	0.20	0.29	-1.25
$Emp_{Marriage}$	0.20	0.32	-2.14 **
W_{Edu}	0.98	0.85	-1.78 *
H_{Edu}	1.45	0.97	4.12 ***
H_{Emp}	0.96	0.91	2.69 ***
$Alcohol_{Use}$	0.03	0.21	-13.70 ***
$Location$	0.38	0.33	0.92

Source: Author's estimates based on PDHS 2017-18

Note: Critical values for two-tailed t-test at 90%, 95%, and 99% confidence level is 1.64, 1.96, and 2.58 respectively. The symbol *, **, and ***; denote statistics significance at 10%, 5% and 1% levels respectively.

5.2 Maternal Health Care, Women Empowerment and Cash Transfers

Prenatal care, birth location, and postnatal care are the three components that comprise maternal health care. The study complies to this established research standard in the attempt to define maternal health care. In this section, study reports the results from ivprobit model for these three dimensions respectively. Firstly, study presents the result of the ivprobit model for "the impact of women empowerment on maternal health care" with the help of explanatory variables defined in the previous section (behavioral model of health). Later in this section, study has discussed the nexus of women empowerment, cash transfer, and maternal health care.

Table 5-6: Ivprobit Model for Antenatal Care

Women Characteristics		1	2	3	4
Women Empowerment		3.30 (0.32) ***	3.36 (0.37) ***	3.164 (0.34) ***	3.64 (0.22) ***
Cash Transfer		-	-	-	0.12 (0.08)
Women Empowerment * Cash Transfer		-	-	-	0.086 (0.69)
Health Attitude		-	-0.27 (0.130) **	-0.276 (0.138) **	-0.276 (0.125) **
Health Belief		-	-0.029 (0.179)	0.04 (0.144)	-0.045 (0.110)
Women's Age		-	-0.002 (0.006)	-0.009 (0.01)	-0.004 (0.009)
Household Size		-	-	-0.042 (0.006) ***	-0.042 (0.005) ***
Ease of Access for Health Care Visits (Ref: Not an Issue)					
Permission		-	-	-0.167 (0.08) **	-0.182 (0.08) **
Money		-	-	-0.056 (0.028) **	-0.076 (0.033) **
Alone		-	-	-0.135 (0.014) ***	-0.114 (0.011) ***
Parity (Ref: Low 0 -2)					
Medium: (3 -4)		-	-	-0.18 (0.134)	-0.178 (0.108)
High: (More than 5)		-	-	-0.29 (0.245)	-0.247 (0.188)
Mother Source of Information (Ref: No Information)					
Television		-	-	0.077 (0.013) ***	0.069 (0.011) ***
Internet		-	-	0.11 (0.019) ***	0.125 (0.021) ***
Sample		5698	5698	5698	5698
Wald test of exogeneity	Chi2(1)	3.56	2.61	1.32	2.17
	P > Chi2	0.0593	0.1065	0.2501	0.1410

Source: Author's estimates based on PDHS 2017-18

Note: This table displays the ivprobit regression model's estimates. Column (1) reports the results of the baseline model with only women empowerment, column (2) reports the results of adding individual characteristics to the baseline model, column (3) reports the results of the complete model (baseline model plus individual and household characteristics), and column (4) reports the results of the interaction term (women empowerment and cash transfer). The coefficients for all variables are reported herein.

All standard errors are clustered and reported in the parenthesis. The symbol *, ** and ***, denote statistics significance at 10%, 5% and 1% levels respectively. Wald test of exogeneity is reported at the end of the table with Ho: There is no endogeniety. The test statistics show that all of the models rejected the null hypothesis in favor of the alternative hypothesis.

Table 5-7: Ivprobit Model for Delivery Care

Women Characteristics		1	2	3	4
Women Empowerment		3.99 (1.93) **	4.12 (0.42) ***	4.01 (0.595) ***	4.18 (0.190) ***
Cash Transfer		-	-	-	0.054 (0.073)
Women Empowerment * Cash Transfer		-	-	-	1.16 (1.15)
Health Attitude		-	-0.381 (0.132)	-0.047 (0.118)	-0.068 (0.097)
Health Belief		-	0.027 (0.402)	0.092 (0.116)	0.034 (0.102)
Women's Age		-	-0.028 (0.007) ***	-0.012 (0.004) **	-0.011 (0.003) **
Household Size		-	-	-0.016 (0.005) **	-0.014 (0.004) **
Ease of Access for Health Care Visits (Ref: Not an Issue)					
Permission		-	-	-0.035 (0.055)	-0.132 (0.174)
Money		-	-	-0.03 (0.023) *	-0.08 (0.11)
Alone		-	-	-0.042 (0.008 **	-0.14 (0.068) *
Parity (Ref: Low 0 -2)					
Medium: (3 -4)		-	-	-0.015 (0.008) *	-0.096 (0.07) *
High: (More than 5)		-	-	-0.121 (0.022)	-0.101 (0.192)
Mother Source of Information (Ref: No Information)					
Television		-	-	0.04 (0.01) ***	0.05 (0.01) **
Internet		-	-	0.07 (0.011) ***	0.09 (0.009) ***
Sample		5699	5699	5699	5699
Wald test of exogeneity	Chi2(1)	0.12	0.21	1.51	0.64
	P > Chi2	0.7312	0.6480	0.2185	0.4243

Source: Author's estimates based on PDHS 2017-18

Note: This table displays the ivprobit regression model's estimates. Column (1) reports the results of the baseline model with only women empowerment, column (2) reports the results of adding individual characteristics to the baseline model, column (3) reports the results of the complete model (baseline model plus individual and household characteristics), and column (4) reports the results of the interaction term (women empowerment and cash transfer). The coefficients for all variables are reported herein.

All standard errors are clustered and reported in the parenthesis. The symbol *, ** and ***, denote statistics significance at 10%, 5% and 1% levels respectively. Wald test of exogeneity is reported at the end of the table with Ho: There is no endogeniety. The test statistics show that all of the models rejected the null hypothesis in favor of the alternative hypothesis.

Table 5-8: Ivprobit Model for Postnatal Care

Women Characteristics		1	2	3	4
Women Empowerment		2.95 (0.500) ***	3.05 (0.547) ***	3.182 (0.89) ***	2.70 (1.22) **
Cash Transfer		-	-	-	0.267 (0.198)
Women Empowerment * Cash Transfer		-	-	-	1.40 (1.01)
Health Attitude		-	-0.55 (0.143) ***	-0.51 (0.137) ***	-0.499 (0.161) ***
Health Belief		-	0.07 (0.106)	0.08 (0.086)	0.051 (0.094)
Women's Age		-	-0.022 (0.04) ***	-0.004 (0.009)	0.0003 (0.0098)
Household Size		-	-	-0.032 (0.017) *	-0.023 (0.070)
Ease of Access for Health Care Visits (Ref: Not an Issue)					
Permission		-	-	-0.19 (0.068) ***	-0.17 (0.061) **
Money		-	-	-0.074 (0.031) **	-0.081 (0.039) **
Alone		-	-	-0.114 (0.015) ***	-0.216 (0.019) ***
Parity (Ref: Low 0 -2)					
Medium: (3 -4)		-	-	-0.164 (0.072) **	-0.184 (0.67) **
High: (More than 5)		-	-	-0.413 (0.215) *	-0.46 (0.18) *
Mother Source of Information (Ref: No Information)					
Television		-	-	0.056 (0.017) ***	0.077 (0.013) ***
Internet		-	-	0.067 (0.019) ***	0.087 (0.021) ***
Sample		3815	3815	3815	3815
Wald test of exogeneity	Chi2(1)	5.61	4.48	2.02	1.57
	P > Chi2	0.0178	0.0342	0.1554	0.2097

Source: Author's estimates based on PDHS 2017-18

Note: This table displays the ivprobit regression model's estimates. Column (1) reports the results of the baseline model with only women empowerment, column (2) reports the results of adding individual characteristics to the baseline model, column (3) reports the results of the complete model (baseline model plus individual and household characteristics), and column (4) reports the results of the interaction term (women empowerment and cash transfer). The coefficients for all variables are reported herein.

All standard errors are clustered and reported in the parenthesis. The symbol *, ** and ***, denote statistics significance at 10%, 5% and 1% levels respectively. Wald test of exogeneity is reported at the end of the table with Ho: There is no endogeniety. The test statistics show that all of the models rejected the null hypothesis in favor of the alternative hypothesis.

All three tables—5.6, 5.7, and 5.8—are identically organized, and a note is provided under each table with more information about the column-wise approach. The idea for introducing interaction term is to capture the joint effect of cash transfers and women empowerment. All the estimated model for maternal care used women's house ownership and land ownership as an instrument for women empowerment to tackle the probable problem of endogeniety in the model.

The analysis has estimated multi-model ivprobit for maternal health i.e., antenatal care, delivery care and postnatal care. Table 5.6 reported the results for antenatal care. The number of visits she made while the woman was pregnant is the dependent variable (Antenatal care) in every model.

The binary variable used to quantify antenatal care is "0" for respondents who reported having no antenatal appointments and "1" for those who reported having four or more antenatal visits.

Likewise, Table 5.7 reported the results for delivery care. Study has defined delivery health care as a binary variable; "0" is recorded for the response if women deliver their babies at home, and "1" denotes that she delivers the baby at the hospital. Delivery care is the dependent variable in all of the model's results shown in tables 5.7. Similar findings for postnatal care were presented in Table 5.8. The dependent variable, postnatal care, is measured by designating the value "0" for a mother who left the birth facility within 24 hours as a non-user of postnatal care. In binary definition, she is indicated by "1" if she did use postnatal care and stayed at the delivery facility for more than 24 hours.

The results of all of the models estimated in the study, notably antenatal care, delivery care, and postnatal care, show that the expected signs of the explanatory variables are

in the right direction. In the models, women empowerment is the significant factor, coupled with other factors characterizing her individual and household characteristics. The results are consistent with some of the previous studies. According to the findings, antenatal care, delivery care, and postnatal care are all connected with women's empowerment (Sado *et al.*, 2014). Hence, it can be said that women who have a certain control over decisions making process in the household setting enjoys a better health status as compared to her counterparts (Lamiday & Machmud, 2019; Sebayang *et al.*, 2019).

However, in the model estimated for women's individual characteristics women's health beliefs did not show any significance across all the models in all three tables i.e., 5.6, 5.7, and 5.8. Column 2 presents the results for this model in all three tables. Women attitude towards health is measured as if she smokes or not, turn out to be a significant negative contributor to the mother's health care status. These results just validate the influence of bad habits as a crucial factor. Attitude towards health plays a vital role in the life of child bearing women and it further affects the health of child in the future. The model's results demonstrate its relevance and significance for maternal health care (Dixon *et al.*, 2014). Similarly, the addition of a child to the family is likely to reduce the utilization of maternal health services, such as antenatal care, delivery care, and postnatal care. The size of a household/family is a significant component in many aspects; however, the study is concerned in how family size influences the mother's health in this study. Having a large family means that, most of the household financial resources are sacrificed to cover the basic needs of household members i.e., food and clothing (Sebayang *et al.*, 2019). A smaller family is usually a healthier and happier family. The study findings are consistent, as household size and adoption of maternal health care services are found to be inversely associated.

Previous research has revealed that older women are more likely to seek maternal health care. The findings of Ahuru (2019) indicate that women's age is statistically insignificant when investigating the effects of women's empowerment on maternity healthcare. However, women's age turns out to be a significant contributor only in the case of delivery care. According to the results, older women are more likely to face the complications during delivery care but study has not found it consistent in the case of postnatal care (Chervenak & Kardon, 1991; Nove *et al.*, 2014; Singh *et al.*, 2021). In the case of antenatal care, women age did not reveal any significance.

The results of the model estimated by including household characteristics are presented in column 3 of all three tables i.e., 5.6, 5.7, and 5.8. It reveals that, addition to the family will likely decrease the antenatal care, delivery care and postnatal care among mothers. The study looked in how family size influences the mother's health since household size/family size is an essential determinant in many aspects. A smaller family is usually a healthier and happier family (Sebayang *et al.*, 2019). The study findings are consistent, since household size and postnatal care are inversely associated. Women's access to health care facilities is crucial in explaining the difficulties they confront during their pregnancies. In all estimated models, the study used "Not an issue" as a reference category. The anticipated signs of responses are favorable. Having no permission, not wanting to go alone, and not having money are the significant negative contributors observed in the analysis. In comparison with the women who did not face any difficulty pursuing health facilities, a woman facing a money shortage will likely decrease the use of maternal health services in antenatal care and postnatal care (Dhakal *et al.*, 2011; Okonofua *et al.*, 2018; Tuyisenge *et al.*, 2019). However, in case of delivery money and going alone is a major concern.

In terms of parity, all models used the low (0-2) category as a baseline. According to the models, there is a substantial negative association between maternal care and the number of children a woman delivers. In comparison to women with low parity, women with medium parity are more likely to seek maternal health services. Similarly, when compared to women with low parity, women with high parity are likely to need fewer maternal health services. The estimated model's overall results support the notion that women with a higher number of pregnancies are more likely to avoid using maternal health care than women with a lower number of pregnancies (Tuyisenge *et al.*, 2019).

Another measure to assess its impact on maternity care is the mother's source of information. In all three models, the study employed 'No information' as a reference category. According to research, the source of information is directly associated to maternity care among women. Women who use the internet and watch TV for information are more likely to use maternal health care than women who do not have access to information. According to the findings, informed mothers are thought to take outstanding care of themselves (Fatema & Lariscy, 2020). Women's exposure to newspapers and radio, on the other hand, has a minimal impact in this study. Which in turn points out the fact that, these two sources are considered outdated now.

The need factor in the analysis is defined as the experience of child death in previous pregnancies. According to the study, a woman who has such an experience is more likely to participate in maternal care activities such as antenatal care, delivery care, and postnatal care. However, the estimated results show that the need component had no effect in any of the models in the case of maternal health care.

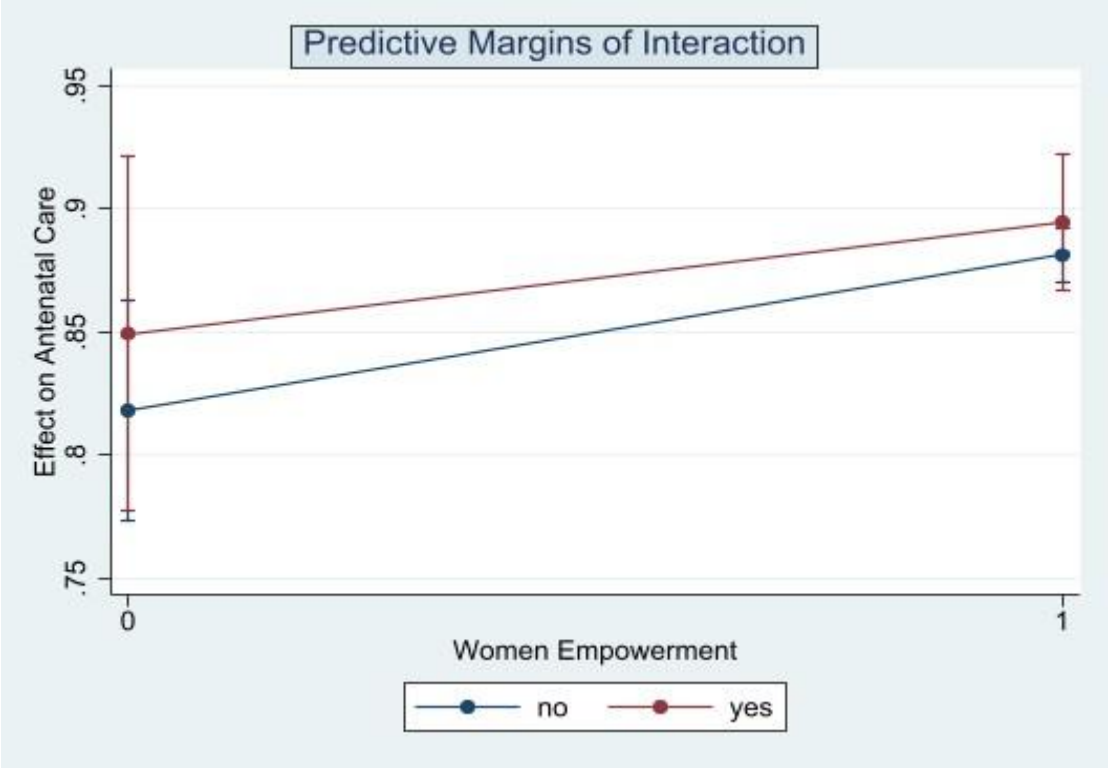


Figure 5.1: 95% CI for Marginal Effect of Interaction Term for Antenatal Care

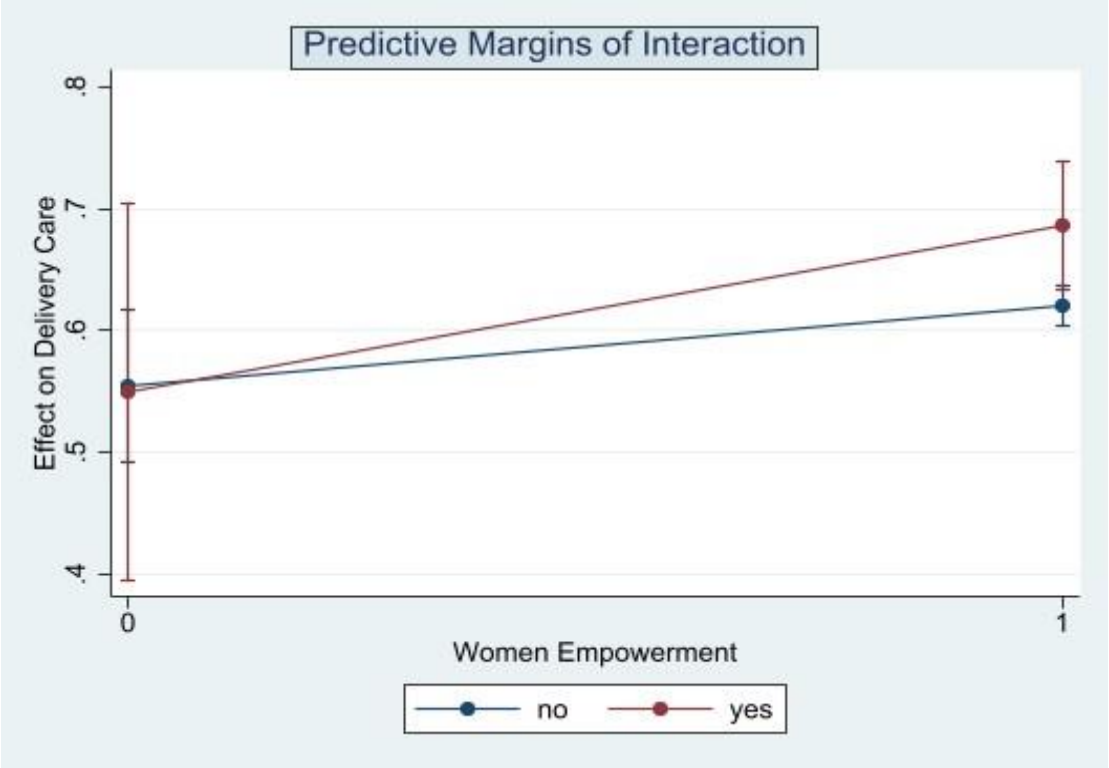


Figure 5.2: 95% CI for Marginal Effect of Interaction Term for Delivery Care

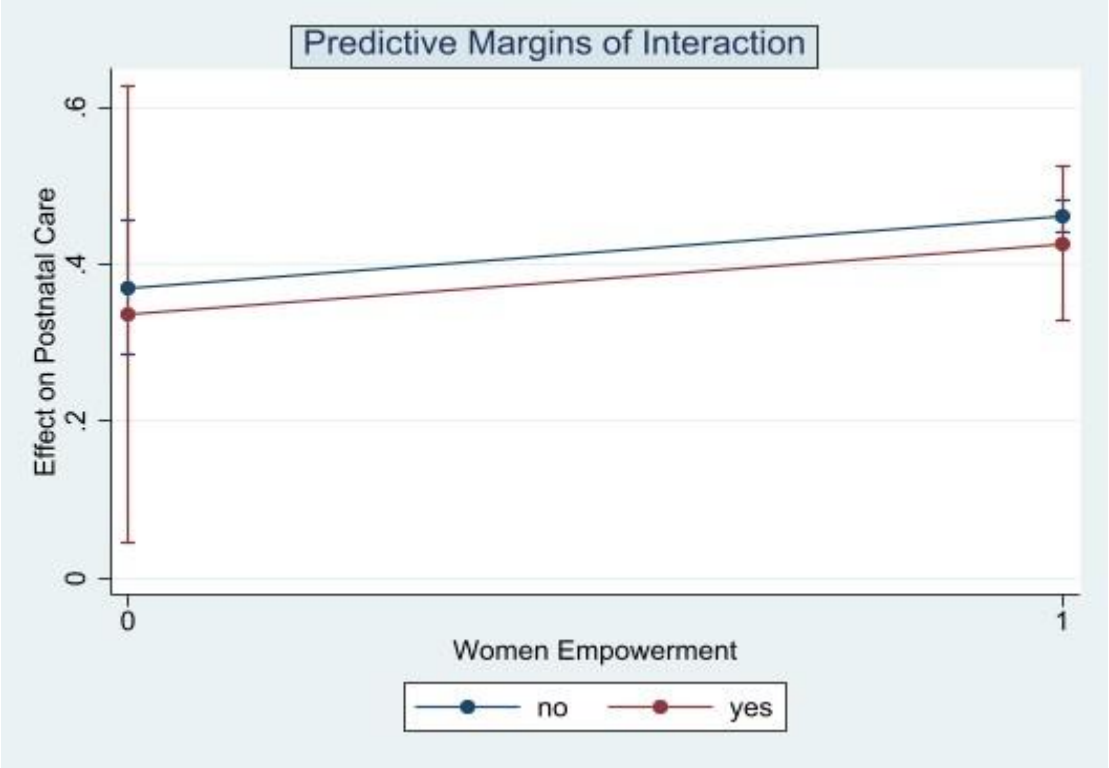


Figure 5.3: 95% CI for Marginal Effect of Interaction Term for Postnatal Care

The outcomes of the cash transfer model that took into account the interaction between the cash transfer and the empowerment of women are displayed in column 5. In order to capture this joint effect, study has introduced an interaction term in the model. The results of the model are presented in the column 4 of all three tables i.e., 5.6, 5.7, and 5.8. The study has estimated the same old model with the interaction term (women empowerment and cash transfer). It is observed that the sign of the interaction term is in right direction, however, it appears to be statistically insignificant. Brambor *et al.* (2006) argues that the one cannot exclude the results of interaction term by simply looking at its significance level. Instead, he advises constructing a 95% confidence interval and plotting marginal effects, then determining that if the interval is above the zero line, the interaction effect should be regarded as significant positive, and vice versa. Figure 5.1, 5.2, and 5.3 displays the confidence interval plot for marginal effects of interaction term used for antenatal care, delivery care, and postnatal care respectively. Results regarding other explanatory variables under the classification;

predisposing, enabling, and need factors respectively show promising results and the behavior of these variables are almost the same as reported in the previous model (column 4). According to Brambor *et al.* (2006), cash transfers had a considerable positive effect on maternal health in all three scenarios, particularly antenatal care, delivery care, and postnatal care.

5.3 Children Health, Women Empowerment and Cash Transfer

The study measured undernutrition among children according to the WHO's guidelines i.e., stunting, wasting, and underweight. Stunting is defined as a dummy variable and assigned "0" if the child is not stunted and "1" represents if the child is stunted. Likewise, wasting is also a dummy variable, where "0" denotes if the child is not wasted and "1" denotes if the child is treated as wasted. Similarly, study has defined underweight as a dummy variable. The variable is assigned "0" if the child is not under-weight and "1" is assigned if the child is under-weight. Then the study has defined child health as a single dummy variable; "0" is assigned if child is not under-nutrition and "1" is assigned if under-nutrition using stunting, wasting, and underweight dummy variables.

Study also estimated multi-model ivprobit for child health and the estimated results of the models are presented in table 5.9. The note below the table contains information on the table's structure in more depth. The purpose for introducing interaction term is to capture the joint effect of cash transfers and women empowerment. In order to address the potential endogeniety issue in the model, every estimated model for child health incorporated women's home ownership and land ownership as a tool for women's empowerment.

Table 5-9: Ivprobit Model for Child Health

Women Characteristics		1	2	3	4	5
Women Empowerment		-2.99 (0.172) ***	-3.01 (0.171) ***	-3.43 (0.201) ***	-2.64 (1.22) **	-2.80 (0.585) ***
Cash Transfer		-	-	-	-	-0.375 (0.131) **
Women Empowerment * Cash Transfer		-	-	-	-	-0.763 (0.830)
Gender		-	-0.022 (0.052)	-0.007 (0.052)	-0.041 (0.062)	-0.037 (0.061)
Diarrhea		-	-0.055 (0.072)	-0.077 (0.080)	-0.012 (0.082)	-0.022 (0.082)
Child Size at Birth (Ref: Small)						
Medium		-	0.44 (0.11) ***	0.69 (0.200) **	0.66 (0.279) **	0.70 (0.244) **
Large		-	0.42 (0.125) **	0.64 (0.202) **	0.63 (0.272) **	0.68 (0.239) **
Mother's Health Attitude		-	-	0.178 (0.140)	0.063 (0.146)	0.067 (0.149)
Breast Feeding		-	-	-0.141 (0.068) **	-0.182 (0.069) **	-0.181 (0.068) **
Antenatal care		-	-	-0.317 (0.106) **	-0.227 (0.113) **	-0.240 (0.109) **
Head Gender		-	-	-	-0.179 (0.157)	-0.192 (0.166)
Urban/Rural		-	-	-	-0.252 (0.101) **	-0.251 (0.100) **
Wealth Index (Ref: Poorest)						
Poorer		-	-	-	-0.354 (0.097) **	-0.368 (0.097) ***
Middle		-	-	-	-0.518 (0.150) **	-0.511 (0.147) **
Richer		-	-	-	-0.575 (0.167) **	-0.560 (0.167) **
Richest		-	-	-	-0.797 (0.208) **	-0.770 (0.209) ***
Sample		2510	2510	2510	2510	2510
Wald test of exogeneity	Chi2(1)	6.45	6.06	6.08	5.50	6.38
	P > Chi2	0.0111	0.0138	0.0137	0.0190	0.0116

Source: Author's estimates based on PDHS 2017-18

Note: This table displays the ivprobit regression model's estimates. Column (1) reports the results of the baseline model with only women empowerment, column (2) reports the results of adding child's individual characteristics to the baseline model, column (3) reports the results of adding mother characteristics to the first two models, column (4) reports the results of the complete model, which includes the baseline model plus child's individual characteristics, mother's characteristics, and household characteristics, and column (5) reports the results of interaction term i.e., women empowerment and cash transfer. Coefficients for all the variables are reported herein.

All standard errors are clustered and reported in the parenthesis. The symbol *, ** and ***, denote statistics significance at 10%, 5% and 1% levels respectively. Wald test of exogeneity is reported at the end of the table with Ho: There is no endogeniety. The test statistics show that all of the models rejected the null hypothesis in favor of the alternative hypothesis.

In all the estimated models (column 1 – 5), child is not under-nutrition – not stunted, not wasted, and not underweight – is used as the reference category; as study has

assigned “zero” to these categories while defining child health as a dummy variable. In all of the estimated models, the anticipated signs of the variables of interest are in the right direction. Results from the model (column 1) predicts the fact that women's empowerment is a contributing factor in achieving the nutritional status among children under five years of age. The analysis used women empowerment as a dummy variable. Women empowerment is found to be a positive contributor to child health and showed consistent results across all estimated models. Women are the primary caregivers and their decisions making power affects the wellbeing of individuals at the household level especially children.

Women empowerment is considered a vital tool in many aspects of women’s and related lives (Onah, 2021). Also, women empowerment is positively associated with better nutritional status among children under five years of age (Chipili *et al.*, 2018). Studies have established a strong link between improved nutritional status of children and women empowerment (Cunningham *et al.*, 2015; Malapit & Quisumbing, 2015; Onah, 2021).

The estimated results of the model with child’s characteristics are presented in column 2. The study has used recent diarrheal incidence, child sex and child size at birth as individual characteristics. It is widely acknowledged that poor nutritional status, as measured by anthropometric measurements, increases the risk of diarrhea, there is less consensus on whether repeated episodes of diarrhea have a negative impact on a child's growth (Checkley *et al.*, 2008). Studies have reported that the occurrence of undernutrition is higher among boys as compared to girls (Cruz *et al.*, 2017; De & Chattopadhyay, 2019; Shahid *et al.*, 2020). Mzumara *et al.* (2018), reported that under-nutrition among male children under five years of age is 40% higher than female children in Zambia. However, according to results of the model, study has not found

any significant results in the case of Pakistan. The variables remained insignificant across all the models (column 1 – 5).

DHS collects low birth weight information by asking, "Was the newborn very large, larger than typical, average, smaller than average, or very small?" However, the analysis has converted the response into three main categories i.e., small, medium, and large. Low birth weight is used as a reference category in all three models. Results of the estimated model reveal that children with large and medium-size at the time of birth are less likely to be among under-nutrition children as compared to the children with low size at birth. Low birth weight of children is positively associated with the prevalence of under-nutrition among children under 5 years of age (Rahman *et al.*, 2016).

Results for the model with child's mother characteristics are presented in column 3. The study has used recent mother's attitude towards health, breast feeding, and antenatal care as child's mother characteristics. Mothers who are actively taking part in antenatal care activities are keen on the health of their children. Mothers' health care is positively associated with child better health status. The findings show that a mother's participation in antenatal care has a considerable positive impact on the health of her children. Compared to children whose mothers don't participate in antenatal care, children whose mothers receive antenatal care are less likely to be undernourished. Breastfeeding is the most important factor associated with child health (Nzala *et al.*, 2011). Children who are breastfed for a required duration of time (at least 6 months) are more likely to be healthy and active as compared to the children who were not breastfed properly (Mzumara *et al.*, 2018). According to estimation, breastfeeding significantly improves a child's health. Children whose mothers breastfeed them regularly are less likely to be undernourished children.

The health attitude of mothers is measured as drugs and smoking habit among them. Mothers who use to smoke and take drugs are more likely to affect not only their health but also the health of their children. Furthermore, Young mothers are usually in a growth phase and themselves need more nutrition as compared to adult women. Also, younger mothers breastfeed their children for a shorter duration of time than older mothers and they are less educated as well (Yu *et al.*, 2018). All these factors contribute to the higher risk of child undernourishment among the children born to younger mothers as compared to adult mothers. The mother's attitude toward health and the mother's age at the first birth, however, were not connected in any significant way, according to the estimated results.

Column 4 displays the outcomes for the model with household characteristics. According to the results of the model location of the household is also a major contributor in the case of undernutrition. The estimates show that children living in rural areas have an increased prevalence of undernutrition than children living in urban areas, compared to children from rural areas. Extensive care of children at very early stages of life is essential. Location plays a vital role in the early development of children and is believed to have a positive significant impact on the health status and early development of children. Rural areas are usually associated with limited access to health, education, water, and other necessities of life, and hence their habitats are more prone to these kinds of risks.

The wealth status of the household is a significant contributor in achieving a better child health. Children from wealthy households are less likely to be undernutrition due to the fact parent can afford to provide a healthy diet to their children. The analysis has used the poorest quintile as the reference category. Model's findings suggest that, compared to children from the poorest household, the incidence of undernutrition will be

decreased for children from the poorer, medium, wealthier, and richest households. However, study has not found any significant contribution in case of sex of the household head.

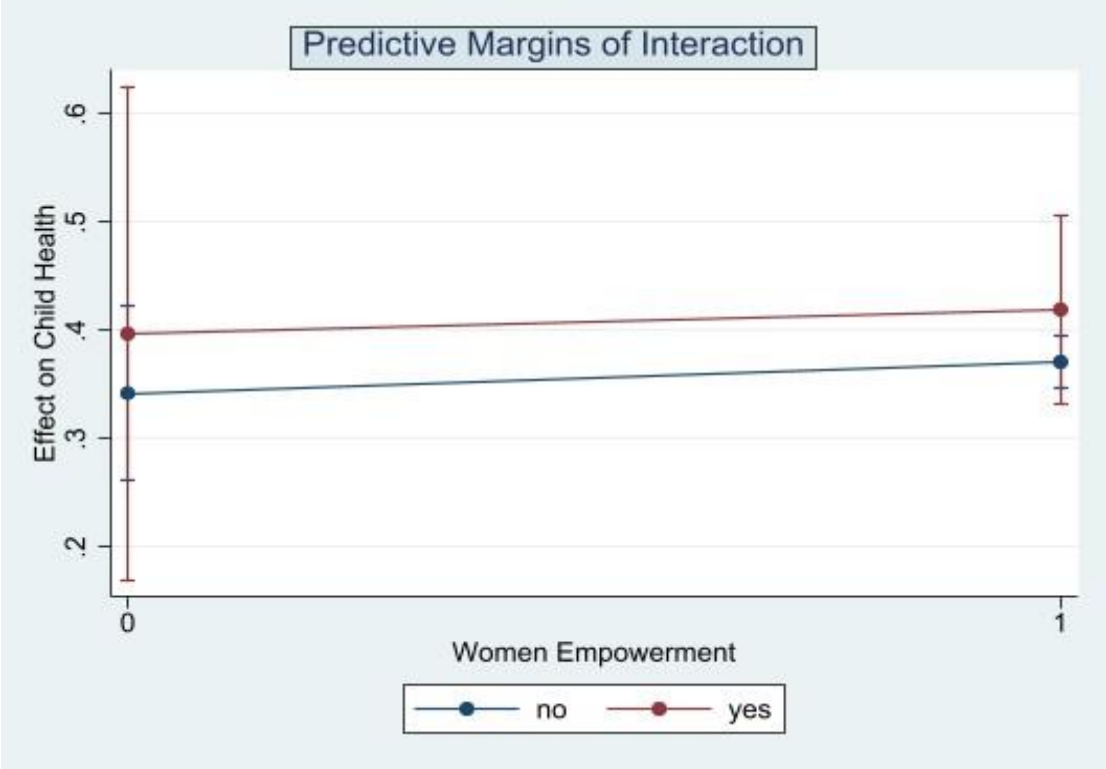


Figure 5.4: 95% CI for Marginal Effect of Interaction Term for Child Health

The study has also incorporated consanguineous marriage in the analysis to check if cousin marriages influence poor nutritional status among children under five years of age (Chauhan *et al.*, 2020). Results from the model did not find any statistical evidence of consanguineous marriage and child nutritional status. According to medical science, consanguineous marriages lead to genetic disorders among children (Mobarak *et al.*, 2019). Pakistan's half population marry first or second cousin, more than any other country[20]. Due to cultural and religious elements as dominant factors, consanguineous marriage (married to a blood relative) is a frequent practice in the country.

[20] National Institute of Population Studies (Pakistan). Pakistan demographic and health survey 2012-2013 (see pp 65-66). Dec 2013. https://dhsprogram.com/pubs/pdf/FR290/ FR290.pdf

The results of the cash transfer model with the interaction between the cash transfer and women's empowerment is shown in Column 5. The basic idea of cash transfer is to empower women in the decision-making process. Improvements in the process of decision-making not only benefit themselves but also expand the benefits towards the household members, especially children. Families where women have control over financial resources show better results when it comes to children's health. Estimates show that cash transfers are helping to improve children's health. As a result, it can be concluded that children who live with families who get cash assistance are less likely to be undernutrition.

5.4 Children Education, Women Empowerment and Cash Transfers

In the analysis, child schooling was defined as child school attendance throughout the current school year. The dependent variable is binary, and the study assigned "0" if the child is not attending school this year, and "1" if the child is attending school this year. To complete the estimation process, the study used the ivprobit regression model. The estimated output of the models is shown in table 5-10. Study has also estimated multi-model ivprobit for child schooling. The note below table 5-10 has a full description of the table's structure. Every estimated model for child health featured women's home ownership and land ownership as a tool for women's empowerment in order to address the probable endogeniety issue in the model. In all the estimated models (column 1 – 5), child is not attending school is used as the reference category. All of the estimated models reflects that variables' expected signs pointing in the right direction.

Women empowerment shows a significant positive effect on child schooling. According to the model results shown in column 1, children whose mothers are empowered are more likely to attend school than children whose mothers are not empowered.

Table 5-10: Ivprobit Model for Child Education

Women Characteristics		1	2	3	4	5
Women Empowerment		0.911 (0.120) ***	0.911 (0.120) ***	0.75 (0.201) **	0.79 (0.45) *	0.77 (0.45) *
Cash Transfer		-	-	-	-	0.037* (0.009)
Women Empowerment * Cash Transfer		-	-	-	-	0.137* (0.072)
Gender		-	-0.110 (0.037) **	-0.190 (0.032) ***	-0.179 (0.034) ***	-0.179 (0.034) ***
Spouse Educational Difference (Ref: No Difference)						
Husband Education is High		-	-	0.250 (0.066) *	0.150 (0.056) *	0.149 (0.058) *
Mother's Education (Ref: No Education)						
Primary		-	-	0.505 (0.105) *	0.258 (0.105) *	0.256 (0.106) *
Secondary		-	-	0.425 (0.082) **	0.277 (0.88) **	0.275 (0.88) **
Higher		-	-	0.185 (0.107)	0.100 (0.99)	0.099 (0.101)
Father's Education (Ref: No Education)						
Primary		-	-	0.049 (0.089)	0.019 (0.079)	0.017 (0.079)
Secondary		-	-	0.196 (0.070) *	0.152 (0.64) *	0.152 (0.64) *
Higher		-	-	0.422 (0.066) ***	0.283 (0.058) ***	0.281 (0.058) ***
Head's Education (Ref: No Education)						
Primary		-	-	-	1.55 (0.078) ***	1.56 (0.077) ***
Secondary		-	-	-	1.37 (0.102) ***	1.38 (0.100) ***
Higher		-	-	-	1.49 (0.231) ***	1.50 (0.231) ***
Wealth Index (Ref: Poorest)						
Poorer		-	-	-	0.279 (0.059) ***	0.275 (0.059) ***
Middle		-	-	-	0.362 (0.059) ***	0.356 (0.060) ***
Richer		-	-	-	0.427 (0.066) ***	0.420 (0.066) ***
Richest		-	-	-	0.614 (0.075) ***	0.606 (0.075) ***
Sample		23573	23573	23573	23573	23573
Wald test of exogeneity	Chi2(1)	6.50	6.50	3.02	2.17	2.07
	P > Chi2	0.0108	0.0108	0.0337	0.1408	0.1505

Source: Author's estimates based on PDHS 2017-18

Note: This table displays the ivprobit regression model's estimates. Column (1) reports the results of the baseline model with women empowerment only, column (2) reports the results of adding child's individual characteristics to the baseline model, column (3) reports the results of adding mother and father characteristics to the first two models, column (4) reports the results of the complete model (baseline model plus child's individual characteristics, mother and father characteristics, and household characteristics), and column (5) reports the results of interaction term i.e., women empowerment and cash transfer. Coefficients for all the variables are reported herein.

All standard errors are clustered and reported in the parenthesis. The symbol *, ** and ***, denote statistics significance at 10%, 5% and 1% levels respectively. Wald test of exogeneity is reported at the end of the table, Ho: There is no endogeniety. The test statistics show that all of the models rejected the null hypothesis in favor of the alternative hypothesis.

The results show that decision-making capability and economic empowerment of women have significant effect on children's schooling (Das & Dutta, 2016; Basheer, 2018). Column 2 reports the result for child individual characteristics. Sex of child is the only variable of interest here and result shows that female children are less likely to attend the school as compared to male children in the family. In developing countries, female education is usually discouraged and this discriminatory behavior is due to a few reasons including cultural and religious elements at the top. Another major reason for school absentees among female children is their engagement in domestic work (Bhattarai *et al.*, 2020).

Yet, education is the most effective way to change women's social status. Girls' education entails more than just enrolling them in classrooms (Bhat, 2015; Basheer, 2018). Giving girls the opportunity to complete all levels of education, acquiring the knowledge and skills needed to compete in the labor market, acquiring the social economic and life skills needed to cope and adapt to a changing world, making their own life decisions, and contributing to their communities and the surrounding society are all part of it.

Column 4 displays the model that was estimated for children's mother and father characteristics. Parental educational attainment is protective against a wide range of undesirable outcomes. Families with more educated parents are less likely to face financial hardship, which in turn helps children to achieve better schooling in the early stages of life (Assari, 2018). Parents' educational attainment also plays a crucial role in children's school attendance rate. The study has employed the educational attainment of both parents as an explanatory variable. The educational achievement of parents is classified into four levels: no education, primary, secondary, and higher education. In both cases, no education is chosen as the reference category. In the case of the father's

educational attainment, both primary and secondary educational attainment levels will likely increase his children's school attendance as compared to the children whose fathers did not have any formal education. But, the study did not find that the father's higher level of education did improve the child's attendance at school.

In the case of mothers' educational attainment, both secondary and higher levels of educational attainment effect the child's school attendance positively but her primary level of educational attainment is not having a significant effect on child school attendance. As a result, the study concludes that, when compared to children whose mothers received no formal education, those whose mothers finished secondary and higher level education are more likely to improve their child's school attendance. Furthermore, the model incorporates the educational gaps between the spouses. According to the model's findings, men who are more educated than women have a positive, significant impact on their children's school attendance.

The employment status of the parents can affect a child's educational attainment either positively or negatively depending upon the domination of income or substitution effect respectively. The substitution effect explains the fact that parents when involved in full-time jobs became less interactive with their children and hence results in the poor development of children at younger ages. On the other hand, the income effect explains that parents earning help them purchase books, pay school dues, and other helping material to support children educational attainment. The empirical data on the effects of parental employment on children's educational attainment is mixed, with most studies finding that mother employment had no effect on a child's short-term or long-term educational success from years one to six (Hannah Schildberg, 2016). However, the analysis has not found any significance of parent's employment status in children attendance at school.

The findings in column 4 are based on the household's attributes that were added to the model. The essential resource in influencing the lives of household members is wealth status. Wealth is classified into five categories: poorest, poorer, middle, wealthier, and richest. In the study, the poorest household is utilized as a reference category. Parents have historically been a major source of financial assistance for their children's education (Hotz *et al.*, 2018). According to the model's findings, children from poorer, medium, richer, and richest households are more likely to attend school than children from the poorest household. Households in the richer quintiles are privileged to have all access to basic needs like health and education as compared to the households falling in the category of poor quintiles. Children from poor households are either involved in paid work (child labor) or domestic work and hence remain out of school.

The household head's educational background has a significant positive impact on the child's attendance at school. Families with a household head who has no formal education are less likely to send their children to school than families with a household head who has a primary, secondary, or higher level of education, according to the research.

In Pakistan, either family is living in a joint family system or as a nuclear family. In the joint family system, the usual practice is to pool the earned income and used according to the need of the whole family. In this case, there is a chance that the family with the children might sacrifice their children's needs. The study has also used type of family and location as household characteristics in the analysis. However, location and family type has not revealed any notable offerings in the model.

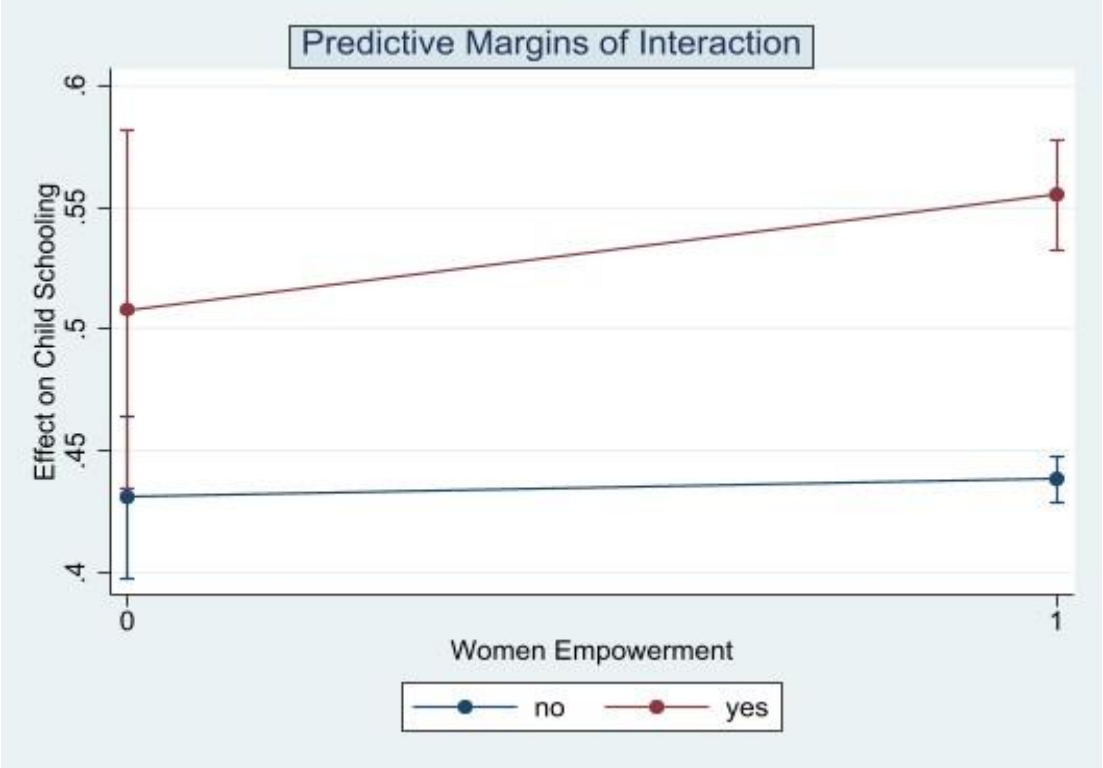


Figure 5.5: 95% CI for Marginal Effect of Interaction Term for Child Schooling

Finally, column 5 displays the findings of the model with cash transfer and the interaction between the cash transfer and women's empowerment. Here in this model, the study tried to establish the link between women empowerment and child school attendance in the case when the household is a beneficiary of the cash transfer program. Following the same procedure, study has introduced the interaction term for women's employment and cash transfers to capture the role of cash transfers in the case of child school attendance. Results from the model shows promising results of cash transfers in the case of child school attendance. According to the results of the model presented in table 5-9; cash transfer has a significant positive impact on child school attendance. Also, the interaction term for cash transfer and women empowerment turns out to be significant. Hence, the estimated results in the case of child schooling support the hypothesis that families who receive cash assistance are likely to increase child school attendance. Additionally, estimates for other explanatory variables behave in the same

fashion and detailed results can be observed from column 5. Cash transfers to women work in many ways in the pursuit of household wellbeing. According to the literature, families who receive cash transfers are more likely to send their children to school. In the event of conditional cash transfers, families are required to take their children to school in accordance with the program's requirements. But in the case of unconditional cash transfers, parents are not bound to do so. However, the additional financial support to the family made them pull their children out of work, and ultimately, they start attending school.

5.5 Intimate Partner Violence, Women Empowerment and Cash Transfers

The investigation employed three distinct characteristics—physical violence, psychological violence, and sexual violence—to measure intimate partner violence. The variable is also defined as a binary variables and assigned "0" if the woman has never experienced any form of violence and "1" if she has been subjected to at least one form of violence. In order to finalize the estimation strategy, study has the Ivprobit regression model. The model's findings are shown in Table 5.11.

For intimate partner violence (IPV), study also estimated multi-model ivprobit. The table's complete structure is explained in the note that precedes table 5.11. In order to address the potentially endogeniety problem in the model, every estimated model for IPV included women's home ownership and land ownership as an instrument for women's empowerment. Women who have never experienced intimate partner violence act as the comparison group in all estimated models (columns 1 through 5).

All of the estimated models reflect that the variables' expected signs pointing in the right direction. The key variable of interest in this case is women's empowerment, and no empowerment is taken as the reference group.

Table 5-11: Ivporbit Model for Intimate Partner Voilence

Women Characteristics		1	2	3	4
Women Empowerment		-0.577 (0.200) **	-0.690 (0.222) **	-0.779 (0.227) **	-0.790 (0.262) **
Cash Transfer		-	-	-	0.143 (0.64) *
Women Empowerment * Cash Transfer		-	-	-	-0.036 (0.384)
Employment		-	0.157 (0.249)	0.239 (0.230)	0.258 (0.234)
Employment Before Marriage		-	0.342 (0.150) *	0331 (0.148) *	0.334 (0.145) *
Marriage to birth Interval (Ref: Less than 5 Years)					
More than 5 years		-	0.274 (0.161) *	0.296 (0.174) *	0.273 (0.162) *
More than 10 years			1.104 (0.331) **	1.131 (0.331) **	1.099 (0.336) **
Women Education (Ref: No Education)					
Primary		-	0.397 (0.132) **	0.483 (0.169) **	0.488 (0.174) **
Secondary		-	0.282 (0.183)	0.489 (0.158) **	0.463 (0.157) **
Higher		-	0.065 (0.242)	0.429 (0.235)	0.401 (0.236) *
Husband Education (Ref: No Education)					
Primary		-	-	0.041 (0.157)	0.043 (0.160)
Secondary		-	-	-0.365 (0.139) **	-0.372 (0.139) **
Higher		-	-	-0.548 (0.177) **	-0.540 (0.181) **
Husband Employment		-	-	-0.443 (0.178) *	-0.398 (0.190) *
Use of Alcohol		-	-	0.747 (0.289) *	0.730 (0.335) ***
Rural / Urban		-	-	0.140 (0.139)	0.125 (0.141)
Sample		2510	2510	2510	2510
Wald test of exogeneity	Chi2(1)	5.61	4.48	4.42	3.25
	P > Chi2	0.0178	0.0342	0.0355	0.0716

Source: Author's estimates based on PDHS 2017-18

Note: This table displays the ivprobit regression model's estimates. Column (1) reports the results of the baseline model with only women empowerment, column (2) reports the results of adding individual characteristics to the baseline model, column (3) reports the results of the complete model (baseline model plus individual and household characteristics), and column (4) reports the results of the interaction term (women empowerment and cash transfer). Coefficients for all the variables are reported herein.

All standard errors are clustered and reported in the parenthesis. The symbol *, ** and ***, denote statistics significance at 10%, 5% and 1% levels respectively. Wald test of exogeneity is reported at the end of the table, Ho: There is no endogeniety. The test statistics show that all of the models rejected the null hypothesis in favor of the alternative hypothesis.

The results highlight that a woman's ability to make decisions and economic empowerment have a substantial impact on her experience of intimate partner violence. Results (column 1 – 4) reveal that empowered women are less likely to be among the women who have experienced violence than women who have no empowerment at all. According to the analysis, the study has found that, more husband-related factors than measures of women's empowerment found connected to the experience of IPV among women (Gautam & Jeong, 2019).

Column 2 presents the result of the model estimated for women individual characteristics. Estimates reveal that, women work history before marriage is a significant positive contributor to the women's experience of IPV. This seems reasonable considering male hostility that greater employment options for women are linked to an increase in violence (Sikweyiya *et al.*, 2020). According to the study, this behavioral pattern only appears in countries where women have less access to divorce than men (Sikweyiya *et al.*, 2020; Bhalotra *et al.*, 2021). However, her current employment status did not show any significance in this study.

Marriage to birth interval is divided into three categories; first birth within 5 years of marriage, first birth between 5 and 10 years of marriage, and first birth after 10 years of marriage. The study has used first birth within 5 years of marriage as reference category here. The results show that; women who have their first birth between 5 and 10 years and after 10 years of marriage are more likely to experience IPV as compared to the women who have their first within 5 years of marriage. However, women education did not show any promising results for secondary and higher levels of education as compared to no formal education. But, women primary level of education of is a significant positive contributor to intimate partner violence.

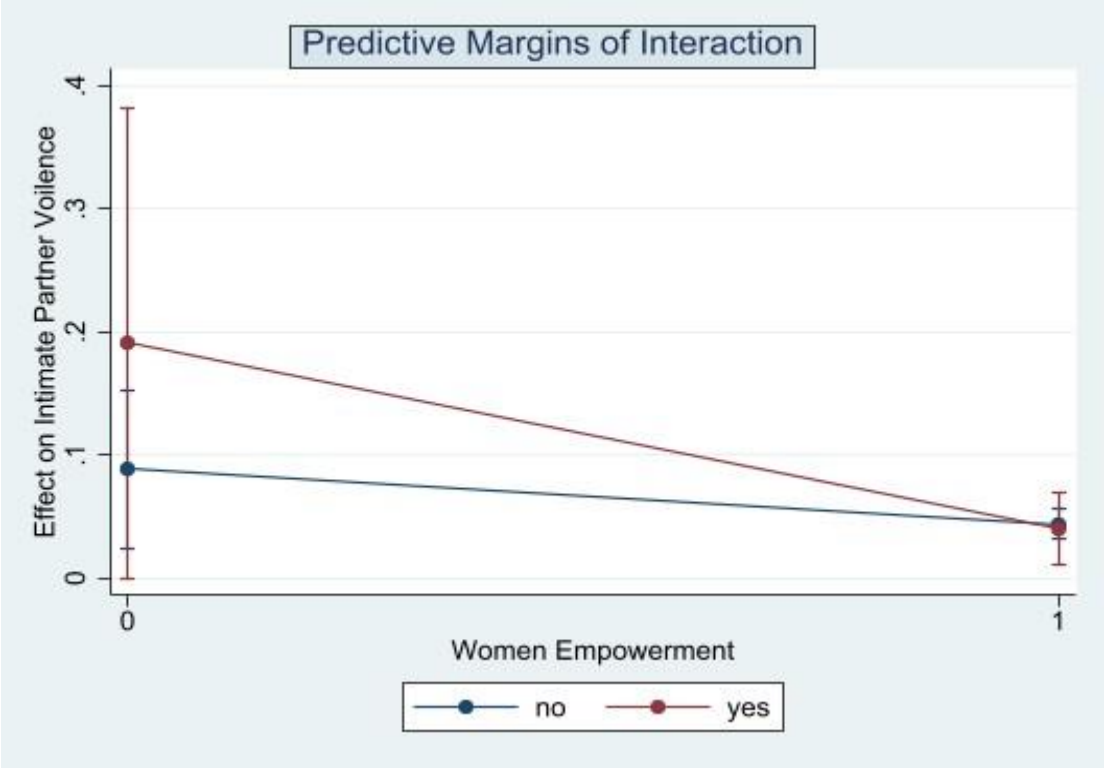


Figure 5.6: 95% CI for Marginal Effect of Interaction Term for IPV

Results from the model for husband's individual characteristics are displayed in column 3 of the table 5.11. The husband's level of education is a significant negative contributor to the experience of IPV. Hence, women whose husband are educated are less likely to be among who experience IPV as compared to the women whose husband have no formal education. Similarly, employment status of husband is also negatively associated with the experience of IPV among wives. Men who are engaged in earnings are less likely to victimize their wives as compared to the men who are no engaged in the activity. However, the use of alcohol by men is connected positively with IPV. Women whose husband use to drink are more likely to experience IPV as compared to the women whose men did not use alcohol. The study has also used location of the household in the analysis, if the household's location can be connected to IPV experiences. However, study has not found the significant impact of location of household in case of IPV.

Finally, the column 4 presented the results for the model with cash transfers and interaction term. It is found that, cash transfers directed to the women have a significant positive impact on intimate partner violence. Women who receives cash transfers are more likely to experience intimate partner violence as compared to the women who did is receive cash transfers. Column 4 also reveals that, the results for women education levels have shown improvement as compared to the results reported in column 2. Additionally, the estimates for all other variables shows consistency.

CHAPTER 6

POLICY DISCUSSION

Following Pakistan's 18th Constitutional Amendment (2010), the provinces were given 18 federal ministries and 47 topics, including women's development, and were required to incorporate national laws and international human rights conventions into their policies and legal frameworks. Since the Federal Women's Ministry was abolished in 2011, extra responsibilities have fallen to provincial women's ministries, with the Federal Ministry of Human Rights (MoHR) providing guidelines and help for reporting on international commitments. All four provinces i.e., Punjab, Khyber Pakhtunkhwa, Baluchistan and Sindh, have developed their respective departments to mainstream the gender related issues. Khyber Pakhtunkhwa's women empowerment and policy framework (2015) was developed by Khyber Pakhtunkhwa Women's Development Department (WDD) to prioritize the needs of poor women from rural and urban areas. Likewise, Punjab Women's Development Department (WDD) had also devised a women's development policy in 2018. Women's empowerment and development policy of the Sindh government was established by Sindh Women's Development Department (WDD) in 2013. Similarly, Baluchistan is working on Baluchistan's Gender Policy Action Plan, 2016-2020. All these policies are devised to protect the economic, social and political rights through the promotion of women's empowerment, education, health. The policy also commits to reduce the poverty and violence against women in Pakistan.

The number of maternal deaths has decreased by around 38% during the last two decades (2000-2017). Globally, coverage of important interventions such as vaccines, skilled birth attendance, and access to safe drinking water improved on average. This

advancement, however, has not been ubiquitous. Over 86% of maternal deaths occur in Sub-Saharan Africa and South Asia, where resources are scarcer (WHO, 2019). In 2015, there were approximately 5,500,000 (5.5 million) births in Pakistan. Pakistan's MMR in 2015 was 178 fatalities per 100,000 live births, a 58.7% decrease from 431 deaths per 100,000 live births in 1990. There are, however, differences across provinces and rural/urban areas (Aziz *et al.*, 2020). While Pakistan's MMR and NMR have dropped since 1990, their outcomes have improved less than those of other Asian countries. Moreover, according to UNICEF data published in 2018, Pakistan was declared the world's most dangerous country to be born in 2016 based on its NMR, which was higher than the Central African Republic, Afghanistan, and Somalia. In 2016, one out of every 22 babies born in Pakistan died before reaching the age of one month.

Pakistan has consistently failed to reach the health-related MDGs 4 and 5 for reducing maternal and child mortality. In 2007, the government developed the National Maternal, Neonatal, and Child Health (MNCH) Program to improve mother and child health outcomes. This project concentrated on two main areas: (1) emergency obstetric care and community midwives, and (2) institutional births and skilled birth attendance. Tragically, despite all these efforts, the Millennium Development Goals were not achieved. As a signatory to the newer Sustainable Development Goals (SDGs) 2015-2030, the government of Pakistan created a monitoring and evaluation method for the National Health Vision. To ensure an extensive impact, the structure is integrated with the Pakistan Planning Commission, as well as other stakeholders, for SDG reporting. SDG 3 is to reduce global MMR to less than 70 deaths per 100,000 live births by 2030, guaranteeing healthy lives and fostering well-being for all ages.

Based on the Pakistan Demographic and Health Survey (PDHS) 2017-18 report, skilled birth attendants perform 69% of deliveries, and 66% of deliveries are placed in a health facility. However, birth assisted by Dai or in the traditional manner remains at 24%. The proportion of women receiving antenatal care (ANC) from a skilled provider has improved from 73% in 2012-13 to 86% in 2017-18. The majority of women who obtained ANC from a trained provider are young, urban, educated, and from the wealthiest quintile. Since the adoption of the SDGs as the National Development Agenda in February 2016, Pakistan has made progress in these areas, but much more work remains to be done to reduce MMR and NMR to the desired levels.

An increase in the provision of public health facilities in Pakistan is not enough to meet the need of the increasing population. Many populations of the country live in rural areas but most of the health facilities are in cities and thus exclude them to avail the public health provision at the time of need. However, the private health sector also an important role in the provision of health facilities; around 70% of the country's population is being served by private health facilities. Following the Economic Survey of Pakistan (2020-21), Pakistan spends only 1.2% of its GDP on health care, which is much less than the 5% proposed by WHO. The present government is committed to strengthen the country's healthcare system, but the obstacles posed by the COVID-19 epidemic place further strain on the country's already vulnerable population and its deplorable healthcare system (Pakistan Economic Survey 2019-20).

Our study focuses on two main challenges faced by Pakistan in recent times; maternal health and children's health. Children's health and early development are highly dependent on the better health of mothers. Maternal health care is the backbone of the family health system; it not only signifies the health of the mother but also ensures the health of the children. Research has established that; healthy mothers are more likely

to provide better care for their children. Several studies have claimed that women's empowerment is the key factor to improve maternal health care. Women as the primary recipient of cash transfer programs around the world also use the idea to improve women's status in the household. BISP is the largest cash transfer program also uses the same idea to empower women in Pakistan. The basic idea of BISP is to assist the poorest quintile to cope up with increasing food prices in Pakistan at the time of initiation. However, over time, more programs were added under the umbrella of BISP like Waseela-e-Taleem, Waseela-e-Sehat, Waseela-e-Haq, etc.

The current government (PTI) of Pakistan has launched the Sehat Sahulat Program to assist the poor population. The success of the program heavily depends on the availability of the funds like previous programs – Waseela-e-Sehat and Prime Minister National Health Program launched by PPP and PMLN respectively— have failed to function due to the non-availability of the funds. In the case of a successful Sehat Sahulat Program, it will be a dream come true program for many poor families in the country.

The major factors among poor maternal health care are lack of education/awareness, cultural beliefs, and most importantly money. Education is the most essential factor among all other factors because education is the key to break the cultural barriers through awareness and helps to improve the financial status of the family. The literacy rate in Pakistan has remained a major issue and currently, less than 47% of the women are counted as literate. Even though, having no formal education is a major issue in the awareness and utilization of basic health facilities. However, Basic Health Units (BHUs) and Rural Health Centers (RHCs) have shown commitment in this regard to educating women at a union council level. Interview with the Lady Health Worker (LHW) has revealed that they conduct a meeting of around 15 women on a bi-monthly

basis. The group of women which usually consists of about 15 women includes pregnant, unmarried, and young women, breastfeeding mothers, and mothers-in-law. This counseling activity helps in promoting the importance of antenatal visits, delivery in an institution, birth gap, and awareness regarding other health-related issues usually confronted by pregnant women. The session is usually observed by the health officer of the BHU to improve community participation. BHU also conducts another gathering at the union council level consisting of the chairman of the area, a religious member (cleric), and other men of the area to convince them to promote and utilize the health services.

Discussion with the LHW also revealed that one of the most important factors while not using the health facilities is the issue of trust among the general population regarding the health facilities provided by the government. Problem of Anemia is one of the major issues among pregnant women in Pakistan. The head at the BHU also pointed out the diet need of children if the child was found under-weight and they recall them every 15 days until the child shows some growth. Diet plans devised are shared with mothers on regular basis during their routine checkups of antenatal visits and postnatal visits. The major problem shared by the BHU team is that they did not have a test facility available to them and patients are usually asked to get the required test from outside lab facilities. Private labs are costly and usually cost around PKR 500 to PKR 1000 depending on the required test and hence a major burden for the poor family. Also, the non-availability of the test equipment may put serious patient health and life in danger if spotted a serious issue at the time of delivery.

Dr. Razia Safdar from the Ministry of National Health Services Regulation and Coordination (MoNHSR&C) told that the problem of Anemia is their prime focus and they are working to distribute the new medicine around the country. The new medicine

is more effective and will be available in the whole of Pakistan in the coming days. She agrees with the effectiveness of the community-level counseling workshops conducted by BHUs and this effort is the vital tool to improve maternal health care among women. One of the major concerns among Pakistani women is the use of C-Section. Delivery by C-Section has increased to 22% in 2017-18 as compared to 14% in 2012-13 which is significantly high as recommended by WHO i.e., 10% -15%. Women who are educated and living in urban areas are more likely to opt C-Section and as compared to their counterparts and private hospitals play a vital role in this repute. Delivery with C-Section would only be preferred if there exist complications otherwise the chance of second birth with C-Section increases if the first birth was a result of C-Section. However, medical expert says that multiple C-Section can lead to serious maternal health issues and complications. She also pointed out the Essential Health Package Services (EPHS) under the umbrella of Universal Health Coverage (UHC) Benefits Package of Pakistan will provide the basic health facilities needed by poor families. The program will help in improving maternal health by providing access to antenatal care, nutrition requirement, vaccination, skilled birth attendant, and family planning.

Pakistan government is working closely with WHO to adopt the WHO framework to control the rising issue of stillbirth, maternal and neonatal deaths under the theme "Quality of care around the time of birth". The policy recommendations will be made to Federal and Provincial level governments.

Looking at the current programs running in Pakistan one can hope that the continuation of these awareness programs especially at the union council level will surely improve the MMR and NMR to the required level. But these programs complemented with a cash transfer to the poorest of the quintile are a win-win for Pakistan. Currently, there is an unconditional cash transfer program running in the country. The main idea of the

cash transfer program was to assist poor families regardless of where they spend this money. Usually, beneficiaries spend this money to smooth their consumption. Following discussions with the Director-General of the Cash Transfer Program, it was revealed that the government would like to continue this unconditional cash transfer program while also complementing the Sehat Sahulat Program to assist disadvantaged families with their health needs. Conditional cash transfers are more effective when they target a specific area of intervention around the world. It might be argued that, in addition to the unconditional basic cash transfer program, the Sehat Sahulat Program will assist the government in meeting the SDGs on time.

As per UNICEF, Pakistan has the world's second-highest rate of out-of-school children, with an estimated 22.8 million children aged 5 to 16 not attending school, accounting for 44 percent of the total population in this age group. 5 million children ages 5 to 9 are not enrolled in school, while the number of out-of-school children more than doubles following primary school, with 11.4 million teenagers aged 10 to 14 not receiving formal education. Gender, socioeconomic level, and regional gaps are significant; in Sindh, 52 percent of the poorest children (58 percent females) are not in school, while in Baluchistan, 78 percent of girls are not in school. Furthermore, nearly 10.7 million boys and 8.6 million girls are enrolled in primary education, with 3.6 million boys and 2.8 million girls enrolled in lower secondary school. Pakistan is struggling to ensure that all students, particularly the poorest, attend, stay, and learn in school. While enrollment and retention rates are increasing, progress in education metrics in Pakistan has been slow.

One of the common features of developed nations is that they have successfully provided free education to their children at an early age. Early school education is of fundamental importance because of its long-term benefits on children's educational

attainment and development. Every citizen has the right to a basic education; nevertheless, as a society, governments have continually failed to implement an educational system that increases school attendance among children. The present government is collaborating closely with UNICEF to implement policies that will increase child school attendance. In addition, Pakistan is working on a "Single National Curriculum" to minimize class distinctions in the educational attainment process, such as secular vs religious and private vs public. The progress in this area is still arguable, but should remain optimistic about making a substantial influence in the field of education.

6.1 Policy Recommendations

Based on the study's findings, following are the policy recommendations:

1. The government should focus more on educating women about maternal health issues and child nutritional requirements at the community level.
2. Policies regarding Women's empowerment should be made more effective in raising awareness among women through the mainstream media and social media. The importance of spacing between births and the use of family planning should also be emphasized.
3. To improve health-related challenges among women and children, the government should consider introducing the Conditional Cash Transfer program instead of continuing Unconditional Cash Transfer program i.e., BISP.

CHAPTER 7

Conclusion

The study wants to establish the link between women's empowerment and the maternal health of mothers, incidence of IPV, and children health & schooling in the presence of cash transfers. Study has developed the collective household model in the study to provide the theoretical baseline. In order to get the final results, study employed the instrumental probit (Ivprobit) regression model and estimated a multi-model approach. The study has used women's home and land ownership as an instrument to tackle the probable problem of endogeniety. Moreover, the study has used the latest available data set of PDHS 2017-18.

A sizeable number of studies has claimed that women's empowerment is one of the most important variables in obtaining maternal health care. However, how women's empowerment is measured differs across studies. The study took a reasonable approach to defining women's empowerment as a binary variable. The findings are consistent with earlier research in that women's empowerment influences the usage of maternal health services. In the case of Pakistan, the study discovered a significant favorable influence of women empowerment on the utilization of antenatal care, delivery care, and postnatal care.

The 'behavioral model of health services' was employed in this study, which identifies three sets of individual characteristics: predisposing factors, enabling factors, and need factors. Women's attitudes about health, household size, and health beliefs are key contributors to this model's predisposing factors. All of these characteristics consistently contribute to the use of maternal health services at all three levels (Antenatal, Delivery, and Postnatal care). Women's attitude towards health and women

age is negative contributor to her health. While household size affects her health positively. However, parity does not show any significance in the model.

Among the behavioral model's enabling variables, ease of access and mother source of information are important. The usage of the internet and television benefits the utilization of maternal health services. According to model results, the main barrier to using maternal health care services is going alone and not having enough money. The only need factor evaluated in this study was having lost a child in a previous pregnancy, which did not show to be a significant predictor in influencing maternal health.

Relevant research also supports the notion that women's empowerment is a key tool for improving the nutritional status of households, particularly children, in their early years of life. Study assessed undernutrition in children under the age of five using the WHO definition, which includes stunting, wasting, and being underweight. Study also defined child health as a binary variable based on these three definitions. Results of the model states that, women empowerment is a significant contributor in achieving the child health. Among the explanatory variables, child size at birth, breastfeeding, sex of the child, location of household, household wealth, sex of household, mother’s attitude towards health, and antenatal visits are found significant contributors for child health. Marriage with a relative/cousin, recent diarrheal incidence, mother’s attitude towards health, sex of child is found non-contributing factors.

Children's education plays an important role in achieving long-life learning abilities, cognitive development, and social abilities. It not only defines the future development of children but also provides a baseline to break the poverty cycle of a household. The study has measured child education for children currently attending the school. The result of the model shows that mother and father education plays a significant positive role in child school enrolment status. Among other factors, head’s educational

attainment level also plays a vital role to keep children enrolled. Child school attendance improves with the improvement in wealth status of the household. Children's enrolment will be high in households where fathers have higher educational attainment levels than mothers, according to the spousal education difference. Furthermore, the study has observed gender biasedness in the results from child school attendance.

Intimate partner violence (IPV)is quite common, which highlights the importance of the problem. However, certain societies have higher rates of domestic violence than others. Each society has certain characteristics that influence the type of domestic violence in that society. The study has found that, women empowerment is a key tool to help women against this particular issue. The analyses show that women who worked before marriage are more likely to experience intimate partner violence. Education for women also contributes positively to intimate partner violence, rather than aiding women's cause. It has also been observed that women who have their first child after ten years of marriage experience the episodes of violence. However, it turns out that intimate partner violence is negatively correlated with the husband's work and education. Moreover, the alcoholic husband's wife claims that she has experienced violence.

Finally, the joint effect of women empowerment and cash transfers is observed contributing in all the models i.e., maternal health, children health, children school attendance, and intimate partner violence. Hence, it can be concluded that women's empowerment in the presence of cash transfers has a significant positive effect on maternal health, children health, children school attendance, and intimate partner violence.

7.1 Limitations of the study

The following are the limitations of the study:

1. The nature of the data available to complete this analysis is the study's main limitation. Nonetheless, the data used in the study (PDHS 2017-18) contains a great deal of information about the variables of concern. However, this data does not include information from the same individuals/households over time, i.e., it is not a longitudinal data set.
2. Another limitation of the study is the study's model, which is related to the type of the data employed in the study. While investigating these types of studies, an extension of the collective model, such as intertemporal choice models, would be more appropriate. But, this would be possible with household panel survey.

Limitations are the part of studies and it provides us a better understanding of how to improve the quality of studies in the future. The study explores the subject in detail and provides key insights based on the best available information.

7.2 Way Forward

In light of the previous explanation, the study underlines one critical issue concerning the nature of the data sets currently available for research purposes. Considering the resources available to scholars in economics and allied social science subjects. To better equip researchers, a true panel household data set is required.

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