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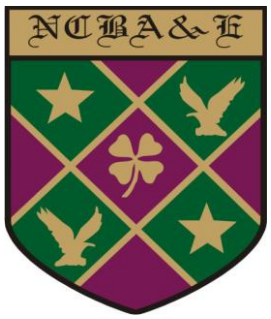

IMPACTS OF COVID-19 ON FOOD, EDUCATION, AND HEALTH EXPENSES: AN ANALYSIS FOR PAKISTAN

BY

NAZISH FATIMA

MASTER OF PHILOSOPHY
IN
ECONOMICS

SEPTEMBER, 2022

NATIONAL COLLEGE OF BUSINESS ADMINISTRATION & ECONOMICS

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BY

Nazish Fatima

A dissertation submitted to
Faculty of Social Sciences

In Partial Fulfillment oft he
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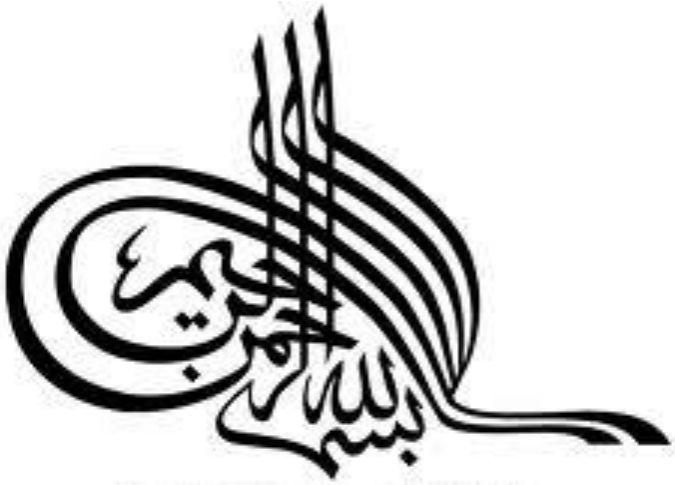

In the name of ALLAH,
The Most Beneficial,
The Most Merciful,

NATIONAL COLLEGE OF BUSINESS ADMINISTRATION & ECONOMICS LAHORE

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Dissertation Committee:

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Chairman

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Member

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Member

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Director Research
National College of Business Administration & Economics

DECLARATION

It is to declare that this research work has not been submitted for obtaining similar degree from any other university/college.

NAZISH FATIMA
September, 2022

DEDICATED
TO

My Mother

&

Children

ACKNOWLEDGEMENT

All praises and thanks to Almighty Allah who has given us the wisdom and knowledge to identify the right path and reach the truth. With profound gratitude, I wish to thank some marvelous people who have encouraged and helped me through their being presence.

I express my profound feelings of gratitude and indebtedness to my honorable supervisor, Prof. Dr. A.R. Chaudhary, Dean Faculty of Social Sciences, Department of Economics, for her ever inspiring guidance and constructive suggestions throughout the course of my studies, without her positive feedback, this thesis would not have materialized.

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Finally, I would like to thank my family and friends for their encouragement and unconditional support throughout the entire process.

RESEARCH COMPLETION CERTIFICATE

Certified that the research work contained in this thesis entitled **"Impacts of Covid-19 on Food, Education, and Health Expenses: An Analysis for Pakistan"** has been carried out and completed by **Ms. Nazish Fatima** under my supervision during her **M.Phil. Economics** Programme.

(Prof. Dr. A.R Chaudhary)
Supervisor

SUMMARY

The COVID-19 Pandemic triggered from Wuhan, China, spread around the globe and is still ongoing with staggering health, social and economic consequences. The Government of Pakistan has been taking necessary precautions and measures against the virus to protect its people from the Pandemic's adverse effects. The non-pharmaceutical interventions adopted to control the spread of the virus resulted in severe repercussions. The loss in income due to unemployment, layoffs, and reduced working hours severely affected households' food, education, and health expenses. In this regard, the Pakistani government launched one of the most extensive social protection program to save the masses from the pandemic's worst effects. This study investigates the COVID-19 impact on households' food, education, and health expenses and the impact of government social protection policies such as Ehsaas emergency cash program, Benazir Income support program (BISP), Non-governmental organizations (NGOs), and Zakat assistance for households in Pakistan. This study has used secondary data of a special survey for evaluating the socio-economic impact of COVID-19 from April 2020 to July 2020, conducted and administered by the Pakistan Bureau of Statistics. Binary Logistic regression has been used for the analysis as the dependent variables of the study are dichotomous in nature.

The study's findings regarding household food expense shows that the households who received assistance from Ehsaas, BISP, NGOs and Zakat their food expenses are more than those who have not received any assistance from these programs. Similarly, the findings regarding the households children education expense reveals that the households who received assistance from Ehsaas, BISP, and Zakat their education expenses are more than those who have not received assistance from these programs. The variable NGOs is insignificant in children education expense. Likewise, the results for household health expense shows that the households who received assistance from Ehsaas, and BISP their health expenses are more than those who have not received assistance from these programs. The variables NGOs and Zakat are insignificant in household health expense. Therefore, it is concluded that social protection programs play an essential role in improving the well-being of households. Ehsaas cash has the highest significant impact on household food and education. Whereas, BISP has a large significant impact on health expenses. This study will provide insightful information in framing the social protection policies in the current and post-crisis scenario.

LIST OF ABBREVIATIONS

BISP	Benazir Income Support Program
CDC	Centers for Disease Control and Prevention
ILO	International Labor Organization
NCOC	National Coordination Committee
NDMA	National Disaster Management Authority
NEMIS	The National Education Management Information System
NGO	Non-governmental Organization
SBP	State Bank of Pakistan
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Program
UNICEF	United Nations Children's Fund
UNWTO	United Nations World Tourism Organization
WDI	World Development Indicators
WEO	World Economic Outlook
WESP	World Economic Situation and Prospects
WHO	World Health Organization
WTO	World Trade Organization

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CHAPTER 1

INTRODUCTION

1.1 BACKGROUND OF THE STUDY

The world, since its inception, has seen many significant epidemics and Pandemics. Some of them were major pandemics that resulted in high death tolls and severe social disruptions worldwide (Jn Hays, 2005). In 14th century, the Black Death pandemics decreased the global population by one-third, with the highest death cases observed in poor people (Duncan and Scott, 2005; Ahmed et al., 2020). Epidemic diseases, mainly in the 20th century, i.e.1918, 1957, 1968, and 21st century, i.e., 2003, 2009, 2012, and 2015, cause significant changes in human and social life (Mills et al., 2004; WHO, 2020a). The number of "influenza A" outbreaks has occurred ten times in the last 300 years (Osterholm, 2005). Since there is no formal definition of a Pandemic, the World Health Organization has defined Pandemic phases definitions (Doshi and Peter, 2011; Kelli, 2011). An epidemic is defined as "the existence of cases of an illness clearly in excess of normal expectancy in a community or region" (Porta, 2014). According to the centers for disease control and prevention (CDC), an epidemic is a sudden increase in ailment cases in a particular geographic region. In contrast, a Pandemic define as a widespread disease over several countries or continents, generally distressing many people (CDC, 2019). Evidence advocates that the probability of pandemics has augmented compared to the past eras due to improved universal travel and amalgamation, changes in land use, urbanization, and misuse of the natural surroundings to a great extent (Jones et al., 2008; Morse, 1995).

Many economists such as Jonas (2013) and Fan et al. (2016) had even warned the world against the economic effects of epidemics and pandemics. Fan et al. (2016) projected that a relatively severe pandemic can result in 2 million or additional deaths internationally. Mills et al. (2004) cautioned that if a pandemic like 1918 influenza occurred, the infected cases would increase precipitously due to improved traveling and double the resultant fatalities almost every three days. Tew et al. (2008) highlighted that the key point is planning, and earlier outbreak occurrences are important in this respect. However, it appears that the countries have not realized something from previous pandemics; or else, they would not have endured so much as witnessed in the ongoing scenario of COVID-19.

In December 2019, the world suffered from a novel virus called Corona, COVID-19, which emerged in Wuhan city, Hubei, China. The COVID-19 declared a pandemic by World Health Organization (WHO) is the "defining global health crisis of our time" (WHO, 2020c). COVID-19 is the third serious outbreak caused by a coronavirus (Wang et al., 2020a). Currently, this contagious virus is sweeping worldwide with staggering health, social and economic consequences. Globally, as of February 10, 2022, the confirmed cases of COVID-19 were 402,044,502, including 5,770,023 deaths. As of February 6, 2022, 10,095,615,243 vaccine doses have been carried out (WHO, 2022). Flu outbreaks are usually considered a threatening infectious disease to the world (Osterholm, 2005), proliferates rapidly, and are responsible for numerous deaths worldwide (Mills et al., 2004). Many social and economic issues arise due to deadly outbreaks, such as social and political unrest, serious stagnation of the economy, poverty, unemployment, food insecurity, and loss of life (Yeganeh, 2019). The strategies such as the closure of workplaces and schools, isolation, home quarantine, and travel constraints are implemented to mitigate the harshness of a new outbreak and are considered as a public health priority worldwide (Ferguson et al., 2006; Yeganeh, 2019). The social and economic effects of the pandemic are having a substantial impact across underdeveloped, emerging market and developing economies, and advanced economies irrespective of their income level. This is an unprecedented and challenging time from a human and economic perspective (UNDP, 2020).

COVID-19 has been stated as a black-swan-event (Antipova, 2020), creating enormous damage to the economies around the world and critically affecting diverse sectors of humanity, such as manufacturing, education, aviation, and tourism (Fu and Shen, 2020; Nicola et al., 2020). The world economy lost trillions of dollars. Economic activities worldwide hazards have risen considerably in the contagion, with financial markets becoming highly volatile (Albulescu, 2020; Zhang et al., 2020). The stark restrictions and measures of social distance in many countries have forced lockdowns which cause severe economic strain (Baldwin and Mauro, 2020; Chetty et al., 2020). So, the governments are experiencing difficulty in deciding between public health and financial health (Lin and Meissner, 2020). The lockdowns are accountable for huge employment and income losses (Rojas et al., 2020; Fairlie et al., 2020; Coibion et al., 2020; Gopinath, 2020b). The unemployment documented in the USA is at its highest level since the great depression (Coibion et al., 2020; Fairlie et al., 2020; Rojas et al., 2020), with unequal effects across businesses and societies (Montenovo et al., 2020; Fairlie et al., 2020; Borjas and Cassidy, 2020). Working hours have been reduced to avoid laying off the workers in many countries, which has impacted lower-skilled occupations such as elementary work more than higher-paying managerial and professional jobs (ILO, 2021). The decrease in demand and interruptions in

supply created by the ongoing crisis and the policies implemented to control its spread have caused massive incomes falling in the South Asia region (World Bank, 2020).

In 2020, world output shrank by 4.6 per cent, three times greater compared to the 2009 global financial crisis. The merchandise trade volume fell by 5.3 percent (WTO, 2021). Global International tourism and its jointly associated sectors endured an estimated 2.4 $ trillion loss. This was due to the direct and indirect effects of a decline in international tourist arrivals (UNWTO, 2021). Global foreign direct investment contracted by 859$ billion, a 42 percent decline of 1$ trillion compared to 1.5$ trillion in 2019. Since 2005, this is the minimum level and around 20 percent lower compared to 2009, after the global financial crisis (UNCTAD, 2021). The outbreak troubled the world's energy sector as a whole. Ultimately, the graph of oil demand started to decline, leading the oil market prices on a declining trend, and big economies like the USA were bidding the oil-free of cost (Iqbal et al., 2021). Crude oil documented hostile prices in history for the first time. The price of the West Texas Intermediate (WTI) crude fell to 37.63$ per barrel, exhibited an extraordinary 300 percent drop in price (devpura, 2020). Nominal global food prices have risen more than 40 percent since the pandemic's start (WEO, 2021). According to the International Labor Organization (ILO), due to the ongoing crises, the growth rate of average wages faced downward pressure, observed in many countries in the first half of 2020. In some countries, average wages increased because many low-paid workers lost their jobs. Moreover, the crisis disproportionately affected lower-paid workers, increasing wage inequalities (ILO, 2021). Contingent workers are affected three times greater than regular workers, and they are more severely hit in both employment and wages than regular workers (Kikuchi, 2020; Kitao et al., 2021). Further, women were more affected than men to drop out of the labor markets and become inactive. The global employment loss for women and men was 5 percent and 3.9 percent. In comparison, the loss of youth employment and adults was 8.7 percent and 3.7 percent in 2020 (UN News, 2021).

The GDP per capita of South Asia decreased by 6.7 percent. The region's economic performance was already lagging before the pandemic, with a low economic growth at 3.1 percent in 2019. Labor market weaknesses, vulnerable healthcare, social protection systems, and inadequately managed urbanization helped the pandemic create a disaster (WESP, 2021). The Pandemic caused a global stark employment crisis, lockdown measures full or partial affected nearly 2.7 billion workers by April 2020, 81 percent of the global workforce (United Nations, 2021). In 2020, 8.8 percent of global working hours were lost relative to the fourth quarter of 2019, equivalent to

255 million full-time jobs (ILO, 2021). Remittances fell by 20 percent (World Bank 2020). Global labor income earlier to support measures in 2020 dropped by 8.3 percent, which amounts to 3.7 US$ trillion, or 4.4 percent of global gross domestic product. (ILO, 2021). Employment worldwide declined by 114 million in 2020 compared to 2019. Job and income losses have pushed an additional 19 to 124 million people into extreme poverty in 2020, with 60 percent living in South Asia (World Bank, 2021).

Pakistan reported its first case of coronavirus on 26 February 2020 (Ali et al., 2020; Malik 2020). Because of globalization, the ramifications of the disaster are not restricted to a few countries. The economy is suffering badly; by February 10, 2022, infected patients were 1,470,161, with 29,601 deaths. As of February 6, 2022, an overall 189,012,731 vaccine doses have been carried out (WHO, 2022). Since the outbreak occurred, the country has been under full or partial lockdown, causing adverse economic impact decoded through different networks, including the weakening of national demand, disruption in financial markets and exchange rate, reduced trade activities, imports, exports, travel, tourism and production due to disturbance in the supply and demand chain. Which ultimately resulted in decreased employment, mainly for those who belonged to the vulnerable employment group. The usefulness of non-pharmaceutical interventions in terms of health effects has been shown in many studies (Juranek et al., 2020; Conyon et al., 2020; Flaxman et al., 2020; Glogowsky et al., 2020; Huber and Langen, 2020; Juranek and Zoutman, 2020).

The NPIs damages the economy, and labor markets are disrupted due to preventative measures against the crisis (Andersen et al., 2020; Kong and Prinz, 2020). The cut in labor income has been disseminated unequally between workforces, which means that the problem of income loss is combined with greater inequality; the consequence of losing a job is greater for low-skilled workers followed by medium-skilled and high-skilled workers (ILO monitor, 2021). The Pandemic has swiftly expanded from a health emergency to a labor market disaster, impacting peoples' lives (ILO, 2020).

Governments worldwide are taking initiatives by providing cash transfers to protect their people from the pandemic adverse effects. Quarantines, the shutdown of non-essential businesses, income loss due to unemployment, layoffs and reduced working hours, higher prices for food and essential goods with more limited access, and higher medical costs adversely affect millions of people. The government of Pakistan launched Ehsaas Emergency Cash Programme in April 2020 to mitigate the socio-economic impact of the pandemic and to help families with low-income groups who lost their livelihoods due to the crisis.

This study investigates the effects of reduced income on household food, education, and health expenses and the impact of government assistance programs such as Ehsaas emergency cash, Benazir Income support program, Non-governmental organizations, and zakat assistance during the crisis in Pakistan. This study analyzes the survey data period from April 2020 to July 2020.

1.2 OBJECTIVES OF THE STUDY

The study's objective is to find out the impacts of Covid 19 (April 2020 to July 2020) on food, education, and health on households in Pakistan. The objectives are as follows.

1) To examine the impact of income during COVID-19 on household food expense.

2) To examine the impact of income during COVID-19 on household child education expense.

3) To examine the impact of income during COVID-19 on household health expense.

4) To investigate the impact of Ehsaas program on household food expense during COVID-19

5) To investigate the impact of Ehsaas program on household child education expense during COVID-19

6) To investigate the impact of Ehsaas program on household health expense during COVID-19

7) To investigate the impact of BISP on household food expenses during COVID-19

8) To investigate the impact of BISP on household child education expenses during COVID-19

9) To investigate the impact of BISP on household health expenses during COVID-19

10) To investigate the impact of NGOs on household food expense during COVID-19

11) To investigate the impact of NGOs on household child education expense during COVID-19

12) To investigate the impact of NGOs on household health expense during COVID-19

13) To investigate the impact of Zakat on household food expense during COVID-19

14) To investigate the impact of Zakat on household child education expense during COVID-19

15) To investigate the impact of Zakat on household health expense during COVID-19

1.3 RESEARCH QUESTIONS

This study targets to answer the following questions.

1) What is the impact of income on household food expense during COVID-19?

2) What is the impact of income on household child education expense during COVID-19?

3) What is the impact of income on household health expense during COVID-19?

4) What is the impact of Ehsaas program on household food expense during COVID-19?

5) What is the impact of Ehsaas program on household child education expense during COVID-19?

6) What is the impact of Ehsaas program on household health expense during COVID-19?

7) What is the impact of BISP on household food expense during COVID-19?

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9) What is the impact of BISP on household health expense during COVID-19?

10) What is the impact of NGOs on household food expense during COVID-19?

11) What is the impact of NGOs on household child education expense during COVID-19?

12) What is the impact of NGOs on household health expense during COVID-19?

13) What is the impact of Zakat on household food expense during COVID-19?

14) What is the impact of Zakat on household child education expense during COVID-19?

15) What is the impact of Zakat on household health expense during COVID-19?

1.4 HYPOTHESES OF THE STUDY

Following hypotheses shall be tested for this study

H_1: Income does not have a significant impact on household food expense during COVID-19.

H_2: Income does not have a significant impact on household child education expense during COVID-19.

H_3: Income does not have a significant impact on household health expense during COVID-19.

H_4: Ehsaas emergency cash assistance does not have a significant impact on household food expense.

H_5: Ehsaas emergency cash assistance does not have a significant impact on household child education expense.

H_6: Ehsaas emergency cash assistance does not have a significant impact on household health expense.

H_7: BISP assistance does not have a significant impact on household food expense.

H_8: BISP assistance does not have a significant impact on household child education expense.

H_9: BISP assistance does not have a significant impact on household health expense.

H_{10}: NGOs assistance does not have a significant impact on household food expense.

H_{11}: NGOs assistance does not have a significant impact on household child education expense.

H_{12}: NGOs assistance does not have a significant impact on household health expense.

H_{13}: Zakat assistance does not have a significant impact on household food expense.

H_{14}: Zakat assistance does not have a significant impact on household child education expense.

H_{15}: Zakat assistance does not have a significant impact on household health expense.

1.5 SIGNIFICANCE OF THE STUDY

Researchers have carried out a few research studies to examine the impact of COVID-19 on unemployment and income using primary data in the different regions of Pakistan. This study investigates the effect of reduced working hours and income on household food, education, and health expenses during covid-19 in Pakistan. The declining income has affected the households adversely, whose effects would last for a long time. As we know, the labor markets were disrupted severely due to the Pandemic; the global reduction in working hours in 2020 consists of an employment loss and a decline in working hours (ILO monitor, 2021). The loss in working hours comprised of workers who were unemployed but keenly in search of employment, people who were working with reduced working hours, and individuals who were jobless and not looking for work energetically because of fewer working opportunities due to labor market disruption (ILO, 2021). The present study will also analyze how different government coping strategies/programs, i.e., Ehsaas program, BISP, NGOs, and zakat assistance, have been helpful to mitigate such effects during the crises.

This research will contribute in enhancing information and knowledge for further research areas such as the impact of social protection programs on its access and effects in different provinces of Pakistan. Comparisons can be made with other countries regarding their social protection policies during COVID-19. This study is based on authentic data published by the Pakistan bureau of statistics. Thus depict the true situation of the masses in the specified

time period. Moreover, it will be useful for the government or policymakers to develop further social protection policies to an identified need.

1.6 ORGANIZATION OF THE STUDY

Besides chapter 1, which presents the study's introduction, chapter 2 presents the History and impact of COVID-19 globally and in Pakistan. Chapter 3 presents the literature review. Theoretical framework and methodology are given in Chapter 4. Results and discussion are taken up in Chapter 5. Chapter 6 presents the conclusion of the study and provides some policy recommendations.

CHAPTER 2

THE ECONOMIC IMPACT OF COVID-19 IN PAKISTAN

2.1 THE ECONOMIC IMPACT OF THE PREVIOUS EPIDEMICS, PANDEMICS AND NATURAL DISASTERS

Several external environmental crises occurred in the earlier decades and caused substantial economic losses in the affected countries; such as the 1953 great floods in Holland, The Turkey earthquake in 1999 with an estimated 4.5$ billion economic damage (Asgary et al., 2020). The 2005 Hurricane Katrina in the United States resulted in the displacement of more than 250,000 people, caused over 1,800 fatalities, and created 125$ billion loss (Baker, 2014). Thailand floods which affected around 557,637 businesses, resulted in 2.5 million job losses, The Malaysian floods in 2014, projected 13,000 businesses losses (Auzzir et al., 2018), The Japan Earthquake and Tsunami in 2011, Hurricane Harvey in 2017, and many others triggered economic losses in the past (Samantha, 2018; Eggers, 2020; Asgary et al., 2020; Prasad et al., 2015). Further, a tropical storm in Sri Lanka in 2016 caused massive damage to society, public property, and businesses (Samantha, 2018).

The number of natural calamities has increased immensely from 1998 to 2017, with a total economic loss of 2.9$ trillion as stated by the disaster-hit countries. In this regard, America is the most affected country with a financial loss of 945$ billion, followed by China, Japan, the European Union, India, and Pakistan (Hussain et al., 2019; Ahmad and Afzal, 2020; Ahmad and Ma, 2020;World Trade Organization, 2019). Pakistan has also suffered from natural environmental calamities in the past, such as heatwaves and cyclones, earthquakes in 2005 and 2008, droughts in 1998 and 2004 (Ahmad and Afzal, 2020; Ahmad and Ma, 2020; Hussain et al., 2019). The floods in 2010 affected crops public and private property with a loss of 4.5$ billion (WTO, 2019).

Similarly, apart from COVID-19, various epidemic outbreaks took place globally, such as The Great Influenza of 19181-1920, which caused around 39 million fatalities in 43 countries, with losses equivalent to World War I. It negatively impacted GDP 6 to 8 percent overall (Barro et al., 2020). The 2001 United Kingdom Foot and Mouth Disease outbreak gave huge losses, with an estimated 5 billion pounds (Bennett and Phillipson, 2004). Severe

Acute Respiratory Syndromes (SARS) of 2003 reduced demand and supply of labor, particularly in the service sector, by around 70 percent (Lionello, 2017). The global macroeconomic impact of SARS is evaluated at approximately 30-100$ billion (Smith, 2006). Moreover, Avian Influenza (H5N1) of 2004-2006, Swine flu H1N1 pandemic in 2009, Ebola outbreak in 2014, Influenza A Virus Subtype H7N9 of 2013, Salmonella Infantis outbreak, ZIKA outbreak, and many others also resulted in economic losses (Auzzir et al., 2018; Eggers, 2020; Kim et al., 2020). Furthermore, The Middle East respiratory syndrome coronavirus (MERS-CoV) outbreak first identified in Saudi Arabia resulted in an estimated economic loss of 10$ billion in 2015 in the tourism sector in South Korea (Joo et al., 2019). The Influenza virus has changed the distribution of welfare, accumulation of wealth, the role of the working class and has considerably affected the world socially and politically, transitioning from a feudal structure to centralized governments (Bell and Lewis, 2005).

2.2 IMPACT OF COVID-19 IN TOP AFFECTED COUNTRIES

The World Health Organization has classified the pandemic into four stages. The first stage include countries with no corona cases, the second is countries with sporadic cases, the third is countries with clusters and the fourth is countries with community spread. Countries worldwide have adopted various measures and are still making strategies to enhance health prospects and societal progression globally (WHO, 2020a). The outbreak brings unconceivable psychological miseries such as depression, anxiety, panic, tension, distress, adjustment disorder, etc., reported in the general public and healthcare professionals (Frank et al., 2020; Ahorsu et al., 2020; Sakib et al., 2020; Jahanshahi et al., 2020; Montemurro, 2020;).

The economies and health systems all over the world during 2020 were interrupted. It was particularly damaging for the United States, which had a large number of infected cases and fatalities (WHO, 2021; CDC, 2021; Holshue et al., 2020). In 2020, between January and July, the unemployment rate rose to 10.1 percent from 3.6 percent. Manufacturing dropped by 9 percent, and non-farm employment declined to a greater extent by 12.5 million people (Thorbecke, 2020). The American government has released trillion-dollar packages to maintain the country’s economy and sustain businesses. Immediate income assistance, expanded unemployment payments, and extra care for federal nutrition support programs have also been employed (Wolfson and Leung, 2020). India, the second-largest population globally, suffers severely from COVID-19 disease. The number is increasing exponentially. India has an insufficient healthcare capability to provide public health to its swarming millions. It faces five challenges in the healthcare area: access to

healthcare, awareness of personal health, workforce absenteeism, accountability, and affordability. There are considerable differences in the infrastructure, healthcare workers, doctors, and healthcare facilities. (Goswami et al., 2021).

In Brazil, the social and economic impact of suspended commercial and other economic sector activities due to the pandemic were felt quickly (De Carvalho et al., 2021). The beginning of 2020 exposed a significant rise in the unemployment rate, compared to 2019 last quarter. It was at its peak in the Northeastern region and instigated poor and impoverished people in Brazil than before (De Carvalho et al., 2021). By June 2020, job contracts of more than 10 million workers had been suspended or their salaries and working hours were reduced, with more than 1·2 million people unemployed. The rise in unemployment, poverty, and the prices of ordinary or slightly processed food during the outbreak was responsible to adding millions of Brazilians to the vulnerable group who face food and nutrition insecurity (Filho and Junior, 2020). A study directed in Brazil by the UNICEF and the Brazilian Institute of Public Opinion and Statistics from 3 July 2020 to 18 July 2020 revealed that during the pandemic, one in five Brazilians aged 18 years or older, which is 33 million had no money to buy food when their income finished, around 9 million could not have a meal because there was no food or money to buy one (De Carvalho et al., 2021).

For decades, the African governments have been unsuccessful in prioritizing their health systems. According to WHO, there were just 2000 ventilators and 5000 intensive care beds across 41 African countries in April 2020. A June report by Africa Centres for Disease Control and Prevention also cautioned that most countries face an appalling scarcity of medical professionals. The Sub-Saharan region has 0.2 doctors for every 1000 people, which is well below the global average of 1.6 for North America, estimated by World Bank data (Wadvalla, 2020). In Indonesia, Covid demises increased and became the highest in Southeast Asia. The Indonesian government has been condemned at the domestic and international level for not taking quick measures at the pandemic's beginning (Lindsey and Mann, 2020). The hospital beds and physicians ratio to people are fewer than neighboring countries such as Vietnam, Thailand and Malaysia (Olivia et al., 2020). The Indonesian agricultural workers, in the rural areas are net rice consumers, so income shocks may produce food jolts. Prior to the pandemic, child stunting and killing rates were already high by regional standards; food poverty remains a concern for the poor Indonesian families (Booth et al., 2019).

Table 2.1
COVID-19 top Affected Countries Statistics (as of 11th February 2022)

Countries	Total Cases	Total Deaths	Total Recovered
USA	79,052,681	939,427	49,435,538
India	42,536,137	507,208	41,331,158
Brazil	27,125,512	636,111	23,446,849
France	21,372,278	134,207	15,867,291
UK	18,000,119	158,953	15,596,741
Russia	13,527,845	338,091	10,909,397
Turkey	12,653,276	89,741	11,755,917
Italy	11,923,631	150,221	9,960,136
Germany	11,897,002	120,196	8,487,100
Spain	10,555,196	95,606	7,264,623
Argentina	8,700,437	123,707	8,327,294
Iran	6,730,608	133,294	6,238,083
Colombia	6,002,570	136,583	5,804,357
Netherlands	5,523,354	21,358	3,378,718
Poland	5,313,111	107,466	4,451,403
Mexico	5,226,269	311,554	4,438,581
Indonesia	4,667,554	144,858	4,234,510
Ukraine	4,421,741	102,167	3,729,976
Japan	3,666,285	19,917	2,752,551
South Africa	3,634,811	96,705	3,494,016

Source: https://www.worldometers.info/corona virus

Real-time data on the spread of the COVID-19 pandemic is collected from the world meter. Table 2.1 shows that USA has the highest number of infected cases (79,052,681 and deaths 49,435,538) followed by India (total case 42,536,137 and deaths 41,331,158) and Brazil (total cases 27,125,512 and deaths 23,446,849). The table shows that the situation in Europe remains catastrophic. The most affected countries are France (21,372,278 total cases, 15,867,291 total deaths), the United Kingdom (18,000,119 total cases, 15,596,741 total deaths), Spain (10,555,196 total cases, 7,264,623 total deaths), Germany (11,897,002 total cases, 8,487,100 total deaths) and Italy (11,923,631 total cases, 9,960,136 total deaths). The situation has necessitated the reorganization of healthcare systems and changes in population lifestyles, leading to tough economic consequences.

2.3 IMPACT OF COVID-19 IN PAKISTAN

The Pandemic has adversely affected all sectors of Pakistan's economy, especially the hospitality sector, education, healthcare, trade, tourism sector, manufacturing sector, hotels, banks, real estate, service sector etc. Pakistan is struggling to lower the spread of the virus by applying disengaging exposures, segregating people, limiting activities, and prohibiting gatherings (Hydari et al., 2021). It has developed substantially economic, political, and societal repercussions besides the Pandemic (UNDP, 2020). Currently, in Pakistan, people living below the poverty line is 50 million. Another 10 million people expect to slip below the poverty line due to the ongoing crises (The Economic Survey of Pakistan, 2020). While there are masses who are not skilled or less skilled such as laborers, waste recyclers, transport workers, construction workers, and domestic workers who depend on daily wages to meet their basic needs (Dawn News, 2020)

Pakistan's fiscal year 2020 observed shrinkage in economic activity with a GDP growth rate projected negative at 0.4 percent compared to 5.8 percent in 2018. The growth in the industrial sector has been evaluated at -2.64 percent, largely due to the negative growth of 8.82 percent in the mining and quarrying sectors and a drop of 7.78 percent in large-scale manufacturing due to the lockdown situation in the country. Similarly, the small-scale Industry's growth is recorded at 1.52 percent in 2020 (Economic Survey of Pakistan, 2020). A significant drop of -19.2 percent is reported in the carpets and rugs industry, -14.9 percent in sports goods, -8.44 percent in surgical instruments, and a steep decline of −27.1 percent in tanned leather goods. Large-scale manufacturing contributes to nearly 8 percent of the country's production and 10 percent of its national output (Meo et al., 2021). The services sector declined by 0.59 percent, primarily due to a 3.43 percent decline in the Wholesale and Retail Trade sector, and a 7.14 percent drop in storage, telecommunication, and transport sectors. The services sector adds about 54 percent to GDP, and around one-third of the over-all labor force is employed in this sector (WDI, 2020). The Pandemic has damaged the services sector and all sub-sectors. Additionally, it is projected that in 2020 about 90 percent of hotel accommodations had no reservation, which was the main revenue loss to this industry. While weddings, conferences, seminars, and other events were postponed or canceled which eventually affected the revenues of the hotel industry (Javaid, 2020). The tourism industry lost 163.6$ million at the beginning of the Pandemic, nearly 75,000 workers lost their job, including hotel staff, travel agents, tour guides, drivers, and tour operators etc. (Amjad and Asghar, 2021).

The performance of Industry and Services was negative and surpassed the growth in the agriculture sector, which estimated at 2.67 percent. Consumption was affected severely, it declined to 78.5 percent in FY2020 compared to 82.9 percent in FY2019 in GDP percentage. Private investment fell to 9.98 percent from 10.29 percent in FY2019 in GDP percentage (Economic Survey of Pakistan, 2020). In April 2020, the overseas remittances declined to 1785$ million; it started increasing after April and reached 2437$ million in the last month of 2020 (Amjad and Asghar, 2020). Pakistan's major exporting partner countries, such as the UK and US, China, France, Spain, Italy, and Germany, have been critically affected by the Pandemic. Consequently, Pakistan exports demand has reduced sharply by 54.19 percent and imports by 34.49 percent. The reduced exports have affected the tax and non-tax revenue. However, government spending has increased, which, in turn, instigated a rise in fiscal deficit (Meo et al., 2021).

During the first year of the Pandemic, Pakistan’s inflation rate increased to a double-digit at 10.7 percent even though crude oil prices persisted low at 39.68$ per barrel in the foreign market. According to the State Bank of Pakistan (SBP), Pakistan’s inflation rate is high among advanced and other emerging economies due to exchange rate depreciation and rationalization of energy prices, the large fiscal deficit in 2019, and its financing through central bank borrowing, and a steep rise in food inflation in the last quarter of 2019 (SBP, April 2020). Before the advent of the pandemic, the bank rate was around 13 percent. The State Bank of Pakistan reduced the bank rate to 7 percent on deposits in mid of June 2020 to boost the industry’s business. Conversely, a lower rate of return on savings in financial institutions has impacted the common man as their running home expenses rely on these returns. The low-profit rate on deposits has caused mental stress for people who depend on business savings, and increased Price-hike has resulted in poor spending power (Wang et al., 2021). Pakistan banned all kinds of trade with China at the beginning of the outbreak, which upset the raw material supplies as most of the industries import raw materials from China. Consequently, the alternative imports from South Korea, and Taiwan has raised the production cost of manufactured goods and resulted in high inflation in the economy (Sareen, 2020)

In the beginning, Pakistan also followed the preventive measures adopted all over the world to stop the spreading of the disease. Tourism restrictions were forced to control the spread of the virus in Pakistan from other countries, nationwide lockdown was implemented, infected areas were sealed, and economic activities were suspended (Akhtar et al., 2021). The Government of Pakistan in May 2020 decided to curtail the lockdown against the health department’s recommendations and implemented smart and micro

lockdowns in the severely pretentious areas by the pandemic as the nation's economy was not able to endure more lockdowns with further job losses and rising number of starved people. (Economic Survey of Pakistan, 2021).

Pakistan faced the first Covid-19 wave in May 2020, and in the mid of June saw the virus at its peak. At the beginning of November 2020, the second wave was observed with low intensity, and peaked in mid of December. During the mid-March 2021, the Pandemic's third wave badly affected the country as it showed the highest positivity ratio, nearly 20 percent (Wang et al., 2021). Until now, Pakistan has bravely faced the four pandemic waves and is now facing the fifth wave of coronavirus, the Omicron variant of Covid-19, since January 2022 (The News, 2022). The first case of the Omicron variant of Covid-19 was reported in Karachi on 13th December, as of 3rd January, 2022, 141 omicron cases have been confirmed in Islamabad, and 170 in Lahore announced by the National Institute of Health. This ratio is low in other provinces. (Dawn, 2022)

Table 2.2
The Current Figures of the COVID-19 outbreak in Pakistan

	Confirmed Cases	Active Cases	Deaths	Recoveries
Pakistan	1,374,800	76,617	29,105	1,269,078
AJK	35,400	656	751	33,993
Baluchistan	33,941	281	367	33,293
GB	10,497	59	187	10,251
Islamabad	118,292	8,432	976	108,884
KPK	185,340	3,600	5,795	175,765
Punjab	464,431	19,260	13,108	432,063
Sindh	526,899	44,329	7,741	474,829

Source: www.covid.gov.pk

According to the Ministry of Health, Government of Pakistan, there are 1,374,800 confirmed positive cases in the country with 76,617 critical and 29,105 mortalities on January 24, 2022. The highest cases appeared in the Sindh province at 526,899, followed by Punjab 464,431, Khyber Pakhtunkhwa

185,340, Islamabad 118,292, Azad Jammu and Kashmir 35,000, Baluchistan 33,941, and Gilgit Baltistan has 10,497 confirmed cases. The results show that the highest mortalities occurred in Punjab 13,108, followed by Sindh 7,741, KPK 5,795, Islamabad 976, AKJ 751, Baluchistan 367, and Gilgit Baltistan 187. A total of 474,829 infected people have been recovered in Sindh, followed by Punjab 432,063, Balochistan 33,293, and Punjab 432,063 GB 10,251, and AJK have 33,993 recoveries to date as summarized in Table 2.2.

The outbreak has generated huge pressure on healthcare systems worldwide. At present Pakistan's public health care system is under strain as the ratio of one doctor is 963 persons and one hospital bed for 1,608 persons. This indicates that the country is already facing a critical shortage of doctors, hospitals, and medical staff from a long time. The current situation has exaggerated the weakness of health structure owing to thousands of suspected and infected patients. Pakistan being the fifth heavily populated country worldwide, has a low human development index and high gender disparity (Economic Survey of Pakistan, 2020). The GDP ratio spent on the health sector is less than 3 percent, which shows the presence of fragile health structure. The Federal sector has 128.13 beds per 0.1 million people. Punjab has 54.72 beds per 0.1 million people, Sindh has 82.62 beds per 0.1 million people, KPK has 62.362 beds per 0.1 million people, Baluchistan has 62.76 beds per 0.1 million people, whereas, Azad Jammu and Kashmir has 92.75 beds per 0.1 million people, and Gilgit Baltistan has 28.2 beds per 0.1 million people, respectively (Waris et al., 2020).

The mitigation measures to control the spread of the virus affected employment adversely. In Pakistan before COVID-19, 35 percent of the population of 10 years and older, i.e., almost 55.74 million, was employed. However, due to the closing of activities after implementing lockdown, It is witnessed that the working population declined to 22 percent, which is approximately 35.04 Million People. Sindh was the most affected Province whose working population earlier to the crises was 38 percent, reduced to 23 percent. Punjab's working population declined to 14 percent and Balochistan's 11 percent during April-July, the outbreak Period (Pakistan Bureau of Statistics, 2020).

The income loss due to employment loss and furloughs affected households' food expenses. Pakistan's one-fourth population has high malnutrition and food insecurity; they cannot meet basic food requirements (Bhutta et al., 2011; Tanweer et al., 2015; Nawaz and Shaheen., 2017). The disruption in the supply chain due to COVID-19 harms Pakistan's already weak food system. The food-insecure population has experienced adverse effects due to the virus (Cardwell and Ghazalian, 2020). The interruptions in

food systems cause the price to increase; further loss of income decreases purchasing power, misrepresenting food, and nutrition insecurity (Gerard et al., 2020; Cardwell and Ghazalian, 2020). The people suffering from food insecurity are significantly affected by the protracted impact of COVID-19 in 2020, revealing many weaknesses and vulnerabilities in the current food system (Bhavani and Gopinath, 2020)

Table 2.3
Household Reduced Income (Urban and Rural)
by Province in percentage

	Urban	Rural	Total
Walterskirchen	**Walterskirchen**	**Walterskirchen**	**Walterskirchen**
Punjab	53	44	49
Sindh	64	51	59
Khyber	67	63	64
Sindh	51	51	51

Source: Pakistan Bureau of Statistics COVID-19 survey 2020

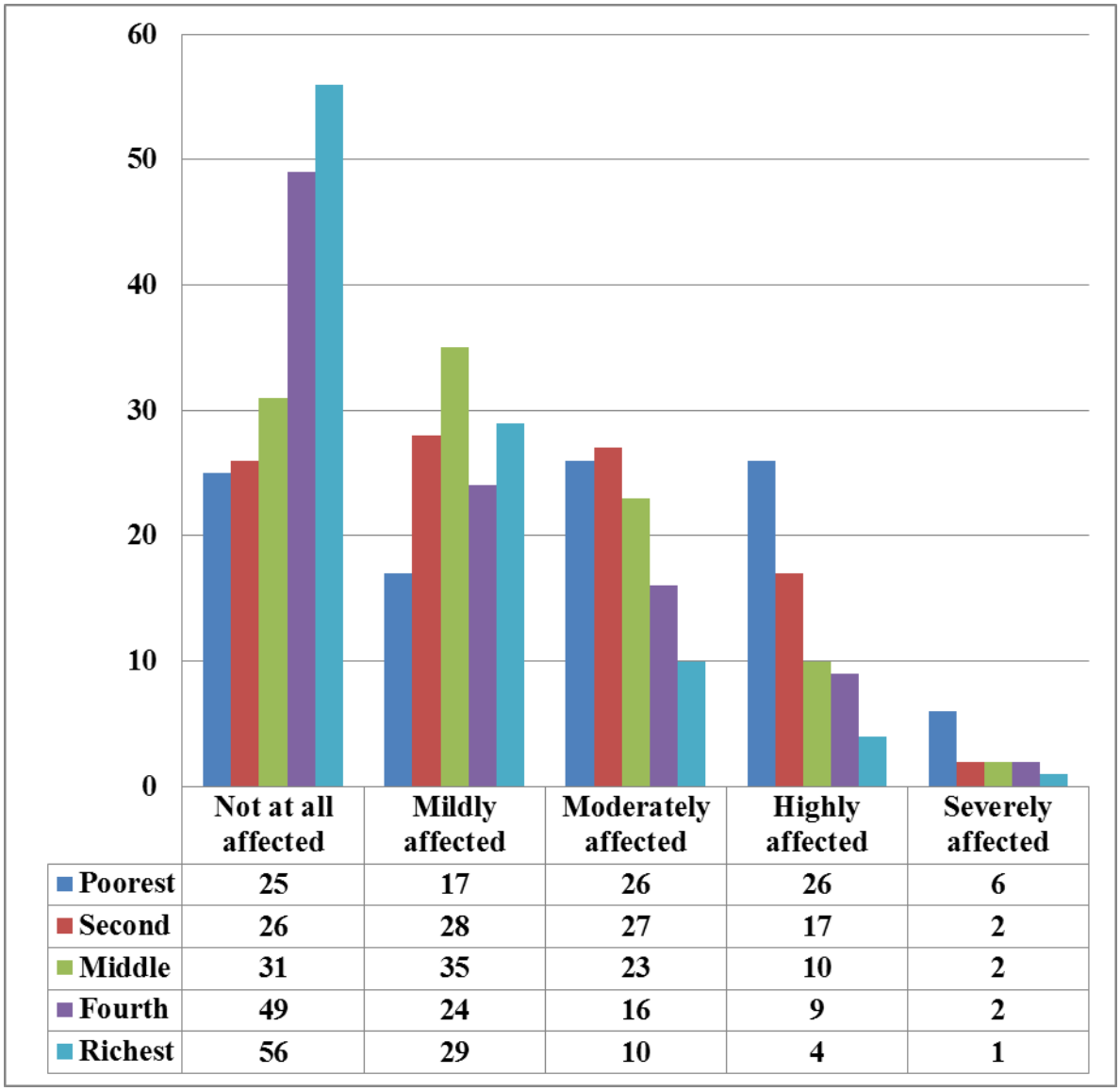
Table 2.3 shows that households in Khyber Pakhtunkhwa faced a 64 percent reduction in income, which is greater in urban areas than rural areas with 67 percent and 63 percent, respectively. The primary sources of income in Khyber Pakhtunkhwa are remittances (foreign and domestic) that decreased due to the closure of work. Households in Sindh faced income reductions of up to 59 percent and, therefore, the second affected Province. The reduced income in Baluchistan is reported at 51 percent and Punjab 49 percent.

Table 2.4
Household food insecurity during COVID-19 in Pakistan (%)

Food Insecurity	Percentage
Worried about not having food	59
Unable to eat healthy food	60
Eat a few kinds of food	58
Skip a meal	29
Ate less	30
Run out of food	22
Felt hungry	17
Hungry whole day	12

Source: Pakistan Bureau of Statistics COVID-19 survey 2020

Table 2.4 shows that households unable to eat healthy and nutritious food were highest at 60 percent, followed by the families who were worried about having no food and eating few kinds of food.



	Not at all affected	Mildly affected	Moderately affected	Highly affected	Severely affected
Poorest	25	17	26	26	6
Second	26	28	27	17	2
Middle	31	35	23	10	2
Fourth	49	24	16	9	2
Richest	56	29	10	4	1

Source: Pakistan Bureau of Statistics COVID-19 survey 2020

Figure 1: Household's Wealth Quintiles in Percentage during COVID-19

Figure 1 shows the households by wealth quintiles; it is found that the highest percentage of households in the richest quintile, i.e., 56 percent, did not perceive any shock compared to only 25 percent of the poorest households. However, its trend is opposite in highly and severely affected where only 4 and 1 percent are affected in the richest class compared to 26 and 6 percent in the poorest class.

The ongoing scenario has significantly disturbed the education systems including schools, colleges, and universities in the human history, affected almost 1.6 billion learners in more than 200 countries. It is estimated that 94 percent of the world's student population is affected due to Closures of educational institutions, and other learning spaces (Pokhrel and Chhetri, 2021). It's causing learning loss in the short term and shrinking economic prospects in a long time for this generation of learners (United Nations, 2021). Pakistan closed its educational institutions on 13th March, 2020, after one month in April, 2020, the Ministry of Education, publicized the inauguration of a tele-school initiative in a partnership with the Information and Broadcasting Ministry (Noor et al., 2020). Due to loss of learning and rise in dropout ratio, this generation of learners lose a projected 10$ trillion in revenues or nearly10 percent of GDP globally. Due to which countries will further move away from their track in achieving learning poverty goals (World Bank, 2021). Restrictive movement and social distancing policies have considerably interrupted the customary educational practices. After relaxing restrictions, re-opening schools has been another challenge, with various new standard operating procedures (Pokhrel and Chhetri, 2021). The National Education Management Information System (NEMIS), which publishes Pakistan Education Statistics every year since 1992 reported that Pakistan has the second-highest number of out-of-school children in the world with an estimated 22.8 million children aged 5–16 not attending school. This represents 44 percent of the total population in this age group (NEMIS, 2018). Essential school closures have more intensified the prevailing sociocultural taboos that keep children out of school, thus further broadening the inequality gap (Mian and Chachar, 2020).

Social safety nets are significant for providing relief to poor households and bringing them out of poverty. It is estimated that currently 150 million masses worldwide are protected from falling into poverty through social protection programs (Slater, 2011). In Pakistan, Ehsaas' program was initiated on 27 March 2019 to lessen disparity. The program is specially designed for orphans, extremely poor, aged disabled, and people belong to lower-income zones. The program endorses 134 policy actions established on four pillars, such as, building equal opportunities, shelter for underprivileged population divisions, generating sources of income through jobs and, expansion of human capital. This program embraces digital and financial inclusion for 7 million people of which 90 percent are women, building a micro-credit policy for daily-wage employees through interest-free mortgages to underdeveloped district graduates, allowances for the undergraduate disadvantaged, providing free meals and housing to the displaced through public and private organizations, banks and most recently an Emergency Cash transfer program during COVID 19 crises (Javed et al., 2021).

To alleviate the socio-economic effect of the virus, the government initiated Ehsaas Emergency Cash Program in April 2020 to support the low-income families whose livelihoods were lost due to the pandemic. An economic package of PKR 1.3 trillion was publicized to relief the poor, which include cash transfers of PKR 75 billion for 6.2 million daily wage earners, and PKR 150 billion for over 12 million low-income families. It provided 12,000 rupees to 12 million households to get them out of starvation (Ahmed et al. 2020). Ehsaas Emergency Cash Program has been embraced in the World's Bank list of the four highest social protection programs globally regarding the number of persons covered (World bank, 2021; Pakistan Economic Survey, 2021). Besides, Ehsaas Program the government also amalgamated with charity organizations to arrange food for lower-income families. Many community-based trusts organized resources from philanthropists, companies, and individuals and distributed them to areas of low income in the urban cities to fulfill the necessities of the most affected. These efforts only perceived in large urban cities and did not encompass to wide-ranging remote and rural areas due to restricted movement during lockdowns (Salman, 2021).

In this situation, Ehsaas program cash transfer reached many areas in the region. The government response to the Pandemic encompassed the formation of a National Coordination Committee (NCOC) to observe and take decisions every day along with the representatives from all provinces and stakeholders, The National Disaster Management Authority (NDMA) to escort all operational details, and bring together the provincial and district authorities while coordinating and implementing preventive and curative arrangements, closing of all businesses, educational institutions and, restricted activities through borders along with quarantine restrictions and testing on arrival, community get-togethers ban, food security, and cash transfer program (Meo et al. 2020). The fiscal and monetary policy intrusions have been made to re-establish the economic activities in this perplexing time and lessen the adverse impact on unemployment, and poverty.

The unconditional cash transfer scheme of the Benazir Income Support Program (BISP) started in July 2008 by Pakistan's People Party government. Multiple social protection programs were initiated under the authority of BISP. Ever since it's founding, the government has distributed and transferred large funds to the disadvantaged people in the country. The main objective of the program is to fulfill the vital needs of low-income families and support them during inflationary and crises periods. (Cheema et al., 2014; Farooq, 2014; Mumtaz and Whiteford, 2017). According to United Nations Development Program, Zakat can be an essential instrument for supporting the poor masses and have significant usefulness as short-term emergency support to mitigate

the aftermath of COVID-19 (UNDP, 2020). The Zakat Program was initiated in 1980 under the Zakat and Ushr Ordinance in the Zia-ul-Haq era. In contrast to the BISP, this Program has no particular beneficiary eligibility criteria that it targets. The program works to help the deserving muslims who need assistance for their survival. This generally includes orphans, widows, the unemployed, and the disabled (khan and Qutub, 2010)

The Government of Pakistan is improving the buying power of the people through cash transfer disbursements in an effort to shield the economy from the stark effects of the crisis. Awareness to follow standard operating procedures (SOPs) such as social distancing, wearing face masks, and hand sanitization has been initiated at national level to curtail the virus extent. All these non-pharmaceutical interventions specifically the smart lockdown measure, i.e sealing the areas of infected cluster population are profoundly facilitating in controlling the spread of COVID-19.

CHAPTER 3

LITERATURE REVIEW

Many economists have projected economic losses due to outbreaks and pandemics globally. Garret (2007) analyzed the 1918 influenza economic impact in the US market; Bloom and Canning (2006) examined the relationship between contagious illness epidemics and income to find out how these connections are influenced by varying worldwide situations; Karlsson et al. (2013) explored the effect of 1918 influenza on Sweden economy; Dixon et al. (2002) investigated the impacts of HIV AIDS on Africa's economic growth and discovered that the development rate in Africa turned down by 2 to 4 percent in that year due to the pandemic. McKibbin and Sidorenko (2006) explored the macroeconomic outcomes of influenza pandemics worldwide. These studies proved that epidemics and pandemics have economic repercussions and generate worldwide economic challenges with varying impacts on different people (Ahmed et al., 2020). . In the current ongoing scenario, the mitigation measures to control the spread of the virus, such as lockdown and social distancing has resulted in unemployment, layoff and reduced working hours, which has affected the families food education and health expenses. The present literature will analyze how the pandemic has affected the macroeconomic variables of the economies around the world.

Yu et al. (2020) examined the causative impact of an outbreak on labor participation rate from a cross-country perception. They applied the ordinary least squares approach. Their evidence showed that an epidemic undesirably upsets the participation rate of the labor and changes human behavior. The adverse impact could be credited to the societal point of view toward uncertainty which means fright of getting the infection and caution cause workforces to keep away from routine productive undertakings which require personal contact. The study concluded that a country with a greater uncertainty index will undergo a substantial drop in the labor force participation rate. The adverse effect is more prominent in younger workers and males in low- and middle-income countries.

Ma et al. (2021) studied the abrupt and bounce-back effects of the 21st century's health crisis. They applied Time-series models for a large cross-section of countries for the analysis. The results show that the countries affected by the outbreak, their real GDP growth drops by about 2 percent compared to the countries that are not affected in the epidemic year. GDP

growth rebounds quickly, but output after five years is relatively low compared to the pre-shock output level. The study also points out that unemployment is higher for less-educated workers and shows more perseverance. Additionally, the unemployed persistence is significantly less in males than females. However, the negative impacts on unemployment and GDP are observed less in countries with higher government spending, especially on health care in the beginning of the epidemic.

Su et al. (2021) examined the effects of Corona on unemployment in five European economies. They analyzed one year period from December 2019 to December 2020 by applying a Fourier causality test for the analysis. The Z-test results show that the UK, Spain, and Germany have a substantial positive change in joblessness owing to the virus. These findings indicate that rising Corona cases are responsible for unemployment in these countries. Overall, the study's conclusions highlight that the outbreak has increased the unemployment rate in most European economies.

Beland et al. (2020) performed a similar exercise aligned to the US economy, analyzed the short-term consequences of the Pandemic on wages and employment at the national level. The findings suggest that the outbreak augmented the unemployed ratio, reduced labor force participation, and working hours, with no substantial impacts on the wage rate. The negative aftermath on labor market outcomes is larger for younger workers, men, less-educated workers, and Hispanics representing that the ongoing crisis has increased inequalities in the labor market. They used the information of occupational networks by constructing three indices to categorize occupations according to their exposure regarding the disease, relationship with co-workers, and the ability to work remotely. The study concluded that the professions that require physical proximity with others are economically more affected compared to the jobs that can be done remotely.

Karpman et al. (2020) conducted another rigorous study in the US by examining the Health Reform Monitoring Survey of 9,000 adults in April 2020 to analyze the outbreak's impact on household employment and capacities to keep up their basic needs. They found that 4 out of 10 adults, i.e., 41.5 percent informed employment loss in their families and reduced work hours. Moreover, 30.6 percent of families reduced their food expenses, 43.1percent put off their major purchases, and 27.9 percent spent savings or expanded debt on the credit card. Further, 31.0 percent of the adults surveyed informed their families couldn't make the rent payment, loan, or utility bills; they were food insecure or without medical care.

Sharma et al. (2021) investigated the time frequency correlation between COVID-19 cases, stock returns, weather effect, and exchange rate in the fifteen most affected countries. They applied wavelet coherence and partial coherence techniques for the analysis to investigate the outbreak's unanticipated impacts on stock market returns, exchange rates, and temperature. They analyzed the data from 1st February, 2020 to 13th May, 2020. The study concludes the confirmation of a cyclicality between temperature and Corona cases, inferring that average daily temperature has a substantial impact in spreading the virus to many countries. Rising infection cases have a significant impact in the long run on the stock markets, exchange rate of the highest affected countries under study. In addition, the co-movements between the confirmed corona cases and exchange rate returns become stronger when the effect of stock market returns and temperature, were controlled. Further, the co-movements between the confirmed COVID-19 cases and stock market returns become stronger when the effect of exchange rate returns and temperature were controlled.

Lee et al. (2021) investigated the connections between the Corona pandemic, hospitality stock returns, and economic oscillations in China by applying Structural Vector Autoregression. They analyzed the data from 13 January to 11 May 2020. The study confirms that the Pandemic shock has significantly impacted the macroeconomic fluctuations and hospitality stock returns. A sudden positive rise in corona cases prompts an addition in exchange rates and causes a reduction in the stock market and hospitality industry returns. For the impacts of the exchange rate, findings reveal that an abrupt increase in exchange rates exerts a significant negative influence on stock market returns. The economic reasoning behind these results can be credited to the behavior of the investors. Anxious investors are doubtful regarding future returns therefore do not take risks, which cause price changes (Baker and Wurgler, 2007; Cen and Liyan, 2013). The gloomy scenario regarding the investment forecasts, allows the investors to sell off their shares in the occurrence of an outbreak of infectious diseases (Bai, 2014; Baker et al., 2012). Additionally, a positive change in stock market returns is linked to a decline in exchange rates and a rise in hospitality industry returns.

Ashraf (2020) explored the reaction of stock markets to the outbreak by associating daily corona deaths and infected cases with stock market revenues. He analyzed data from 64 states with the period from January, 2020 to April, 2020. The results revealed Covid-19 confirmed cases had negatively impacted the stock markets returns. It was observed that returns from the Stock markets in all countries declined as the number of corona-infected cases augmented. He further found that stock markets responded more vigorously to the growth of confirmed cases in comparison to the mortality rate. The analysis also suggests

that the negative market response was sturdy in the beginning of the outbreak when confirmed cases were exponentially rising. The study concludes that stock markets are quickly influenced by the corona pandemic with varying impacts over time depending on the stage of an outbreak.

Ozili and Arun (2020) empirically examined the immediate impact of social distancing policies on economic activities and stock markets. They collected data from North America, Africa, Asia, and Europe stock markets. The findings of the study indicate that the level of overall economic activities and the major stock market indices and their stock prices are severely affected due to extension in lockdown days, decisions regarding monetary policy, and implementation of global travel restrictions at the peak of the coronavirus crisis. In contrast, the obligatory restriction on domestic traveling and fiscal policy expenditure had a progressive effect on the economic activities while the major stock indices and their stock prices are positively correlated to the number of confirmed cases. These results suggest that fiscal policy expenditure seems to be more operative in alleviating the impact of the COVID-19 outbreak compared to the monetary policy decisions. This is due to the fact that the implementation of monetary policies by many central banks can aggravate inflationary forces that could exacerbate macroeconomic stability in the short-run.

Goswami et al. (2021) examined the effect of the Pandemic on macroeconomic performances in the Indian states through panel regression analysis. Their study concludes that states with higher Corona cases and greater dependency on the secondary and tertiary sector's employment are more extensive economic sufferers than states with improved pandemic control strategies, advanced healthcare abilities, and a relatively greater employment dependence on the primary sector.

Shafi et al. (2020) analyzed the influence of the corona outbreak on micro, small and medium businesses in Pakistan. They gathered data from 184 small and large companies and examined it through descriptive statistics. Their study results imply that most firms have been gravely impacted and have many concerns such as monetary issues, interruptions in the supply chain, reduction in demand, sales, and revenues. Moreover, around 83 percent of businesses were not prepared nor had any strategy to handle such a situation.

Anser et al. (2021) examined the response of the money supply in the ongoing outbreak scenario by incorporating 115 countries in cross-section panel data. They applied robust least square regression for their analysis. The study findings indicate that the decline in money supply and financial activities is the result of rising corona-infected cases. Comparatively, the investors build

confidence to increase stock trade with other countries when the number of corona recovered cases and testing capabilities of COVID-19 increases. The study concludes that monetary growth can be increased by expanding the functional labs where virus testing capacity can be used to identify suspected cases worldwide.

Adedeji et al. (2021) investigated the dynamic effect of the pandemic on deteriorating oil prices using a structural vector autoregressive model with contemporary restrictions for two oil economies, China and Nigeria. They examined four major oil prices WTI, Brent, Daqing, and Bonny light. The results showed that the pandemic worsened Brent and WTI prices more compared to other oil prices. The WTI affected worse and traded at a negative price in the international oil market for the first time. Similarly, Devpura and Narayan (2020) examined the volatility of oil prices in the corona period by using multiple measures of oil price unpredictability. Their results show that daily oil price is significantly associated with increased infected cases and deaths.

Contrary to the above studies, Liu et al., 2020 explores the interaction among the Corona outbreak, stock market, and crude oil market in the U.S. by applying a time-varying parameter vector Autoregression model. Remarkably, disagreeing to the perception, they found that the COVID-19 pandemic cannot exert a negative effect but has a statistically significant positive impact on stock and crude oil incomes. These results may be clarified by the fact that the pandemic leads to a greater risk premium and the stakeholder may need more returns to compensate for the extra risk caused by the COVID-19 outbreak.

Boman and Gallupe (2020) investigated the COVID-19 government response impact on crime rates in the U.S. The data is compared to the pre-pandemic year of 2019, crime ratio. The study points out that the crime ratio dropped by reductions in negligible crimes which are usually executed in peer groups. Simultaneously, crimes that are serious in nature such as intimate partner violence and murders have either continued to constant or increased. The study concludes that obligatory lockdown commands may have taken trifling criminals and placed them into situations where there is a wide prospect of intimate partner violence, unlawful physical contact, and murders.

Zambrano et al. (2020) studied the indirect positive and negative effects of the Pandemic on the atmosphere, mainly in the most affected countries such as the USA, China, Spain and Italy. The findings show a significant correlation between emergency measures and improved air quality, environmental noise reduction, and uncontaminated beaches. Contrary, to this, there are some secondary aspects which are negative in nature such as reduced recycling and

increasing home and medical waste which is further endangering the water and land pollution, in addition to air.

Mouloudj et al. (2020) explored the effects of COVID-19 on food security at an international level, with a particular emphasis on countries experiencing this issue. He analyzed the data of Food Agriculture Organization (FAO) and the World Health Organization (WHO) data. The findings indicate that COVID-19 has significantly impacted consumable food and instigated great food scarcity in poor countries, conflict zones, and war-affected regions. Furthermore, the pandemic endangered food safety even in some developed countries; however developing countries are gravely affected owing to their greater dependency in securing their food supply. The study concluded that due to external dependence, food security is strongly connected to global food price volatility. Income, prices, and preferences play a crucial role to understand how demand for food gets affected during the Corona crisis.

Dasgupta and Robinsonson (2021) piloted a cross-sectional analysis of nine African countries (Ethiopia, Chad, Djibouti, Kenya, Mali, Malawi, Uganda, South Africa, and Nigeria) to analyze their social magnitudes of food insecurity during the pandemic. The results of the probit regression analysis show that the households who are poor, have less formal education, and are headed by females, are affected more in terms of food insecurity during the crisis. These findings show that the undesirable consequences of the outbreak are disproportionately higher for families who fall in lower income brackets and for those who had to borrow money to run their household expenses rather depend on their savings. These effects are country-specific, and there is a significant spatial heterogeneity with in country food insecurity.

Salisu et al. (2020) estimated the predictive power of the global fear index (GFI), on commodity prices. The index is a combination of two variables such as reported deaths, and infected cases, on a scale of 0 to 100, starting from no fear to extreme fear during COVID-19. Their study applied in-sample and out-of-sample techniques, showing a positive correlation between commodity prices and the global fear index; as fears related to corona increase, commodity prices also increase.

Sharma et al. (2020) highlight the negative impacts of the Corona outbreak on families with children through the social needs spectrum. They conducted a quick-response survey in the US about concerns related to COVID-19; social needs, and diet behaviors during the shelter-in-place period among low-income families whose children are registered in a nutrition program. Their results reveal high food insecurity, financial uncertainty,

unemployment fear, less frequent in eating out, grocery shopping, and panic of the disease.

Owusu-Fordjour et al. (2020) evaluated the impact of the Pandemic on education in Ghanaian students using descriptive analysis. They explained that the pandemic had negatively impacted learning as most students lack in self-learning. Many students not only learn from direct teaching but they also learn from peers. During lockdown, these type of students lost their interest in studies or did not achieve well as they could in normal way of learning. In addition to this, the e-learning platforms challenged most of the learners owing to restricted access to the internet, devices, lack of technical know-how, and shortage of computers. Closing of schools has extensive economic and societal consequences including its impact on students, educators, and families (Lindzon, 2020). It has exposed several social and economic disputes, including food insecurity (Cecco, 2020), student debt (Jamerson et al., 2020), homelessness (Ngumbi, 2020) access to childcare (Belinda, 2020), health care (Feuer, 2020), disability services (Alex, 2020) internet access (Jordan, 2020), and digital learning (Karp and McGowan, 2020). Earlier outbreaks of communicable infections followed extensive school closures which were useful to control the contagion at various levels around the world. Contrary, its effect was adverse for underprivileged families and their children who experienced disturbed learning with nutritional loss as the children missed their one-time meals provided by the schools (Simon, 2020).

According to United Nations Educational Scientific and Cultural Organization, UNESCO, during the Pandemic, over 1.5 billion learners, 87 percent of the world's students in 195 countries, are impacted due to closing of educational institutions (UNESCO, 2020b). In developing countries distant learning is challenging for students, teachers, and families due to the lack of educational materials, information technology, digital expertise abilities, and internet connectivity (Mustafa, 2020). COVID-19 not only made the education challenging but also affected the assessment protocols, this difficulty in examination has resulted in an extended academic calendar. Several other challenges faced by the education system include alteration and reduction in the Curriculum which overall affect the students' performance (Pujari, 2020).

Dilek and Colakoglu (2011) studied the effect of the 2007 global financial crisis on Turkey university students with different income levels to examine the decrease in consumption. They applied a survey with a five-point likert scale and found that the crisis hit more than one-third of pupils' families. They also observed the connection between the decline in income and consumption items after the crises and found that pupils' families and income expenditure are positively related.

The decrease in incomes has resulted in a decline in living standards; people worldwide adopt different strategies to cope with the crises. Egger et al. (2020) provide quantitative evidence from 30,000 respondents from nine developing countries in Africa (Ghana, Burkina Faso, Sierra Leone, Rwanda, and Kenya), Asia (Nepal, Philippines, and Bangladesh), and (Colombia) from Latin America. They applied a phone survey using random sampling to collect information about 16 populations in nine countries. The findings reveal a steep fall in income and employment. Most households could not keep up with their basic nutritional needs at the start of the crisis. In Kenya, 48 percent of families in rural areas, in Bangladesh, 69 percent of landless agricultural families, in Sierra Leone, 87 percent of the families living in the rural areas were forced to skip meals or curtail food quantity to survive in the crisis.

Many studies have analyzed the impact of the ongoing crises from different perceptions; During COVID-19, the household finances have been affected, individuals and families have been exposed to the crisis in very different ways and to varying degrees. However, this study will investigate how the Pandemic has affected the household income, which has impacted their food, education, and health expenses. The literature regarding the impact of the Pandemic on children's education and health care expenses is rare. This study is an attempt to bridge this gap. It will also examine the social safety programs adopted by the Government to overcome the shock of Covid-19.

CHAPTER 4

THEORETICAL FRAMEWORK AND ECONOMETRIC METHODOLOGY

4.1 THEORETICAL FRAMEWORK

During the last decade, many epidemics and pandemics occurred in human history such as the SARS, Swine flu, Middle East Respiratory Syndrome, Ebola, and currently the COVID-19 (Niknamian and Spencer, 2020). The Pandemic has impacted nearly all sectors of the economy and upset routine life, with low-income, emerging, and advanced nations suffering the most. The shutdown of economic activities has resulted in a widespread disturbance in the employment levels. The theoretical foundation concerning unemployment and Pandemics is direct to some extent. In the past, whenever, an immense outbreak occurred, precautionary measures had been adopted to overcome the pandemic's impacts (Kelly, 2020). Due to COVID-19 lockdown measures have been used throughout the world to stop the spread of the virus (Habicht et al., 2020). The colossal lockdown actions affected production units and became one of the main reasons for slackening economic activities, resulting in unemployment and layoffs. The increase in unemployment and fewer working hours has some alarming consequences, such as a decrease in income which has ultimately affected household food, education, and health expenses.

Various research studies have been conducted in different parts of the world to measure Income and consumption, Income and health relationships using primary and secondary data. Engel, Keynes, Kuznets, Friedman, Dusenbery, Modigliani Friedman, and many others have investigated the relationship between income and consumption (Tari and Caliskan, 2005). Ernst Engel did the first quantitive study on households consumption patterns in 1857 (Stigler, 1954; Houthakker, 1957; Kalyoncu, 2009). Engel applied cross-sectional data for incomes and expenses and calculated the proportion of income spent at various income levels. These studies postulate that income and consumption have a significant relationship. During the ongoing scenario it is observed that the households whose income has declined they reduced their consumption expenditures.

According to Keynes (1936), there is a constant observed connection between consumption and income. In his absolute income hypothesis, he stated

that "What so ever a consumer consumes the consumption depends upon his absolute income, while other things remaining constant". Keynes relates consumption to disposable income. Consumption is a positive function of income means consumer spending is dependent on consumer income.

Most of the studies align with economic theories that as income increases, consumption also increases (Shamim and Ahmad, 2007; Dilek and Colakoglu, 2011; Ajmair and Akhtar, 2012). Income elasticity of demand is used to define how the quantity demanded response to a change in Income (Varian, 2006; Mansfield, 1985). The stress resulting from monetary hardships, poor nutrition, and unemployment can challenge disease prevention. These stressors put pressure on the family's financial budget, leaving little money for balanced nutrition, medical care, and spending trade-offs. (Seligman and Schillinger., 2010). Income has a positive effect on household consumption. The consumption potential is high in the high-income bracket as the households belonging to higher income groups have higher consumption (Ajmair and Akhtar., 2012). Shamim and Ahmad (2007) observed household integrated expenditure survey of Pakistan for 2001-2002 to explore the consumption patterns of households in Urban and Rural Regions. They found that food and non-food items consumption was considerably affected with varying household size, and expenditure.

The relationship between income and health has been well acknowledged in the literature (Currie and Stabile, 2003; Case et al. 2002; Deaton 2002; Gerdtham and Johannesson 2004; Currie et al., 2007; Smith 2007; Propper et al., 2007; Reinhold and Jurges, 2012; Cutler et al., 2008; Glied et al., 2011; Khanam et al., 2009). Family income and the children's health younger than seventeen years of age have a significant positive relationship in the US (Case et al. 2002; Deaton 2002). Families with a higher-income might have more opportunities and better access to health care facilities. Whereas, people who belong to lower-income groups experienced more stressful circumstances which negatively affect health. In contrast, during epidemics, people avoided hospital visits due to the misconceptions regarding disease severity and its spread (Lau et al., 2010). It is observed that during COVID-19, People avoided pursuing medical care due to fear of getting the infection in the hospitals, which are swamped with infected patients (Moroni et al., 2020). Fear of having a severe disease or going through medical tests and procedures has traditionally been pointed out as an obstacle in following the treatment (Kannan and Veazie, 2014).

The reduction in income has a significant impact on health (Benzeval et al., 2001). Income and continuous poverty are critical elements of health in the long run whereas, temporary decline in income negatively affect health

(Benzeval et al., 2001). Individual earnings and household disposable income are significantly associated with health, this judgment is the same for men and women and equally (Fritzell et al., 2004). Moreover, the relationship between education and health is weaker than the relationship between income and health (Stronks et al., 1997).

The socio-economic status and income are powerful predictors of school accomplishment and dropout behavior (Ekstrom et al., 1986; Bryk and Thum, 1989; McNeal, 1999; Pong and Ju, 2000). The households with higher income provide more resources to support their children's education, including private tutor for learning at home, and access to well-reputed schools. During a monetary crisis, the schooling of children is substantially affected in poor families (Rumberger and Larson, 1998)

Cash transfer increases food expenses and reduces poverty among beneficiary households (Bastagli et al., 2016; Haushofer and Shapiro, 2016). The cash transfer programs have been successful in improving health, education, and nutrition and poverty reduction (Alatas et al., 2012; Taaffe et al., 2017; Cahyadi et al., 2019; Angeles et al., 2019; Alix-Garcia et al., 2019; Garcia and Cuartas, 2020; Unikrishnan and Imai, 2020), protect beneficiaries from financial shocks (Unnikrishnan and Imai, 2020; Garcia and Cuartas, 2020; Nawaz and Iqbal, 2020; Mustafa et al., 2019). Social allowances improved health care, consumption, and school admission ratio while decreased child labor in Ghana (Dinbabo and Agbann, 2014; Bastagli et al., 2016).

Conceptual Model of the Study

Figure 2 shows the conceptual model of the study. It shows that household food, education, and health expenses are affected by income of the households, their number of reduced working hours, and assistance received from Ehsaas Emergency cash, Benazir Income Support, Non-governmental organizations and Zakat baitulmal during COVID-19.

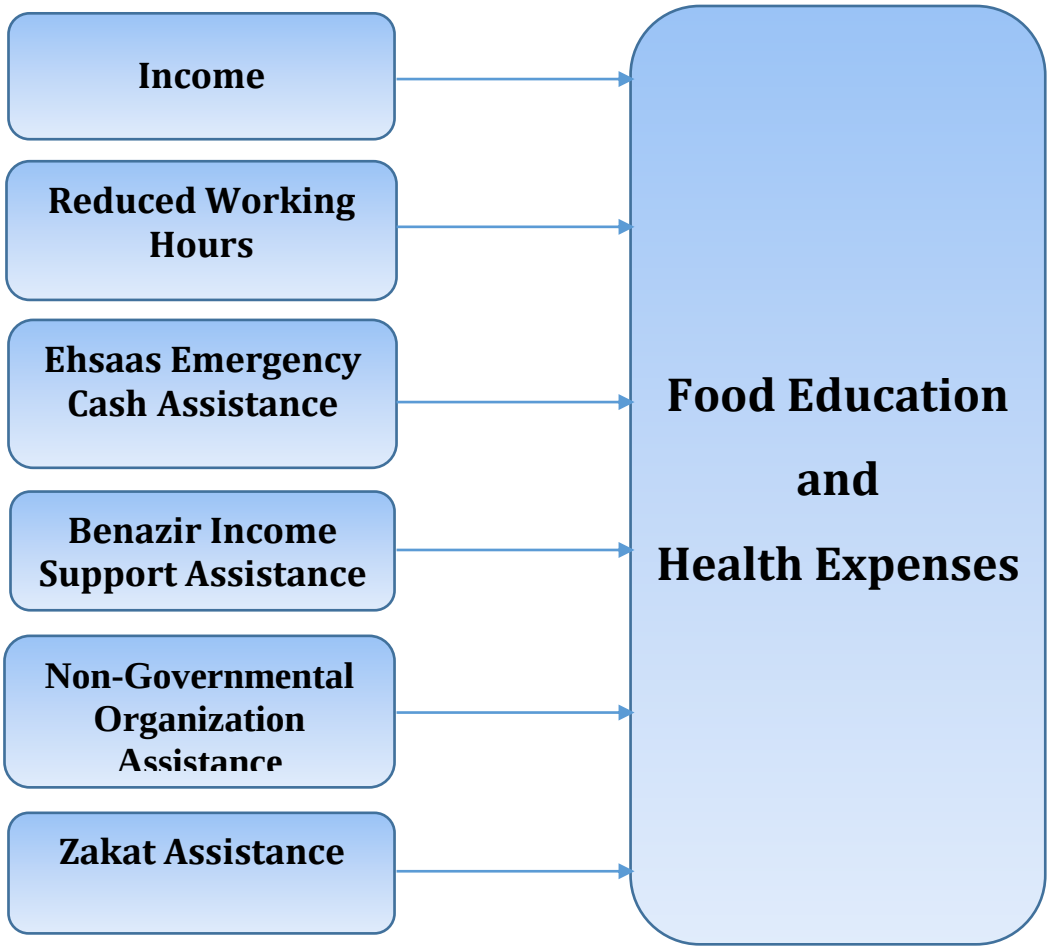


Figure 2: Conceptual Model of the Study

4.2 METHODOLOGY

This section will discuss the study models, estimation technique, specification of variables, and data source.

4.2.1 Functional form of the Models

The following functional forms are used to determine the impacts of COVID-19 on food, education, and health expenses on households.

FEXP = f (Income, RWH, Ehsaas, BISP, NGOs, Zakat)
CEDU = f (Income, RWH, Ehsaas, BISP, NGOs, Zakat)
HEXP= f (Income, RWH, Ehsaas, BISP, NGOs, Zakat)

where

FEXP: Food expense
CEXP: Child education expense
HEXP: Health expense

The dependent variable of this study is binary. In this case, binary logistic regression is considered appropriate for the analysis. When dependent variable is normal qualitative, we cannot apply Ordinary Least Square (OLS) as it requires the dependent variable to be continuous in nature. But the dependent variable is categorical in many cases. The logistic regression deals best when the dependent variable is categorical, as it does not make any assumption of normality, linearity, and homogeneity of variance for the independent variables. In logistic regression, the odds ratio (OR) has been calculated to measure the association of the dependent variable with the independent variable. The odds ratio represents "the odds that an outcome will occur given a particular exposure, compared to the odds of the outcome occurring in the absence of that exposure" (Gujarati, 2009). In this research work three different regressions were used to examine the impact of income, reduced working hours, Ehsaas emergency cash, BISP, NGOs, and Zakat on food, education, and health expenses during COVID-19, in Pakistan.

The econometric models used in this study are given below:

Food Expense

$$(P) = \frac{1}{1-P} = \beta_0 + \beta_1(\text{RWH}) + \beta_2(\text{INCOME}) + \beta_3(\text{EHSAAS}) + \beta_4(\text{BISP}) + \beta_5(\text{NGOs}) + \beta_6(\text{ZAKAT})$$

Child Education Expense

$$(P) = \frac{1}{1-P} \alpha_0 + \alpha_1(RWH) + \alpha_2(INCOME) + \alpha_3(EHSAAS) + \alpha_4(BISP) + \alpha_5(NGOs) + \alpha_6(ZAKAT)$$

Health Expense

$$(P) = \frac{1}{1-P} = £_0 + £_1(RWH) + £_2(INCOME) + £_3(EHSAAS) + £_4(BISP) + £_5(NGOs) + £_6(ZAKAT)$$

where, β, α and £ are coefficients of the dependent variables.

Here *p* is the probability of the presence of the characteristic of interest. The logit transformation is defined as the logged odds:

$$odds = \frac{P}{1-P} = \frac{probability\ of\ presence\ of\ characteristic}{probability\ of\ absence\ of\ characteristic}$$

and

$$logit\ (p) = ln\ (\frac{1}{1-p})$$

4.2.2 Specification of variables

A brief specification of the variables is given below.

DEPENDENT VARIABLES

1. **FEXP:** Food expense of the household is divided in to two categories in the data set. If the household has reduced food expenses then coded as 0. Whereas, if the household has not reduced the food expenses during COVID-19, then coded as 1.
2. **CEDU:** Child education is discontinued during COVID-19, due to the non-availability of a monthly fee owing to income constraint. It is divided into two categories in the data set. If the child's education is discontinued then coded as 0. If a child's education during COVID-19, is not discontinued, then coded as 1.
3. **HEXP:** Health expense is divided in to two categories in the data set. The households who reduced their health expense when needed during COVID-19 are coded as 0. Whereas, the household who did not reduce health expenses when needed during the COVID-19 period due to the income constraint are coded as 1.

INDEPENDENT VARIABLES

1. **Reduced Working Hours:** Working hours per day of the households during COVID-19, is a continuous variable and is measured in numbers.
2. **Income:** Household monthly Income is a continuous variable and is measured in rupees**.**
3. **EHSAAS Assistance**: Ehsaas Emergency Cash assistance received by the households during COVID-19, is divided into two categories in the data set. If the respondent or any household member has not received Ehsaas emergency cash fund during COVID-19, are coded as 0. Whereas, if the respondent or any household member has received the Ehsaas Emergency Cash fund during COVID-19, are coded as 1.
4. **BISP Assistance**: Benazir Income Support Program assistance received by the households during COVID-19, is divided into two categories in the data set. If the respondent or any household member has not received BISP assistance during COVID-19, then coded as 0, whereas, if the respondent or any household member has received BISP assistance, are coded as 1.

5. **NGOs Assistance**: Non-Governmental Organization assistance received by the households during COVID-19 is divided into two categories in the data set. If the respondent or any household member has not received NGO assistance during COVID-19, are coded as 0. Whereas, if the respondent or any household member has received NGO assistance during COVID-19, are coded as 1.

6. **Zakat/ Baitulmal Assistance**: Zakat assistance received by the households during COVID-19 is divided into two categories in the data set. If the respondent or any household member has not received Zakat assistance during COVID-19, are coded as 0. Whereas, if the respondent or any household member has received Zakat assistance during COVID-19, are coded as 1.

4.2.3 Data source

This study has used the Pakistan Bureau of Statistics Special Survey data for Evaluating the Socio-economic Impact of COVID-19. It is a nationally representative survey collected and administered by the Government of Pakistan from April 2020 to July 2020. This survey gives complete information of household income, reduced working hour, assistance received from Ehsaas cash, Benazir income support, NGOs and zakat baitulmal during COVID-19.

Two stage stratified random sample design has adopted for the survey. Data was collected electronically through tablets from 500 Primary sampling units with 70 percent urban (comprising of 349 Primary sampling units) and 30 percent rural share (151 Primary sampling units). At first stage, sample primary sampling units have been selected using systematic random sampling with Probability Proportional to Size method. No of households inside each Primary sampling unit as per sampling frame has considered as measure of size. At second stage, 12 households have been selected using systematic random sampling technique with equal probability in urban and rural areas. The total sample size is 5508 respondents, after removing missing values; the sample size is reduced to 729 for food expense regression analysis, 710 for child expense regression analysis, and 951 for health care expense regression analysis. The data set is available on the Pakistan Bureau of Statistics dashboard.

CHAPTER 5

RESULTS AND DISCUSSION

This study has investigated the impact of COVID-19 on household food, education, and health expenses and analyzed the effect of reduced working hours, income, Ehsaas cash, BISP, NGOs, and zakat/Baitulmal on food, education, and health expenses during COVID-19. For a clear analysis three regressions have been used to investigate the impact of reduced working hours, income, Ehsaas, BISP,NGOs, and Zakat/Baitulmal on household food, child education, and health expenses. A comparison between the models has also been done to see which government program such as Ehsaas, BISP, NGOs and Zakat has contributed the most in household food, education, and health expenses.

Table 5.1
Descriptive Statistics of Households' Food Expense

Description of Variables	Categories	Frequency	Percentage
Ehsaas Emergency cash Assistance received	Yes	145	19.8
	No	584	80.1
Benazir Income Support Program Assistance received	Yes	28	3.84
	No	701	96.1
Non-Governmental Organization Assistance received	Yes	12	1.64
	No	717	98.3
Zakat/Baitulmal Assistance received	Yes	14	1.92
	No	715	98.0
Food Expense Reduced	Yes	483	66.2
	No	246	33.7

Table 5.1 shows the percentage and frequency of households who received government assistance such as Ehsaas cash, BISP, NGOs and Zakat assistance during COVID-19. The table shows that 19.8 percent of the households received Ehsaas cash, while 80.1 percent did not get any assistance from Ehsaas cash. 3.84 percent of the households received cash from BISP, while 96.1 percent did not get any assistance from BISP. 1.64 percent of the

households received assistance from NGOs, while 98.3 percent did not get any assistance from NGOs**.** The table shows 1.92 percent of the households received assistance from Zakat, whereas 98.0 percent did not get assistance from Zakat. Finally, 66.2 percent of the household's food expenses are reduced, while 33.7 percent of the household's food expenses are not reduced.

Table 5.2
Household's Food Expense Results of Binary Logistic Regression

Independent Variables		Food expense		
		Beta	Sig	Beta(Exp)
Reduced Working Hours		-.132	.000	.641
Income		1.04	.005	2.901
Ehsaas Emergency Cash Assistance	No	Reference		
	Yes	.807	.000	1.920
Benazir Income Support Assistance	No	Reference		
	Yes	.870	.000	1.581
Non-Governmental Organizations Assistance	No	Reference		
	Yes	1.502	.000	1.777
Zakat / Baitulmal Assistance	No	Reference		
	Yes	3.228	.000	1.554

Table 5.2 shows the results of binary logistic regression for food expenses. The likelihood of reduced working hours is negative, indicating that food expenses decrease when loss in working hours increases. The working hours are statistically significant at a 1percent significance level. Previous empirical research confirms that the unemployed households reduce their food expenses, they buy less and lower the nutritional quality of the foods (Aguiar and Hurst, 2005; Browning and Crossley, 2009; Griffith et al., 2013; Monsivais et al., 2011; Drewnowski, 2010; Liu et al., 2013).

The income of the household is another important variable of the study. The coeffient of income is positive, indicating that the food expenses increase

when income increases. Previous studies support these findings that consumption is positively related to Income (Shamim and Ahmad, 2007; Dilek and Colakoglu, 2011; Ajmair and Akhtar, 2012).

The odds ratio of Ehsaas indicates that the households who have received Ehsaas cash during COVID-19 their food expenses are 192 percentage points greater than those who have not received Ehsaas cash. Social protection programs can have significant effects on food consumption and nutritional outcomes. Recipients of these programs can use the money to buy food. Much of the literature has shown that cash transfers have considerably improved the consumption of food among the target groups (Miller et al., 2011; Mustafa et al., 2019; Bhalla et al., 2018; GOP, 2018a). Cash transfers had improve household diet in most Latin American countries (Leroy et al., (2009). The Social Cash Transfers Pilot Program launched in Ethiopia in 2011 reduced the food gap and increased the number of calories available for consumption at the household level by 6 percent (Berhane et al., 2015). Further, Tiwari et al. (2016) reported an increase of 1.9 percent in the number of food items consumed due to Cash transfer programs.

The likelihood of BISP indicates that the households who have received cash from BISP during COVID-19 their food expenses are 158 percentage points greater than those who have not received BISP. Cash transfers under BISP improved everyday expenses on food items, supported payment of utility bills, children's education, traveling, and health expenses, (Shehzad, 2011). Cash transfer increases food expenditure and reduces poverty among beneficiary households (Bastagli et al., 2016; Haushofer and Shapiro, 2016). The cash transfer programs have been successful in decreasing poverty and refining human capital such as health, education and nutrition (Taaffe et al., 2017; Alatas et al., 2012; Angeles et al., 2019; Alix-Garcia et al., 2019; Unnikrishnan and Imai, 2020; Cahyadi et al., 2019; Garcia and Cuartas, 2020).

This odds ratio of NGOs indicates that the households who have received assistance from NGOs during COVID-19 their food expenses are 177 percentage points greater than those who have not received any assistance from NGOs. Previous studies also suggest that NGOs play a substantial part in disaster mitigation and preparedness (Benson et al., 2001) by providing funds and helping households improve their financial resilience by endeavoring various income-generating activities (Allen, 2006). Cash transfer programs allow families to make investments in health, education, nutrition, productive assets, and environmental facilities to safeguard them from financial shocks (Unnikrishnan and Imai, 2020; Mustafa et al., 2019; Garcia and Cuartas, 2020; Nawaz and Iqbal, 2020).

The odds ratio of zakat indicates that the households who have received assistance from Zakat during COVID-19 have 155 percentage points greater food expense than than those who have not received any Zakat assistance. Previous studies show that zakat distribution positively impacts aggregate consumption in Malaysia (Suprayitno et al., 2013). Zakat is an indispensable tool for stimulating the social welfare of the people in society (Azam et al., 2014; Abdurraheem and Suraju, 2018; Gamon and Tagoranao, 2018; Uddin, 2016; Abdullah et al., 2015; Saad and Abdullah, 2014; Abdelmawla, 2014; Shirazi, 2014; Embong et al., 2013; Hassan and Khan, 2007). All variables in food expense regression analysis are statistically significant at a 1 percent significance level.

Table 5.3
Descriptive statistics of household's child education expense

Description of Variables	Categories	Frequency	Percentage
Ehsaas Emergency cash Program Assistance received	Yes	138	19.4
	No	572	80.5
Benazir Income Support Program Assistance received	Yes	27	3.80
	No	683	96.1
Non-Governmental Organizations Assistance	Yes	12	1.69
	No	698	98.3
Zakat /Baitulmal Assistance received	Yes	13	1.83
	No	697	98.1
Child Education Discontinued	Yes	110	15.4
	No	600	84.5

Table 5.3 shows the percentage and frequency of households who received government assistance such as Ehsaas cash, BISP, NGOs and Zakat assistance during COVID-19. The table shows that 19.4 percent of the households received Ehsaas cash while 80.5 percent did not receive any cash from Ehsaas. 3.80 percent of the households received cash from BISP, while 96.1 percent did not get any assistance from BISP. The households who received assistance from NGOs are 1.69 percent, while 98.3 percent did not get any assistance from NGOs. Finally, 1.83 percent of the households received assistance from Zakat whereas, 98.1 percent of the households did not get assistance from Zakat. 15.4 percent of the parents reduced their children's education expenses by discontinuing their child education while 84.5 percent of the households did not discontinue their children's education.

Table 5.4
Household's Child Education Expense
Results of Binary Logistic Regression

Independent Variables		Child Education Expense		
		Beta	Sig	Beta(Exp)
Reduced Working Hours		-1.503	.000	.149
Income		.120	.030	1.113
Ehsaas Emergency Cash Program	No	Reference		
	Yes	.715	.025	1.511
Benazir Income Support	No	Reference		
	Yes	.627	.000	1.466
Non-Governmental Organizations	No	Reference		
	Yes	-.663	.335	.941
Zakat /Baitulmal	No	Reference		
	Yes	.605	.013	1.498

Table 5.4 shows the binary logistic regression results of child education expense. The likelihood of reduced working hours is negative, indicating that child education expense decrease when loss in working hours increases. The odds ratio of income is positive and significantly impacts child education expense, indicating that the child education expense decrease when income decreases. A previous study supports these results that, on average, household expenses on education dropped, most radically among the poorest households during the financial crises in Indonesia in 1998. The reductions in spending were mainly observed in families who were poor and have more young children (Thomas et al., 2004).

The likelihood of the Ehsaas cash program indicates that the households who have received Ehsaas cash during COVID-19 their child education expense are 151 percentage points greater than those who have not received Ehsaas cash. It is statistically significant at a 5 percent level of significance. These results are parallel with the existing literature that cash allowances

programs reduced both short and long-term poverty through larger investment in health, nutrition, and education in Mexico (Skoufias and Maro, 2006). Cash transfers can improve access to education in the short run by eradicating the direct and indirect financial barriers to education (Bastagli et al., 2016). Cash transfers' positive impacts on children's education and health outcomes have been documented in many studies (Arnold et al., 2011; Madariaga and Cecchini, 2011; Son, 2008; Schady and Araujo, 2006).

The likelihood of BISP indicates that the households who have received cash from BISP during COVID-19 their expenses on children education are 146 percentage points greater than those who have not received BISP. It is significant at a 1 percent level of significance. These results are parallel to previous studies that cash transfers were succeeded in providing some assistance to the families in their everyday food expenses, health and education (Naqvi et al., 2014; Tariq, 2014). The cash transfer programs have uplifted economic status and fulfilled the poor's social needs (Bazzi et al., 2015; Nawaz and Iqbal, 2020; Cahyadi et al., 2019; Attanasio and Lechene, 2014).

Our last variable, Zakat, is statistically significant at a 5 percent significance level. The likelihood of Zakat indicates that the households who have received assistance from Zakat during COVID-19 their expenses on children education are 149 percentage points greater than those who have not received any Zakat assistance. The benefits of zakat for the social welfare of poor households have been reported in the literature (Suprayitno et al., 2013; Azam et al., 2014; Shirazi, 2014). Cash transfer allows the family to invest in their children's education (Unnikrishnan and Imai, 2020; Mustafa et al., 2019; Garcia and Cuartas, 2020; Nawaz and Iqbal, 2020). The variable NGOs is insignificant in the food expense regression analysis.

Table 5.5
Descriptive Statistics of Household's Health Expense

Description of Variables	Categories	Frequency	Percentage
Ehsaas Emergency cash Program Assistance received	Yes	187	19.6
	No	764	80.3
Benazir Income Support Program Assistance received	Yes	35	3.68
	No	916	96.3
Non-Governmental Organizations Assistance received	Yes	12	1.26
	No	939	98.7
Zakat/Baitulmal Assistance received	Yes	18	1.89
	No	933	98.1
Health Expense Reduced	Yes	821	86.3
	No	130	13.6

Table 5.5 shows the percentage and frequency of households who received government assistance such as Ehsaas cash, BISP, NGOs and Zakat from the Government during COVID-19. The table shows that 19.6 percent of the households received Ehsaas cash while 80.3 percent did not receive any Ehsaas cash. 3.68 percent of the households received cash from BISP, while 96.3 percent did not get any assistance from BISP. 1.26 percent of the households received assistance from NGOs, while 98.7 percent did not get any assistance from NGOs. Finally, 1.89 percent of the households received assistance from Zakat whereas, 98.1 percent of the households did not get assistance from Zakat. 86.3 percent of the households avoided health care expenses because of income constraint, while 13.6 percent did not reduce health expenses

Table 5.6
Household's Health Expense
Results of Binary Logistic Regression

Independent Variables		Health Expense		
		Beta	Sig	Beta(Exp)
working Hours		-.101	.015	.981
Income		.359	.000	1.302
Ehsaas Emergency Cash Program	No	Reference		
	Yes	.294	.000	1.554
Benazir Income Support	No	Reference		
	Yes	.987	.016	1.581
Non-Governmental Organizations	No	Reference		
	Yes	-.746	.486	.777
Zakat /Baitulmal	No	Reference		
	Yes	-.132	.845	.920

Table 5.6 shows the results of binary logistic regression. The odds ratio of reduced working hours indicates that health expense decrease when loss in working hours increases. The likelihood of income is statistically significant at a 5 percent level of significance. It indicates that when income is falling, health expenses decrease. Previous studies also support this result that unemployment and income affect health status (Smith 2007; Cutler et al., 2008; Gerdtham and Johannesson 2004). A well-established based evidence links income poverty with poorer health results (Glied et al., 2011).

The odds ratio of Ehsaas is positive, indicating that the households who have received Ehsaas cash during COVID-19 their health expense is 155 percentage points greater than those who have not received Ehsaas cash. Our results match the previous studies that social cash transfer programs increased health-seeking behaviors among the poorest households in Malawi. (Malawi Social Cash Transfer Program Evaluation Team, 2016). Social cash transfer

programs improve health outcomes for children aged 6-17 (Luseno et al., 2014) increase expenditures on food consumption, health, and education (Haushofer and Shapiro, 2016).

The odds ratio of BISP indicates that the households who have received cash from BISP during COVID-19 their health expense is 158 percentage points greater than than those who have not received BISP. It has provided the beneficiary households with a budgetary relief regarding health and food costs (Afzal et al., 2019; Nayab and Farooq, 2014; Shehzad, 2011). Cash transfers helped beneficiaries in Sub-Saharan Africa to cope with the monetary obstacles that restrict their approach to health care. Unconditional cash transfer programs showed positive impacts on healthcare utilization (Owusu-Addo et al., 2018).

Ehsaas and BISP are significant at 1 percent significance level. The likelihood of NGOs and zakat Baitulmal is insignificant in health expense regression analysis.

CHAPTER 6

CONCLUSION AND RECOMMENDATIONS

6.1 CONCLUSION

This study has investigated the effect of reduced working hours and income on household food, education, and health expenses during covid-19 in Pakistan. It also analyzed how different government social protection programs, i.e., Ehsaas program, BISP, NGOs, and zakat assistances, have been helpful to mitigate the harsh effects of the crises. The study's dependent variables are food expenses, children's education expenses, and household health-seeking expenses. The study's independent variables are reduced working hours, Income, Ehsaas cash program, BISP, NGOs, and Zakat. Binary logistic regression is applied for the analysis as the dependent variables are dichotomous in nature. The binary logistic regression results indicate that the likelihood of reduced working hours is positive, explaining that food expenses decrease when working hours decrease. The likelihood of income is positive, showing that the food expenses increase when income increases. The odds ratio of Ehsaas, BISP, NGOs, and zakat indicates that the households who have received assistance from these programs during COVID-19 their food expenses are more than those who have not received it.

The binary logistic regression results for household children's education expenses indicate that the likelihood of reduced working hours is positive and statistically significant, showing that children's education expenses decrease when working hours decrease. The odds ratio of income is positive and significantly impacts child education expenses, indicating that the children's education expenses decrease when income decreases. The likelihood of Ehsaas, BISP, and zakat suggests that the households who have received assistance from these programs during COVID-19 their children's education expenses are more than those who have not received it. The variable NGO assistance is positive but insignificant.

The binary logistic regression results for healthcare expenses show that health expenses decreased with declining working hours. The odds ratio indicates that when income is falling, health expenses decrease. The likelihood of Ehsaas and BISP indicates that the households who have received assistance from these programs during COVID-19 their health expenses are more than

those who have not received it. The variables NGOs assistance and zakat are negative and insignificant.

It is concluded that Income has a positive impact on food, education, and health expense. Government assistance like Ehsaaas cash, BISP, NGOs, and zakat have a positive and significant impact on food expenses. Similarly, Ehsaas cash, BISP, and zakat have a positive and significant impact on Children's education expenses whereas NGOs have an insignificant impact on children's education expenses. Finally, Ehsaas and BISP have a positive and significant impact on health expenses whereas NGOs and zakat have insignificant impact. On the basis of these findings all null hypotheses are rejected except for hypotheses H_{11}, H_{12}, and H_{15}. Overall Ehsaas cash has the highest significant impact on household food and education. Whereas BISP has a large significant impact on health expenses as shown by the odds ratios.

6.2 RECOMMENDATIONS

The study's findings show that food expenses decrease when working hours and income decreases. The results suggest that the households who have received assistance from Ehsaas, BISP, NGOs, and zakat programs during COVID-19 their food expenses are higher than those who have not received any of these assistances. Social protection has been one of the essential short-term measures governments have adopted to shield their people against the harsh effects of COVID-19. There is an ongoing need for investment in social protection in the medium to long-term programs, which is essential to meet an economy's immediate needs and ensure preparedness against the shocks. Therefore it is recommended that the government should improve the adequacy and increase social assistance coverage, according to the individual and household necessities. In the ongoing scenario when the inflation has risen globally, the government should impose price controls on basic food items.

The findings regarding the child education expenses reveal that the households who have received assistance from Ehsaas, BISP, and Zakat programs during COVID-19 have more expenses on children's education than those who have not received any assistance from these programs. It suggests that the Government should aid education based on co-responsibility, i.e., the Government and the beneficiary sharing the cost of education. The Waseela-e-Taleem program can be expanded for the improvement of education. The education allowance allocated per child can be increased along with increase in number of children covered. Further, the Government at the federal and provincial levels may create a fund for education purposes. This Fund should be financed from the foreign donors, private people, private charitable

organizations and the government etc. Moreover, the government initiative regarding a 20 percent reduction in school fees during the pandemic should be adopted as a policy whenever the economy is dealing with financial hardships. The need of the hour is to modernize and employ the alternative education system and assessment strategies. This ongoing pandemic has provided an opportunity to pave the way for introducing digital learning at all education levels. There is an urgent need to innovate and implement alternative educational and assessment strategies.

The findings regarding health-care expenses during COVID-19 show that households who received assistance from Ehsaas and BISP programs during COVID-19 have more health expenses than those who have not received any assistance from these programs. This suggests that health and wellbeing can be improved with social protection policies. Therefore, it is recommended that efforts be made to strengthen various health system functions at the governmental level. During COVID-19, many people did not take the COVID-19 PCR test as it was costly, especially for those who experienced reductions in income due to lockdowns and employment loss. Therefore, it is recommended that the government take the initiative to provide free testing and medicines when there is a health crisis. The government should design a well-organized robust health infrastructure, reliable and timely testing of suspects, and proper treatment mechanisms to control the pandemic spread. The present government has introduced the sehat card for the poor and needy, which will revolutionize the health status of the people of Pakistan.

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APPENDIX

QUESTIONNAIRE

The purpose of this questionnaire is to evaluate the impact of COVID-19 on working hours, household income, and government mitigation measures such as Ehsaas emergency cash, Benazir income support, NGOs, and Zakat on household food, child education, and health expense during COVID-19. All questions mentioned below have been taken from the questionnaire conducted and administered by Pakistan Bureau of Statistics, special survey to evaluate the socio economic impact of COVID-19 in Pakistan. The survey covers the period from April 2020 to July 2020. The questions are as follow:

Q1: What is your average number of reduced working hours per day due to COVID- 19 (During April to July 2020)? Write the number of reduced working hours

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Q2: What is your average monthly income in rupees during COVID- 19 (During April to July 2020)? Write the monthly salary in rupees.

Q3: Did your food expense reduce during COVID-19 (April to July 2020)?

□ Yes □ No

Q4: Did your child education discontinue during COVID-19(April to July 2020) due to income constraint?

□ Yes □ No

Q5: Did you avoid health expense during COVID-19 (April to July 2020) due to income constraint?

□ Yes □ No

Q6: Have you or any member of your household received any benefit in cash from Ehsaas emergency cash program during April 2020 to July 2020?

Tick (Yes) if received cash assistance and (No) if not received.

□ Yes □ No

Q7: Have you or any member of your household received any benefit in cash from Benazir Income Support program during April 2020 to July 2020? Tick (Yes) if received cash assistance and (No) if not received.

□ Yes □ No

Q8: Have you or any member of your household received any benefit in cash from Non-governmental organizations during April 2020 to July 2020? Tick (Yes) if received cash assistance and (No) if not received.

□ Yes □ No

Q9: Have you or any member of your household received any benefit in cash from Zakat Baitulmal during April 2020 to July 2020? Tick (Yes) if received cash assistance and (No) if not received.

□ Yes □ No