SOCIO-ECONOMIC AND MENTAL HEALTH IMPACT OF COVID-19 ON INFORMAL CONSTRUCTION WORKERS AND THEIR SATISFACTION LEVEL TOWARD THE GOVERNMENT'S RESPONSE TO COVID-19

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No part of this thesis has been submitted anywhere else for any other degree. This thesis is submitted to the Department of Urban and Regional Planning in partial fulfillment of the requirements for the degree of Master of Science in the Field of

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I dedicate this Thesis to my Parents and Teachers.

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Abstract

COVID-19 had a huge impact on the world, like the rest of the world Pakistan was hit extremely hard by COVID-19 and the resulting Lockdowns. Pakistan is a developing nation that has a large percentage of society belonging to the lower-income groups and thus was most badly affected, among these groups are informal construction workers who were severely affected by the COVID-19 pandemic. Keeping in view, the present study aims to explore the socioeconomic impacts of COVID-19 on informal construction workers and their families. Furthermore, the satisfaction level among these workers toward the Government's response in tackling the COVID-19 crisis was also explored. A 7-part 74-question questionnaire was developed, and Surveys were conducted, a total of 353 responses were collected from informal construction workers, the majority of whom were laborers. Descriptive analysis was performed using SPSS and results were obtained. The results show that the average income of construction workers was Rs 16342 before the lockdowns, which was less than the average monthly income in Pakistan, The majority of the laborers 74.9% were sole earners of the family, and it was found that 60.6% of them were unemployed for up to six months during the pandemic with 32.4% having no income source at all, they were hit hard financially and many of them took loans to survive which many still owe, results show that construction was closed. There was the unavailability of Construction Materials and Tools, results show that 84.5 % of the laborers were vaccinated, and that 79.6% of the respondents did not receive any financial assistance from the Government. Still, overall, they were satisfied with the Government's response to COVID-19. PHQ-9 results show that 31.5% of the laborers had mild whereas 30.9% had moderate depression and GAD-7 shows 39.7% mild and 20.4% moderate Depression.

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CHAPTER 1: INTRODUCTION

The world is going through the biggest crisis in recent history on a scale never seen before in the form of the COVID-19 Pandemic, the current COVID-19 pandemic is caused by a coronavirus named SARS-CoV-2. Coronaviruses are a large family of viruses, some of them can cause respiratory diseases in humans, from the common cold to more rare and serious diseases such as Severe Acute Respiratory Syndrome (SARS) and Middle East respiratory syndrome (MERS), both of which are deadly and can cause death and were detected for the first time in 2003 and 2012, respectively (Burki, 2020), In December 2019, a series of pneumonia cases of unknown cause emerged in Wuhan, Hubei, China, with clinical presentations greatly resembling viral pneumonia. Deep sequencing analysis from lower respiratory tract samples indicated a novel coronavirus named 2019 novel coronavirus (2019-nCoV)(Huang et al., 2020), On 31 December 2019, the World Health Organization (WHO) was formally notified about a cluster of cases of pneumonia in Wuhan City (Chaplin, 2020), it was first an outbreak but soon it turned into an epidemic, when an outbreak spreads over a large geographic area it becomes an epidemic (Morens et al., 2009), and then it was hard to contain the viral disease and soon it spread all around the world, the first case outside of China was reported in January 2020 in Thailand and WHO declared Corona Virus a "public health emergency of international concern" and in March 2020 it was declared a pandemic by WHO, Pandemic is the form of an epidemic that spreads through human population affecting a large number of people, the major part of a nation, the entire nation, a continent or a part of the entire world (Samal, 2014).

The COVID-19 pandemic spread population throughout the world and according to John Hopkins University and Medicine the total number of cases till 03/10/23 is 676,609,955 where the number of deaths is 6,881,955 (Johns Hopkins University & Medicine, 2023), and according to WHO in Pakistan the total number of COVID-19 cases till date 11/06/24 is 1.6 million and the number of deaths is 30,700. The World Rushed to make the vaccines for COVID-19 and as the vaccines take a lot of time to make due to the long process and testing, traditional vaccine development often takes 15 years or more from the initial design stage to the clinical studies, WHO estimated that it will take 18 months to create COVID-

19 vaccine, but the fact that several COVID-19 vaccine candidates entered into clinical trials in less than 6 months and were conditionally approved in 10 months since the beginning of the COVID-19 outbreak demonstrates a record-breaking speed in vaccine development history (This et al., 2021). Currently, there are 184 candidate vaccines in preclinical development and 104 in clinical stages of development, a total of 8,752,322,604 people are vaccinated around the world (Johns Hopkins University & Medicine, 2023) whereas in Pakistan total number of people fully vaccinated is 61,761,440 (NCOC, 2021).

COVID-19 is an ongoing phenomenon where after every few months the COVID-19 Virus mutates into a new form(Vaughan, 2021), the first variant was Alpha, then Beta, Gamma, Delta, and now Omicron (WHO, 2021), The Omicron variant was spreading fast and was causing infections in people already vaccinated or who have recovered from the COVID-19 disease, the situation is alarming and the omicron variant even causes infection to previously vaccinated people (M.D, 2021; Nolen, 2021), Population-level evidence suggests that the Omicron variant is associated with a substantial ability to evade immunity from prior infection (Pulliam et al., 2021).

COVID-19 created serious health and economic problems because of various global social and environmental transformations due to economic development. Because of economic development, the world's population has become increasingly urbanized and concentrated in large cities, and the global level of the human population has risen manifold since the beginning of the Industrial Revolution. The density of human populations is greater than ever. In addition, the mobility of humans in all geographical dimensions has increased tremendously (Tisdell, 2020), COVID-19 created major disruptions for young people including health concerns, school closures, reduced social opportunities, and a wilting economy, the pandemic created extensive problems in education, many schools moved to online learning and other forms of distance education starting in March 2020, but the effectiveness was hindered by limited experience with these modes of delivery, lack of internet access for many students, and the inherent difficulty of virtual learning for young people (No et al., 2020), as a result of the COVID-19 lockdowns was imposed, some countries including Pakistan imposed smart lockdowns(Haque et al., 2020), modern history

has not seen such a lockdown as the one caused by the coronavirus (Rosak-Szyrocka et al., 2021).

The world's economies took a major hit in 2020, with overall growth dropping to -4.4 percent. Developing economies were especially hard hit, with growth falling to -3.3 percent. This economic slump was caused by business shutdowns and travel limitations put in place to slow the spread of the pandemic. These restrictions caused widespread disruptions to jobs around the globe (Khalid et al., 2021), Pakistan was also hit very hard by the pandemic and bad economic situation worsened the situation (Shaheen et al., 2020), in Pakistan a nationwide lockdown was implemented in the third week of March 2020. All the educational institutions, government offices, markets, business centers, parks, etc., were closed to reduce the spread of COVID-19 (Imran et al., 2021), 62 percent of the global workforce of 3.3 billion consists of informal workers and they have been hit hard by the economic crisis caused by COVID-19 among these 1.6 billion workers faced a serious threat to their livelihoods according to (Lee et al., 2020), most of the construction workers in Pakistan belong to the informal sector of the economy, as their livelihood depends on daily wages, The temporary unemployment due to the lockdown is estimated at 10.5 million workers, including daily wage and contract/casual workers in establishments. Centre for Labor Research estimates job disruptions for around 21 million workers in the country, the construction workers are part of this group. Similarly, there are estimates that 9 to 15 million people will fall below the poverty line due to the COVID-19-induced crisis. Estimates from PIDE depict a bleaker picture, forecasting 20 million to 70 million persons falling below the poverty line, 72% of the total Pakistan labor force belongs to the informal sector and the construction sector, employing 4.7 million workers (I. Ahmad, 2020a), it is a sector that has seen a significant impact to its operations and has been amongst the hardest hit in terms of COVID-19 (Stiles et al., 2021).

The purpose of this research is to find out the impacts which include socio-economic, health, educational, and mental impacts of COVID-19 and resulting lockdowns and smart lockdowns on informal, daily wager construction workers and their families in Pakistan, and to find out about the status of help they received from the government and devise

strategies to help them from the damages of previous lockdowns and any future lockdowns or restrictions because of new COVID-19 variants.

1.1. Problem Statement:

COVID-19 has disrupted human lives, livelihood, trade, economy, and business all around the globe, the global economy due to the COVID-19 recession and unprecedented economic crisis, COVID-19 has increased the risks of macroeconomic instability in the form of declining GDP growth, the GDP reduction means high inflation and low per capita income, It is estimated that due to COVID-19 measures which include lockdowns, partial lockdowns will bear a significant impact on 1.6 billion informal workers, the informal sector accounts for 71.7 percent of the employment in main jobs outside agriculture, the number is more in rural areas (75.6 percent) than in urban areas (68.1 percent) in Pakistan, according to (PAKISTAN BUREAU OF STATISTICS, n.d.) there are 4.7 million people employed in the construction sector in Pakistan, with 4.4 million being engaged in informal activities, it is estimated that in Pakistan 12 million informal workers were likely to lose jobs and the GDP growth rate will be low.

COVID-19 has a massive Socioeconomic effect on Pakistan, most of the construction workers in Pakistan belong to the informal sector and depend on daily wages for their living, due to a lack of records/databases, the Pakistani government faced problems in supporting the labor community (Nafees et al., n.d.),. These affected informal workers include a significant number of workers working in the construction industry, there is a large informal sector in Pakistan that has a very limited labor welfare service available, due to COVID-19 lockdowns and smart lockdowns imposed all around the world including Pakistan, a lot of research is been done on COVID-19 worldwide but there is very little research on how the COVID-19 impacted the construction workers and especially the workers that belong to the informal `sector of the economy, as most construction workers in Pakistan depend on daily wages and are part of the informal sector, it is of great importance to find out the impacts of lockdowns on them and their families due to extended lockdowns and smart lockdowns(Congress, 2020; Latif, 2020a) as they will be the most badly affected due to dependence on daily wages and general poverty that prevails among

such construction workers. How the COVID-19 and resulting lockdowns including smart lockdowns affected the economic well-being, health, social well-being, food security, and mental health of the construction workers and their family's needs to be examined and studied thoroughly to help them as they are among the most affected from the COVID-19 lockdowns.

Although there is a lot of research has been done on COVID-19 on different levels and broad topics, when it comes to Construction Industry there is not a lot of research that has been already done, there little research on the informal sector, and specific no research on the impact of COVID-19 on informal Construction workers and their families, the socio-economic effects of the COVID-19 Pandemic on these informal construction workers, the effects on their health and Mental health as COVID-19 has seriously hampered the world economy, mass lockdowns and economic recession is predicted to increase mental disorders and suicides, on their economic wellbeing of these workers, on their social wellbeing, on their and their family's health and the education of their children, out of 47 million students in Pakistan, only 22% students have access to the internet and most lack modern ICT equipment, due to the fact that informal construction workers are poor and lack basic household facilities, they cannot afford ICT equipment and internet facility that is required for the online education of their children. There is a huge research gap on these topics, this research will help in understanding the impacts of the COVID-19 pandemic on informal Construction workers and will open doors to more research related to the informal sector and daily wage construction workers.

1.2. Scope of Research:

The COVID-19 pandemic has had a huge impact on Pakistan and the world, on top of that Pakistan is facing economic issues, as a result, inflation is high, according to World Bank the Consumer price elevation(CPI) in Pakistan was 10.7 percent in 2020 and 8.9 percent in 2021 (World Bank, 2021), the daily wages of construction worker in Pakistan are very low as shown in table 1 below for wages in 2017.

The purpose of this research is to find out the impacts which include socio-economic, health, educational, and mental impacts of Covid 19 and resulting lockdowns and smart lockdowns on informal, daily wager construction workers and their families in Pakistan, and to find out about the status of help they received from the government and devise strategies to help them from the damages of previous lockdowns and any future lockdowns or restrictions because of new covid variants. There is very little work done especially in Pakistan to find out the status of how COVID-19 has impacted the poor people and especially the informal working class, this study will give insight into how the lives of the informal construction workers were affected and the steps that can be taken to provide relief and rehabilitation to them. As new Pandemics can happen at any time in the future studying and analyzing the effects of the COVID-19 pandemic on informal workers who also come in the poor segment of society can help in better future planning and management while also addressing their immediate issues.

Table 1: Labor Wages in Pakistan

Type of worker	City	Year	Daily wage Avg per day in (PKR)	Wage in USD (2021)
Unskilled Labor	Karachi	2017	719.23	4.04
Carpenter	Islamabad	2017	1250	7.02
Mason	Islamabad	2017	1250	7.02
Mason	Lahore	2017	1025	5.76
Unskilled labor	Peshawar	2017	600	3.37

Source:(PBS, 2017)

This data is available for the year 2017, it is evident that wages in Pakistan for construction workers are already low and workers even get lower wages than these due to them belonging to the informal sector. COVID-19 led to complete, partial, and smart lockdowns for months which resulted in these construction workers being deprived of their source of

income, according to (Rasul et al., 2021a) South Asian countries have imposed stringent lockdowns, which have consequently affected the lives of

and livelihoods of millions of people in the region, where a third of world's poor live, making things worse are the other adverse effects that COVID-19 has which include socioeconomic, health, mental, social, and educational, this study will also find out whether any loans were taken by these jobless workers during the lockdowns and to what extent and how are they managing those loans, and if they need government assistance to pay back those loans. A study by (Gupta et al., 2021) found that there was an increased demand for loans, and the size of loans increased by almost double in rural regions of India, according to another study by (Malik et al., 2020) that sales and household income fell by 90% after the lockdown, and 70% could not repay their loan. The effect on the families of these workers and their children, their health, nutrition, food security, and education will also be examined.

The focus of this research will be on construction workers in Rawalpindi, Pakistan that belong to the informal sector, this research will be helpful in the context of all of Pakistan because the working system of these daily wage construction workers is the same across all of Pakistan, this research will also be helpful in a global context and developing world, especially on the informal sector and low-income households and individuals. As Pakistan belongs to South Asia, many of its socioeconomic characteristics resemble other countries including those in the Middle East, including India, Afghanistan, Bhutan, Nepal, Bangladesh, Sri Lanka, and Iran, the research will also be helpful in the context of developing countries in Africa and some eastern European countries.

1.3. Objectives:

- To Investigate the socio-economic effects of COVID-19 on Construction Workers.
- To investigate the impact of COVID-19 and resulting lockdowns on the mental health of Construction workers.
- To explore how the construction workers and their families coped with COVID-19.

- To find out the role of the government in helping Construction workers and their families during the COVID-19 pandemic.
- To investigate the role of different stakeholders during the pandemic for Construction workers.
- To devise strategies to help the construction workers during and post-pandemic.

1.4. Structure of Thesis

- Introduction.
- Objective.
- Literature Review.
- Methodology.
- Results and Discussion.
- Conclusion and Recommendations.

CHAPTER 2: LITERATURE REVIEW

2.1. History of Pandemics:

Infectious diseases resulting in epidemics and pandemics have molded human history and continue to do so even today (U. Khan et al., 2020), First, it is important to know what the term pandemic means, there are different terms used the definitions like Endemic, outbreak, epidemic, and pandemic, the definitions of these terms are as follows:

1. **Endemic**: when the condition of the disease is in a stable stage, the number of cases is as expected, this can be in a specific area, like a town, city, province, state, country, or continent.
2. **Outbreak**: this condition happens when the number of cases of a specific disease crosses the expected number of cases, this phenomenon is limited to a specific place in time.
3. **Epidemic**: when an outbreak spreads from one specific place to another place then it becomes an Epidemic, example is Zika Virus, yellow fever, and smallpox.
4. **Pandemic:** when the epidemic from certain regions spreads throughout the globe then the condition becomes a pandemic, an example COVID-19, Plague, and Cholera.

Throughout human history, different fatal diseases continued to rise some became epidemics and some turned into pandemics, cholera, bubonic plague, smallpox, HIV and influenza are some examples, there has been continuous advancement happening in Medical science for thousands of years, in the past couple of centuries there is a great advancement in this regard and the in 20th and 21st-century medical science has seen advancement on a level never seen before by mankind, these advancements have helped humans to overcome these deadly diseases, but new diseases continue to emerge. Studying past pandemics and diseases helps us face the challenges posed by future diseases. The brief history from the literature of past pandemics is as follows:

1. **Athenian Plague***:* The Athenian plague occurred from 430 to 426 BC, it killed 25% population in the Athens city-state and surrounding areas, it started in Ethiopia and spread across Egypt and Greece. Scientists are not sure as to what caused the pandemic, the symptoms included fever, rash, blood cough, stomach cramping, and vomiting among

others, after 7 to 8 days of contracting the disease, a person would be generally dead, Doctors who were treating the patients were also catching the disease and as the result, many died.

2. **The Antonine Plague:** It occurred from 165 to 180 AD, it occurred in the Roman empire during the rule of Marcus Aurelius who also died from the disease, smallpox or measles was thought to be behind this disease. 5 million people are estimated to die from it and destroyed 33% of the Roman Empire, its symptoms included rashes, hemorrhagic pustules, bloody diarrhea, fever, and hemoptysis.
3. **The Justinian Plague:** It occurred in 541 AD in the Mediterranean, and it is estimated to have killed 60% of the Mediterranean Population. It started from Ethiopia, then to Egypt, and reached through the Roman Empire. Symptoms included Fever, Fatigue, Buboes, sore throat, and diarrhea. It was caused by Yersinia pestis.
4. **The Black Death:** It was the bubonic plague that started in the year 1334 in China and spread in Europe in 1347, it killed an estimated 150 to 200 million people, the person who contracted the disease generally died within 8 days with a mortality rate estimated to be 70% to 95%. It was caused by the Yersinia pestis bacteria.
5. **New World Smallpox Outbreak:** It occurred from 1520 onwards, in New World (North and South America), it killed 56 million people and was caused by the Variola major virus.
6. **The Seven Cholera Pandemics:** they are a series of Cholera pandemics that began in 1817 the 7th pandemic began in 1961 and is still ongoing, the first 6 cholera pandemics have been estimated to have caused 1 million deaths, the seventh cholera pandemic caused 2.86 million cases worldwide in a year with early 9,5000 deaths. It spreads through contaminated water, the first 6 were caused by cholera serogroup O1, while 7th the one was caused by Vibrio cholera.
7. **Third Plague:** It occurred in 1885 and killed 12 million people in India and China, it was caused by Yersinia pestis bacteria.
8. **Russian Flu:** It lasted from 1889 to 1890 and caused 1 million deaths, it was caused by the H2N2 Virus.
9. **Spanish Flu Pandemic:** It started in 1918 to 1919 in Kansas, United States, it caused an estimated 40 to 50 million deaths worldwide and was caused by the H1N1 strain of the influenza virus.

10. **Asian Flu:** It occurred from 1957 to 1958, it started in China and spread around the world, it has claimed 1.1 million lives, and it was caused by the H2N2 virus.
11. **Hong Kong flu:** It occurred from 1968 to 1970, originated in Hong Kong, and spread worldwide. It caused 1 million deaths; it was caused by the H3N2 virus.
12. **HIV/AIDS:** It started in 1981 in the United States and is still ongoing, it has killed 36 million people, and it is caused by the HIV Virus.
13. **Severe Acute Respiratory Syndrome (SARS):** It occurred from 2003 to 2004, started in China, and spread to some countries including Hong Kong and Canada. It caused 770 deaths and was caused by the SARS Corona Virus (SARS-CoV).
14. **Swine Flu:** It started in 2009 lasted till 2010 in Mexico and spread to 122 countries, it caused 200,000 deaths and was caused by the H1N1 virus.
15. **Ebola:** It occurred from 2013 to 2016 and originated in Guinea and spread across central and west Africa, it killed 11,000 people, and it was caused by the Ebola Virus.

The references for the above data are taken from (History, 2019; LePan, 2020; Sampath et al., 2021).

2.2. Brief History of COVID-19:

On 31 December 2019 a cluster of cases was reported in Wuhan, by Wuhan Municipal Health Commission, this was noted by the sudden appearance of severe acute pneumonia cases, the first 41 patients in Wuhan had the symptoms of fever, cough, myalgia, and fatigue, all of the patients developed pneumonia, 13 of them were sent to intensive care units and 6 of them died, COVID-19 is caused by the Severe acute respiratory syndrome coronavirus 2(SARS-Cov-2), it has the label 2019 with it because it originated in 2019, this was not the first disease caused by the family of coronaviruses, he origin of COVID-19 can date back to SARS CoV epidemic in 2002 to 2003, in 2012 various SARS-like CoV were discovered in China with three of them having the ability to transmittable to humans, there was an indication of SARS CoV 2 before the outbreak in Wuhan in 2019, there were patients admitted in hospitals in Italy and France who had typical radiological features of COVID-19 pneumonia. in Wuhan, before the pandemic Military games were held with 110

countries participating and Chinese athletes participated from different parts of the country, many athletes had developed symptoms that were resembling that of COVID-19 when they returned home, but no laboratory tests were performed, the games that were held are believed to have spread the Corona Virus infection among the participants and spectators. in the last months of 2019, a still unknown disease was causing frequent outbreaks, but the outbreaks were limited, at the end of 2019 the disease started to spread rapidly, it is estimated that the Wuhan wet markets which are close to the residential areas and where all types of animals are slaughtered including civet cats, dogs, bats, pigs among others, the conditions at these wet markets were extremely unhygienic and live animals were overcrowded in the cages. this unhygienic environment was an amplifying zone for the pathogens, it is thought that this place caused the spread of the COVID-19 virus on a larger scale among the population, soon afterward the outbreaks turned into an epidemic, and from there onwards it was difficult to contain the virus and soon the epidemic turned into a worldwide pandemic, with the first case outside China being reported in Germany who was a businessman who had business contacts in Shanghai, China. On 11 March 2020, the WHO declared COVID-19 a pandemic and the rest is history, COVID-19 spread all across the globe reaching 279,829,699 with 5413118 deaths (Carvalho et al., 2021; M. Khan & Khan, 2021; Lim, 2021; Platto et al., 2021; WHO, 2020; Worldometer, 2021).

2.3. COVID-19 in Pakistan:

On 12 February 2020 Ministry of National Health Services, Regulation & Coordination Pakistan proposed a National Action Plan for Preparedness & Response to Corona Virus Disease (Covid-19), Pakistan reported its first COVID-19 case on 26 February 2020 in Karachi, the same day a COVID-19 case was confirmed in Islamabad, As the COVID-19 was spreading around the world, Pakistan neighbors China and Iran were hit very hard and were facing a massive increase in number and were hit very hard, Iran had the second-highest mortalities after Italy in the world, the first case of COVID-19 in Iran was reported on 19 February 2020 in Qom which is one of the holy city for pilgrims visiting Iran, the government halted the trade and transport with Iran, every year thousands of pilgrims visit holy sites in Iran and 2020 was no exception, at the time the COVID-19 hit Iran, Pakistani

pilgrims were already there when these pilgrims started returning to Pakistan that became a huge problem for the Government of Pakistan due to the fact that those pilgrims were coming from areas were COVID-19 had already spread and were places of mass religious gatherings, in the first week of the march more than 3000 pilgrims were contained at Taftan a town in Balochistan which is one of the border crossings with Iran, when the number of pilgrims exceeded 6000 it became difficult to contain them, initially it was decided to put the incoming pilgrims on 14 day quarantine but the pilgrims were not cooperating and many were trying to flee and some of them did, the Government then decided to hand over the pilgrims to the respected provincial administration, where they had to be quarantined, these pilgrims from Iran were the early cause of spread of COVID-19 in Pakistan, one of the other reasons was the people coming into Pakistan from abroad especially United Kingdom, Government tried their best to make sure that these people were kept under observation, Pakistan closed all its land borders, Pakistan also had Air travel with China with 2 weekly flights, these and all other international flights were closed but at that time it was too late to contain the spread of the COVID-19 virus and it was already out of control, within 15 days number of confirmed cases was 20 with all of these cases having travelled to Pakistan from Iran, Syria and England, on 4th march 2020 Khyber-Pakhtunkhwa(KP) province declared emergency, on 13th march 2020 emergency was declared in Punjab province and on the same day all schools, colleges and universities were closed all across Pakistan (Abid et al., 2020; Ilyas et al., 2020; Nafees et al., n.d.; Waris et al., 2020a)

One study by (S. Khan et al., 2020) found that Masses in Pakistan were not aware of the gravity of the situation and the health workers were not prepared to face such a grave challenge, On 21st March 3-day lockdown was imposed in Punjab and on the same day complete lockdown was imposed in Sindh province by the provincial government, on 23rd march partial lockdown was imposed in Khyber-Pakhtunkhwa(KP), and on 24th March, lockdown was imposed in Balochistan, on July 16th, 2020 Sindh extended lockdown for another month, on August 11, 2020, the government shifted toward micro smart lockdown strategy, on 18th November 2020 smart lockdowns were imposed on COVID-19 hotspots (The Express Tribune, 2020), the lockdowns, smart lockdowns, and restrictions continued throughout the year 2020 and remained in 2021 with ease in restrictions started happening

as COVID-19 vaccines were administered, China helped Pakistan by supplying huge quantities of COVID-19 vaccines as soon as their production started in China, China also started helping Pakistan to produce these vaccines in Pakistan and to further the research for COVID-19 vaccines in Pakistan, these vaccines were made available to Pakistan by China much before they were available to any developing Nations, as most Developed Nations were trying to procure vaccines for their Citizens, this helped Pakistan in facing the COVID-19 effectively (Hashim, 2021b, 2021a; Shahzad, 2021).

In Pakistan, the total number of COVID cases to date 28/2/23 is 1,576,962 and the number of deaths is 30,643 (*Pakistan - COVID-19 Overview - Johns Hopkins*, 2023)., Table 1.2 shows the current provincial-level data on COVID-19 in Pakistan as of 27th November 2021.

Table 2: COVID-19 Deaths by Region in Pakistan

Area	Confirmed Cases	Active cases	Deaths	Recoveries
AJK	34,655	44	746	33,865
Balochistan	33,624	93	363	33,168
GB	10,429	5	186	10,238
Islamabad	108,450	394	966	107,190
KPK	181,204	604	5,922	174,678
Punjab	444,553	2,533	13,063	428,957
Sindh	480,525	6,101	7,611	466,763

The data shows that Sindh has the highest number of Confirmed and active cases while also having the highest number of recoveries, whereas Punjab comes second in several confirmed cases and has the highest number of deaths, GB has the least number of Confirmed cases, active cases, and deaths.

2.4. Informal Economy

The term informal economy was first introduced by British anthropologist Keith Hart in 1971, the informal economy has not one but multiple definitions depending upon different factors and points of view, according to (IMF, 2021) The informal economy comprises activities that have market value and would add to tax revenue and GDP if they were recorded as a globally widespread phenomenon, informal economy, according to (WIEGO, n.d.) The informal economy is the diversified set of economic activities, enterprises, jobs, and workers that are not regulated or protected by the state. The concept originally applied to self-employment in small, unregistered enterprises. It has been expanded to include wage employment in unprotected jobs. Informal economy and informal employment are co-related terms according to (Webb et al., 2020) informal economy is defined as informal employment that encompasses activities that are considered illegal or that do not follow employment and tax regulations but are otherwise legal or legitimate. Additionally, informal employees in waged employment in informal jobs may include those in so-called non-standard or "alternative work arrangements". According to (Fong, 1981) the informal economy includes Informal workers employed by firms this includes Employees on an informal basis for a firm that undertakes all or part of its production informally, Informal self-employed include self-employed without employees, self-employed workers who avoid taxes, unlicensed street traders and vendors, individuals operating informally to balance home and income-raising responsibilities, self-employed tradespeople and household service workers performing cash-in-hand work for friends, family, and acquaintances, informal employment also include Informal production by firms. According to (Chen, 2012) informal employment also includes employees of informal enterprises, casual or day laborers, temporary or part-time workers, paid domestic workers, contract workers, unregistered or undeclared workers, and industrial homeworkers. Informal workers are subject to high levels of insecurity and vulnerability as they often lack access to social, employment protection, and insurance systems, which can mitigate the impact of adverse shocks and provide income security in old age (Perry et al., 2010),

It is estimated that due to COVID-19 measures including lockdowns, partial lockdowns will significantly impact 1.6 billion informal workers (ILO, 2020). These affected informal

workers include a significant number of workers working in the construction industry. There is a large informal sector in Pakistan that has very limited labor welfare services available, according to (Statistics, 2017) the informal sector accounts for 71.7 percent of the employment in main jobs outside agriculture, the number is more in rural areas (75.6 percent) than in urban areas (68.1 percent) in Pakistan.

2.5. Impacts of COVID-19 on Humanity:

2.5.1. Socio-Economic Impacts:

COVID-19 has many socioeconomic implications and according to a study (Nicola et al., 2020) the government has a meaningful role in socio economic transformation of the society from the implications of the COVID-19 pandemic, the research studied different socio economic aspects like income level, GDP, Consumption level and investment level, while also studying stress and anxiety among people during COVID-19 and role of Government on facilitating people post pandemic was studied, the paper states that the COVID-19 Pandemic has a devastating effect on healthcare and other aspects of human life, the paper's focus was primary sectors which include industries, secondary and tertiary sectors of the economy, the protective measures imposed by the governments around the world have implications for perishable goods like meat and vegetable, during the pandemic there was an oil war between Saudi Arabia and Russia which caused a huge decrease in oil prices in a time when oil demand was already very low due to COVID-19, this has implications for the global economy, there is a serious disruption in the global supply chain, the paper states that COVID-19 pandemic has affected education, communities business, and the global economy, the problem statement for the paper was that government plays an important role in socio economic transformation of the society from the implications of COVID-19 pandemic, the objectives of the study included, to find the current level of awareness and knowledge about the COVID-19, to study the role of government on the socio economic implications of COVID-19on population, and to study stress and anxiety of the people during COVID-19, the study was based on both primary and secondary data, and the primary data was collected by an online survey while secondary data was collected

by website, documents, journals, and articles. for the online survey a nonprobability snowball sampling technique was used and by using google scholar data was collected from 100 respondents, the study area of study was Karnataka State in India, and the result of the data showed that awareness among people about COVID-19 was very low, with only 12% people knew that COVID-19 can spread through multiple means, 26% people were worried about the pandemic and 30% had reduced social contact. The paper concluded that According to the paper, the government plays an important role in the socio-economic transformation of society from the impacts of COVID-19 and we should learn from the COVID-19 experience and make sure this does not happen again. the study had some limitations one is that the study was confined to only the Karnataka state, the other is that the respondents were an Urban educated population, and the results of the study are generalized. this study has implications in fields of socioeconomic mental health among urban dwellers in different areas, especially areas with similar socio-economic conditions to Indian Urban areas.

COVID-19 has disrupted human lives, livelihood, trade, economy, and business all around the globe, the global economy due to the COVID-19 recession and unprecedented economic crisis, COVID-19 has disrupted global supply chains, the South Asian counties were most affected due to a large number of population, weak health facilities, high poverty, low socioeconomic conditions, poor social protection system, limited access to water and sanitation and bad living conditions. COVID-19 has increased the risks of macroeconomic instability in the form of declining GDP growth where GDP growth is expected to decline by 18% in the Maldives and s, and 3% in Bangladesh in 2020, the GDP reduction means high inflation and low per capita income. The trade volume is also declining as COVID-19 has disrupted international and regional trade, with many countries have closed their borders, it is expected that the overall export growth will be negative in South Asian economies. Inflation is also expected to grow. There will also be an impact on Migration and Remittances due to the closure of international travel, the paper also highlights that the informal sector in South Asia will lose jobs and will be hit hard by the COVID-19 pandemic, In Pakistan 12 million informal workers were likely to lose jobs and the GDP growth rate will be low. COVID-19 will have a serious impact on travel and tourism which created 50 million jobs in 2018 in the year 2018, India employs 43 million

people in tourism and travel services, while in Pakistan this sector contributes 7% to the GDP, in Nepal this sector contributes 8% to the GDP. COVID-19 will also Impact Agriculture and Rural livelihood, leading to food insecurity. The paper also highlights the Socio-Cultural impacts of COVID-19 in the form of lack of social interaction, depression, alcoholism, substance abuse, and in some cases suicide, the poor people will suffer more from COVID-19, the closure of schools has affected the children of poor households, the limitations of this study is that it is a theory-based with secondary data collected from different sources and with no specific analysis done, this paper has a broad topic that should be narrowed down to specific areas inside the socio-economic spectrum but this paper helps understand different socio-economic implications arising from COVID-19 and their impact of developing nations, especially in South Asia (Rasul et al., 2021b).

A study explored the impacts of COVID-19 on households, adults, and children of low-income countries, the paper aims to study the impacts of COVID-19 and related restrictions on the economies of low-income countries, the goal of this study was to learn how individuals coped with the socio-economic impacts of the COVID-19 pandemic and from that devise strategies. the method used in this study was a phone survey questionnaire with the help of a world band and involved households in Ethiopia, Malawi, Nigeria, and Uganda that were surveyed face to face before the COVID-19 pandemic. The effects of the Pandemic were measured in 10,855 houses across the four countries, the sampling design developed for the study included Food Insecurity Experience Scale, Consumption Quintiles, and Econometrics, the results estimated that 256 million individuals 77% of the population have lost income in the COVID-19 pandemic, there is food insecurity and lack of access to medicine, on education the student-teacher contact has dropped from 96% pre COVID-19 to 17%. The study was funded by the world bank multi-donor trust fund, this article has limitations due to the nature of surveys conducted in the form of phone surveys, this was due to COVID-1919 as face-to-face surveys were not possible, this is a big study conducted on a very large scale and helps make strategies during and post-COVID-19 pandemic (Josephson et al., 2021).

A thorough study analyzed the short and long-term effects of COVID-19 on the socioeconomic and environmental aspects of Pakistan, Compared to the developed

countries performance of Pakistan was astonishing during the first wave, the government-imposed smart lockdowns on COVID-19 hotspots, the bordering countries of Pakistan Including China and Iran were hit badly by the COVID-19, secondary data was used to analyze different socio-economic and environmental impacts of COVID-19 in Pakistan, in the health sector according to the paper 2% GDP is allocated to the public health sector, the health care sector needs more resources to manage COVID-19, Pakistan spends less per capita on health which is 40$ per capita in 2016 which is less then what Pakistan's neighbors spend i.e. India 62$ and Iran 415$ so the health sector must be looked into by the policymakers. The state of pollution has improved in Pakistan as Air quality has improved due to lockdowns and less transportation which was a big issue pre-COVID-19, this is same for other countries in South Asia, a very good step is taken by the government that the daily wage laborers were employed in 10 billion tree Tsunami program, this will benefit environment and these workers who had lost their daily income due to COVID-19, On agriculture and food Security the paper states that in Pakistan 37% of the people are suffering from food insecurity from the stats of 2018 before COVID-19, the farming sector is the backbone for food security and has been a major contributor to the Country's economy, due to COVID-19 agricultural sector is facing problems like disruption in production, availability in the workforce, restriction in transport to dispatch the harvest, increase in the price of wheat and rice is observed, as Pakistan is major fruit exporter the lack of transportation and closure of export market has created problems. In terms of poverty and labor markets, it is estimated that the employment level in Pakistan will decrease and a 33% increase in the poverty level is expected, the total labor force in Pakistan is 63 million with 9 million people above the age of 50, 6% of the total has already lost their jobs, the informal sector will be hit hard by the lockdowns, Around the world 2.2 billion students are affected by the COVID-19 restrictions with their formal education affected, Pakistan has also suspended formal academic activities and education is shifter to a virtual environment, the paper suggests that large scale resources must be allocated to facilitate online education to approximately 47 million students in Pakistan, as only 22% students have access to the internet and most last modern ICT equipment. the international loss to tourism will be 350 to 450% billion dollars according to an estimate and Pakistan’s tourism sector is estimated to lose 6 million % in 2020, Trade and GDP will also be affected

and it is anticipated that the economic growth rate will decrease 2.6% in 2020 with the direct economic loss in 2021 expected to be 1.1 trillion, the paper also focuses on containment measures around the world in the form of lockdowns, curfews, border closure, travel restrictions among others. There are certain economic measures taken around the world by different countries through stimulus packages to mitigate the adverse socioeconomic impacts of COVID-19. the paper suggests that Pakistan should focus on prevention is better than cure philosophy and be proactive. this is a very good and informative article the limitation of this article is that it was published after the first wave of COVID-19 in Pakistan and since then a lot of new developments have happened and so the gaps in data exist so new data must be incorporated to further the understanding of socio-economic and environmental impacts of COVID-19 in Pakistan (Rasheed et al., 2021).

2.5.2. Effect of Poverty on COVID-19:

Poverty, and food insecurity affect people all around the globe, the pandemic has caused widespread extreme poverty among the population, and around 49 million people have gone into poverty in 2020, and it is estimated that 820 million people can plunge into poverty and 130 can enter the condition of extreme poverty in 2021, within this realm this article will discuss how COVID-19 pandemic may increase food insecurity and poverty, and what strategies can be applied by the countries to avoid this. The article states that it is possible that COVID-19 will result in more food shortages in the world, and food insecurity and poverty will increase due to unemployment due to COVID-19. malnutrition because of severe food insecurity can decrease immunity, which can increase the mortality rate due to COVID-19. Poverty results in unhygienic conditions and living which can elevate the effects of COVID-19. the paper suggests that inequalities should be reduced, and strategies should be made to reduce poverty and food insecurity (Pereira & Oliveira, 2020).

COVID-19 has increased socio-economic and livelihood challenges for the poor communities, the research paper analyzes the socio-economic impacts of COVID-19 on poor people, the main research question was what is the impact of COVID-19 mitigation measures on global poverty? as several countries have imposed strict measures to stop the

spread of COVID-19 it has put the economy under stress, a depression in the economy is expected globally, as a result, global poverty will increase, it is estimated that 1.4 billion people are living in extreme poverty and COVID-19 could make things worse and as a such number of people living in poverty can increase by 420 to 580 million, poverty can be defined as a phenomenon where lack of capacity to participate effectively in society exist, the methodology used for this paper is a literature review, literature search was performed by using electronic databases EMBASE, LILACS, and google scholar in which poverty, the status of poverty before COVID-19, case of Africa, case of South America, Europe, Asia was looked into, the paper used world bank approach of household survey data and growth projection of 166 countries for forecasting new normal poverty, from the literature the consequences of COVID-19 economic crisis on poor people around the world was looked into and IR method was used to analyze and synthesis the findings, the research points out that it is hard for poor people to follow the strict restriction for COVID-19, the researchers concluded that strategies should be made to minimize the adverse impacts of a pandemic on the poor (Buheji et al., 2020).

2.5.3. Psychological Impacts:

COVID-19 has seriously hampered the world economy, mass lockdowns and economic recession is predicted to increase mental disorders and suicides, the objective of this paper is to do a systematic review of the literature to find the summarize the amount of psychological impact which include depression, anxiety, and PTSD among the general population, the method used in the research was PRISMA which stands for Preferred Reporting Items for Systematic Reviews, PRISMA flow diagram was used and PubMed, Medline, Embase, Scopus, and Web of science was used for the literature and Data was extracted and 19 studies were selected, the total size included 93,614 participants among whim 60,005 were females, the 19 studies chosen were conducted in 6 different countries which included China, Spain, Italy, Iran, US, and Turkey, from the 19 studies 12 studies included measures of depression while 11 included measures of anxiety, 4 studies measured PTSD, and 4 studies has general measures of stress, The results show that the 14.6% to 48% depressive symptoms prevailed among the population, anxiety symptoms

among the general population ranged from 6.33% to 50.9%, PTSD symptoms ranged from 7% to 53% among different studies, the study found females to be more vulnerable to develop mental disorders, young people below 40 were also more vulnerable to psychological impacts, the research has different limitations like the findings were qualitative and the studies that were included for the research were all done by online questionnaires which put certain limits and the study was for a limited number of countries, with no country from African Continent. the paper suggests that government interventions and individual efforts are needed to mitigate the psychological impacts of COVID-19 (Xiong et al., 2020a).

COVID-19 pandemic has impacted the mental health of people worldwide, the study was aimed to look into the mental effects of COVID-19 on people in Pakistan, a lot of studies previously conducted suggest adverse effects of COVID-19 on the population, a cross-sectional study was conducted in Punjab and data was collected by online survey, social media platforms Facebook, WhatsApp, and LinkedIn were used to distribute the survey among the masses by the online recruited undergraduate pharmacy students, the questionnaire for the survey was three parts, first part asked about the demographic features, second about the physical health and third part was about the mental health. The data analysis was performed on SPSS. A total of 1663 respondents participated in the survey with most from Punjab, among them 937 were male. the results revealed that 390 participants who amount to 24.4% had mild to moderate depression, 490 (30.7%) participants had mild to moderate anxiety, people who had any symptoms like that of COVID-19 or had any contact with COVID-19-positive patients had significant stress, anxiety, and depression, overall, the study finds that the mental health of the people is affected by the COVID- 19. The limitations of this paper were that the mode of the survey was online, and the survey was limited to Punjab province, the gaps this research has is that it did not include specific groups of people like poor people, laborers, daily wagers among many others but was able to give a general perspective of the psychological impact of COVID-19 in Pakistan (Hayat et al., 2021).

From research, it is evident that pandemics have adverse mental impacts, about 90% of suicides in the world are due to psychiatric issues, the reports from Bangladesh and India

highlight the increase in suicide rate due to COVID-19. The data was collected for this paper from press reports, the result shows that since January 2020 29 suicide cases reported in Pakistan, among them 16 cases in which 16 died and 4 were saved were due to COVID-19-related issues, 16 cases of 12 were males who suffered from economic recession from the COVID-19. the paper concludes that the COVID-19 economic recession was indeed a cause of suicides in Pakistan. The limitations of the study are that suicide cases do not usually get reported and very few come into the press limelight. the research is helpful as it points out that the COVID-19 economic recession can lead people to extreme measures like suicide and thus strategies must be made to tackle the issue (Mamun & Ullah, 2020).

2.6. Government strategies to tackle COVID-19:

The government of Pakistan's response to COVID-19 was good and proactive and was praised around the world, before the first case reported on 20 February 2020 in Karachi a National Action plan was proposed and subsequently made, which serves as policy guidance and has guiding principles for preparedness, containment, and Mitigation (Ministry of National Health Services & Pakistan, 2020), Pakistan closed its borders with neighboring countries and contained the pilgrims returning from Iran, a National Command and Operation Center was established which played a crucial role to have a national response against COVID-19 (NCOC, n.d.), Pakistan imposed timely restrictions to contain the COVID-19, these included lockdown at initial stages and in later stages smart lockdowns on COVID-19 hotspots, Educational institutes all across Pakistan were closed down, all public gatherings were banned and food security plan was devised (Jamal, 2020), Pakistan has also taken rigorous measures like designed special hospitals, Laboratories for testing, quarantine facilities, awareness campaign and lock down to control the spread of virus (Waris et al., 2020b). the government released economic relief package under the Ehsas Program of 900 billion rupees, it included 200 billion rupees for low-income groups particularly laborers, and 280 billion rupees for wheat procurement, 5 million people were provided a stipend of 3,000 rupees for four months, at the early stages of full lockdown government provided relief for Electricity and Gas bills, loan interest payments for exporters was temporarily deferred and a package of 100 billion rupees ($63 million) was

provided to support small industries and the agriculture sector (Latif, 2020b), the government also started a robust drive to vaccinate the population, China helped a lot in providing and buying of vaccinations and US also provided assistance in vaccinations and economic aid of 69.4 million dollars, Pakistan has vaccinated 50.7 million people out of 220 million and has increased efforts to vaccinate the population (Aljazeera, 2021). In terms of monetary aid to facilitate the poor, a lot of work is needed to be done, 12000 Rs that were given under the Ehsas program in 2020 is a minute value in such high inflation and economic crisis, the government post-COVID-19 has a plan under Ehsas program to facilitate poor, marginalized and vulnerable people and wants to provide safety nets, create jobs and provide a livelihood to them (Division, 2021). The government of Pakistan, in April 2020 elevated the status of the Construction Sector to that of the industry with incentives for investors and businessmen providing them tax reliefs to generate jobs for the daily wage workers who lost their jobs during the COVID-19 pandemic.

CHAPTER 3: METHODOLOGY

3.1. Study Area

The study area for this research is Mirpur, Azad Kashmir, Pakistan. Mirpur is the second largest city of Azad Jammu and Kashmir, it is situated on the main Peshawar to Lahore Grand Trunk Road at Dina Tehsil (Mirpur - Mini England - History Pak, n.d.). According to the 2017 census Mirpur has a population of 124,352 (*AJ&K Statistical Year Book 2019*, 2019). Islamabad the Capital of Pakistan lies approximately a 3-hour drive from Mirpur. Mirpur district also has the Mangla dam which is one of the largest dams in the world, the dam was constructed between 1961 and 1965, and due to the construction of the dam many villages of Mirpur were submerged and thousands of people were displaced to compensate the government of Pakistan provided work permits of Britain to the affected people, as a result, many people went and settled in the UK and after decades those people have formed a huge community in UK and the majority of the British Pakistani community in UK belong to Mirpur District. As a result of a such huge number of people from Mirpur Living in the UK, there is a huge inflow of remittance and investment from these people into Mirpur which results in economic prosperity and development in the city. Apart from this Mirpur also has many Industries, it has more than 200 types of industries mostly small, and has an industrial area dedicated to the industries.

3.2. Justification of Study Area:

As Mirpur is one of the largest cities in Azad Kashmir with h vast number of people living in the UK who sent remittances and also do investments in the area, this results in a lot of economic activity and one of the major portions of this economic activity is in the construction sector where a lot of residential and commercial construction takes place, this attracts a large number of construction workers from all around the country, as a result, there are many constructions workers in Mirpur Area most of them are migrant and thus provide diverse socio-economic characteristics, apart from local construction workers the migrant workers belong from all parts of Pakistan, from Punjab, from KPK and as far as

Sindh, thus doing research here will give insight on the situation and condition of the construction workers all across Pakistan. These informal construction workers come to fixed spots during the daybreak and look for people to hire them for work, these spots are the ideal place to gather data from these workers.

3.3. Research Design:

For this research a hybrid research design was used in which Exploratory and descriptive research were used because we need both qualitative and quantitative data, this research required both primary and secondary data, the primary data was collected firsthand by a questionnaire survey, and secondary data was collected from the Journals, Articles, and News websites.

From the extensive literature review socio-economic and government response indicators were obtained from which questions for the questionnaire survey were developed, a total of 64 questions divided into 5 sections were added to the questionnaire. The survey was conducted at 7 points where the informal construction workers gather in the early morning to get hired, each respondent was asked all the questions from the questionnaire separately and their responses were collected, a total of 353 responses were gathered and were later organized and analyzed using SPSS.

3.4. Indicators for Questionnaire:

Sr#	Indicators	Research Article	Reference
1	Income	The Effects of the COVID-19 Pandemic Outbreak on the Household Economy	(Celik & Dane, 2020)
2	Total expenditure		
3	Other expenses during the COVID-19 pandemic outbreak		

4 5 6 7 8	Household Size Marital Status Age of household head Presence of children Race/ethnicity Occupation of household head	The Cost of The COVID-19 Crisis: Lockdowns, Macroeconomic Expectations, and Consumer Spending	(Izzaty et al., 2020)
9 10 11	Poverty Food Insecurity Nutrition Insecurity	Poverty and Food Insecurity can increase as Threats of COVID-19 Spreads	(Pereira & Oliveira, 2020)
12	Employment Status	The Distributional Impacts of Early Employment Losses from COVID-19	(Jin & John, 2020)
13	Role of Government	The Socio-Economic Implications of the Coronavirus Pandemic (COVID-19): A Review	(Nicola et al., 2020)
14	Problems in Education	Employment Opportunities and High School Completion during the COVID-19 Recession	(No et al., 2020)
15	Depression/anxiety/ PTSD/psychological distress/stress	Impact of COVID-19 Pandemic on Mental Health in the General Population: A Systematic Review	(Xiong et al., 2020b)
16	Physical health	Impact of the COVID-19 Outbreak on Mental Health Status and Associated Factors among the General Population:	(Hayat et al., 2021)

		a Cross-sectional Study from Pakistan	
17 18	Perception regarding COVID 19 Status of precaution	Levels of Anxiety and Stress during Pandemic of COVID-19 among the General Population of Karachi, Pakistan	(Shahnaz et al., 2021)
19 20 21 22	Income Family Type Earning Hands Connectedness with social media	Household Food Insecurity and Mental Health amid COVID-19 Pandemic: A Case of Urban Informal Sector Labor in Punjab (Pakistan)	(Gillani & Zaheer, 2021)
23 24 25	Working hours Experience Education	Personal Traits, Familial Characteristics and Success in the Labor Market: A Survey Study of Christian Labor Force in Pakistan	(Haroon et al., 2020)
26	Uncertainty related to the future of the workplace Cash flow delays	Impact of Covid-19 on Field and Office Workforce in the Construction Industry	(Pamidimukkala & Kermanshachi, 2021)
27	Social support	The Psychological Impact of the COVID-19 Epidemic on College Students in China	(Pamidimukkala & Kermanshachi, 2021)
28	Fear of Covid-19	Depression, Anxiety, and Fear Due to COVID-19 in Pakistan: A Study Based on Learning Perspective	(Farhat Jan Qureshi, Muhammad Azeem, 2021)
29 30	COVID-19-related knowledge, attitudes, and behaviors	Monitoring the Psychological, Social, and Economic Impact of the COVID-19 Pandemic in the Population: Context,	(McBride et al., 2021)

	Social and political attitudes	Design, and Conduct of the Longitudinal COVID-19 Psychological Research Consortium (C19PRC) study	
31	Distress, and insomnia	Prevalence of Mental Health Problems during the COVID-19 Pandemic: A Systematic Review and Meta-analysis	(Wu et al., 2021)
32 33 34 35 36	Behavior and Attitude Awareness and Knowledge Trust and Confidence Problem-oriented coping mechanism Emotion-oriented Coping mechanism Action-oriented coping mechanism	COVID-19 Risk Perception and Coping Mechanisms: Does Gender make a difference?	(Rana et al., 2021)
37	Dietary diversity	The Short-term Effects of COVID-19 Outbreak on Dietary Diversity and Food Security Status of Iranian Households (A Case Study in Tehran Province)	(Pakravan-Charvadeh et al., 2021)
38	Lockdown and smart lockdown	Effect of Lockdown on the Spread of COVID-19 in Pakistan	(Farooq et al., 2020)
39	Status of COVID-19 infection	Development and Validation of a Questionnaire to Assess the	(Bandhu Kalanidhi et al., 2021)

40	Family member Infected	Socio-behavioral Impact of COVID-19 on the General Population	
41	Loans	Economic Impacts of the COVID−19 Lockdowns in a Remittance-Dependent Region	(Gupta et al., 2021)

3.5. Data Analysis:

The responses were collected in the form of Questionnaire Surveys which were then organized, and the data were extracted and put in an SPSS spreadsheet and analyzed, Statistical Analysis was performed using SPSS, and frequencies and average values were obtained. The data and values were organized in tables and analyzed.

CHAPTER 4: RESULTS AND DISCUSSION

Figure 1 shows the informal construction worker's socioeconomic profile for which Age, Education, Income, Work Experience, Martial status, Number of Children, family size, Family type, House status, Migration Status, and Earning hands parameters were used, the parameters were further divided into categories and frequency and percentages were obtained.

According to the data, The average age was found to be 35, and most number (157) construction workers are in the young adult category from age 18 to 35 which shows that construction labor is a field where mostly young people work and it requires hard physical labor, and as the age increases the number of workers decreases, 44 workers were older than 50 years and had many issues like no one else in the family to earn or had only daughters, some of whom they had the responsibility to marry, these older people were finding it extremely difficult to find the work as clients prefer young individuals as construction requires hard labor and although these older workers had more experience and skills the young workers were still preferred by the clients.

According to Article 11 of the 1973 constitution of Pakistan, labor performed by children under the age of 14 is categorized as child labor(Shah, 2022), according to the data very few workers (7.3%) were less than 18 years of age and all of them are 15 years old or above, the findings disapprove of another research which states that "child labor is prevalent in the country but there also have been prognostications by various organizations that the number of child laborers will bloat with the shrinking economy. Very recently, the World Economic Forum predicted that there will be a surge i.e. child labor in developing countries like Pakistan. In Pakistan, almost 13 million children are employed as child labor, and the economic crisis that ensued from the Coronavirus is likely to elevate this figure to 16 million by the end of the fiscal year. Such a prospect does not portend well for the social landscape of the country" (Gilani et al., 2020). As the findings of this research show that child labor in the informal construction labor sector is very rare, more research is needed in other parts of Pakistan to validate this and investigate the situation in other sectors as well. One reason for this is that Construction Labor requires a lot of physical strength,

endurance, and skills that the children lack. The other reason is that most of the laborers were migrants, and it is difficult for children to be migrant workers.

In terms of Education, a large percentage (39.1%) of the workers were illiterate but overall, more workers were educated, and 14 workers were found to have done bachelors level education, they had different reasons to be working as informal construction workers like lack of job opportunities, lack of awareness, and family responsibilities. 26.5% of the workers had an education up to the middle. Overall, the results show that educated and uneducated people are involved in informal construction labor, but the illiterate are the largest group involved in Informal Construction Labor. The reason is that there is a lack of job opportunities for the illiterate or less educated people in Pakistan and compared to other jobs illiterate people work in construction labor pay more and have a fixed 8-hour working time which is more respectable than some of the other jobs for the illiterate.

The average income was found to be Rs 16342 which is less than the average monthly income of Pakistan which was PKR 24,028 in 2021, a large majority (65.3%) of the workers were found to be earning from Rs 10,000 to Rs 20,000 monthly, the people older than 50 were found to be finding less work and hence were earning less than Rs 10,000 a month, whereas few people who were finding more work or people who were contractors or had some standing and respect among the workers were found to be earning more than Rs 20,000. The reason for this phenomenon of respected individuals earning more is that these informal workers stand at different places in the morning where clients come and employ them, so the individual who is respected or has higher standing is offered to go to the client first by the other workers.

Overall the construction workers have a low income and Pakistan as a country is facing an extreme economic crisis and an inflation rate is extremely high, so much so that the higher income people are struggling to cope with the rising rate of everything, rates of basic food items are going up on weekly basis and it has become extremely difficult for the poor people to survive, Inflation in Pakistan have made a history break the last 47 years inflation record. Prices are always going high, and consumer prices are rising continuously (Ali, 2023).

The average work experience was 17 years, the most significant number of these Workers (32.4%) had 11 to 20 years of work experience, whereas 6.1% of workers had less than 2 years of experience, some of them were new and only started to work a few months ago. 11 to 20 is the most ideal work experience in the construction industry for the laborers any experience below this can be considered less because construction labor requires some special knowledge and skills and experience above 20 brings in the age issue where the age exceeds the ideal range which can be from 20 to 40 for the construction workers.

Most of the workers (74.9%) were married regardless of age and financial situation, which shows that the tendency to marry is high in these workers due to culture and religion, the average number of children per household was found to be 2.73, this average number of children corresponds with the national average which is 2.77 according to Pakistan bureau of statistics(PBS, 2016) and most workers (30.6%) had 4 to 6 Children, whereas out of the married only 48 workers had no children, many of whom were married recently. There is a high tendency to marry early these workers due to cultural and religious values, hence most of the workers were married, and many at a young age.

The nuclear family is defined as a social unit composed of two parents and one or more children. On the other side, the joint is described as an extended family composed of parents, their children, and the children's spouses and offspring in one household (Baig et al., 2014). When asked about the family type 57.4% replied that they live in joint a family this is due to the general culture that exists in Pakistan of a family system where a joint family is a norm and people prefer to live in a joint family rather than nuclear family, The average family size is 7.36 which is more than the national average of 6.31 according to Pakistan Bureau of Statistics (PBS, 2016), 2 to 7, and 8 to 13 people per household were the most common among the workers (52.2% and 39.4% respectively). This high number of people per household can also be related to the finding that 57.4% of these workers are living in a joint family system, most of them are married and have more than 2 children, and even the nuclear families have a high number of people due to more children. In Pakistan, there is a culture of a joint family system where families live jointly, resulting in a high number of people living per household.

Most of the workers (74.9%) were the sole earners of their respective families, this shows the extreme amount of burden they carry on their shoulders to earn the livelihood of their families, especially because they have large family sizes. Most women of the families of these laborers don't work and the reason for them to be sole earners is that either they belong to a nuclear family where their wives are housewives, and their children are young, or they have only daughters, for the joint family workers it was due to their parents being old and their siblings either too young or are in school or college and even though they are living in joint families there is very little sharing of income between the relatives.

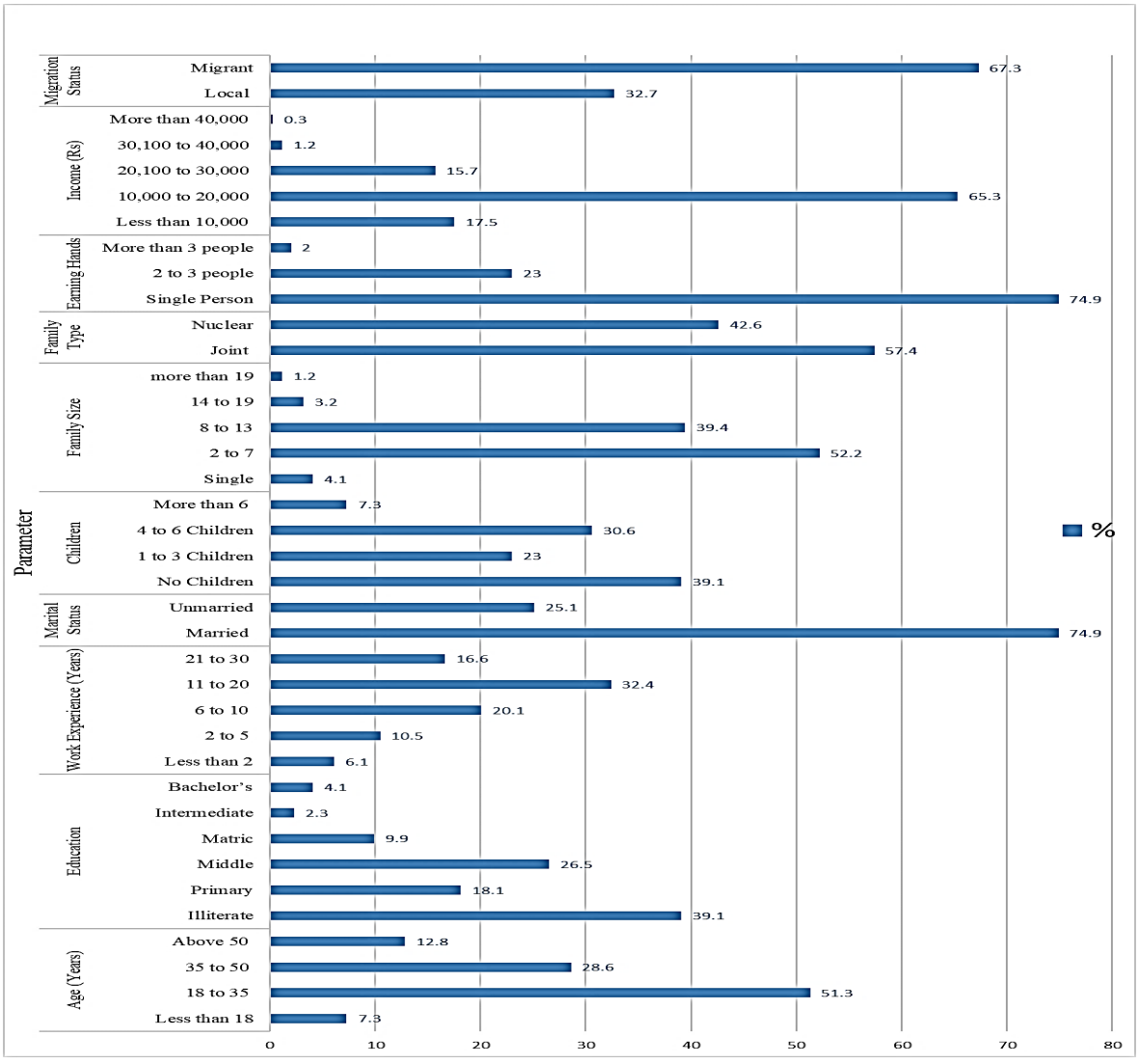

Figure 1: Socio-economic Profile

Figure 2 illustrates the economic status of the informal members and the parameters to access the economic profile including Skill, Working Hours, Daily travel, mode of travel, and type of employment type.

Out of all the 343 respondents, 330 were informal workers and only 13 were formal. This is because this survey focused on informal construction workers and was conducted at points where these informal construction workers gather. This also shows that Pakistan's greatest number of construction workers belong to the informal sector. In some low-income countries the vast majority of construction laborers have always been employed informally, "Informal labor" is defined to include all construction workers who are employed on a casual or temporary basis without any proper form of contract, as well as those who work for themselves either alone or in small groups. The terms and conditions of employment are not regulated in any way and hence the workers have no protection from the law against dismissal and no social protection against sickness, old age, or incapacity to work (Mitullah & Wachira, 2003).

In terms of skill, most of the workers (89.9%) were found to be laborers, as the construction industry in Pakistan is more labor intensive and most of the work is done by physical labor instead of modern machinery thus the majority of the construction workers are laborers, this also shows that there is a need for technical education for these workers to provide them with skills to do other more technical jobs in the construction industry, which will not only provide them more opportunity to earn a living but also provide the overall construction industry skilled workers which will increase the efficiency and make it more professional.

Most of the workers (87.8%) were working single shifts, whereas only 12.% were working double shifts, the single shift is 8 hours of work per day whereas any more than 8 hours of work comes in the category of a double change, as the results show that majority only works 8 hours a day because construction labor is extremely hard and requires a lot of physical work and causes a lot of physical and mental exhaustion, hence 8 hours or single shift is more than enough for a day, but still, some work more than that because either the clients make them work more or they want to work more to earn extra.

The average time required by the workers to reach the gathering point from where they are hired by the clients is 28.83 minutes, the most common time required for the workers to reach the point of the gathering is 10 to 30 minutes, whereas walking is the most used mode of travel (74.3%). This shows that these workers cannot afford any form of transportation and had to travel on foot even for the workers who travel long distances of up to 1 hour, these workers even cannot afford motorbikes with the monthly income they earn. It is to be noted that more time is spent on travel as when hired they go to the workplace and then must come back from there. Hence a lot of time is spent on traveling alone, if these workers can be provided with bicycles it will save a lot of their time and energy, which can be utilized elsewhere and at work.

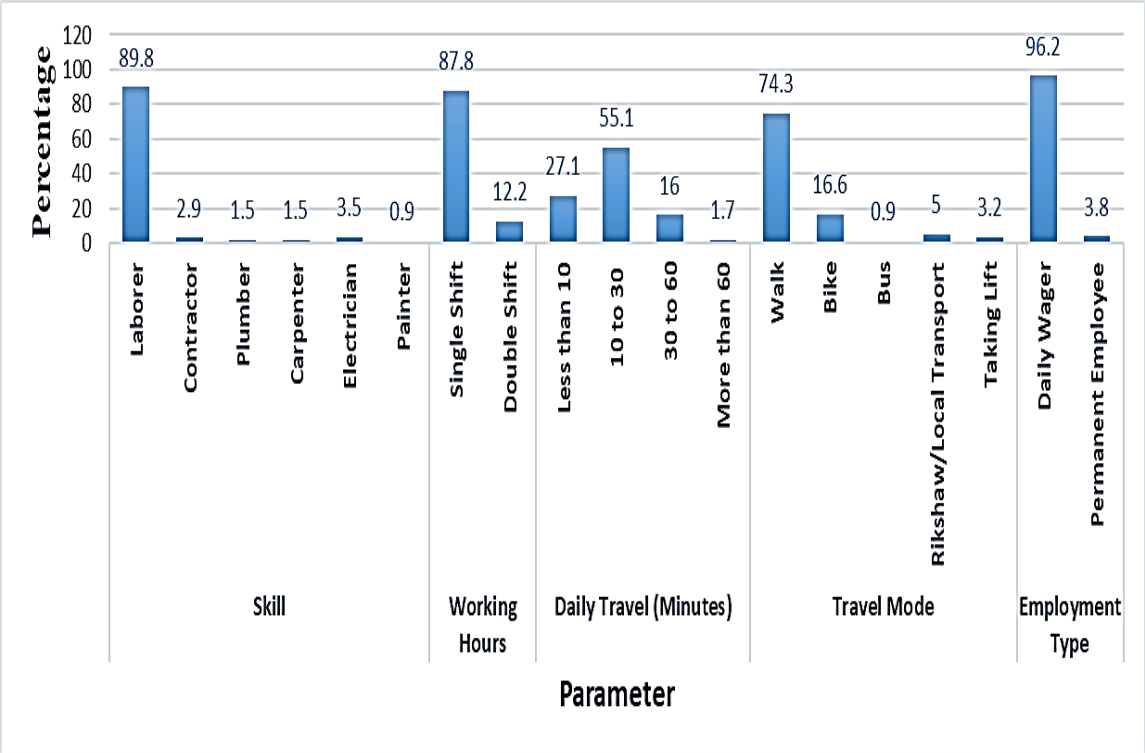

Figure 2: Workplace Profile

Figure 3 shows the economic impact of COVID-19 on construction workers, it shows different parameters used to assess the economic impacts like working days per month, working days lost during COVID-19, Loan Taken, the amount of Loan taken, the Loan

they still owe, Salary delay they faced during Covid-19, Workload during Covid-19, and their source of income during Covid-19 and Covid-19 Lockdowns.

Most workers (62.4%) worked 11 to 20 days per month before Covid with an average of 15.72 days per month, whereas the workers who were old found less work, whereas there were people who worked more than 20 days a month, these also included some of the permanent workers. The working days were affected during the COVID-19 and resulting lockdowns; many were unemployed for a vast number of days. As these workers are informal workers, the way they get work is by standing at some fixed points usually the intersections in the city from where they get hired by the different people who need them for work, but they do not get the work all the time and some days they go home after waiting to find work all day, so as the result 15.72 is the average days of work for them.

But COVID-19 changed this and in terms of unemployment duration during Covid-19, the average unemployment duration was 6.31 months, most number (60.6%) were unemployed for 1 to 6 months, and after those 6 to 12 months of unemployment was common (24.2%) among the workers, some individuals were unemployed more, this unemployment duration is the time they were affected by either COVID-19 or COVID-19 related lockdowns, some did not work at all during this duration, and some did little work. As a result of the COVID-19 the government imposed complete and partial lockdowns that resulted in these workers either to be staying in their homes or not finding work outside due to the closure of all activities.

When asked about whether they have taken any loans during Covid-19 64.1% replied with a No, whereas 35.9% said they had taken loans, the average loan taken is Rs 38,431. The average loan the workers still owe is Rs 35.256, 26.5% of individuals had taken loans from Rs 1 to 100,000 and the same amount is the most prevailing in terms of loan still own where 27.7% of workers still owned this amount. During COVID-19 Lockdowns most of the workers found themselves in serious need of money due to the closure of all work activities, hence many had to rely on loans for survival, the others who did not take any loan had other means from which they received the money like some got help from friends and family and some hiddenly worked in a limited capacity.

In terms of salary delay, a majority 50.1% said they faced salary delay during Covid-19, these people were working in some capacity during the Covid-19 and Covid-19 lockdowns, this shows that salary delay was a major issue for the workers as Covid-19 had impacted the construction industry and the capacity of the clients to give wages on time. This was also found in another research where the results show that the construction industry faced a domino effect of financial troubles. Projects suffered from delays and budget shortfalls, leaving companies unable to pay employees on time. This financial strain and rising workloads and costs made it hard to attract and retain staff. Some workers, worried about their health and finances, ended up quitting altogether(Arl et al., 2022). The salary delay was due to a lack of capital on the client side as the closure of the routine business and commercial activities resulted in a decrease in the income of the clients as well who depended on different jobs and businesses for their income, hence causing them not to pay the workers on time and thus salary delays for them.

When asked about the workload 62.4% replied it decreased and 37.6% replied it increased, out of this 62.4% had no work during the COVID-19 and Lockdowns. As a result of COVID-19 and resulting lockdowns, there was a drastic decrease in construction activities, and construction materials and equipment ability in the market was very rare hence due to the decrease in overall construction work the workload of the workers was decreased. Where construction was active, and workers were working the workload increased. Due to the lockdowns which resulted in closing and hampering construction activities, there was no work for the workers and where there was construction active due to a lack of material and equipment there was very little work resulting in less workload, for those whose workload was increased was due to less number of workers due to worker shortage in the lockdowns.

In terms of income sources during Covid-19, 32.4% of respondents said they had no income source during Covid-19 and the resulting lockdowns and had to rely on different means to survive, including loans which 26.6% took and support from family and friends. As a result of the lockdowns all construction activities were stopped and those that were happening were happening in a very limited capacity, hidden from the authorities, as a result, the workers had work and hence no source of income, for 30% of these informal

construction workers who worked during the lockdowns, labor was the source of income, as some construction activities were happening during the lockdowns but on a limited scale as the shops were closed and it was hard to procure the materials and equipment required for the construction activity to continue, some of the workers who worked in some capacity during the lockdown told during the survey that the construction related shops where closed and the shutters were down but the shopkeepers were selling the equipment and materials secretly from shutter closed shops, but in a very limited capacity due to the issues in supply chain and closure of commercial transportation. Some of these workers went back to their hometowns and started farming to survive. For 26.9% loans were the means they survived, some of them took loans from shopkeepers from whom they bought stuff like essential food items, during the survey it was also found that some of them took the loan with interest which resulted in the amount they must pay back more than the original one, increasing the burden on them. Special measures need to be taken in this regard as they require financial support to pay back the loans they have taken.

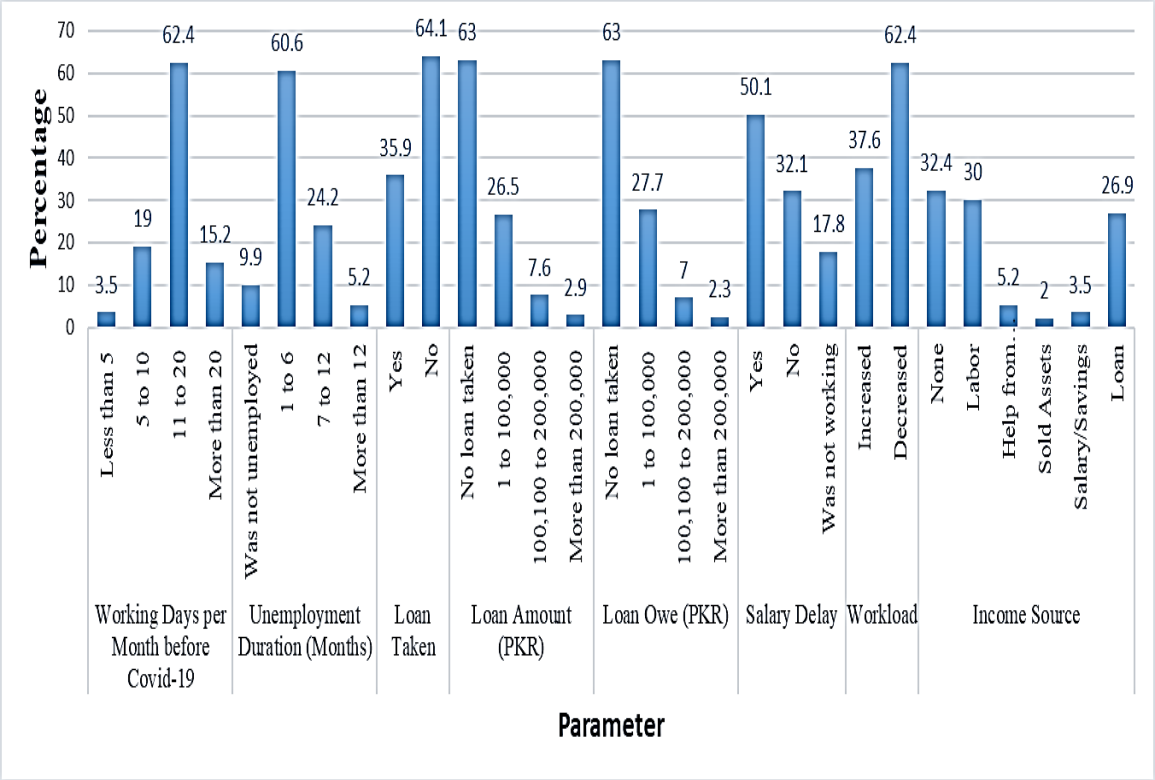

Figure 3: Economic Impacts of COVID-19

Figure 4 shows the impact of COVID-19 and resulting lockdowns on the Construction industry, different parameters like Construction was Active, Construction Material Availability, Construction Tool Availability, Uncertainty about the future of the workplace among Construction workers, and the change of Productivity of Construction Workers are described.

In terms of the status of Construction activities majority (84%) said it was not active, this was a general situation due to Lockdowns imposed by the Government but there were still hidden private construction activities happening and 16% replied that construction was active in a limited capacity. As the Government imposed lockdowns and smart lockdowns all commercial activities like construction were stopped by the authorities and all shops selling construction equipment and materials were closed resulting in the closure of all construction activities. Those who said construction was active are the ones working at construction sites hidden from the authorities, the construction activities there were limited due to a shortage of labor, materials, and tools.

In terms of Construction Materials, 88.3% responded that it was not available, and for Construction Tools 87.5 said they were not available during the Covid-19 Lockdowns, this was because the shops were closed due to the lockdown imposed by the government, those who said they Construction Material and Construction Tools were available said they had to procure them secretly from the shop owners with closed shops. Most of the respondents (56.6%) said that their productivity decreased during the COVID-19 and COVID-19 lockdowns due to the unavailability of Tools and Materials. Research states A new study shows COVID-19 has been a major blow to small Ghanaian construction companies. These companies are facing financial difficulties, with delays in getting paid for completed work and problems securing new contracts. They're also struggling to manage their worksites effectively. This has led to a drop in worker productivity, causing project costs to rise and deadlines to slip(Amoah et al., 2022), Similar research confirms the significant impact of COVID-19 on construction worker productivity. Safety measures like social distancing, mask-wearing, and reduced crew sizes were identified as key factors in this decline(Tekin, 2022).

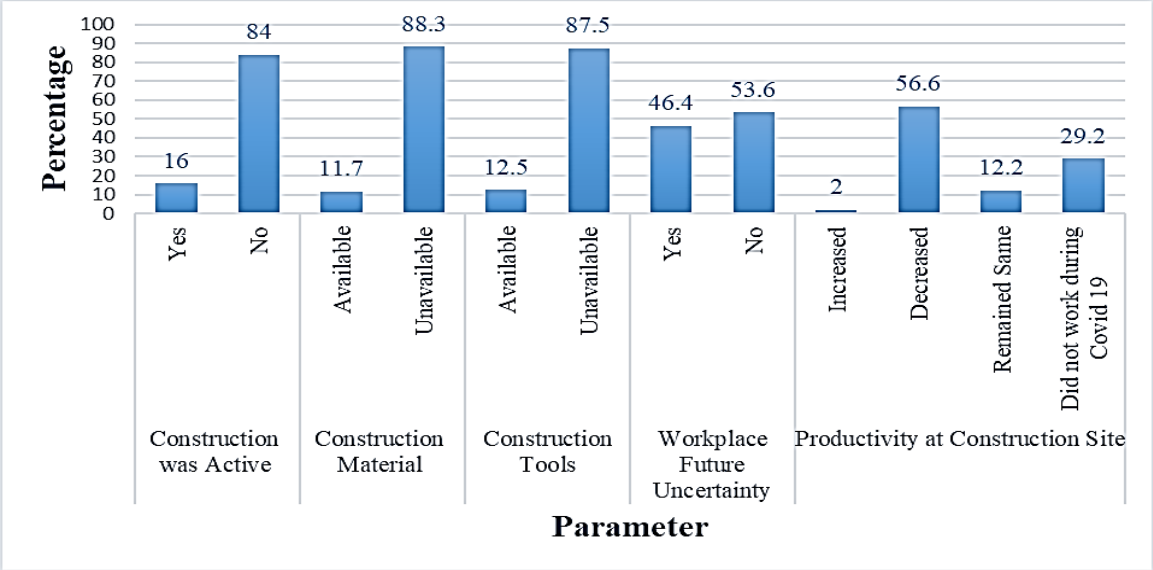

Figure 4: Construction Site Situation

Figure 5 shows the Safety Precautions taken by Informal Construction Workers during the COVID-19, the parameters used to assess the Safety Precautions are Vaccination Admitted, Use of Safety Equipment, Use of Sanitizer, Maintaining of Social distancing, and Availability of Health Facilities near the Workplace.

Regarding the Vaccination majority, 84.5% said that they have been vaccinated, due to the government's robust response and management in providing free-of-cost vaccination to the people. The vaccination campaign commenced in Pakistan on February 2, 2021. The initiation of the vaccination campaign in Pakistan was marked by the donation of vaccines by the Chinese government (Siddique & Ahmed, 2021). The results differ from the results of many pieces of research in Pakistan that show vaccine hesitancy among the people, as most of these workers are vaccinated. One of the reasons for high vaccination among the workers is that the government made it mandatory for them to be vaccinated to work, also the clients wanted the workers to be vaccinated for safety. The excellent management of the government in providing and administrating the vaccine free for all the people also played a role in the high vaccination rate among these workers. Those who did not get vaccinated were mainly due to the conspiracy theories spread all around about vaccinations

like there is no Corona, the Vaccine causes infertility they have harmful effects, they have chips, and cause a person to die, etc.

When asked about the use of Safety Equipment 68.5% of respondents said they used safety equipment like masks and 64.1% said they used sanitizer. 71.7% of respondents said they maintained social distance during the Covid-19 lockdowns. These numbers show the workers' high public awareness about COVID-19 and the safety precautions they need to protect themselves from it. The government made it mandatory for all people to wear masks outside. There was a robust campaign in media, social media, and telecommunication companies to promote the use of masks and sanitizer, which resulted in a high percentage of these workers using safety equipment. The other reason is that the clients also wanted the workers to wear masks for safety purposes, those who did not use the masks and sanitizers were mainly because of the extremely high costs of masks and sanitizer and sometimes unavailability of them during the COVID-19 crisis and lockdowns as there was an extreme scarcity of masks during the COVID-19 crisis.

The majority 74.9% responded that there were no health facilities available near their workplace, this percentage includes the people who did not work during the Covid-19 or resulting Lockdowns. For those who worked this is due to the general availability of healthcare facilities in Pakistan. Compared to the population density there are very few healthcare facilities available all around the country, there are many private healthcare facilities like clinics and hospitals, but they are unaffordable for these workers. There is also a lack of understanding among the construction workers about the healthcare facilities the government provides especially about the health cards known as the Sehat cards which provided free health care and medicines, through these Sehat cards health care is not only provided in the government hospitals but in private hospitals also where the government will bear all the costs of the treatment and medicine of the poor and vulnerable people and there was also hesitancy among these workers to go to the hospital and they only go to hospitals in case of a very serious health emergency.

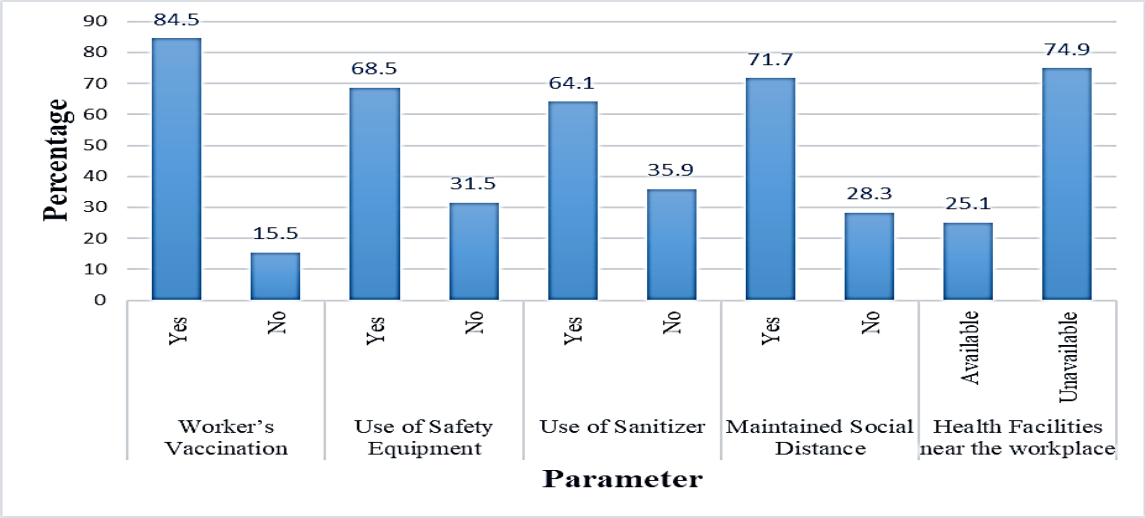

Figure 5: Safety Precautions at Construction Site

Figure 6 shows the number of COVID-19 infections among Informal Construction Workers, their Families, and Coworkers.

Most 96.8% of respondents said that they did not contact Covid 19, the value is even more for the families of these workers where 98.5% did not have any COVID-19 cases when asked about their coworkers 96.5% said there was no case of COVID-19 infection among their coworkers. These high values do not mean that there were no infections because many infections may have gone unnoticed due to a lack of testing among these people and a lack of symptoms. The resting of COVID-19 during the early phases was very expensive and there were only a few facilities available from where people could get themselves tested, due to this very few people got themselves tested, even those who had symptoms avoided getting themselves tested in fear they may get a positive result for covid, for the construction workers the ratio of getting tested was even lower due to affordability as they could not afford the expensive tests. So the results of the survey which show extremely low cases among these workers can be said due to a lack of testing and lack of symptoms many people had COVID-19 but were asymptomatic and hence went unnoticed, there were also issues with the testing for the COVID-19 as there were some false positives and hence many avoided the tests in fear they may get a false positive.

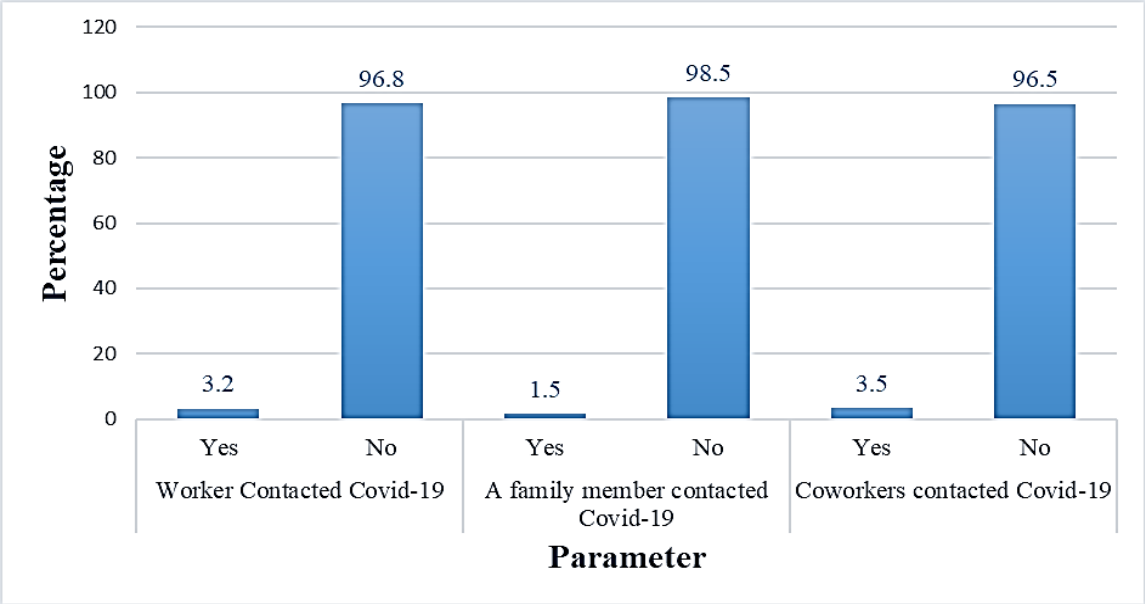

Figure 6: Occurrence of Infections among Laborers and their Families

Table 3: Impact of Children's Education

Parameter	Categories of Parameter	Frequency	%
School Going Children	Yes	184	53.6
	No	159	46.4
Children go to School/College	Yes	177	51.6
	No	166	48.4
Government or private Schools/Collage	Government	146	42.6
	Private	29	8.5
	Don't go to school	71	20.7
	Don't have Children	97	28.3
Children's Education Affected (Months)	Was not Affected	173	50.4

	1 to 6	42	12.2
	7 to 12	90	26.2
	13 to 24	38	11.1
Relief in Children's fees from School/College	Yes	17	5
	No	326	95
Children's access to IT equipment/Internet	Yes	11	3.2
	No	332	96.8
Any form of Education Taken during Lockdowns	Yes	26	7.6
	No	317	92.4

Table 3 shows the impact of COVID-19 on the education of Children of Informal Construction workers, different parameters are used to assess the impact, these are whether the household has School going Children, Do the Children go to school/College, Do they go to Government or Private Schools/College, What was the duration the Education of Children was affected by Covid-19, Do the Children have access to IT equipment in the house and did they take any form of education at home during school closure.

In terms of School/College going, 53.6% of Workers answered that they have school-going Children in their household, whereas 46.4% replied with a No, these include households that don't have Children when asked if the Children go to school/College 51.6% replied with a yes, this shows that almost all the households who have Children go to School/College. Most of these Children 42.6% go to Government Schools/Colleges, whereas only 8.5% of the children go to Private Schools/Colleges, Financial reasons are the major factor behind this trend as Private Schools/Colleges are unaffordable for these Construction Workers. The income of these workers is too low to afford any private school for their children, those that do go to private schools and colleges go to such where fees are low, but still, they find it difficult to afford the school fee, books, and uniforms. There is a high tendency of children of construction workers to get an education, this shows they have an awareness of the importance of education that can change the future of their children and these workers do their best to provide their children with education with a

limited income and resources they have, this was also evident from this study as there were no children below 15 working as construction workers.

For children the average duration of the education affected was 6.21 months, the Education of 26.6% of the Children was affected for 7 to 12 months, 12 % of Children for 1 to 6 months, and 11.1% of Children for 13 to 24 Months, whereas 50.4% of workers replied that Covid-19 did not affect the Education of their Children, many of these 159 Workers did not have any Children in the household. During the COVID-19 to stop the spread of the Virus all public and private schools were closed for a considerable amount of time, the results show that the education of the children was affected from 1 to as long as 24 months and 1 year and 2 years are the most predominant length where the children education was affected. The reason for this is that during the COVID-19 outbreak and resulting measures that included lockdowns the schools of the children were closed for many months, some of the schools choose an online form of education but for the children of these workers online form of education was not possible due to lack of Internet facility and lack of IT equipment like PC, Laptop and mobile, the schools also tried other ways of education like decreasing the number of children per class and diving the days among the children to attend but this resulted in COVID-19 spreading among the children hence the government closed all schools.

When asked if the Children in the household have access to IT equipment and the Internet 96.8% replied with a No, this shows that they cannot afford such simple facilities for their Children and the Children could not take any online form of Education that was predominately used during the Covid-19 and resulting Lockdowns, when asked if the Children have taken any form of education during School Closures only 7.6% replied with a Yes, with some of the Children taking Tuition and some were taught by their Mothers, some workers replied that their children too religious education like learning Quran during the school closures. Online education requires both an IT device like a mobile, laptop, or desktop and an internet connection, which these workers could not afford, most of the children were enrolled in Government schools that lack any capacity to make use of the online mode of education. The situation for these households was drastically different from the rich people who can afford it as research states that students of elite private schools

have educated parents, laptops/desktops with internet connection at their homes, and parental concerns for their children's education. It was very easy for elite private schools as well as parents to manage their children's online classes and homeschooling during the COVID-19 educational crisis (Ullah & Ali, 2022). The results show that the children of construction workers were adversely affected, they have no capacity of getting an online education because they don't have IT equipment and internet facility at home because the construction workers could not afford to provide such facilities to them at home due to lack of money, and hence most did not take any form of education, the IT equipment like PCs, Laptops and mobile cost a lot of money and with the limited income these workers have they simply cannot afford them and under the COVID-19 circumstances where they were out of work they had absolutely no capacity to provide their children with these basic necessities, there should be some program either from government or NGOs to provide these underprivileged children IT equipment and Internet facility so that they can also get benefits from them as other children, as the internet is the basic need of the modern society and is the primary source of getting information and knowledge, lack of which will result in these children to stay behind rest of the world.

Table 4: Impact on Food Insecurity

Parameter	Categories of Parameter	Frequency	%
Food Shortage during Lockdowns	Yes	156	45.5
	No	187	54.5
Food Stored during Lockdowns	Yes	43	12.5
	No	300	87.5

Table 4 shows the impact of Covid-19 and resulting Lockdowns on the Food Insecurity of Informal Construction workers and their families, two simple parameters are used to access if they faced food shortages during Covid-19 that are If they Stored Food During Lockdowns and If they faced Food Shortages during Lockdowns.

During the lockdowns, everything was closed and all work activities were stopped, resulting in serious food insecurity due to the lack of money, closure of shops, and lack of

food supply, when asked during the survey if these workers faced food shortage 45.5% replied with a Yes, which is almost half the number of workers, this shows that there was serious food insecurity among these workers and thus adverse impact on their families and children when asked if they stored any food during the COVID-19 crisis only 12.5% said they did whereas majority 87.5% said they did not store any food hence resulting in food insecurity. The reason for them not storing any food was lack of money as with the income they have they find it hard to get the daily essential items and storing them requires more money which they simply lack, with the situation they were in with no work, they had to borrow the food items from the shopkeepers, it was extremely difficult for them to purchase the basic food items as they had no money thus resulting in many of them having food shortage in their homes, due to the COVID-19, there was also some shortage of food items in the market due to the disruption of the supply, this also resulted in the food shortage in the households of these workers.

Figure 7 shows the satisfaction with the Government's response to Covid-19 among construction workers, six satisfaction questions related to the government's response to Covid-19 were asked in the questionnaire from the workers, and the response was measured on a scale of 1 to 5, where 1 is highly satisfied and 5 is highly dissatisfied.
When asked about the Satisfaction level toward the overall government response to Covid-19 majority were not satisfied with the response and 28.6% and 25.7% of the respondents responded with dissatisfied and highly dissatisfied responses respectively, the different reasons were found to be the cause of the such low level of satisfaction, although government tried its best with the limited resources to facilitate the poor people as much as they can through Health card and Ehsas program the enormity of the disaster, lack of resources, lack of awareness and a huge number of people to deal with caused many people to not get benefited from these programs, Government tried its best to impose as fewer lockdowns as possible and to contain the virus and use smart lockdowns to let the economy running so that the poor people like the construction workers to still survive but even after that as the results show that there were a huge amount of issues faced by the workers which is why most are not satisfied, this has also has been found in another study in Bangladesh where the study has found that the pandemic has multiplied the existing vulnerability of

the floating workers on many fronts that include job losses, food crisis, shelter insecurity, education, social, physical and mental wellbeing. In response to the pandemic, the Government stimulus packages, and Non-government Covid-19 initiatives lack the appropriate system, magnitude, and focus on protecting the floating workers in Bangladesh (Alam et al., 2022).

When asked about satisfaction with the Government's Smart Lockdown Measures majority 15.2% and 25.7% responded with highly satisfied and satisfied respectively, this was because the smart lockdown measures taken by the government facilitated people to carry on the work and daily tasks to some extent and enabled the poor people to still work in a limited capacity, unlike complete lockdowns that were imposed in many countries around the world where everything was shut down, for a c country like Pakistan where there is so much poverty complete lockdowns could have resulted in an extreme amount of suffering and unimaginable consequences for the poor people and these construction workers who depend of daily wage for survival. Hence the result shows that the construction workers were generally satisfied with the smart lockdown measures.

When asked about the healthcare facilities provided by the government during Covid-19 14.9% were highly satisfied, 29.2% were satisfied and 22.4% were neither satisfied nor dissatisfied, the number of people satisfied with the healthcare facilities has many reasons, one being the timely response of the government in responding to the pandemic, to address the COVID-19 pandemic, Government created a national action plan, launched mobile apps and a national helpline (1166), and implemented thermal screening and active case finding at entry points. To track the spread of the virus, they bolstered their surveillance system for contact tracing and case monitoring. This effort involved collaboration between federal and provincial governments. Additionally, they significantly expanded testing capabilities by designating 134 labs in major cities. They equipped 735 hospitals with isolation wards and secured dedicated quarantine facilities to handle cases(Noreen et al., 2021). Pakistan dealt with this pandemic creatively through the newly established body, the National Command and Operation Centre (NCOC). NCOC has designed a national integrated response to fighting the menace of COVID-19 effectively(M. Ahmad & Ashraf, 2020). The timely availability of vaccines thanks to China mostly in the form of Aid resulted in the government providing free vaccines to the people in an organized and timely

manner, where the healthcare workers were the first to be administered the vaccines, and the vaccines were provided free to all people and are one of the reasons of high satisfaction among the construction workers. The government also provided Sehat Sahulat Program to the poor people which provided free healthcare to the poor, as of 8 March 2022, over 27 million families are registered with the program across different provinces in Pakistan. In addition, the registered beneficiaries have recorded over 3.2 million hospital visits (Hasan et al., 2022).

Most of the workers were not satisfied with the Government Aid Package where 37% responded with dissatisfied and 22.4% were highly disappointed when asked about the government Aid Package, the Government in its economic relief efforts distributed PKR 12,000 to 12 million households under the Ehsas Emergency Cash Program, whereas another PKR 200 billion was allocated for the daily wage workers. The government released PKR 75 billion under a new program called Mazdoor ka Ehsas Program for targeted payments to low-income groups especially laborers and daily wagers, the program was aimed at 6.25 million low-income workers in addition to the 12 million individuals already covered under Ehsaas Emergency Cash Program(I. Ahmad, 2020b). But many said they did not receive any financial aid due to a lack of awareness and information regarding the Aid and the process of how to get it, there was also an issue with the way the aid was received as it required a thumb impression and some people were not able to receive the money due to mismatch or issue with the thumb impression, this was also seen in another research on the Impact of Covid-19 on informal employment for women domestic workers in Pakistan, where the majority of respondents did not get the government assistance, it was revealed that most respondents were either unaware or could not follow the process for getting registered in the system(Dogar et al., 2022).

The Government also provided relief in the electricity bills where electricity and gas bills and postponed payments to pay later in installments(C. Wang et al., 2021), but most of the workers were not satisfied with this and 47.5% responded that they are dissatisfied and 21.9% were highly dissatisfied, the reason was that most said they did not receive any relief in Gas of Electricity bills, Table 2 also shows that 86.3% responded with a No when asked whether or not they received any relief in Electricity bills.

The majority of the workers were satisfied with the vaccination provided by the government where 31.5% said they are highly satisfied and 36.2% replied that they are satisfied with the vaccination provided by the government, this was a result of robust management by the government of the vaccination drive and providing vaccination to the people free at many assigned centers around the country, the government efficiently ran the awareness campaigns in media and through telecommunication companies where people were informed regularly to get vaccinated, the government facilitated the people to get registered for the vaccination through SMS Service where people could get registered for the Vaccines by sending SMS of their ID Card number to a designated number and get all the information like place and timing at which they can get vaccinated, this is also shown in Table 2 where 84.5% of the workers said that they have been vaccinated.

For the overall response,14.73% said they were highly satisfied with the government response to COVID-19, 24.2% said they were satisfied whereas 14.1% said they were neither satisfied nor dissatisfied. This shows that overall, the workers were satisfied with the government's handling of the pandemic and were confident with the government's efforts for them. This was due to the robust response of the government in tacklingCOVID-19 Pandemic, the government managed the pandemic well, and the policy of the government was to provide maximum relief to the poor people and thus government imposed smart lockdowns instead of complete lockdowns, government also tried its best to contain the COVID-19 spread in the early days and then opened NCOC (National Command and Operation Center to manage the COVID-19 pandemic, Government also provided free of charge vaccines to everyone and efficiently managed the vaccination campaign, the government also tried to facilitate the poor under Ehsas program a welfare program that is aimed toward the poor and Sehat Card which provides free healthcare to the poor even at private hospitals, all of these steps taken by the government has a positive impact on the perception of people and they view the government response toward COVID-19 positively, this has also been found in another research according to which This pandemic has tested the governance capacities of the governments across the world. Multiple governments have failed while dealing with this menace effectively and their governance frameworks have been exhausted during the against COVID-19. Pakistan is also one of the affected countries of the world but interestingly, its performance is

satisfactory in the control and prevention of the disease (M. Ahmad & Ashraf Scholar, n.d.), but due to the vastness of the COVID-19 pandemic and its impact more is needed to be done as many still needed to work on and due to the disruption and change in government COVID-19 relief efforts have decreased and the current economic crisis and as a result, extreme inflation has increased the problems for the people many folds.

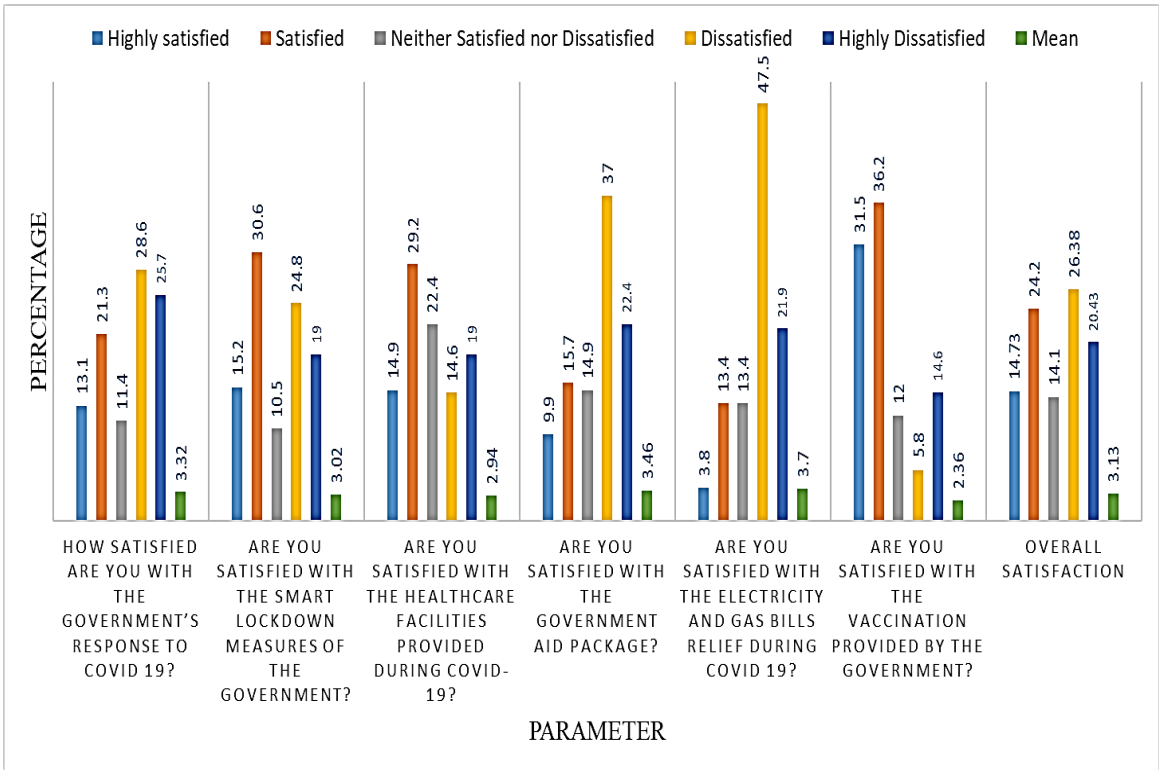

Figure 7: Satisfaction to Government's Response Toward COVID-*19*

When asked about the Demands of the Government 45.8% said they want the government to provide them with financial Aid, provide them with Debt relief, and provide them with Social Welfare, like housing, land to grow crops on, and health services only a few said that they have been provided the Sehat Card from the Government, this can be due to lack of awareness among these individuals about the facility of Sehat Card that has been provided by the Government, so there should be better awareness campaigns for the Sehat Card and any such future Social Welfare Scheme. Providing Work, Controlling Inflation, and an increase in wages were one of the other major demands of these workers. Due to COVID-19 and resulting lockdowns many of the workers too loans that they still have to pay and need financial help from the government to pay them back as their limited income

is too less for them to pay those debts back, these workers also find it difficult in finding work, most of them have traveled hundreds of kilometers from their hometown in search of work and still, they find it extremely difficult to earn a decent living, hence there should be planning from the government on how to provide work for the people, especially the illiterate and less educated ones and these individuals should be provided work opportunities in other sectors as well and new ways should be developed that can provide them work while also helping the government, economy, and country. The population is also a resource if someone knows how to use it otherwise it becomes a burden, we can see from the example of China how they have managed and utilized their huge population for their benefit, we also see some of the countries with huge populations like India, Indonesia and Bangladesh of how they are utilizing their population and lifting the people from poverty. Inflation is also one of the biggest issues faced by these workers rapid increases in prices of all items have broken the back of even the rich and for these workers who have very low incomes it is causing extreme problems, inflation is rising at extreme levels and Pakistan is facing an economic crisis, there should be an increase of minimum daily wage for these workers that can at least provide some relief, there should also be some other programs in place to mitigate the effects of rapid inflation on these workers and they must be provided relief

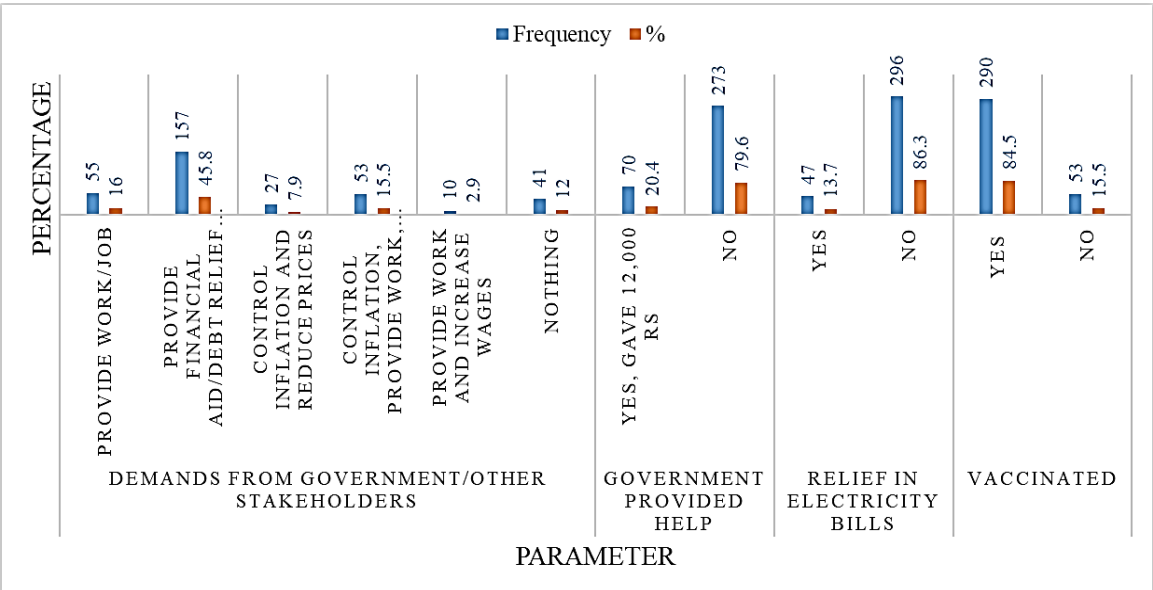

Figure 8: Role of Government

Table 5: Patient Health Questionnaire 9 (PHQ-9)

Question	Not at all	Several Days	More than half the days	Nearly Everyday	Mean (± SD)
Little interest or pleasure in doing things	36.40%	38.20%	13.40%	12%	2.01(.990)
Feeling down, depressed, or hopeless	25.40%	42.90%	6.70%	25.10%	2.31(1.108)
Trouble falling or staying asleep, or sleeping too much	33.50%	32.70%	16.60%	17.20%	2.17(1.078)
Feeling tired or having little energy	26.20%	41.10%	18.40%	14.30%	2.21(0.989)
Poor appetite or overeating	42%	38.20%	12.80%	7%	1.85(.899)
Feeling bad about yourself or that you are a failure or have let yourself or your family down	28.90%	36.40%	20.40%	14.30%	2.20(1.013)
Trouble concentrating on things, such as reading the newspaper or watching television	41.40%	26.50%	16%	16%	2.07(1.102)
Moving or speaking so slowly that other people could have noticed. Or the opposite being so fidgety or restless that you have been moving	41.70%	27.10%	26.20%	5%	1.94(0.937)

around a lot more than usual					
Thoughts that you would be better off dead, or hurting yourself	52.20%	23.90%	14.90%	9%	1.81(.999)

Table 6: PHQ-9 Score

Total Score	Depression Severity	Frequency(n)	Percentage (%)
0	No Depression	26	7.6
1 to 4	Minimal Depression	55	16
5 to 9	Mild Depression	108	31.5
10 to 14	Moderate Depression	106	30.9
15 to 19	Moderately Severe Depression	39	11.4
20 to 27	Severe Depression	9	2.6

The PHQ-9 (Table 5) is a validated and widely used measure of depression severity in primary and mental health care, consisting of 9 items based on depression symptoms(X. Wang et al., 2020).

To access the depression among informal construction workers during the COVID-19 lockdowns, PHQ-9 was used, and a total of 343 responses were collected for the 9 questions, Table 5 shows the responses of the workers in percentage for each question during the lockdowns, 12% of the workers said that they had little interest or pleasure in doing things nearly every day whereas 13.4% said they had these thoughts more than half the days they spent in lockdowns, majority 38.2% said they had these thoughts for several days. Many workers, 25.1%, said that they were feeling down, depressed, or hopeless nearly every day, and most workers 42.9% said they had these symptoms for several days. 17.2% said they had trouble falling or staying asleep, or sleeping too much nearly every day, whereas 32.7% said they had these symptoms for several days. Many workers 14.3%, said that they were feeling bad about themselves or that they were a failure or have let

themselves or their families down. 14.3% said they were feeling tired and had little energy nearly every day. 16% said they had trouble concentrating on things almost every day. Many said they had thoughts that they would be better off dead, or hurting themselves for several days, Depression and thoughts of being better off dead are most likely when people experience loss and feel trapped, humiliated, and powerless. (George W. Brown et al., 1977)

The data were analyzed, and the results were obtained in the form of a PHQ-9 Score (Table 6), the results show that the majority of the workers 76.4% are suffering from some form of Depression (Score ≥ 5) from which the majority are suffering from mild to moderate depression as shown in Table 2, and many reasons were found to be the cause of this, lack of work and as a result, lack of earning was the major cause of this depression, as these informal workers are poor and depend on daily wage to survive lockdowns resulted in adverse mental health impacts on them, Occupational identity and the ability to earn an income are fundamental to individuality, sense of purpose, and autonomy in adults; their loss is a profound one, leading to demoralization and depression(Fisher et al., 2020). During the survey it was found that the young people were mentally less affected, this was because they had fewer responsibilities and were more energetic and less worried about things, the more religious workers were also less affected by the lockdowns as their religious beliefs helped them stay strong mentally.

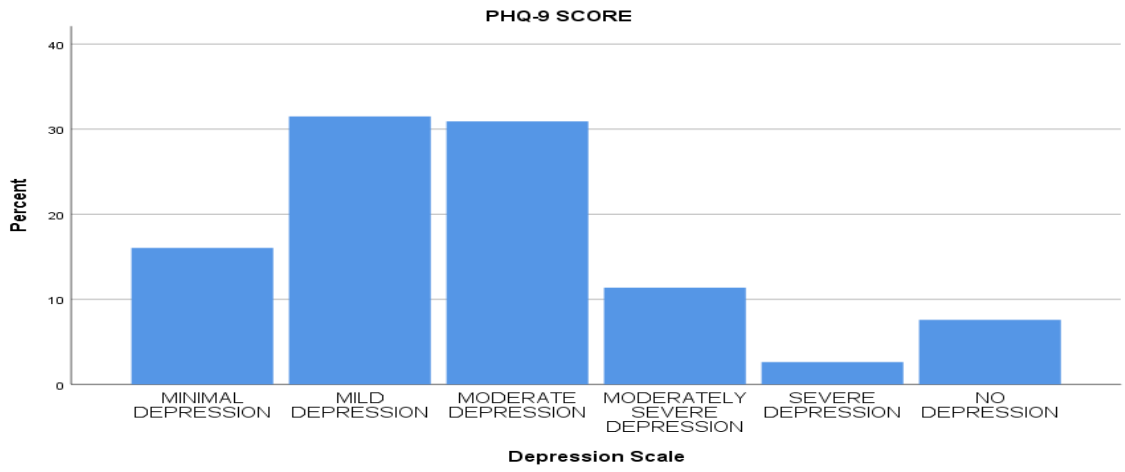

Figure 9: PHQ-9 Score

Table 7: General Anxiety Disorder (GAD-7)

Question	Not at all	Several Days	More than half the days	Nearly Everyday	Mean (± SD)
Feeling nervous, anxious, or on edge	20.40%	41.10%	15.20%	23.30%	2.41(1.059)
Not being able to stop or control worrying	24.80%	40.80%	13.40%	21.00%	2.31(1.064)
Worrying too much about different things	17.20%	47.50%	14.90%	20.40%	2.38(.996)
Trouble relaxing	19.50%	39.40%	20.10%	21%	2.43(1.029)
Being so restless that it is hard to sit still	21.60%	47.20%	14.00%	17.20%	2.27(0.987)
Becoming easily annoyed or irritable	32.40%	42.60%	11.10%	14%	2.07(0.996)
Feeling afraid, as if something awful might happen	26.50%	39.70%	13.70%	20.10%	2.27(1.065)

Table 8: GAD-7 Score

Total Score	Anxiety Severity	Frequency(n)	Percentage (%)
0 to 4	Minimal Anxiety	70	20.4
5 to 9	Mild Anxiety	136	39.7
10 to 14	Moderate Anxiety	70	20.4
15 to 21	Severe Anxiety	67	19.5

The GAD-7 is a validated questionnaire used in most mental health care settings as a screening tool for major anxiety disorders such as generalized anxiety disorder or panic disorder, consisting of items based on GAD symptoms(X. Wang et al., 2020).

GAD-7 was used to investigate the anxiety among construction workers due to COVID-19 and resulting lockdowns. A total number of 343 responses were collected, Table 7 shows the frequency of responses of the workers for each question. For many workers, 23.3% said that they were feeling nervous nearly every day they spent in lockdowns, and 21% said that they were not able to control getting worried nearly every day. 20.4% of workers said they were worried about different things every day, 21% said they had trouble relaxing nearly every day, 17.4% said they were restless nearly every day, and 14% said that nearly every day they were irritable and were easily annoyed. 21.1% said that they were feeling afraid as if something awful might happen. Most of the workers had all these symptoms for several days during the COVID-19 lockdowns.

The data was analyzed in SPSS and the GAD-7 Score was obtained, which consisted of 4 categories depending on the total score of each respondent. The results (Table 8) show that the majority of the workers are suffering from mild to moderate anxiety, as these workers are daily wagers and their survival depends on their daily income hence COVID-19 has a major impact on their mental health, and the majority of them are suffering from anxiety, COVID-19 and resulting lockdowns forced these workers out of their work and they had no source of income for themselves and their families, resulting in the time they spent at their homes to cause them anxiety. During the time the survey was conducted these workers were still affected mentally by the lockdowns and were down mentally. Same to PHQ-9 results the young were less affected due to fewer responsibilities and less care for things. They were more energetic and were positive and carefree unlike those who had more responsibilities and had families to feed.

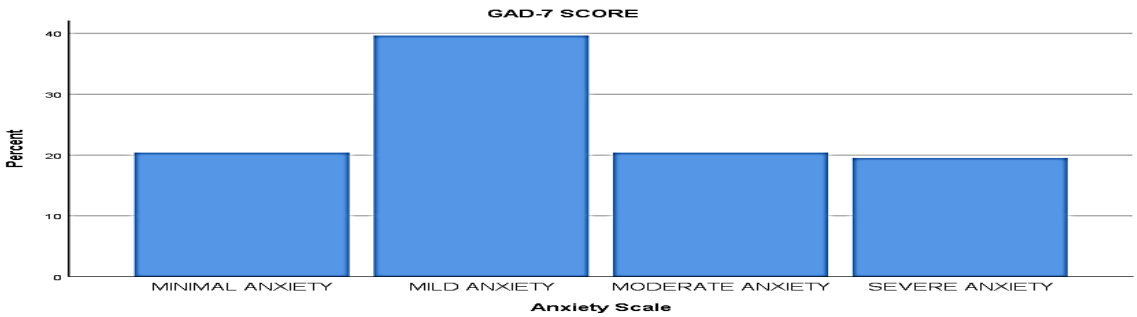

Figure 10: GAD-7 Score

CHAPTER 5: CONCLUSION AND RECOMMENDATIONS

The results show that informal construction workers in Pakistan are a vulnerable population who face several challenges, including low wages, large family sizes, and a lack of access to social safety nets. The COVID-19 pandemic has exacerbated these challenges, with many workers losing their jobs or having their incomes reduced.

Despite these challenges, informal construction workers play an important role in the Pakistani economy. They are responsible for building and maintaining the country's infrastructure, and they provide a source of income for millions of families.

The government of Pakistan should take steps to improve the lives of informal construction workers. This could include providing them with access to affordable housing, healthcare, and education. The government could also work to formalize the construction industry and to ensure that workers are paid a fair wage. By investing in informal construction workers, the government of Pakistan can help to reduce poverty and inequality, and to create a more prosperous and inclusive society.

By investing in informal construction workers, the government of Pakistan can help to reduce poverty and inequality and create a more prosperous and inclusive society. The government of Pakistan should take steps to improve the lives of informal construction workers. This could include providing them with access to affordable housing, healthcare, and education.

The government could also work to formalize the construction industry and to ensure that workers are paid a fair wage. By investing in informal construction workers, the government of Pakistan can help to reduce poverty and inequality and create a more prosperous and inclusive society.

To address the high prevalence of depression and anxiety among informal construction workers, the government could provide mental health services and support programs. To reduce the number of children who are involved in informal construction work, the government could implement stricter child Labor laws and provide more educational

opportunities for children from low-income families. To help informal construction workers cope with the economic crisis, the government could provide them with financial assistance, job training programs, and other support services.

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