

DST Sponsored Study

On

Health Communications Strategies and Best Practices in COVID-19 & Amphan Cyclone Affected Communities in South Bengal: A Study of Nadia and South 24 Parganas Districts

CHAPTER 1: INTRODUCTION

The Corona virus disease (COVID-19) which originated from Wuhan, China quickly spread to other countries throughout the world. India was one among them, with around 56,000 cases in the month of May, 2020. Though there has been periodic lockdown throughout the country by central and state ministry but due to lack of proper awareness among people it was becoming difficult to handle the situation. Along came the Amphan cyclone in West Bengal and caused havoc destruction. This project mainly focuses on the impact of COVID-19 and Amphan cyclone on the lives of people of Nadia and South 24 Parganas districts. Mental stress that people of these two districts were going through and how they tried to overcome it.

Nadia, which is located at the heart of Bengal plains has a very long history. During the British rule when Bengal was partitioned Nadia district got split and more than half of the land went to East Bengal (now Bangladesh). This district has a high cultural history as a united Bengal. Nabadwip, the spiritual place for the Bengalis, made many contributions to Indian philosophy and so the dialect spoken in Bengal mostly developed around this district. This district is highly fertile and is very green with mostly agricultural land. The headquarter of the District of Nadia is at Krishnanagar town. The British district of Nadia was formed in 1787. The District of Nadia at present was formed on 23 February 1948. The district administration is headed by District Magistrate and District Collector, Nadia. This district comprises of four subdivisions:

- a. Krishnanagar Sadar
- b. Kalyani
- c. Ranaghat
- d. Tehatta

Nadia district also has the Bethuadahari Wildlife Sanctuary which was formed in 1980 and has an area of 0.7 square kilometers.

South 24 Parganas is another district of West Bengal with headquarter at Alipore. By area it is the largest district and second largest by population. This district has a very contrast developing structure because one side there is urbanized Kolkata while on the other side there are remote river belt villages of Sundarbans. Starting from the urban side as we move further south it declines to rural areas.

This district comprises of five subdivisions

- a. Alipore Sadar
- b. Baruipur
- c. Diamond Harbour
- d. Canning
- e. Kakdwip




Other than municipality areas, each subdivision contains community development blocks which are further divided into rural areas and census towns. In total there are 118 urban units, 111 census towns and 7 municipalities and 29 Community development Blocks or CD Blocks.

1.1 Goal of the Project


The goal of the project is to understand the impact of COVID-19 as well as Amphan cyclone in the minds of people in affected areas of Nadia and South 24 Parganas and how they have tried to overcome those difficulties. Aftermath effect of those areas environmentally and how it affected lives of people living in those affected areas. We wanted to give some idea about the damages occurred in terms of psychological effect and economic as well as social effects of COVID-19 pandemic (2020-2022) and Amphan cyclone (2020, May) with limited resources we could access to limited number of blocks from two districts of South Bengal. Our observations represent the geographical sections of Bengal we have chosen.

However, the regression and dependence among different variable may give some insight of the overall scenario may be to a lesser extent, but not insignificant. We should know that total population of these 13 blocks is more than 25 that constitute a big section of South Bengal (scattered from North to South)

1.2 Research Team

Dr. Jyotirmoy Samajdar, MD, Secretary, MANAS	Principal Investigator	
Prof. (Dr.) Susmita Chakraborty, University of Calcutta	Co- Principal Investigator	
Dr. Anup Kumar Das, Jawaharlal Nehru University	Co- Principal Investigator	





Local Project Advisory Committee

Prof. Dr. Sukamal Bisoi, MD		
Anindita Das Chakraborty, Dy. Nursing Superintendent		
Prof. (Dr.) Subir Kumar Bhandari	ISI Kolkata	

Project Co-Ordinator

Sayeed Rahmatullah, MBA	Project Co-ordinator	
-------------------------	----------------------	--

NGOs Working with this Project

Ambedkar Janajagarani Samity, S 24Pgs	Mr. Pankaj Taati	
Ballartop Monobhumi Gram Unnayan Samity	Mr. Naser Ali	
Chakdaha Bigyan O Sanskriti Sangstha	Mr. Bibartan Bhattacharya	
Deeksha Education Trust	Mr. Debashis Sarkar	
Sabtribai Phule Library	Mr. Ruhit Chandra Das	

Data Entry Work

Priyanka Laskar	Project Assistant	
Ujjal Patra	Project Assistant	
Shekhor Modok	Project Assistant	
Soumali Roy	Project Assistant	

Database Search

Debashree Majumdar Nath	Project Assistant	
Paltu Das	Project Assistant	

Project Personnel

Debashree Majumdar Nath	Project Assistant	
Paltu Das	Project Assistant	
Shekhor Modok	Project Assistant	

Data Analysis

Sayed Rahmatullah	Project co-ordinator	
Monitirtha De	Project Assistant	



Group photo of Manas DST project Health Professionals, Health Communicators & Caregivers, 2nd May 2022. Location: Manas, Madanpur, Nadia, West Bengal, India.

1.3 Research Methodology

Research is an art of systematic investigation. It is related to seek out the information and knowledge on a particular topic or subject. According to Clifford Woody, research comprises defining and redefining problems, formulating hypothesis or suggested solutions; collecting, organizing and evaluating data; making deductions and reaching conclusions; and at last, carefully testing the conclusions to determine whether they fit the formulating hypothesis.

The way research moves on to the final destination is mainly discussed in the research methodology. There are four types of Research Methodology based on the type of research-experimental, derived, observational and simulation. It is a logical and systematic plan to solve any research problem. A research methodology gives details of a researcher's approach to the research done and ensure reliable, valid and factual results that addresses their aims and objectives. Research methodology should comprehensively describe and justify all the research design choices that the researcher has made. Research methodology is very important because it helps to identify and discuss those methodological issues or problems that researcher has encountered and explains what are the impacts of those issues.

1.4 Scope of the Study

This research was mainly conducted in two districts of West Bengal, Nadia and South 24 Parganas. There has been an extensive process by which data should be collected during the time of COVID-19 and when the natural hazard, i.e., cyclone Amphan took place. We all know that world has faced a pandemic situation for last two years from 2020 and still the effects of

COVID-19 are prevailing making people sick and causing death. During the time of COVID-19 and Amphan how people of these two districts have cope up, challenges faced by them, outcome and mentally as well as physically have adapted to the new world.

South 24 Parganas District

The district of 24-Parganas started taking shape under Clause Nos.2,3 and 9 of the Regulations of 1793. The respective jurisdictions of the civil and criminal courts for the district and revenue jurisdiction of the District Collector were demarcated by the Regulations. This arrangement remained valid till 1800. The present district of South 24 Parganas came into existence on 1st of March, 1986. It then comprised of two sub divisions- Alipore and Diamond Harbour and of 30 blocks. Presently there are five sub divisions (Alipore, Baruipur, Canning, Diamond Harbour and Kakdwip), 29 blocks and 7 Municipalities.

The 29 Blocks of South 24 Parganas are:

1. Baruipur
2. Basanti
3. Bhangore I
4. Bhangore II
5. Bishnupur I
6. Bishnupur II
7. Budge Budge I
8. Budge Budge II
9. Canning I
10. Canning II
11. Diamond Harbour I
12. Diamond Harbour II
13. Falta
14. Gosaba
15. Joynagar I
16. Joynagar II
17. Kakdwip
18. Kulpi
19. Kultali
20. Mograhat I

21. Mograhat II
22. Mandirbazar
23. Mathurapur I
24. Mathurapur II
25. Namkhana
26. Pathar Pratima
27. Sagar
28. Sonarpur
29. Thakurpukur Maheshtala

Nadia District

The 18 Blocks of Nadia are:

1. Kaliganj
2. Nakashipara
3. Chapra
4. Krishnaganj
5. Krishnagar I
6. Krishnagar II
7. Nabadwip
8. Ranaghat I
9. Ranaghat II
10. Santipur
11. Hanskhali
12. Kalyani
13. Chakdaha
14. Haringhata
15. Karimpur I
16. Karimpur II
17. Tehatta I
18. Tehatta II

1.5 Variables

Variables in research refers to person, place or thing, or any phenomenon that a researcher try to measure anyway. Variables are of two types- independent and dependent.

a) **Independent:** Independent variables are basically stable and unaffected by other variables that we are trying to measure. It refers to a condition of an experiment that is systematically manipulated by researcher.

b) **Dependent:** Dependent variables mainly depends on other factors that are measured. These variables can change as a result of experimental manipulation of the independent variables.

In case of this research communication strategies based on mental health of people have been identified. People who belong to the South 24 Parganas and Nadia districts of West Bengal have been analysed based on their mental health during COVID-19 and Amphan cyclone. So, we can say that the population in these two districts play the role of independent variable and mental health as well as physical health plays the role of dependent variable. COVID-19 attack may vary from place to place. Remedies, information gathered and consequences may differ in different blocks of South 24 parganas and Nadia district. Similar may be the case of destruction level by natural calamity Amphan cyclone in two districts. Though we know South 24 parganas have suffered a major setback in Amphan cyclone than Nadia district. So, the dependent variable here are directly related to the population of the two districts.

1.6 Research Problem

To examine a research problem in social and behavioural sciences, it is frame around methods of analysis that contrast, compare, correlate, average or integrate relationships between or among variables. Sampling, random selection or even if the selection is focused which includes associations as the techniques for the research. As, variables play an important part of the research so the structure and style of writing about dependent and independent variable should be clear and follow no rules.

In this research we are trying to find out how much people of South 24 Parganas and Nadia districts from the Southern Bengal have been suffering mentally and physically due to COVID-19 and Amphan cyclone. COVID-19 was a pandemic and hit every household more or less. How they have recovered and what kind of information they have got from whom is really a big question. How much could they understand and maintain safe distance along with other norms that needs to be followed. After Amphan cyclone hit those areas what kind of help they have got from government and other agencies is also important.

1.7 Research Design

While a researcher chooses to conduct a study, he/she has to focus on research design as it is the framework of research methods and techniques chosen. It allows researchers to sharpen the research methods which is suitable for the subject and complete the study. There are three main types of design for research – measurement, data collection and analysis.

Characteristics of Research Design

- a) Reliability: How much the search is reliable to the society or rather any benefits gained from the research depends on how reliable are the sources of information. Reliability in research will show the result to its best, and also maintain the standard of result.
- b) Neutrality: Bias free result of any data that is collected should be maintained for near about accuracy in the result. Some assumptions may be made about data collected but result should not have any place for assumption.
- c) Validity: There must be a valid reason for every research done. The choice of right measuring tool and accuracy of research result should have a validity with the research objective chosen.
- d) Generalization: The result of a research should benefit the total population not to a particular group. The generalized design of any research ensures a full proof design that applies to any population with the same level of accuracy.

There were a number of series of meetings that have been arranged in a blended form including both online and offline between principal investigator, co-principal investigator, health professionals, health communicators and caregivers, subject experts and volunteers.

Parameters and questionnaires were finalised after discussion with subject experts and principal investigator with co-principal investigators. 50 unnumbered questions were printed and made a pilot study. The questionnaire was compiled of two parts- first part is basic information and the second part is GHQ (General Health Questionnaire).

The General Health Questionnaire (GHQ) is a measure of current mental health and since its development by Goldberg in the 1970s it has been extensively used in different settings and different cultures. The questionnaire was originally developed as a 60-item instrument but at present a range of shortened versions of the questionnaire including the GHQ-30, the GHQ-28, the GHQ-20, and the GHQ-12 is available. The scale asks whether the respondent has experienced a particular symptom or behaviour recently.

1.8 Research Methods

Research methods deals with techniques, strategies and processes in the collection of data or evidence to analyse new information and create better understanding of a topic. Research methods can be either quantitative or qualitative.

Quantitative Method: This method deals with numerical value and often require the use of statistical tools to analyse data collected. These data can be represented through charts, tables and graphs.

Qualitative Method: Qualitative data on the other hand is non-numerical and focuses mainly on establishing patterns. These data show life experiences, behaviours and emotions and the meaning of individuals attach to them. Social interaction, cultural phenomenon and lifestyle helps the researcher to explore as to why things have occurred, interpreting what has occurred, how and why they have occurred.

In this particular research we have used quantitative method to collect, analyse data. Survey and questionnaires were used to collect data. This gives us the total numerical value to calculate.

1.9 Objectives of the Project

- 1) To collate health communication strategies, protocols and best practices in the COVID-19 and Amphan cyclone affected communities at Nadia and South 24 parganas district of West Bengal state.
- 2) To develop a Health Communication Toolkit for the professional practitioners, caregivers and local bodies (gram panchayats and block-level officers) in English and Bengali languages
- 3) To develop a Risk Communication toolkit for the professional practitioners, caregivers and local bodies (gram panchayat and block-level officers) in English and Bengali officers
- 4) To develop an online Directory of registered voluntary or civil society organisations working for rebuilding the COVID-19 and Amphan cyclone affected communities at Nadia and South 24 parganas districts off West Bengal state
- 5) To build an online repository of IEC (Information, Education and Communication) materials and grey literature, related to risk communication and health communication, Published in English and Bengali languages for the COVID-19 and Amphan cyclone affected communities and their caregivers
- 6) To develop a Webliography of policy, practice and strategy documents, published in English and Bengali language for the COVID-19 and Amphan cyclone affected communities and their caregivers.

1.10 Organising A Workshop




Manas DST Workshop inaugurated by Prof. (Dr.) Susanto Sarkar, HOD, Dept. of Psychiatry, AIIMS, Kalyani & Prof. Subir Kr. Bhandari, Indian Statistical Institute, Kolkata

In Presence of: Prof. (Dr.) Aniruddha Basu, Dept of Psychiatry, AIIMS, Kalyani; Prof. Susmita Chakraborty, HOD, Dept. of Library & Information Science, Calcutta University; Shri. Paban Mukherjee, President, MANAS; Dr. Jyotirmoy Samajder, Secretary, MANAS;


Day 1

Date	Session	Communicators	Picture
30.04.2022	Inauguration Session	Moderator. Jyotirmoy Samajder; Welcome address: Paban Mukherjee; Addresses by: Dr. Subir Bhandari, ISI; Dr. Sukanta Sarkar, AIIMS Kalyani; Dr. Aniruddha Basu, AIIMS Kalyani; Vote of Thanks: Prof. Susmita Chakraborty	
30.04.2022	Technical session	Dr. Amandeep Kaur, AIIMS Kalyani	
30.04.2022	Technical session	Dr. Doyel Ghosh, Institute of Psychiatry, Kolkata	

Day 2

1.5.2022	About MANAS	Dr. Jyotirmoy Samajder	
1.5.2022	Technical session	Dr. Mrinmoy Das	
1.5.2022	Yoga workshop	Prof. Dolly Chakraborty & Prof. Kajal Kumar Basu, World Yoga Society	
1.5.2022	Technical session	Ms. Anindita Das Chakraborty, Deputy Nursing Superintendent	
1.5.2022	Technical session	Dr. Sukomal Bishoi,	
1.5.2022	Technical session	Dr. Anup Kumar Das, JNU	

Day 3

2.5.2022	Technical session	Prof. Susmita Chakraborty, University of Calcutta	
2.5.2022	Discussion	Dr. Pinaki Sarkar	
2.5.2022	Validatory session	Dr. Jyotirmoy Samajder and Prof. Susmita Chakraborty	

1.11 Project Activities Completed

- 1) Block and village level surveys in select COVID-19 and Amphan cyclone affected communities in two districts;
- 2) Organising a 3-day regional workshop with the health communicators, caregivers and healthcare professionals working with the COVID-19 and Amphan cyclone affected communities in two districts;
- 3) Documenting health communication and risk communication strategies, protocols and best practices adopted by the health communicators, caregivers and healthcare professionals working with the COVID-19 and Amphan cyclone affected communities in the two districts;
- 4) Preparing a Health Communication Toolkit, a Risk Communication Toolkit, an online directory of registered voluntary or civil society organizations working for rebuilding communities; an online repository of IEC (information, education and communication) materials and grey literature; and a Webliography.

1.12 Procedure of Data Collection

For any project data collection plays a vital role for it enhances the need to successfully come to conclusion and find out if the required goal has been achieved or not. Data collection was done through these following methods:

a) Block Level Survey

A block level survey was conducted to find out the impact of COVID-19 and Amphan cyclone in the affected areas of Nadia and South 24 Parganas (Sundarbans area). First

identification of blocks was done in both of these districts. Then tried to find out of all those blocks which are the ones got severely affected by COVID-19 and Amphan cyclone. How much cyclone has destroyed the physical property of human beings. What kind of action government, NGOs and other welfare societies have taken to rebuild their destroyed property or whether any help has been offered to them or not. Lives of people living in those areas are really hard because of lack of modern amenities. They live a simple gagged free life. To them environment plays a vital role and when this environment gets affected their lives are also at a risk. On top of that this time a very dangerous disease has laid its hand of human race. COVID-19 has already made a great impact on lives of people throughout the world and these two districts are no exception.

b) Workshops

MANAS who is leading the project conducted a 3-day workshop in Nadia and South 24 Parganas district. This Workshop was conducted with the help of health communicators, caregivers and health professionals working on COVID-19 and Amphan Cyclone affected areas. Workshops are very good mode of communication process as it leads to direct interaction with people which is a major asset for any project result. While conducting workshops the organizers came across various situations where they found out how people of those areas are living after the natural hazard (Amphan cyclone) and also how much COVID-19 has affected in those areas. What kind of trauma they have suffered during those periods of high risk and how they have tried to overcome those traumatic situations. Questionnaires were formed and were asked to fill in by the attendees and those who cannot fill in Volunteers helped them. Then face to face communication was done to get better knowledge of the situation. Workshops proved to be very helpful for the data collection process.

c) Development and Deployment of Questionnaires

This is another pattern by which data can be collected. Very good and firsthand information can be obtained. Health communicators and professionals went from one house to another to collect data. Sometimes people from those areas visit at one place and fill up the form given to them. Questions were related to COVID-19 so that we can understand how much they know about the disease, whether they have taken required measures and how are they fighting back economically and physically. Along with information regarding Amphan cyclone- the destruction caused by nature. What is the amount of destruction and how much can they regain after the incident is very important to know. Livelihoods of women and children especially pregnant women, was in a crucially state. What they have to say is most important for us in this project.

CHAPTER 2: LITERATURE REVIEW

According to Ren and Guo (2020), transmission of 2019 Novel coronavirus (COVID-19) throughout the world has alarming implications for individuals and communities, particularly for public mental health. Though progress is made in full swing to control and prevent the spread of COVID-19 but psychological crisis caused by the pandemic has left a deep impact in the minds of common people. This article provides a list of characteristics on the post COVID-19 period on the public mental health crisis. According to Martin et al. (2022), older adults represent one of the most impacted and high-risk population during the COVID-19 pandemic. The purpose of their study is to better understand how COVID-19 experiences, food insecurities and social support as associated with mental health and wellbeing for aging population.

In the words of Grover et al. (2020), a study was made to evaluate the impact of lockdown and COVID-19 pandemic on mental health services in India's various training centres. Information was collected through email and SMS and other electronic mode of communication. COVID-19 pandemic and lockdown has led to the collapse of regular mental health services.

According a to Mondal et al. (2021) the fear of infection by such an unknown disease and the epidemic transformed the build-up environment and impacted various sectors of lives and livelihood, which must be assessed in spatial perspectives. This research concentrates on economy, education, employment, transport, health, tourism and environment of West Bengal as the main pillars of growth of a state.

Chakraborty and Chatterjee (2020) wanted to assess the psychological impact of COVID-19 pandemic in general population of West Bengal. The index survey suggested that worry and sleep disturbances were common among the respondents to a great extent and affected their mental status negatively. Mukherjee, Maity and Chatterjee (2021) talk of data on the media use pattern of respondents with different degrees of mental well-being and mental anxiety in the context of COVID-19 pandemic. Data was collected on demographic variables, patterns of media engagements and levels of mental well-being and mental anxiety among the Indian adult population in COVID-19 .

The study by Chacko and Jayaram (2022) speaks of multi-platform datasets which were used to investigate the response of the super ocean to Amphan cyclone. Surface circulation was also observed to be modulated with the passage of a cyclone with a rightward bias in the change in its speed and direction. The study by Nieto, Navas and Vazquez (2020) aims to examine compliance with basic methodological quality criteria and open scientific research practices on the mental health effects of COVID-19 pandemic. Twenty-eight studies were identified through a systematic search, because most of them met the requirements related to the reporting key methodological and statistical information. This paper by Rahman et al. (2021) describes the psychological state of human in different ages, gender and profession with the impact of COVID-19 in their regular life in Bangladesh with visualised infographic images containing

statistical analysis from a collected survey on real regular life which is based on their activities of regular life and internet uses. Ahmed et al. (2021) found that the Super Cyclonic Storm (SUCS), 'Amphan' developed over the Bay of Bengal during May 2020 crossed West Bengal and adjoining Bangladesh coast over Sundarbans on 20th May 2020 with a wind speed of 85 knots gushing to 100 knots. The early detection and prediction of maximum intensity over the North Indian Ocean is essential to provide more lead time and accurate early warning of Tropical Cyclone (TCs) for their effective management especially considering smaller size of the ocean basin and socio-economic vulnerability of the region. A study by Harvey-Dunstan et al. (2022) shows how survivors of COVID-19 can go for work and do all regular work even not being hospitalized with persisting respiratory symptoms presenting to clinic. This research identifies reduced quality of life, fatigue and dysregulated breathing.

A study by Dal Santo et al. (2022) refers to mental health changes from pre-COVID19 to during COVID-19 by sex and gender. Reports of greater negative mental health changes in women compared to men based on cross sectional research that has not accounted for pre COVID-19 differences. A cross-sectional online study by Seens et al. (2022) identifies where the personal and intersectional factors associated with increased symptoms of anxiety and depression following COVID-19 pandemic. Women, other gendered individuals and specially those who care for children need to be aware and respond to health practitioners, psychiatrists and policy makers.

A paper by Jones, Mitra and Bhuiyan (2021) aims to analyse systematically the impact of the pandemic on adolescent mental health. There is lack of sufficient data on the psychological toll of COVID-19 pandemic on adolescent mental health, so this study follows the PRISMA guidelines for systematic reviews of 16 quantitative studies conducted in 2019 – 2021 with 40,076 participants.

COVID-19 pandemic is a disaster that has impacted lives globally. A paper by Lindart, Jakabauskiene and Bilsen (2021) has reviewed COVID-19 literature and found that COVID-19 as an unexpected, large-scale event that disrupted communities and caused death, destruction and trauma which upended normal existence. Mental health problems vary depending on the stage of the pandemic, country, population and type of conditions.

During the COVID-19 pandemic there has been a rise in the case of violence against women and children in many countries. A paper by Sharma, Sharma and Singh (2020) shows reports have come of social exploitation and physical abuse, loss of income for unknown period, already existing debts and meeting the demands and expectation and workload of the home bound family members further escalates this issue.

Nurses played a vital role in treating patients during COVID-19 pandemic. A paper by Riedel et al. (2021) tells how nurses suffered a lot of mental traumas due to increased workload, negative patients' outcome and less social support system access. Early information should be provided to the nurses regarding mental health disorder that can cause disfunction, inter suffering and even lead to death if not cured properly.

In the COVID-19 pandemic there has been changes in the healthcare delivery. A paper by Lucas & Bamber (2021) tells us how to protect the vulnerable from the virus, these may lead to indirect, potentially harmful consequences, with a lack of in-person clinics impacting the ability to screen for physical, psychological and social issues such as mental health issues, blood pressure and sex-based violence.

A study by Mullins et al. (2022) aims to explore the perspectives of emerging emergency department clinician's regarding my health record, national electronic health record off Australia. There was a web-based survey done with 393 nursing, pharmacy, physician and other health staff within the emergency department at metropolitan public hospital at Melbourne between May to December 2021 delta and omicron COVID19 outbreak. A study by Slone, Pe'er and Mor (2022) reveals the psychotic effects of home isolation and quarantine, the effects of interacting previous traumatic events and the effects of self-mastery as a resilience factor that could mitigate negative effects. Therapy and interventions based on promoting self-mastery could exert a significant effect on lowering psychiatric symptoms during stressful periods of home isolation. A study by Stufano et al. (2022) aims to evaluate psychological wellbeing during the COVID-19 crisis with the university workers when they are suffering from one or more diseases likely to increase the risk of severe outcomes during COVID-19 infection. This paper uses nonlinear dimension reduction technique and regression methods 245 variables in order to access demographic occupation and health related factors during COVID-19 crisis.

There are many studies conducted early in the pandemic found that pregnant woman increased in mental health concerns in response to pandemic related stress. A survey by Ashby et al. (2022) explores the way in which COVID-19 pregnant patients were impacted. There were few respondents who were feeling great uncertainty social isolation because they had limited social and practical support and disaffected negative mental health as a result of pandemic.

A study by Bendelow and Wedekind (2022) talks about Internet delivered psychotherapeutic interventions which increased during the COVID-19 pandemic. There were 39 randomized control studies off psychotherapeutic interventions for anxiety disorders and performed a meta-analysis.

Sleep is an important part of human health cycle. Lockdown policies worldwide have laid changes in sleep timing, quality and duration. A study by Yuan et al. (2022) uses self-reported data from around 64,858 users who were using smart phones around the world over the period from 2019 to 2020. This research has found that there is an increase in bedtime as well as significant delay in sleep timing specially on weekends.

A study by El-Sherif and Abouzid (2022) uses bibliometric quantitative analysis and network visualization to find out research trends and areas of particular interest. Mobile health applications offer various uses for illness monitoring and treatment to improve medical care and promote health and wellbeing.

Doctors and nurses play a vital role as the pandemic broke out. A study by Irandoost et al. (2022) is mainly based on qualitative method to describe the problems and adaptation of

techniques that nurses are taking to treat open 19 patients. Sampling used here is purposive and snowball sampling were also used to get access to participants and collect data. Experience and challenges that they have faced while working in the COVID-19 situation and adaptation strategies for work conditions, creating an empathetic atmosphere in the workplace have been analysed. When the pandemic broke out throughout the world and the UK met the first lockdown, inflammatory arthritis patients were reported of worsening in emotional distress. A study by Caton et al. (2022) qualitatively explored the impact of consecutive lockdown periods on mental well-being in people with inflammatory arthritis. There are 4 main themes on which the data have been identified which are included in the study.

One of the most important reasons why human beings survived during the pandemic was the use of virtual communities. This played an important role in mental health and well-being during the pandemic by helping others to prevent loneliness. Pandemic has accelerated the use of digital solutions for people with pre-existing mental health problems. This study by Golz et al. (2022) aims to identify and describe the communication pattern and formal expression of users using the digital platforms during the first lockdown in 2020.

A study by Carmel, Bachner and Cohn-Schwartz (2022) is based on psychological reactions of the older adults living in Israel during the COVID-19 pandemic situation. Mainly the Holocaust survivors who are more vulnerable than other older adults because of the traumatic early life history and the emotional and physical stress that they have faced brings negative effects on their mental health.

Research by Lekagul et al. (2022) mainly aims on the multidimensional impacts of the pandemic on people, prosperity, planet, partnership and peace. The coronavirus disease has triggered health, social and economic crisis to derail progress and achievement of the sustainable development goals. The magnitude of impacts is determined by the level a vulnerability and inequity in the society add the effectiveness of comprehensive pandemic responses.

The main aim of the study by Case et al. (2022) was to find out health related quality of life and social determinants of health in Latino population of COVID-19 survivors. Multivariable analysis reveals that financial concern interpersonal conflict and Latino ethnicity were associated with worse health utility.

A study by Benzakour et al. (2022) shows how 2019 pandemic had a serious impact on global mental health specially on intensive care unit survivors. This study focuses on psychotherapeutic approach to increase the feeling of security and to cope with the reality of his traumatic experience.

According to Deimel et al. (2022), COVID-19 pandemic not only threatens physical health but also effect mental health of people but the consequences are not same for all the members of the society. The mental health of individuals who are at increased risk of severe illness from COVID-19 as compared to the individuals who are at low risk of severe illness during March 2020 lockdown in Germany has been focused in this study. There is a relation between mental health, anxiety and loneliness in a cause effect chain.

A paper by Beaudry et al. (2022) evaluates COVID-19 changes in mental health related emergency department among youth overall by age, socio economic status and sex. This is a cross sectional study which analyses mental health related emergency department to utilize before add during the pandemic at an urban pediatric hospital in Montreal Canada.

A paper by Ayhan-Balik, Karakaya and Kutlu (2022) mainly focuses on comparing levels of anxiety and depression as well as assessing the affecting factors of general population, frontline health care workers and COVID-19 patients in Turkey in the first wave of pandemic. There is always a fear off affecting family members and relatives as lack of personal protective equipment's providing care increases anxiety and depression in healthcare workers. They always need support continuous monitor of psychological health during the pandemic.

Different UN agencies, such as the World Health Organization (WHO), International Labour Organization (ILO), UNESCO, and others carried out different studies on the impact of COVID-19 pandemic on the economic livelihoods and mental wellbeing of people living in the developing countries, particularly the marginalised sections of the populations.

All these surveyed literatures helped the research team in conceptualizing, designing, analysing and reporting the findings of this research study.

CHAPTER 3: PROJECT FINDINGS

At first 50 unnumbered questionnaires were made and printed for a pilot project. Questions were finalised with the help of subject experts, principal investigator and co-principal investigators. After this pilot study is done, based on the results further questions were developed. Around 3000 numbered questionnaires were printed and data was collected from the two districts Nadia and South 24 Parganas. MANAS, the principal organisation working under this project along with other NGOs. Data collection had been done from a very grass root level.

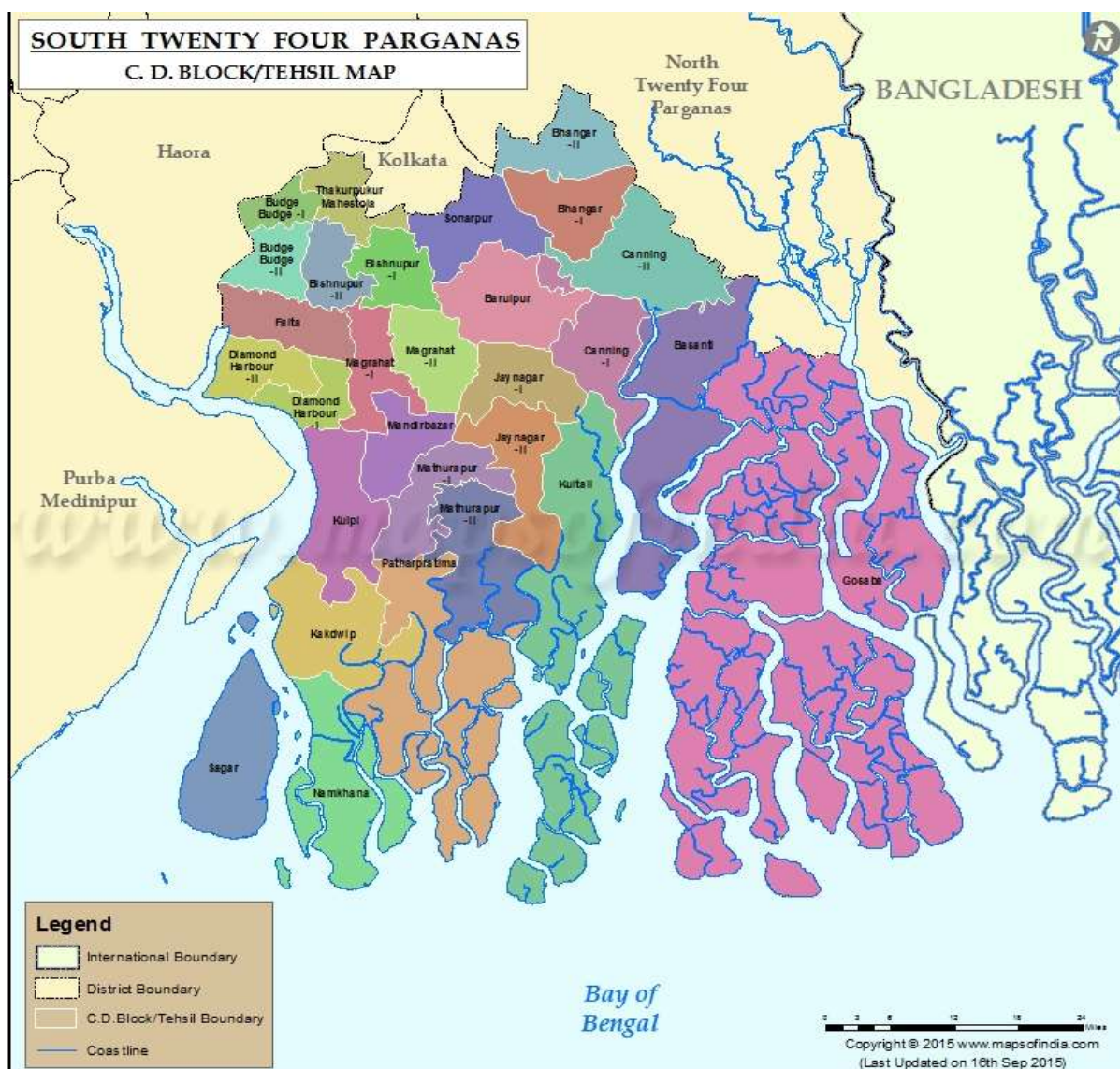


Figure 1: Pictures from South 24 parganas district



Figure 2: Pictures from Nadia district

Part I: Summary Report of the Selected Community Development Blocks of South 24 Parganas and Nadia Districts



A) Summary Report on Basanti Block, South 24 Parganas

- **Name of the CD Block:** BASANTI
- **District:** South 24 Parganas
- **Actual Population:** 336,717 as per the Census 2011.
- **Number of families in Sample:** 661

1. Family Member Distribution:

Family Member Distribution	Percentage
1-2	20.75%
3-6	74.88%
More than 6	4.37%
Grand Total	100.00%

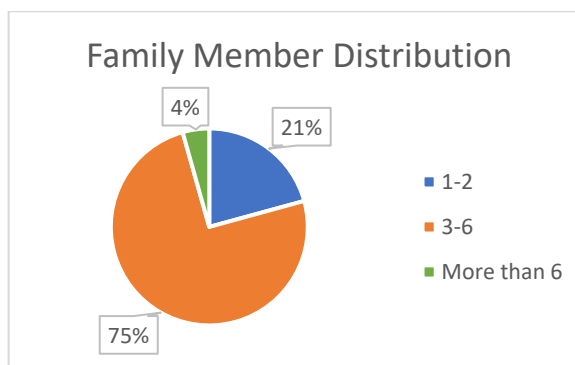


Table 2.1

Analysing the data of the surveyed families, from Table 2.1 we can infer that in the Basanti CD Block, South 24 Parganas, 20.75% of them have 1 to 2 family members at home, while majority of the surveyed families have 3 to 6 members at home, and 4.37% have more than 6 family members.

2. Family Income Distribution:

Monthly Family Income	Percentage
₹ 0 - 3000	81.51%
₹3001-10000	17.78%
₹10001 & above	0.70%
Grand Total	100.00%

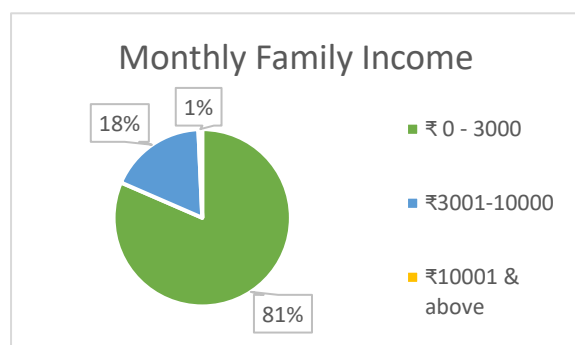


Table 2.2

Analysing the data of the surveyed families, from Table 2.2 we can infer that in the Basanti CD Block, South 24 Parganas, Monthly Family Income distribution is seen at 81.51% of the families earn around ₹0-3000, 17.78% earns from ₹3000 to ₹10,000 and 0.70% belong to ₹10,000 and above.

3. Awareness of COVID-19:

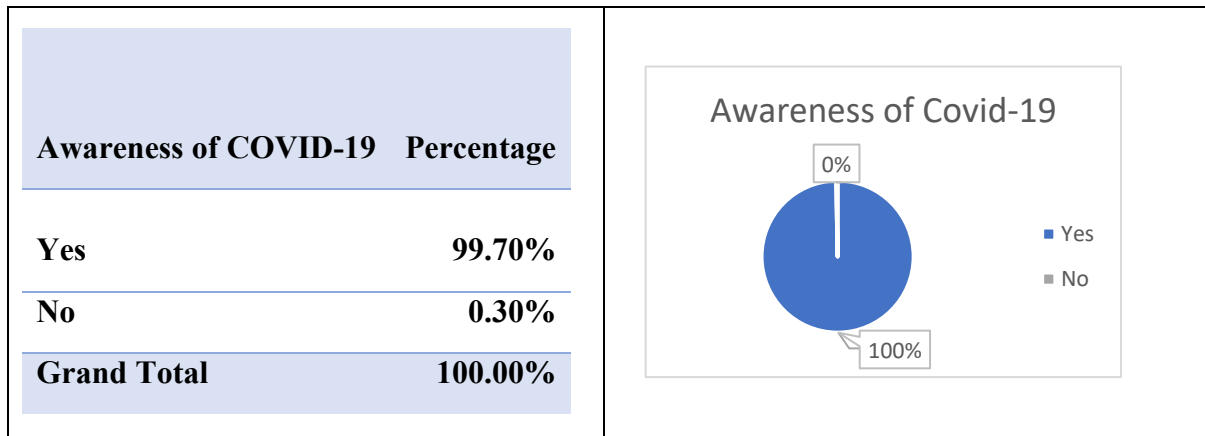


Table 2.3

Analysing the data, from Table 2.3 we can infer that in the Basanti CD Block, South 24 Parganas, awareness among the surveyed families is very high about COVID-19 pandemic.

4. Occurrence of COVID-19 Cases:

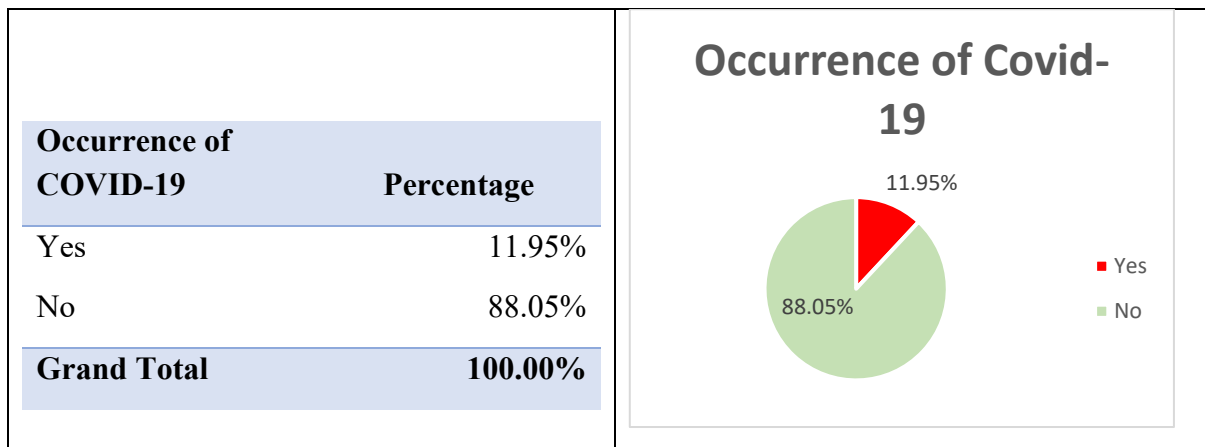


Table 2.4

Analysing the survey data, and from Table 2.4 we can infer that in the Basanti CD Block, South 24 Parganas, 11.95% of the surveyed persons were down with COVID-19 and most of them got to know it through COVID-19 testing and rest of the response 88.05% in this block were mostly not having any symptoms of covid.

5. Number of Doses of Vaccine taken:

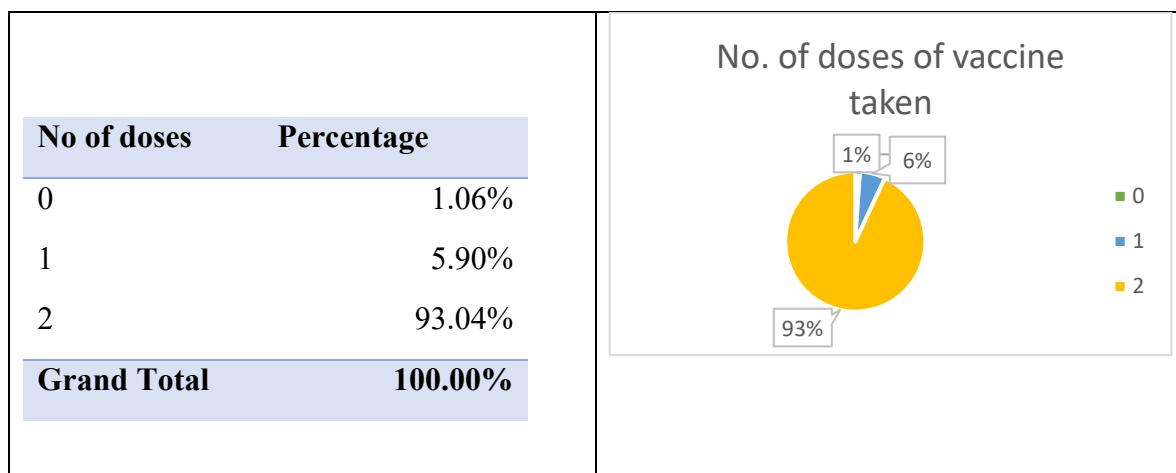


Table 2.5

Analysing the survey data, and from Table 2.5 we can infer that in the Basanti CD Block, South 24 Parganas, 93.04% of the surveyed persons took two doses of COVID-19 vaccine 5.90% took a single dose of the vaccine and a mere 1.06% were found to have not taken any doses of the vaccine.

6. Damage in Amphan Cyclone:

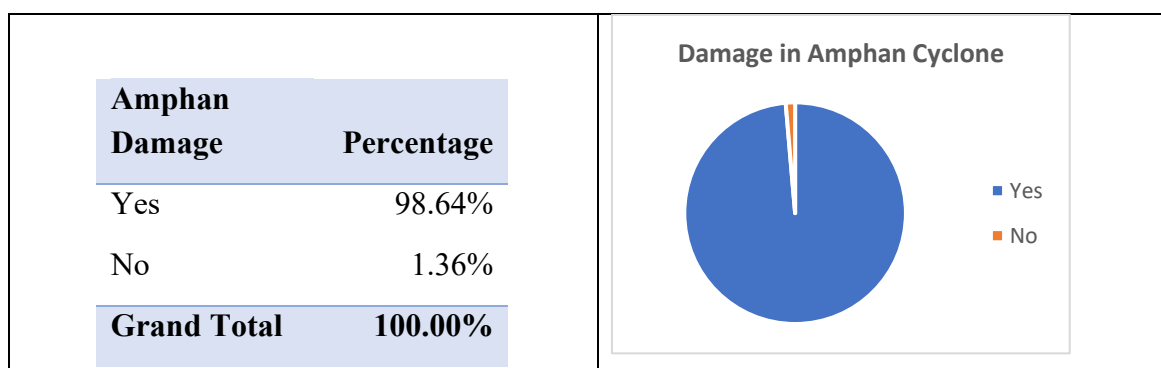


Table 2.6

Analysing the survey data, and from Table 2.6 we can infer that in the Basanti CD Block, South 24 Parganas, most of the surveyed persons (98.64%) and their families were affected by the super cyclone Amphan and combined with COVID-19 pandemic the situation turned for the worse. Houses were severely damaged, crops were destroyed, daily labourers lost their job, children from these family had to leave school and many of them were economically ruined.

7. Degree of Stress:

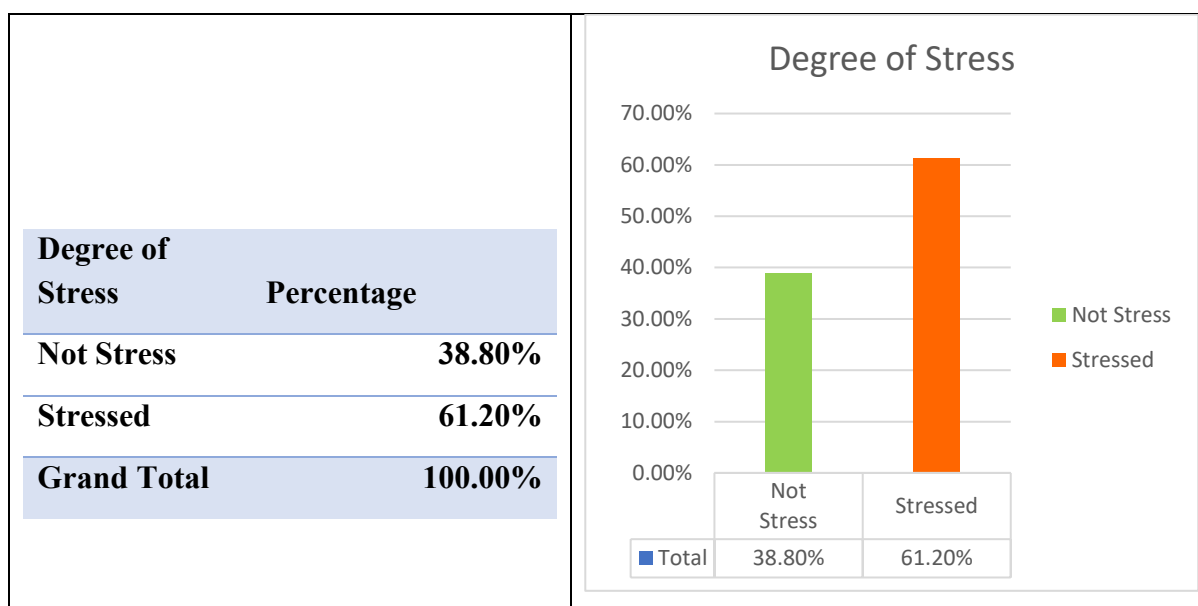


Table 2.7

Analysing the survey data from the General Health Questionnaire (GHQ-12), and from Table 2.7 we can infer that in the Basanti CD Block, South 24 Parganas, 38.80% were found not stressed but an alarming 61.20% of the surveyed people were found to be stressed. The people in this region faced the pandemic and the Amphan cyclone together and as we can see it did take a toll on their mental health.

8. Data on gender:

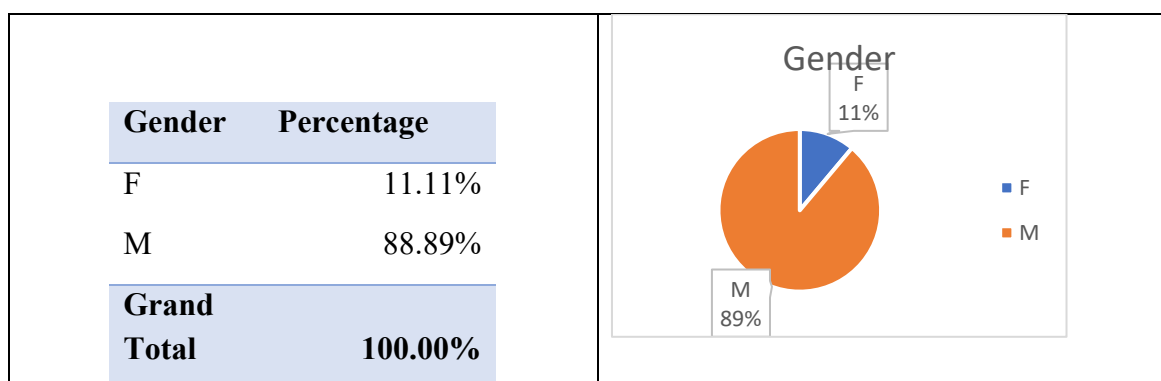


Table 2.8

Analysing the survey data, and from Table 2.8 we can infer that in the Basanti CD Block, South 24 Parganas, among the total surveyed, 11.11% are females while 88.89% are males.

9. Data on qualification:

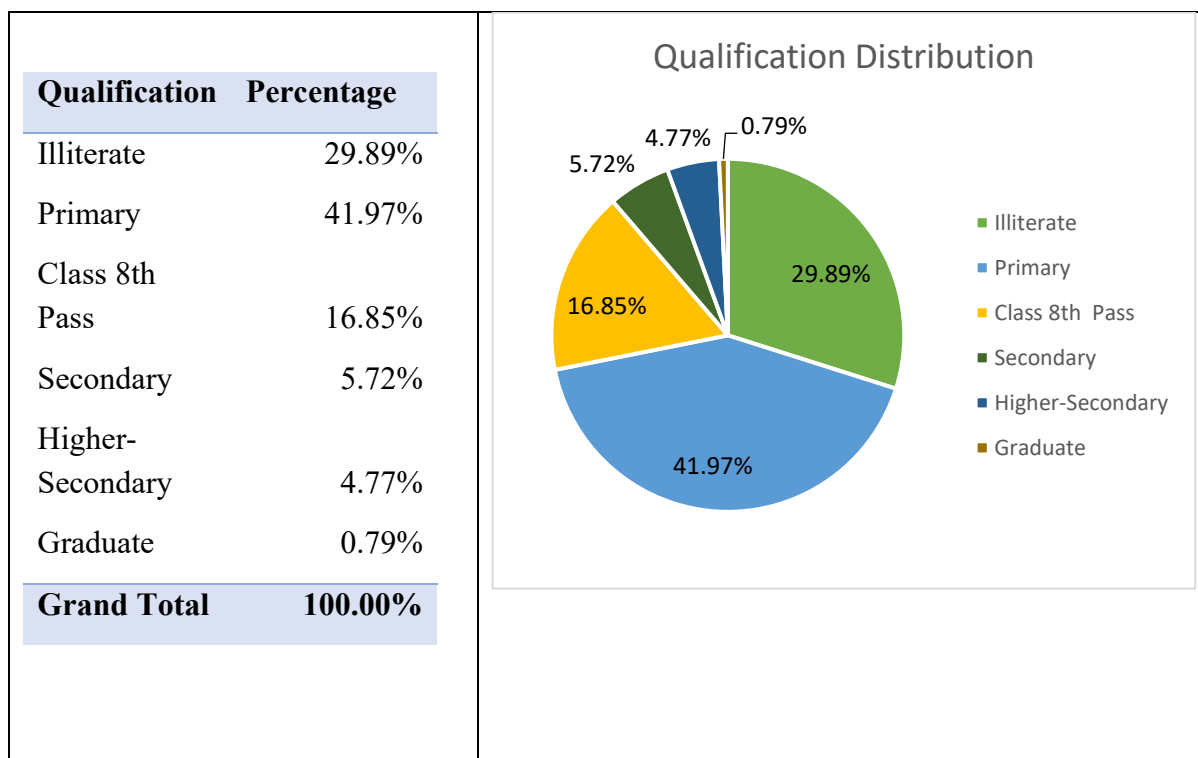


Table 2.9

Analysing from Table 2.9 we can infer that in the Basanti CD Block, South 24 Parganas, that 41.97% of the surveyed have done studies till Primary school followed by 29.89% were found to be illiterates. 16.85% belong Class 8th Pass, 5.72% have passed secondary exams, 4.77% have passed Higher-secondary exams and a mere 0.79% are graduates.

10. Data on age:

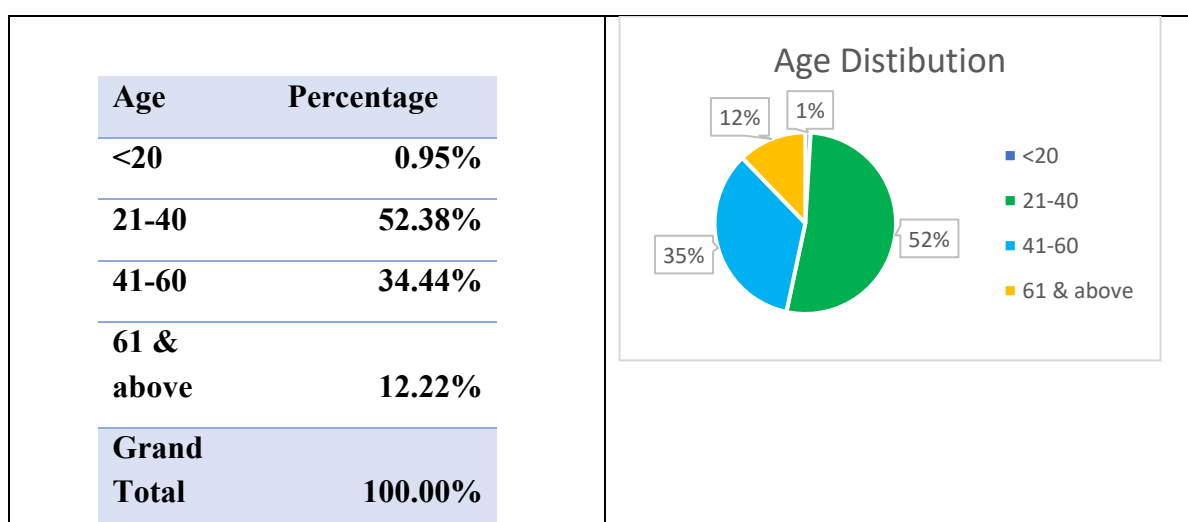


Table 2.10

Analysing the survey data, and from Table 2.10 we can infer that in the Basanti CD Block, South 24 Parganas, 0.95% comprises of up to 20 years of age, majority being 52.38% belonging

to the age group 21-40 followed by 34.44% belonging to 41-60 age group and 12.22% belongs to 61 & above.

B) Summary Report on Canning I Block, South 24 Parganas

- **Name of the CD Block:** Canning I
- **District:** South 24 Parganas
- **Actual Population:** 3,04,724 as per the Census 2011.
- **Number of families in Sample:** 668

11. Family Member Distribution:

Family member Distribution	Percentage
1-2	25.94%
3-6	70.59%
More than 6	3.47%
Grand Total	100.00%

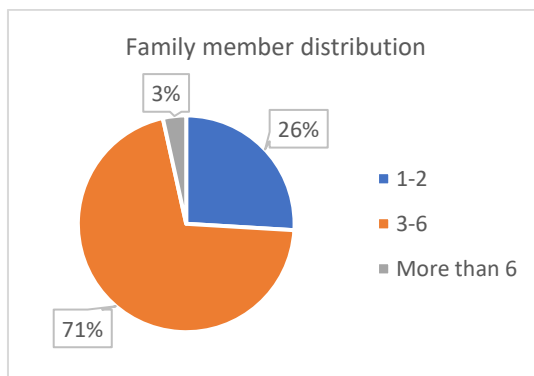


Table 3.1

Analysing the data of the surveyed families, from Table 3.1 we can infer that in the Canning I CD Block, South 24 Parganas, 25.94% of them have 1 to 2 family members at home, while majority (70.59%) of the surveyed families have 3 to 6 members at home, and 3.47% have more than 6 family members.

12. Family Income Distribution:

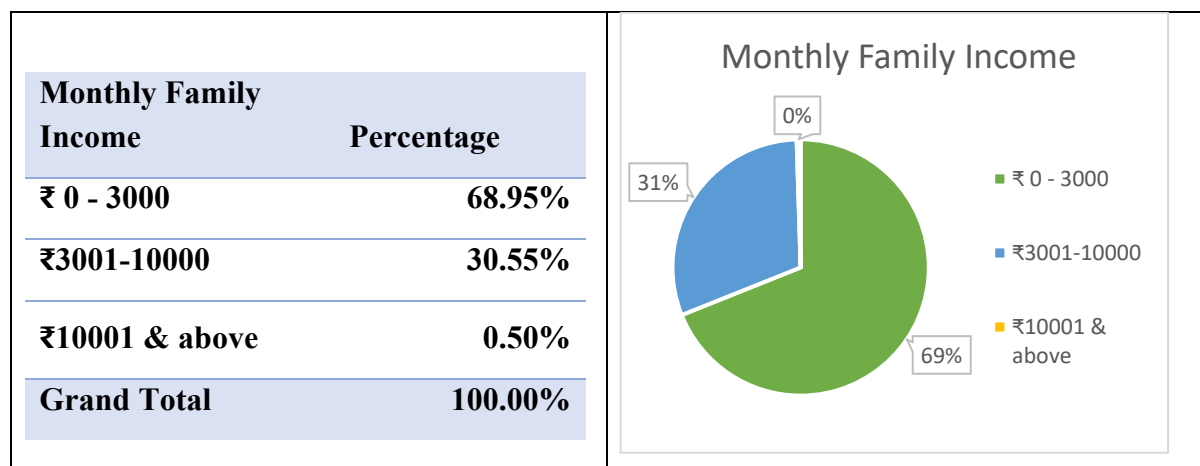


Table 3.2

Analysing the data of the surveyed families, from Table 3.2 we can infer that in the Canning I CD Block, South 24 Parganas, Monthly Family Income distribution is seen at 68.95% of the families earn around ₹0-3000, 30.55% earns from ₹3000 to ₹10,000 and 0.50% belong to ₹10,001 and above.

13. Awareness of COVID-19:

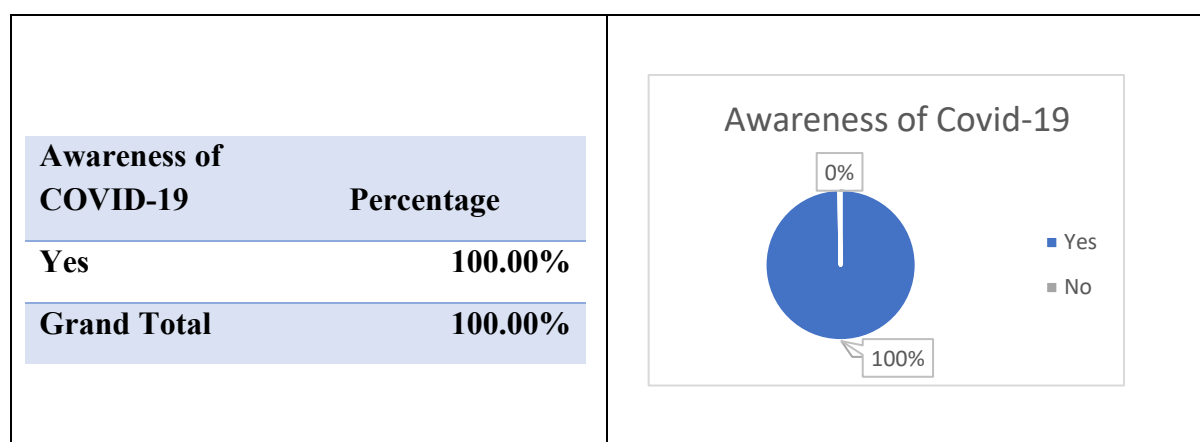


Table 3.3

Analysing the data, from Table 3.3 we can infer that in the Canning I CD Block, South 24 Parganas, awareness among the surveyed families is very high about COVID-19 pandemic.

14. Occurrence of COVID-19 Cases:

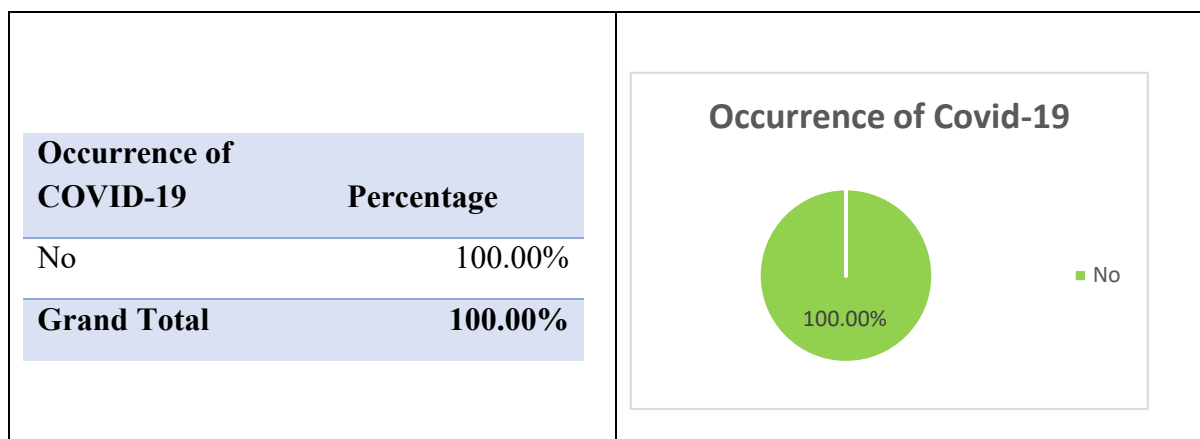


Table 3.4

Analysing the survey data, and from Table 3.4 we can infer that in the Canning I CD Block, South 24 Parganas, the response is 100% in this block were mostly not having any symptoms of covid.

15. Number of Doses of Vaccine taken:

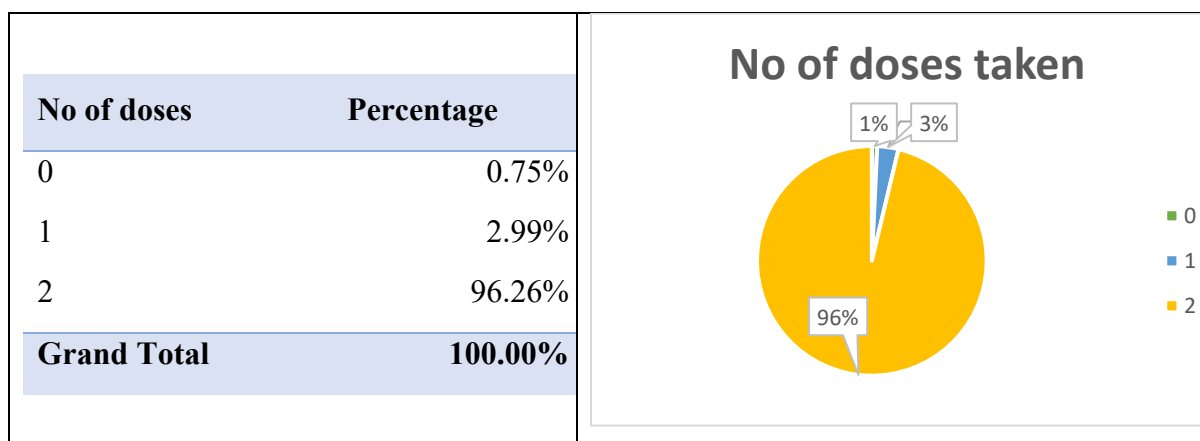


Table 3.5

Analysing the survey data, and from Table 3.5 we can infer that in the Canning I CD Block, South 24 Parganas, 96.26% of the surveyed persons took two doses of COVID-19 vaccine, 2.99% took a single dose of the vaccine and a mere 0.75% were found to have not taken any doses of the vaccine.

16. Damage in Amphan Cyclone:

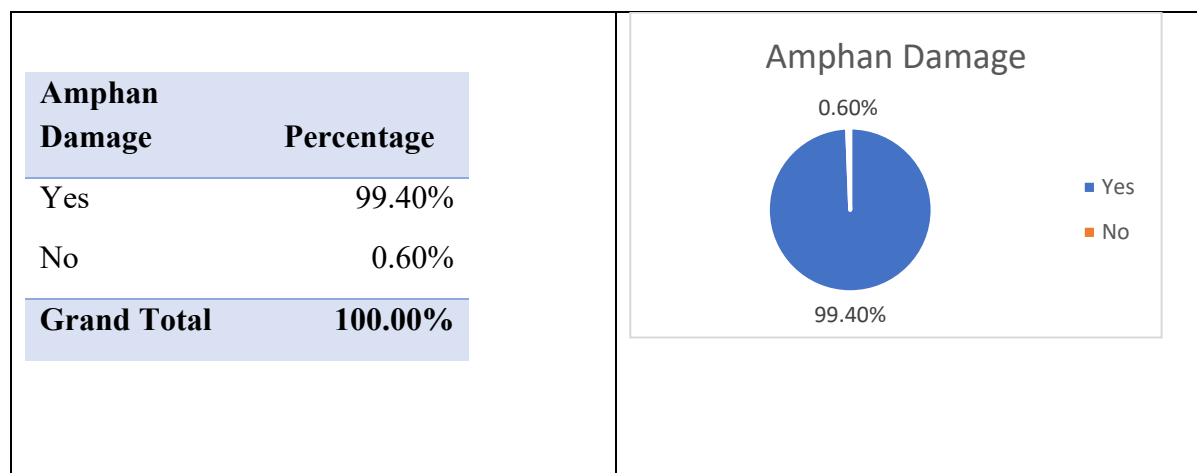


Table 3.6

Analysing the survey data, and from Table 3.6 we can infer that in the Canning I CD Block, South 24 Parganas, most of the surveyed persons (99.40%) and their families were affected by the super cyclone Amphan and combined with COVID-19 pandemic the situation turned for the worse. Houses were severely damaged, crops were destroyed, daily labourers lost their job, children from these family had to leave school and many of them were economically ruined.

17. Degree of Stress:

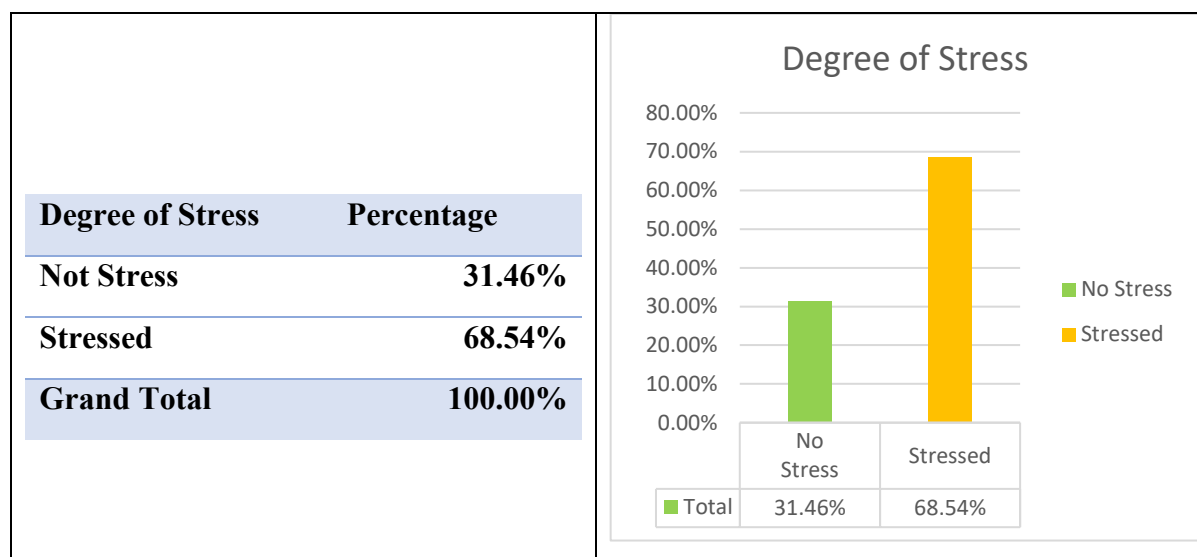


Table 3.7

Analysing the survey data from the General Health Questionnaire (GHQ-12), and from Table 3.7 we can infer that in the Canning I CD Block, South 24 Parganas, 31.46% were found not stressed but an alarming 68.54% of the surveyed people were found to be stressed. The people in this region faced the pandemic and the Amphan cyclone together and as we can see it did take a toll on their mental health.

18. Data on gender:

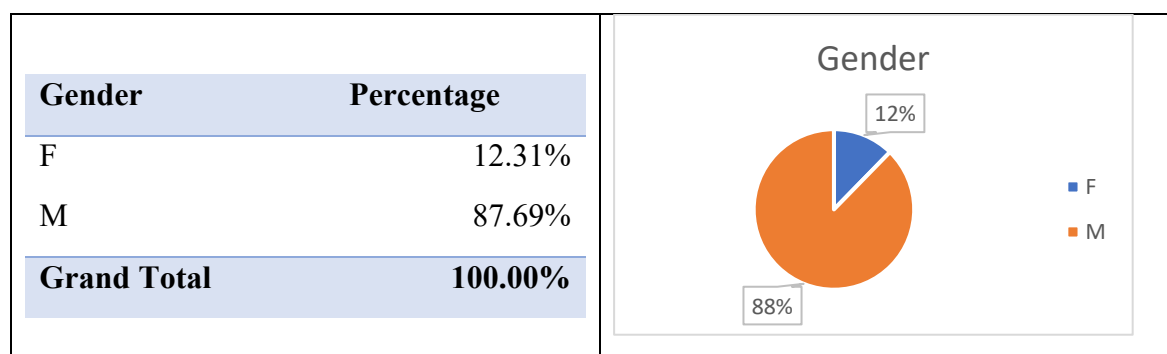


Table 3.8

Analysing the survey data, and from Table 3.8 we can infer that in the Canning I CD Block, South 24 Parganas, among the total surveyed, 12.31% are females while 87.69% are males.

19. Data on qualification:

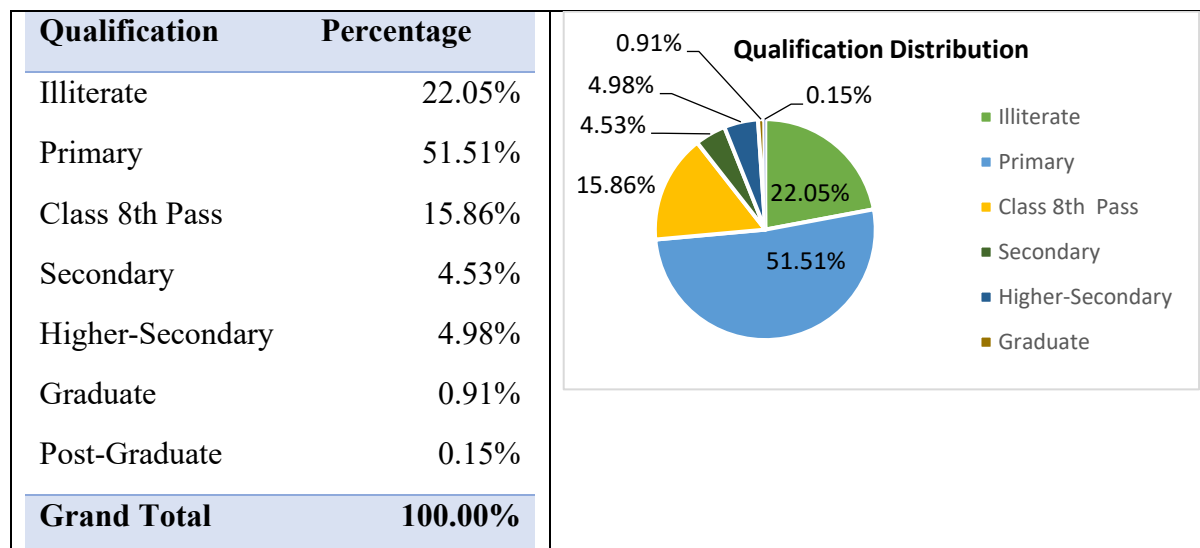


Table 3.9

Analysing from Table 3.9 we can infer that in the Canning I CD Block, South 24 Parganas, that 51.51% of the surveyed have done studies till Primary school followed by 22.05% were found to be illiterates. 15.86% belong Class 8th Pass, 4.53% have passed secondary exams, 4.55% have passed Higher-secondary exams 0.91% are graduates and 0.15% are post-graduates.

20. Data on age:

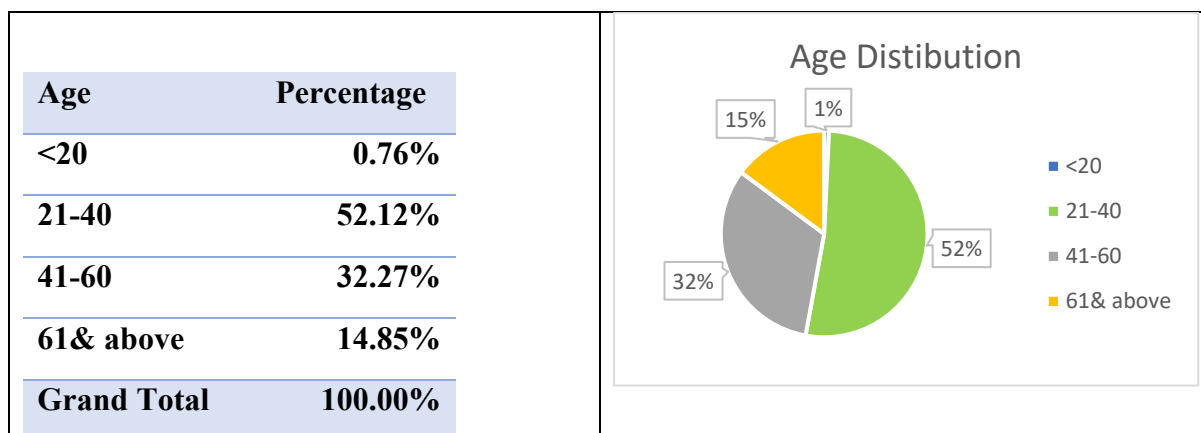


Table 3.10

Analysing the survey data, and from Table 3.10 we can infer that in the Canning I CD Block, South 24 Parganas, 0.71% comprises of up to 20 years of age, majority being 52.12% belonging to the age group 21-40 followed by 32.27% belonging to 41-60 age group and 14.85% belongs to 61 & above.

C) Summary Report on Kulpi Block, South 24 Parganas

- **Name of the CD Block:** KULPI
- **District:** South 24 Parganas
- **Actual Population:** 2,83,197 as per the Census 2011.
- **Number of families in Sample:** 63

21. Family Member Distribution:

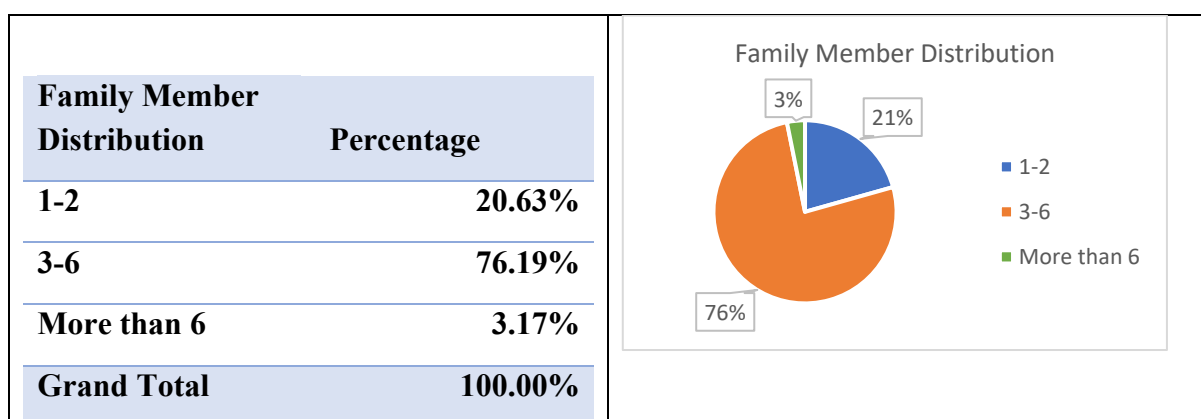


Table 4.1

Analysing the data of the surveyed families, from Table 4.1 we can infer that in the Kulpi CD Block, South 24 Parganas, 20.63% of them have 1 to 2 family members at home, while majority 76.19% of the surveyed families have 3 to 6 members at home, and 3.17% have more than 6 family members.

22. Family Income Distribution:

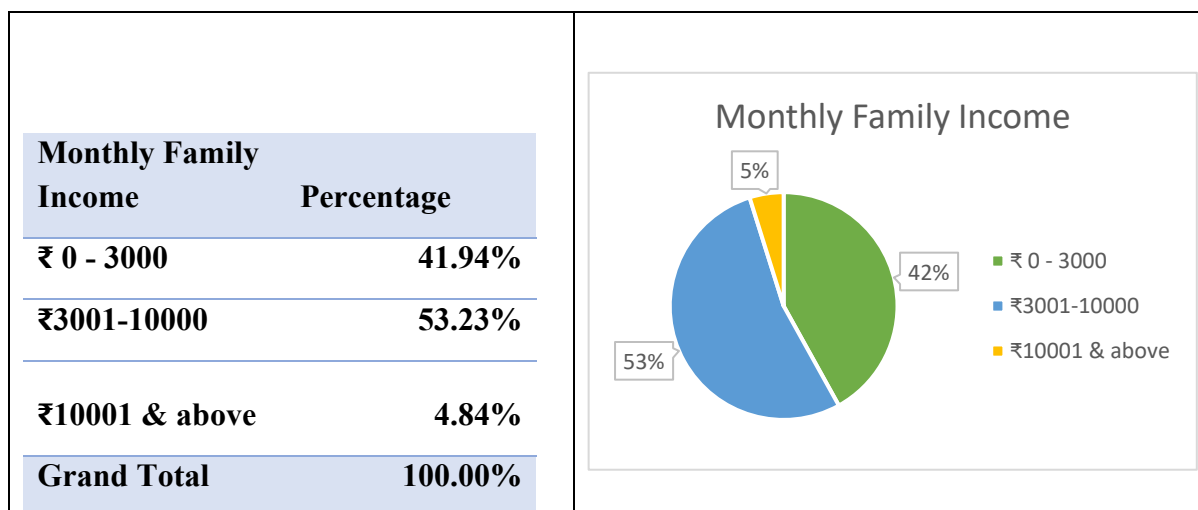


Table 4.2

Analysing the data of the surveyed families, from Table 4.2 we can infer that in the Kulpi CD Block, South 24 Parganas, Monthly Family Income distribution is seen at 41.94% of the families earn around ₹0-3000, 53.23% earns from ₹3000 to ₹10,000 and 4.84% belong to ₹10,000 and above.

23. Awareness of COVID-19:

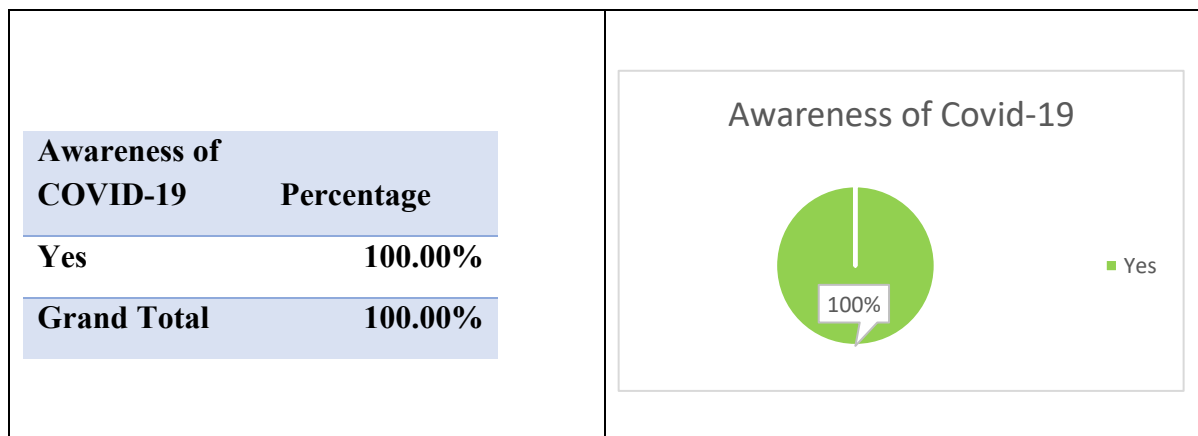


Table 4.3

Analysing the data, from Table 4.3 we can infer that in the Kulpi CD Block, South 24 Parganas, awareness among the surveyed families is very high (100%) about COVID-19 pandemic.

24. Occurrence of COVID-19 Cases:

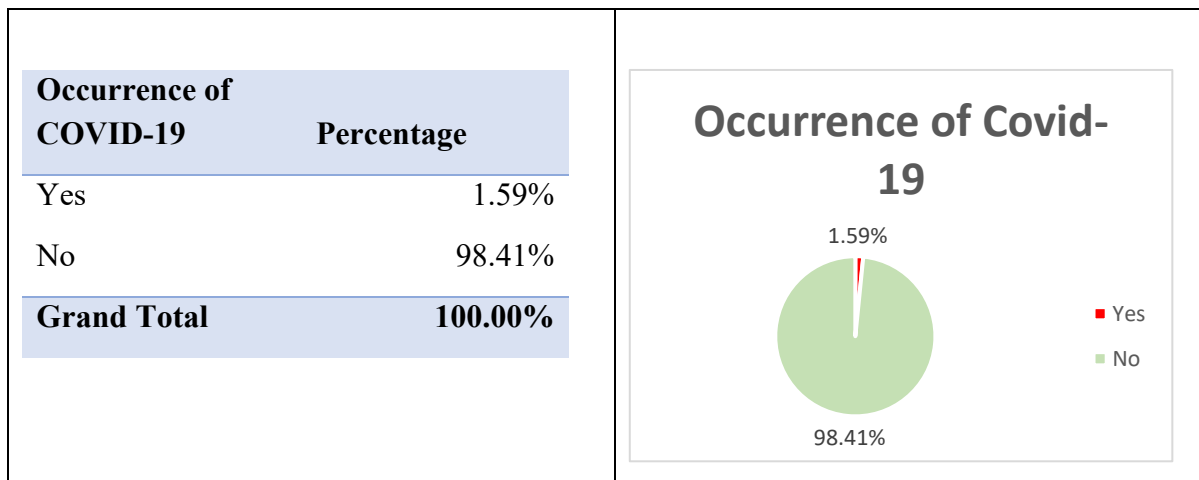


Table 4.4

Analysing the survey data, and from Table 4.4 we can infer that in the Kulpi CD Block, South 24 Parganas, only 1.59% of the surveyed persons were down with COVID-19 and most of them got to know it through COVID-19 testing and rest of the response 98.41% in this block were mostly not having any symptoms of covid.

25. Number of Doses of Vaccine taken:

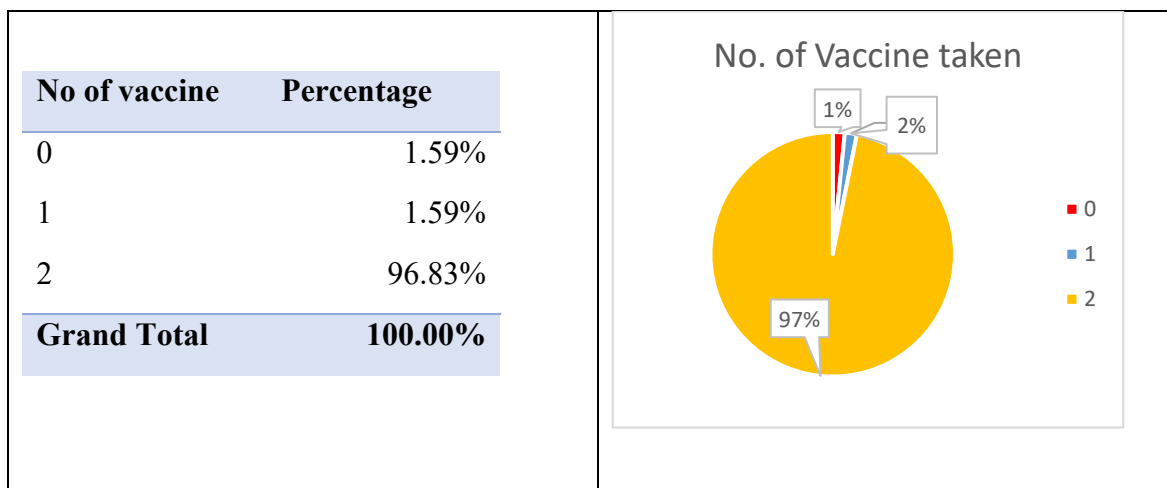


Table 4.5

Analysing the survey data, and from Table 4.5 we can infer that in the Kulpi CD Block, South 24 Parganas, 96.83% of the surveyed persons took two doses of COVID-19 vaccine, 1.59% took a single dose of the vaccine and a similar 1.59% were found to have not taken any doses of the vaccine.

26. Damage in Amphan Cyclone:

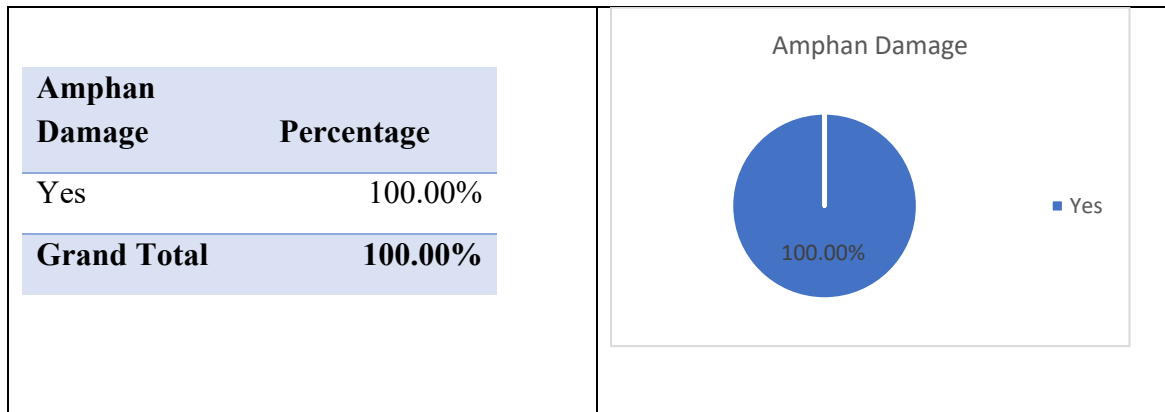


Table 4.6

Analysing the survey data, and from Table 4.6 we can infer that in the Kulpi CD Block, South 24 Parganas, all of the surveyed persons (100%) and their families were affected by the super cyclone Amphan and combined with COVID-19 pandemic the situation turned for the worse. Houses were severely damaged, crops were destroyed, daily labourers lost their job, children from these family had to leave school and many of them were economically ruined.

27. Degree of Stress:

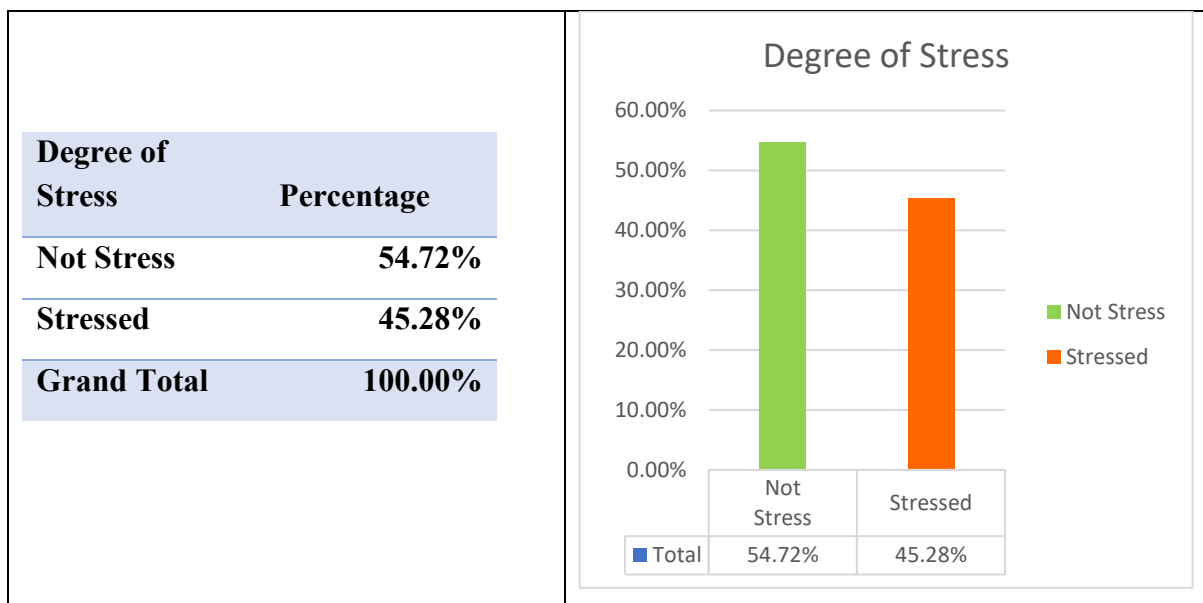


Table 4.7

Analysing the survey data from the General Health Questionnaire (GHQ-12), and from Table 4.7 we can infer that in the Kulpi CD Block, South 24 Parganas, 54.72% were found not stressed and 45.28% of the surveyed people were found to be stressed. The people in this region faced the pandemic and the Amphan cyclone together and as we can see it did take a toll on their mental health.

28. Data on gender:

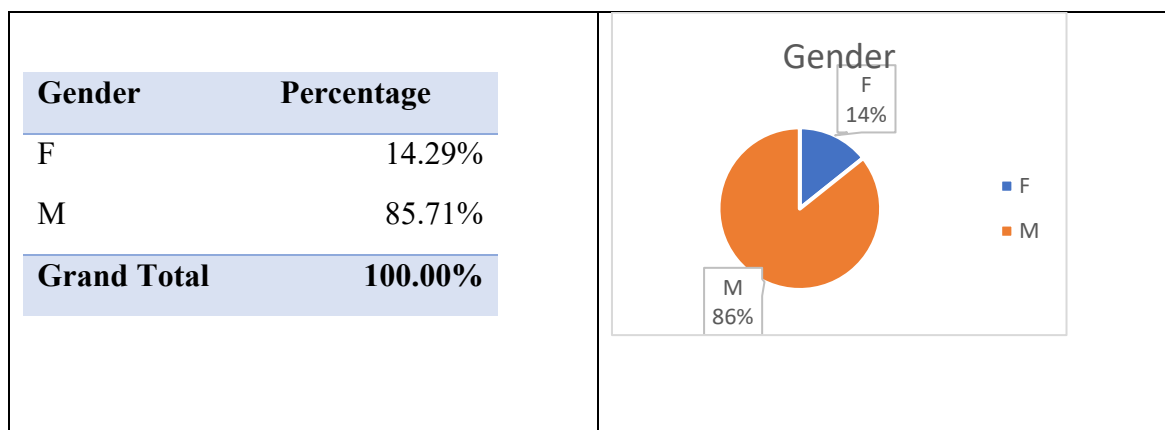


Table 4.8

Analysing the survey data, and from Table 4.8 we can infer that in the Kulpi CD Block, South 24 Parganas, among the total surveyed, 14.29% are females while 85.71% are males.

29. Data on qualification:

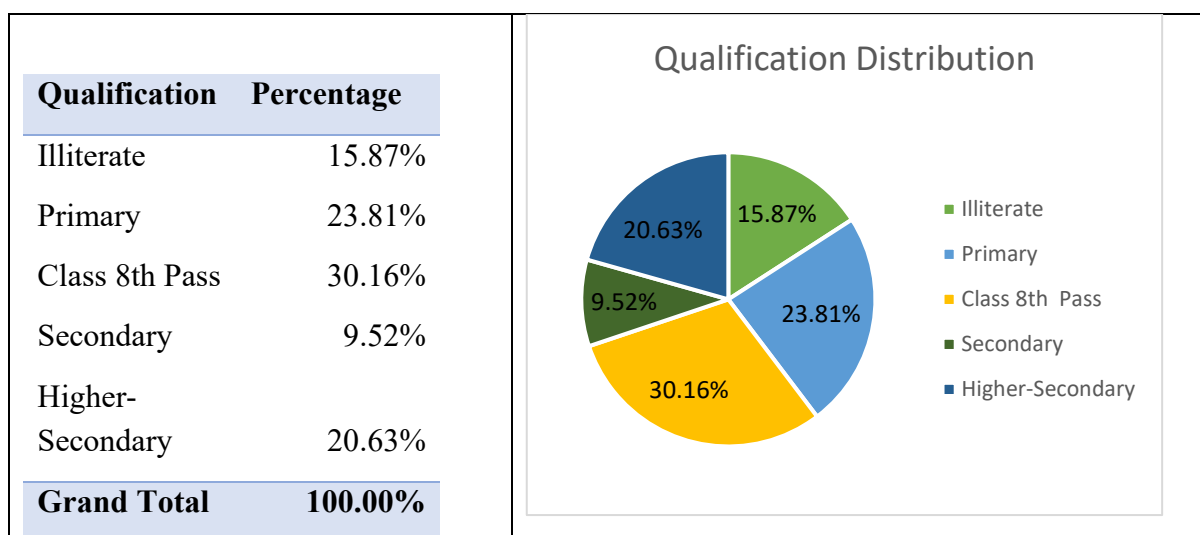


Table 4.9

Analysing from Table 4.9 we can infer that in the Kulpi CD Block, South 24 Parganas, that 23.81% of the surveyed have done studies till Primary school followed by 15.87% were found to be illiterates. 30.16% belong Class 8th Pass, 9.52% have passed secondary exams, 20.63% have passed Higher-secondary exams.

30. Data on age:

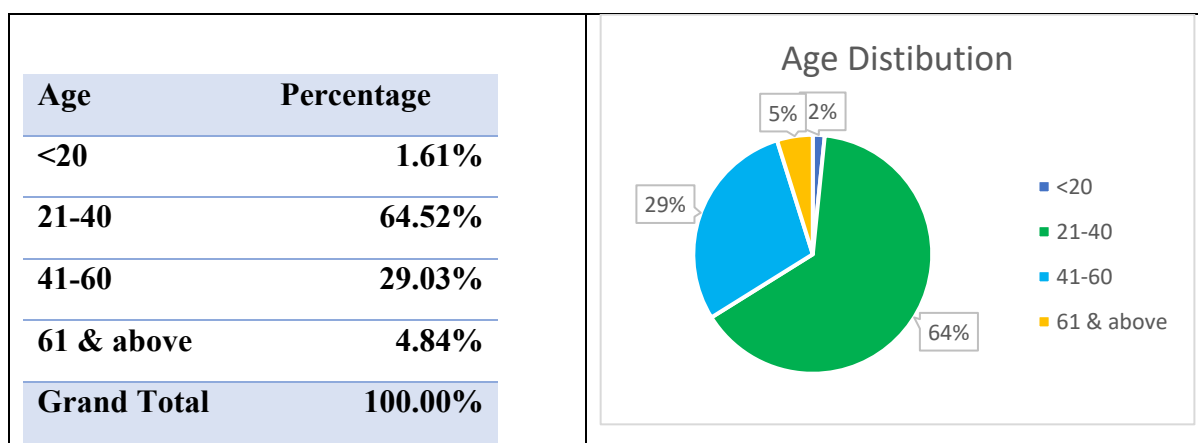


Table 4.10

Analysing the survey data, and from Table 4.10 we can infer that in the Kulpi CD Block, South 24 Parganas, 1.61% comprises of up to 20 years of age, majority being 64.52% belonging to the age group 21-40 followed by 29.03% belonging to 41-60 age group and 4.84% belongs to 61 & above.

D) Summary Report on Kultali Block, South 24 Parganas

- **Name of the CD Block:** KULTALI
- **District:** South 24 Parganas
- **Actual Population:** 2,29,053 as per the Census 2011.
- **Number of families in Sample:** 176

31. Family Member Distribution:

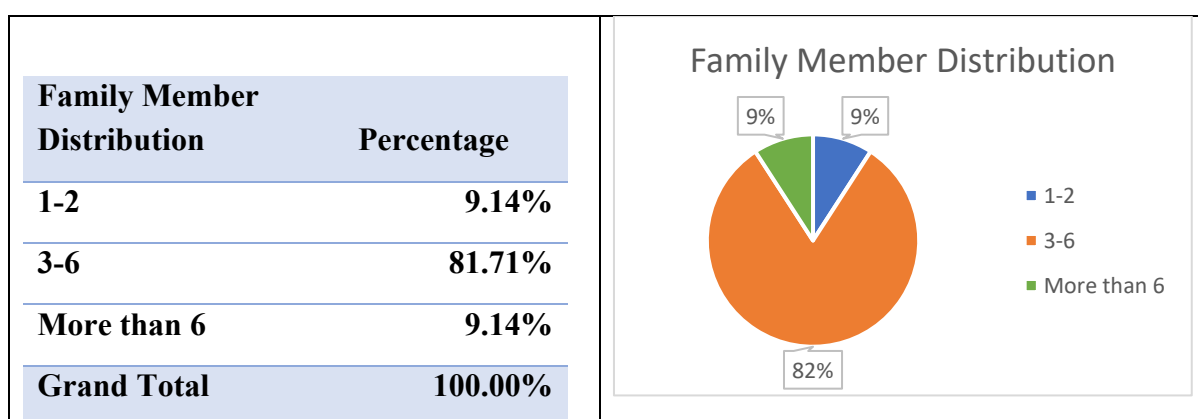


Table 5.1

Analysing the data of the surveyed families, from Table 5.1 we can infer that in the Kultali CD Block, South 24 Parganas, 9.14% of them have 1 to 2 family members at home, while majority 81.71% of the surveyed families have 3 to 6 members at home, and 9.14% have more than 6 family members.

32. Family Income Distribution:

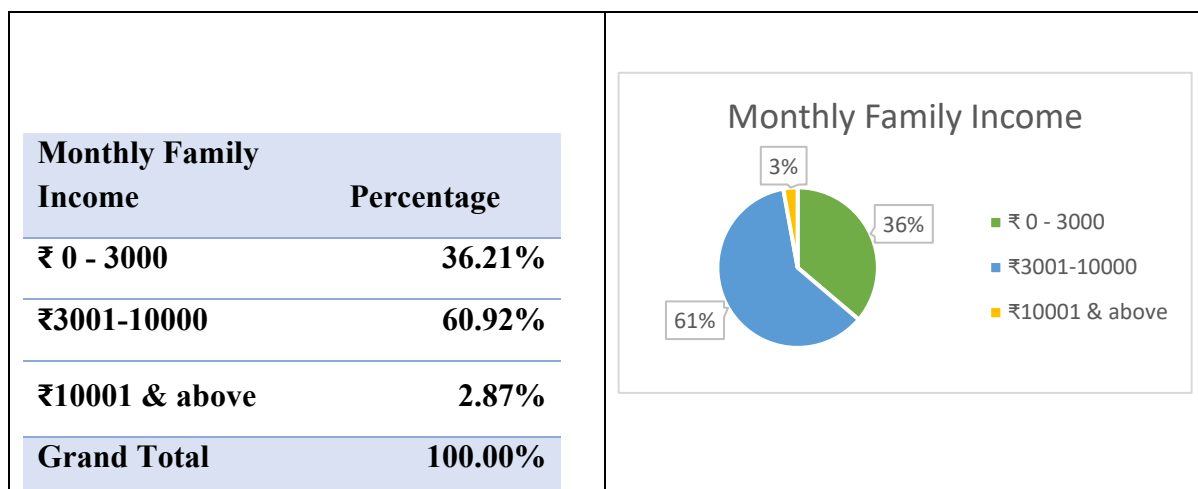


Table 5.2

Analysing the data of the surveyed families, from Table 5.2 we can infer that in the Kultali CD Block, South 24 Parganas, Monthly Family Income distribution is seen at 41.94% of the families earn around ₹0-3000, 53.23% earns from ₹3000 to ₹10,000 and 4.84% belong to ₹10,000 and above.

33. Awareness of COVID-19:

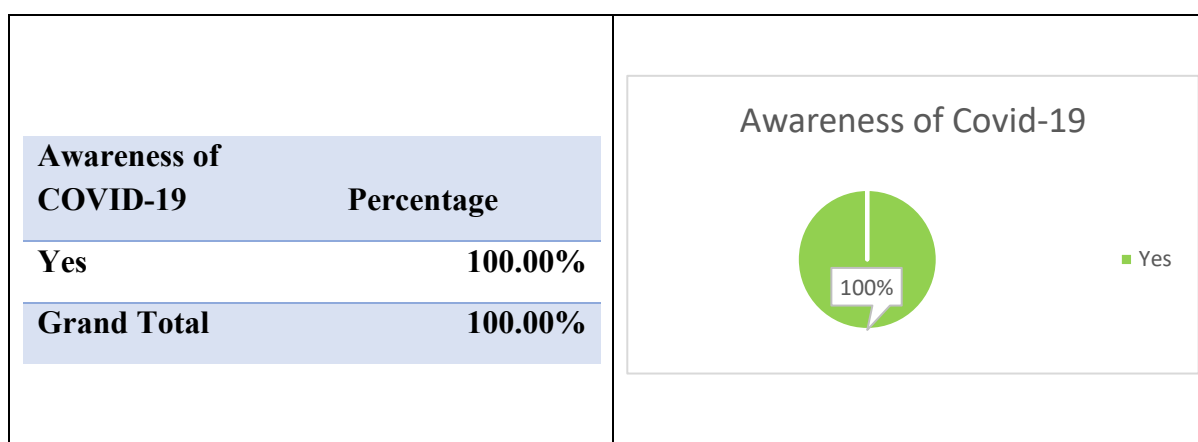


Table 5.3

Analysing the data, from Table 5.3 we can infer that in the Kultali CD Block, South 24 Parganas, awareness among the surveyed families is very high (100%) about COVID-19 pandemic.

34. Occurrence of COVID-19 Cases:

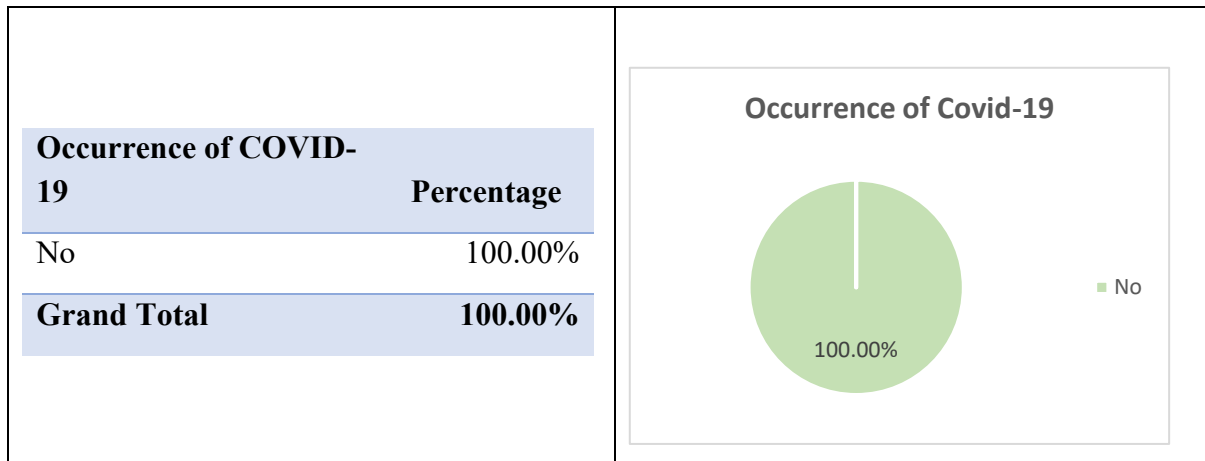


Table 5.4

Analysing the survey data, and from Table 5.4 we can infer that in the Kultali CD Block, South 24 Parganas, only 1.59% of the surveyed persons were down with COVID-19 and most of them got to know it through COVID-19 testing and rest of the response 98.41% in this block were mostly not having any symptoms of covid.

35. Number of Doses of Vaccine taken:

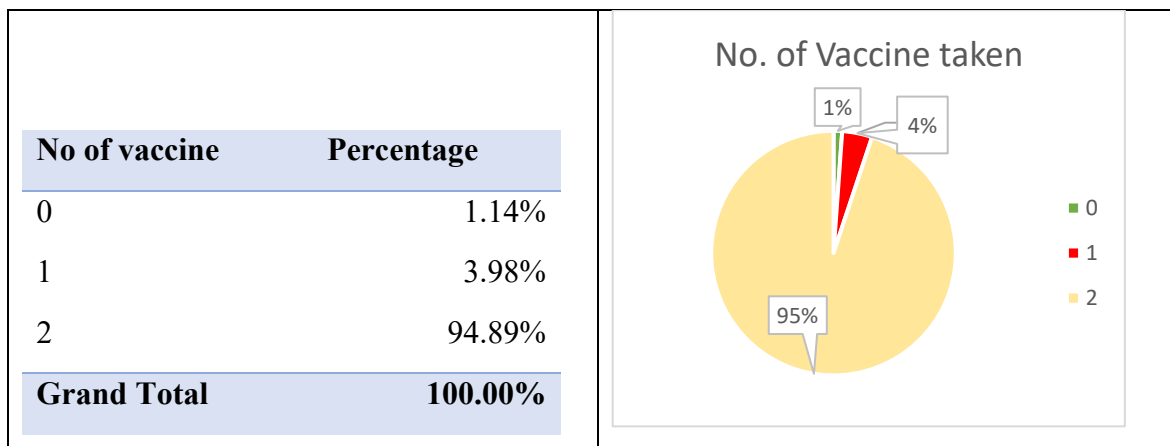


Table 5.5

Analysing the survey data, and from Table 5.5 we can infer that in the Kultali CD Block, South 24 Parganas, 96.83% of the surveyed persons took two doses of COVID-19 vaccine, 1.59% took a single dose of the vaccine and a similar 1.59% were found to have not taken any doses of the vaccine.

36. Damage in Amphan Cyclone:

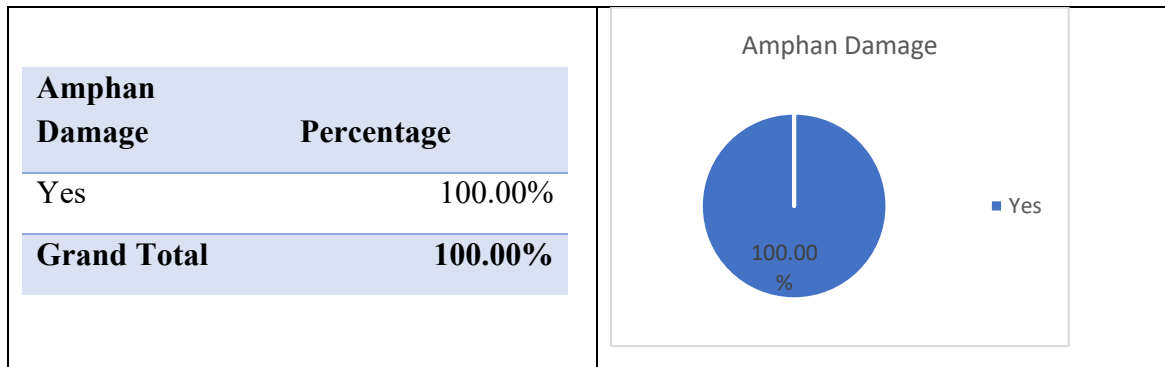


Table 5.6

Analysing the survey data, and from Table 5.6 we can infer that in the Kultali CD Block, South 24 Parganas, all of the surveyed persons (100%) and their families were affected by the super cyclone Amphan and combined with COVID-19 pandemic the situation turned for the worse. Houses were severely damaged, crops were destroyed, daily labourers lost their job, children from these family had to leave school and many of them were economically ruined.

37. Degree of Stress:

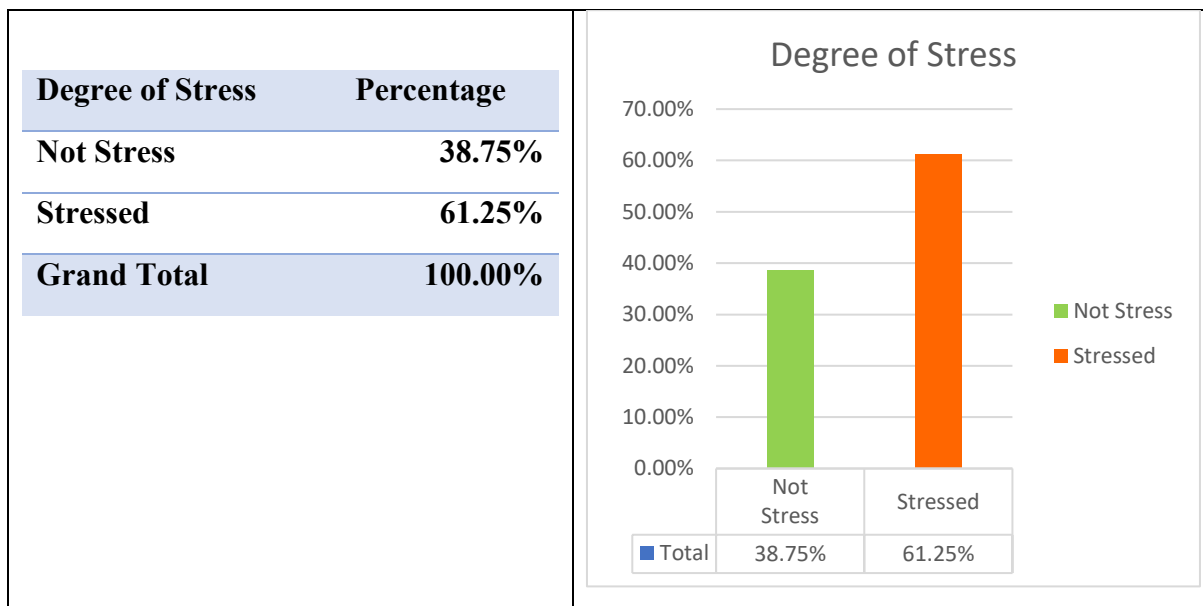


Table 5.7

Analysing the survey data from the General Health Questionnaire (GHQ-12), and from Table 5.7 we can infer that in the Kultali CD Block, South 24 Parganas, 38.75% were found not stressed and 61.25% of the surveyed people were found to be stressed. The people in this region faced the pandemic and the Amphan cyclone together and as we can see it did take a toll on their mental health.

38. Data on gender:

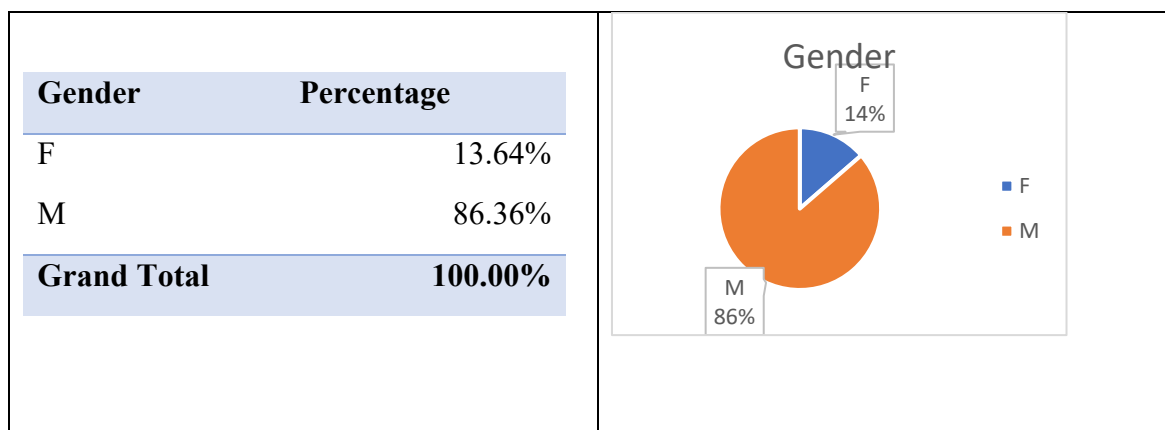


Table 5.8

Analysing the survey data, and from Table 5.8 we can infer that in the Kultali CD Block, South 24 Parganas, among the total surveyed, 14.29% are females while 85.71% are males.

39. Data on qualification:

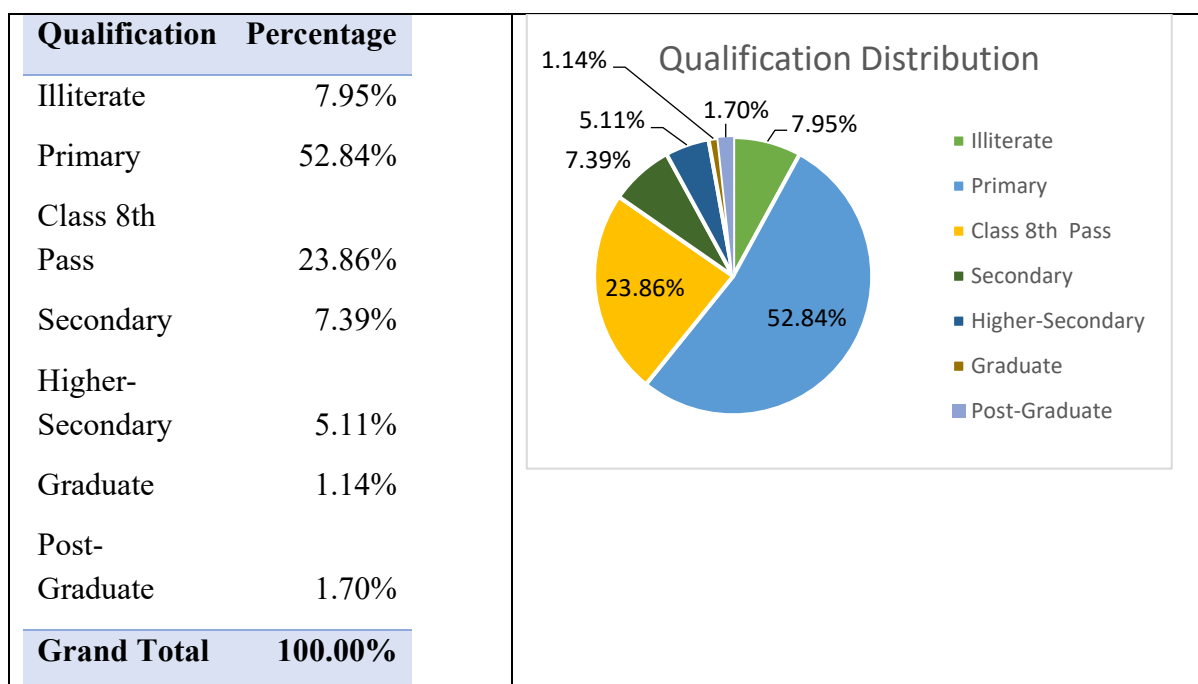


Table 5.9

Analysing from Table 5.9 we can infer that in the Kultali CD Block, South 24 Parganas, that 52.84% of the surveyed have done studies till Primary school followed by 7.95% were found to be illiterates. 23.86% belong Class 8th Pass, 7.39% have passed secondary exams, 5.11% have passed Higher-secondary exams, 1.14% are graduates and 1.70% are post graduates holder.

40. Data on age:

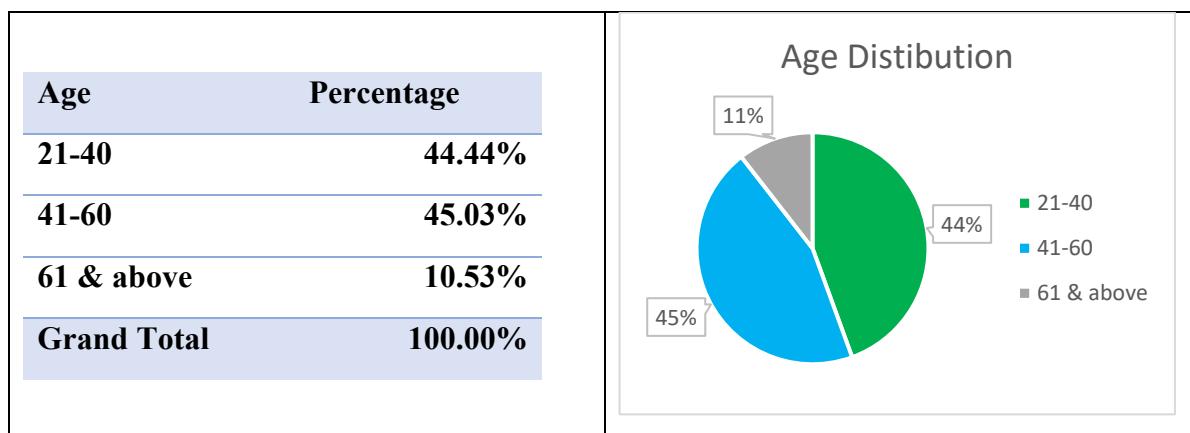


Table 5.10

Analysing the survey data, and from Table 5.10 we can infer that in the Kultali CD Block, South 24 Parganas, 0% comprises of up to 20 years of age, 44.44% belonging to the age group 21-40 followed by 45.03% belonging to 41-60 age group and 10.53% belongs to 61 & above.

E) Summary Report on Magrahat - I Block, South 24 Parganas

- **Name of the CD Block:** MAGRAHAT - I
- **District:** South 24 Parganas
- **Actual Population:** 3,04,744 as per the Census 2011.
- **Number of families in Sample:** 39

41. Family Member Distribution:

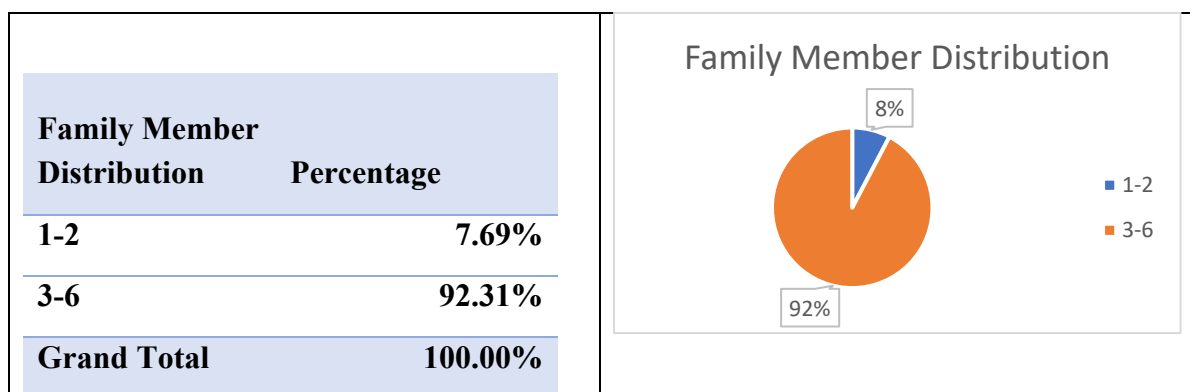


Table 6.1

Analysing the data of the surveyed families, from Table 6.1 we can infer that in the Magrahat - I CD Block, South 24 Parganas, 7.69% of them have 1 to 2 family members at home, while majority 92.31% of the surveyed families have 3 to 6 members at home.

42. Family Income Distribution:

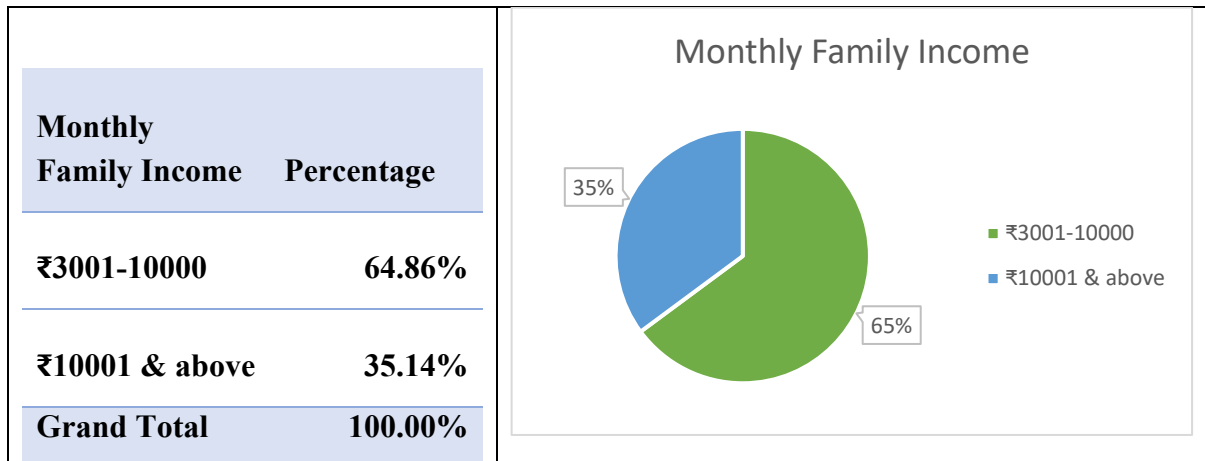


Table 6.2

Analysing the data of the surveyed families, from Table 6.2 we have found that in the Magrahat - I CD Block, South 24 Parganas, Monthly Family Income distribution is seen at 64.86% earns from ₹3000 to ₹10,000 and 35.14% belong to ₹10,000 and above.

43. Awareness of COVID-19:

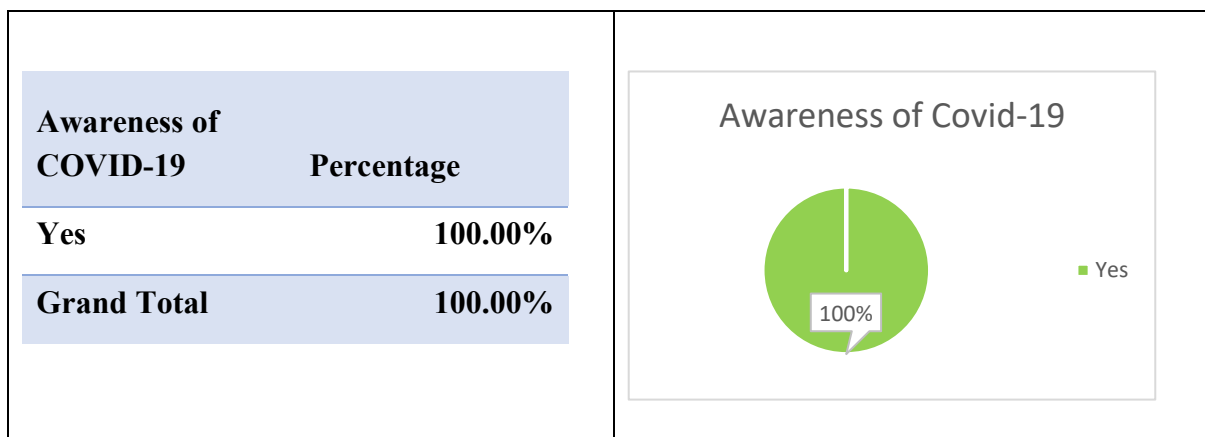


Table 6.3

Analysing the data, from Table 6.3 we can infer that in the Magrahat - I CD Block, South 24 Parganas, awareness among the surveyed families is very high (100%) about COVID-19 pandemic.

44. Occurrence of COVID-19 Cases:

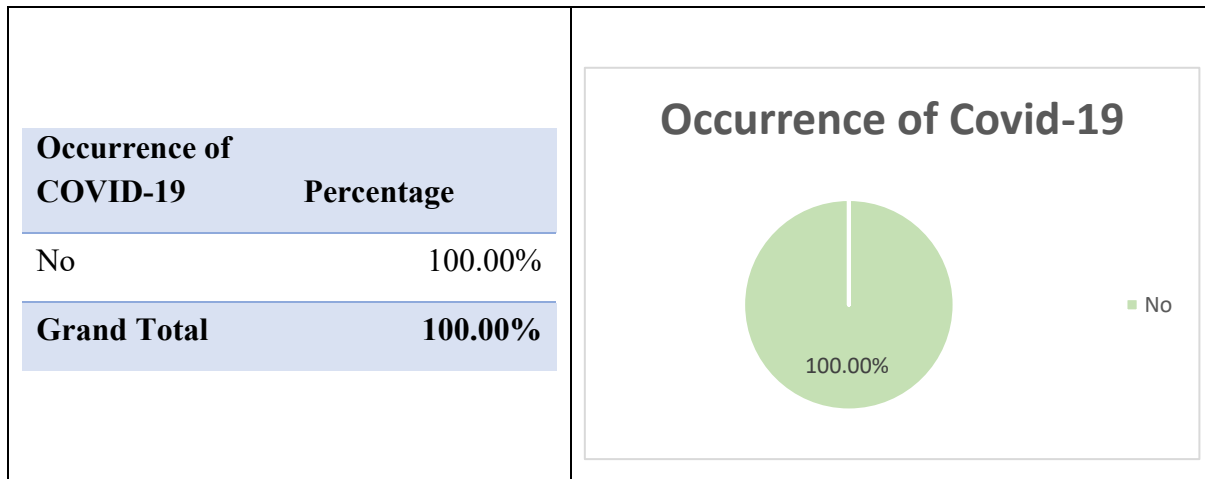


Table 6.4

Analysing the survey data, and from Table 6.4 we can infer that in the Magrahat - I CD Block, South 24 Parganas, none of the surveyed persons were down with COVID-19 .

45. Number of Doses of Vaccine taken:

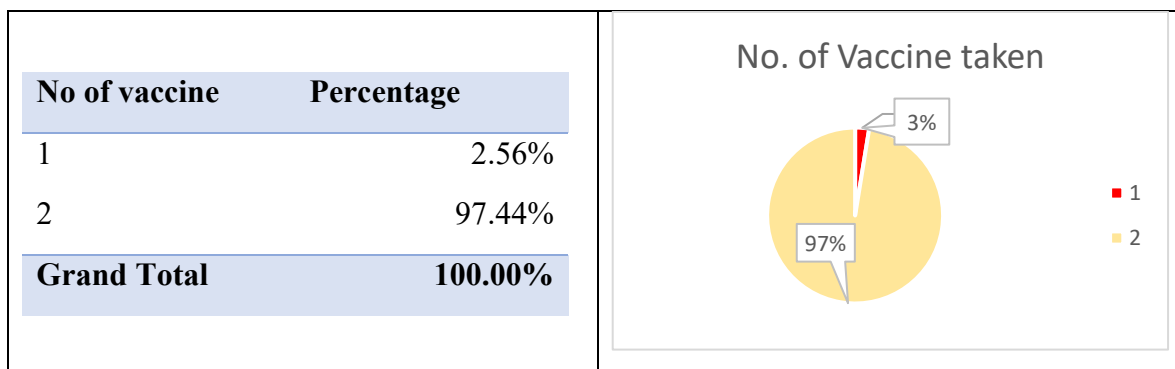


Table 6.5

Analysing the survey data, and from Table 6.5 we can infer that in the Magrahat - I CD Block, South 24 Parganas, 97.44% of the surveyed persons took two doses of COVID-19 vaccine, 2.56% took a single dose of the vaccine.

46. Damage in Amphan Cyclone:

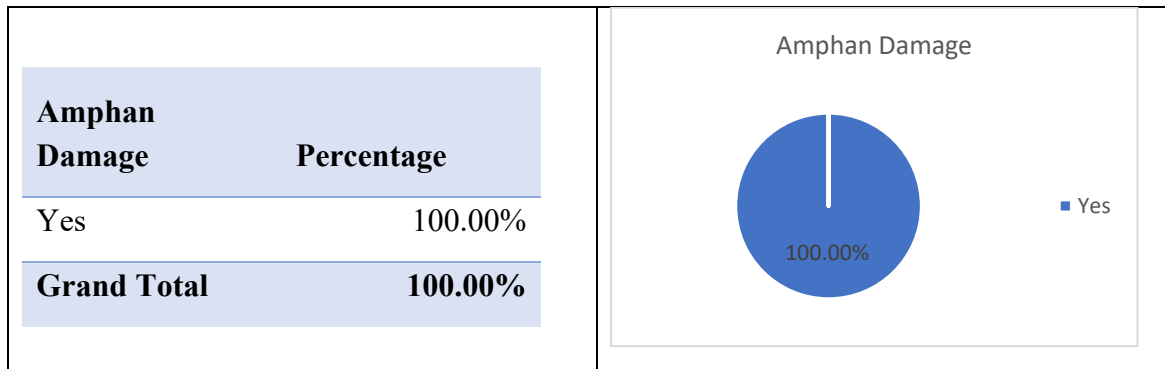


Table 6.6

Analysing the survey data, and from Table 6.6 we can infer that in the Magrahat - I CD Block, South 24 Parganas, all of the surveyed persons and their families were affected by the super cyclone Amphan and combined with COVID-19 pandemic the situation turned for the worse. Houses were severely damaged, crops were destroyed, daily labourers lost their job, children from these family had to leave school and many of them were economically ruined.

47. Degree of Stress:

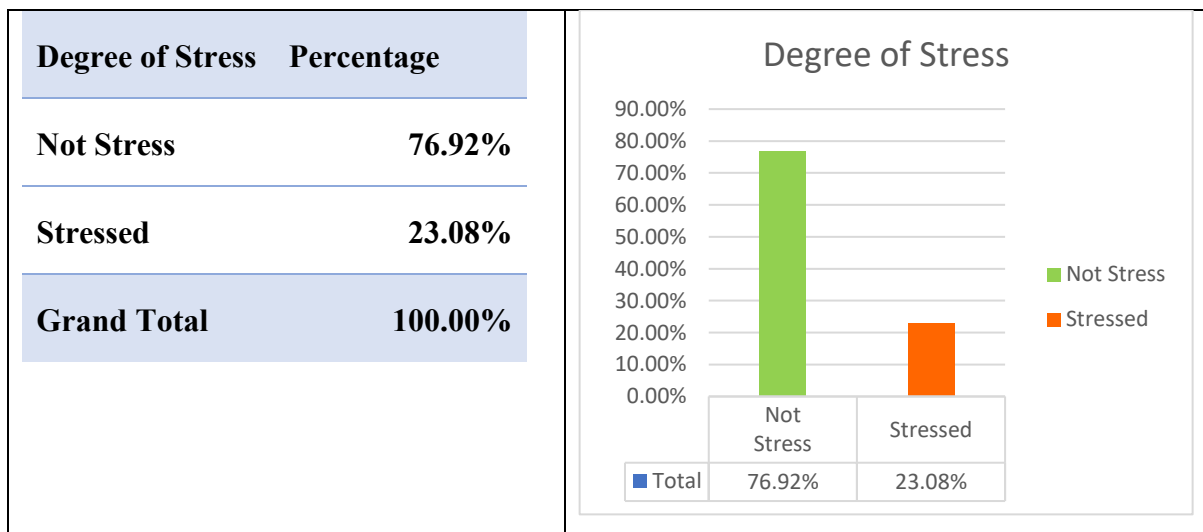


Table 6.7

Analysing the survey data from the General Health Questionnaire (GHQ-12), and from Table 6.7 we can infer that in the Magrahat - I CD Block, South 24 Parganas, 76.92% were found not stressed and 23.08% of the surveyed people were found to be stressed. The people in this region faced the pandemic and the Amphan cyclone together and as we can see it did take a toll on their mental health.

48. Data on gender:

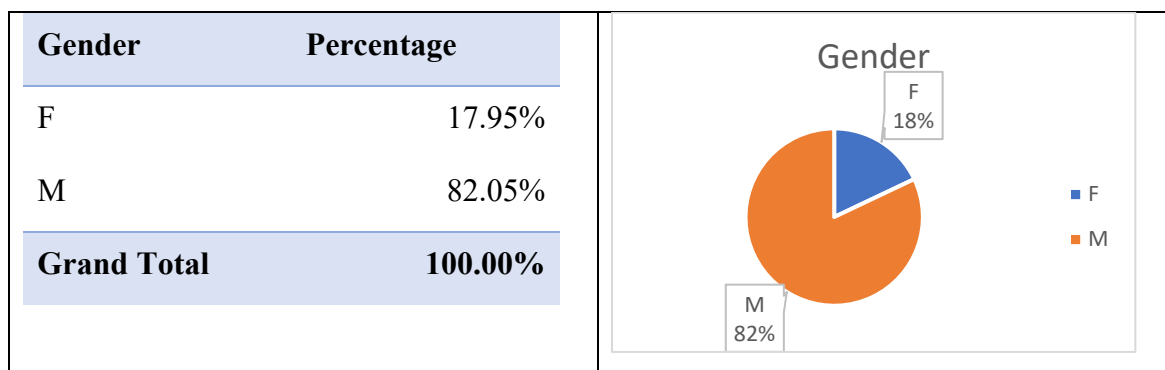


Table 6.8

Analysing the survey data, and from Table 6.8 we can infer that in the Magrahat - I CD Block, South 24 Parganas, among the total surveyed, 17.95% are females while 82.05% are males.

49. Data on qualification:

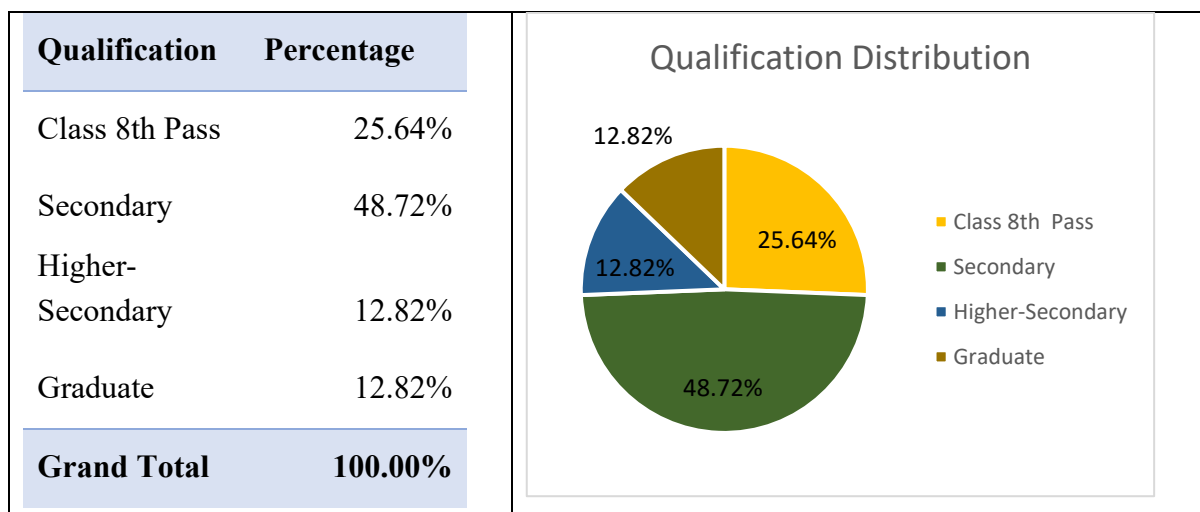


Table 6.9

Analysing from Table 6.9 we can infer that in the Magrahat - I CD Block, South 24 Parganas, that 25.64% belong Class 8th Pass, 48.72% have passed secondary exams, 12.82% have passed Higher-secondary exams, 12.82% are graduates.

50. Data on age:

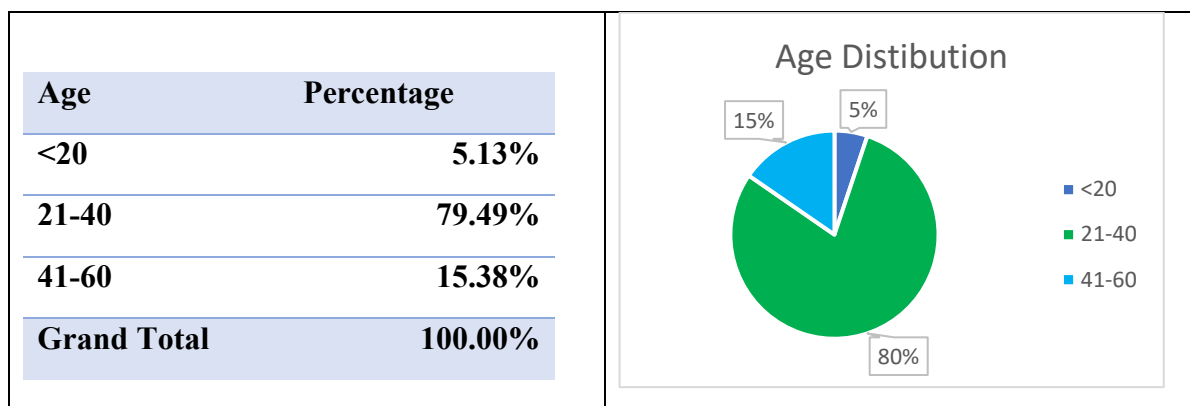


Table 6.10

Analysing the survey data, and from Table 6.10 we can infer that in the Magrahat - I CD Block, South 24 Parganas, 0.80% comprises of up to 20 years of age, 62.40% belonging to the age group 21-40 followed by 28.880% belonging to 41-60 age group and 8.00% belongs to 61 & above.

F) Summary Report on Mandirbazar Block, South 24 Parganas

- **Name of the CD Block:** Mandirbazar
- **District:** South 24 Parganas
- **Actual Population:** 2,14,050 as per the Census 2011.
- **Number of families in Sample:** 209

51. Family Member Distribution:

Family Member Distribution	Percentage
1-2	5.29%
3-6	76.92%
More than 6	17.79%
Grand Total	100.00%

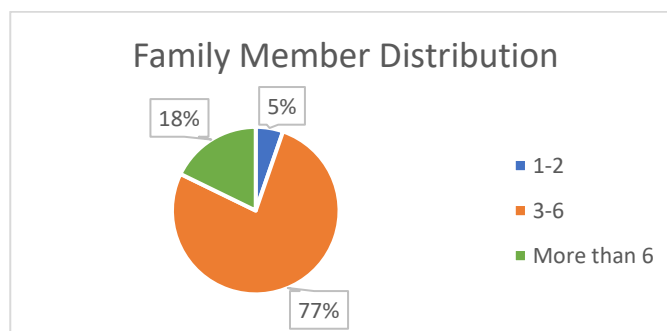


Table 7.1

Analysing the data of the surveyed families, from Table 7.1 we can infer that in the Mandirbazar CD Block, South 24 Parganas, 5.29% of them have 1 to 2 family members at home, while majority (76.92%) of the surveyed families have 3 to 6 members at home, and 17.79% have more than 6 family members.

52. Family Income Distribution:

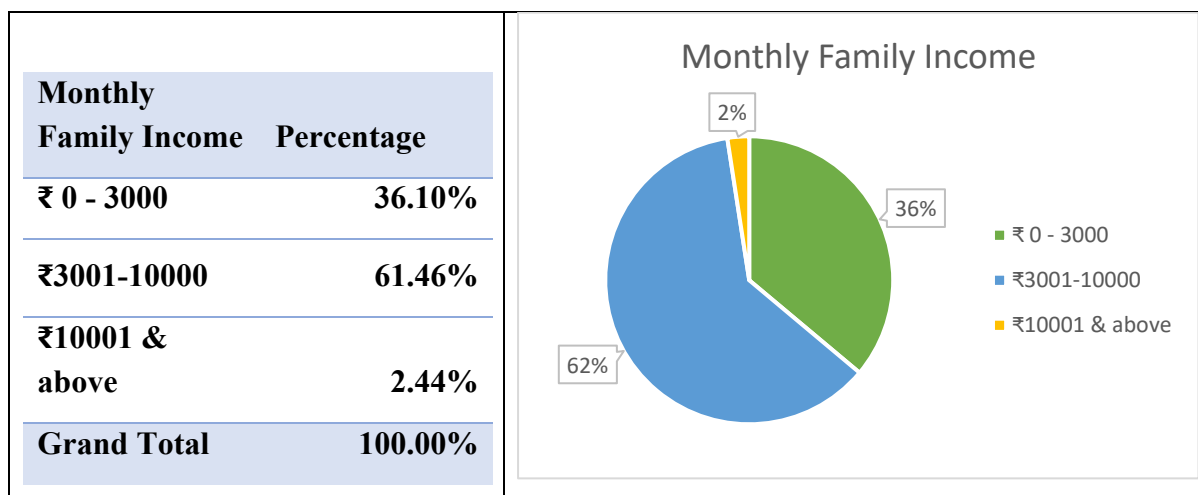


Table 7.2

Analysing the data of the surveyed families, from Table 7.2 we can infer that in the Mandirbazar CD Block, South 24 Parganas, Monthly Family Income distribution is seen at 36.10 % of the families earn around ₹0-3000, 61.46% earns from ₹3000 to ₹10,000 and 2.44% belong to ₹10,001 and above.

53. Awareness of COVID-19:

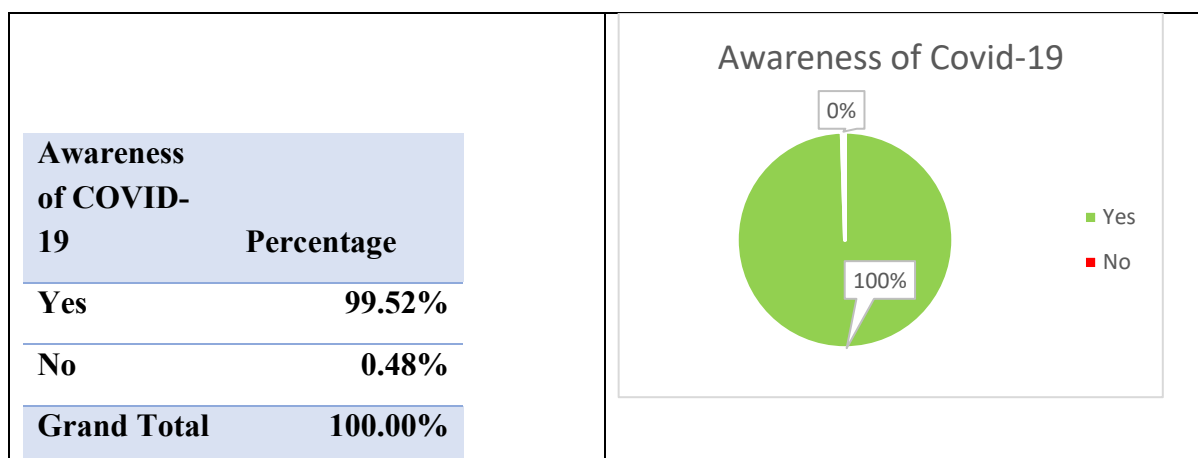


Table 7.3

Analysing the data, from Table 7.3 we can infer that in the Mandirbazar CD Block, South 24 Parganas, awareness among the surveyed families is very high 99.52% about COVID-19 pandemic.

54. Occurrence of COVID-19 Cases:

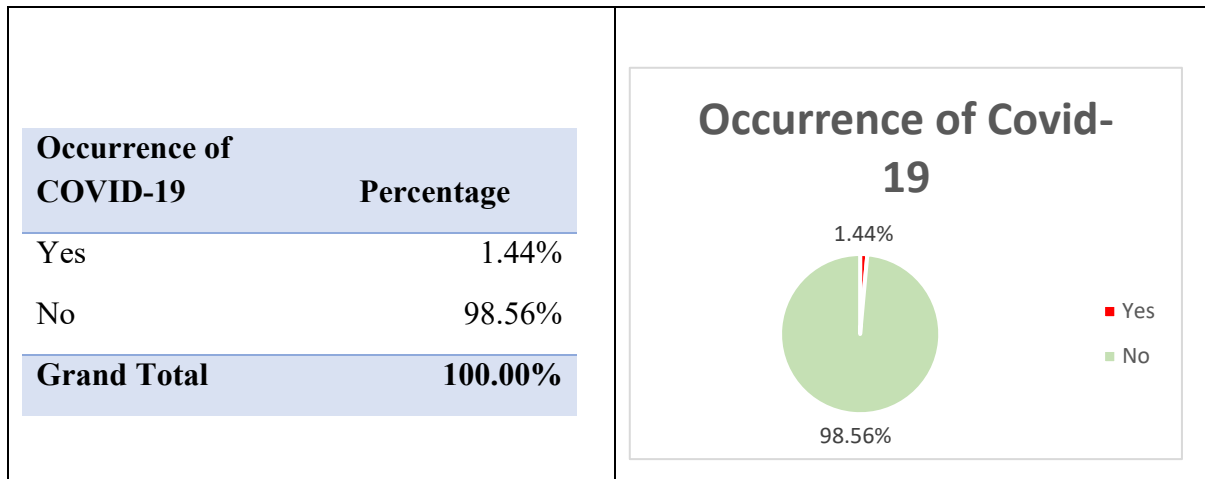


Table 7.4

Analysing the survey data, and from Table 7.4 we can infer that in the Mandirbazar CD Block, South 24 Parganas, the response is 98.56% in this block were mostly not having any symptoms of covid.

55. Number of Doses of Vaccine taken:

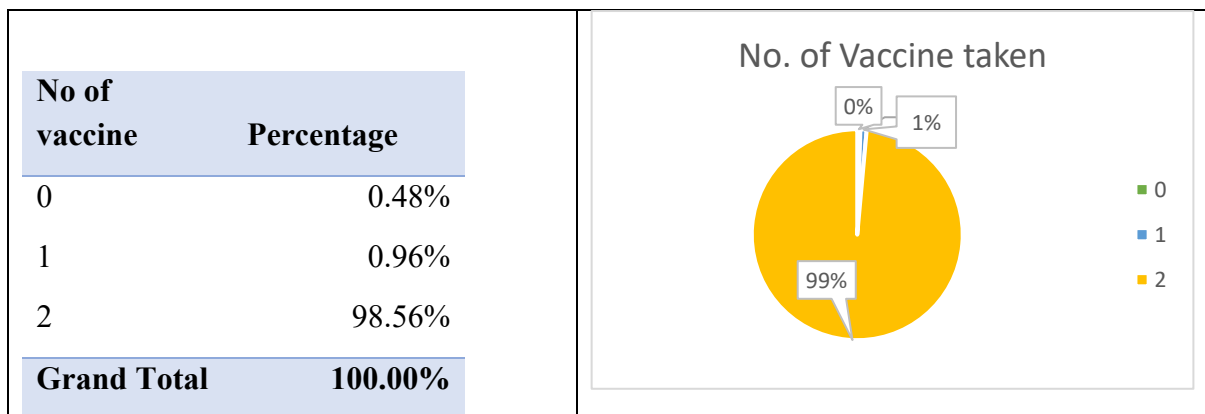


Table 7.5

Analysing the survey data, and from Table 7.5 we can infer that in the Mandirbazar CD Block, South 24 Parganas, 98.56% of the surveyed persons took two doses of COVID-19 vaccine, 0.96% took a single dose of the vaccine and a mere 0.48% were found to have not taken any doses of the vaccine.

56. Damage in Amphan Cyclone:

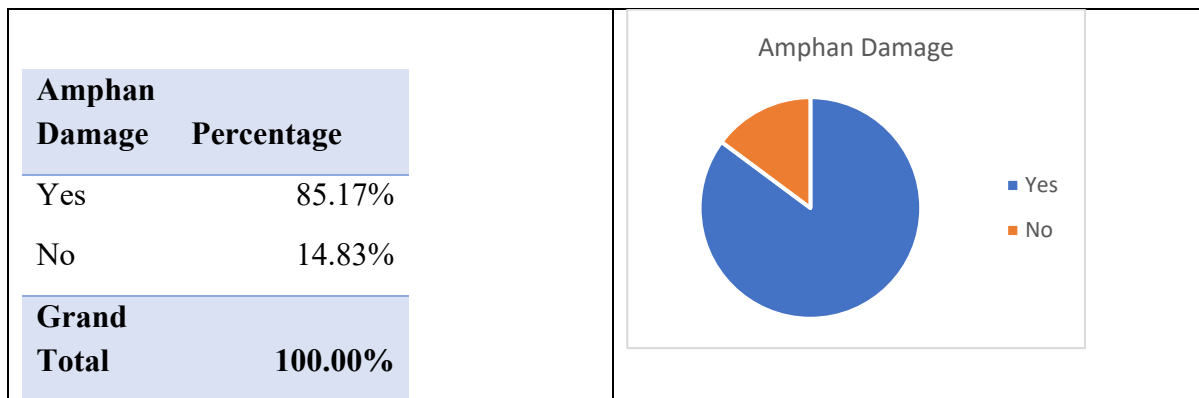


Table 7.6

Analysing the survey data, and from Table 7.6 we can infer that in the Mandirbazar CD Block, South 24 Parganas, most of the surveyed persons (85.17%) and their families were affected by the super cyclone Amphan and combined with COVID-19 pandemic the situation turned for the worse. Houses were severely damaged, crops were destroyed, daily labourers lost their job, children from these family had to leave school and many of them were economically ruined.

57. Degree of Stress:

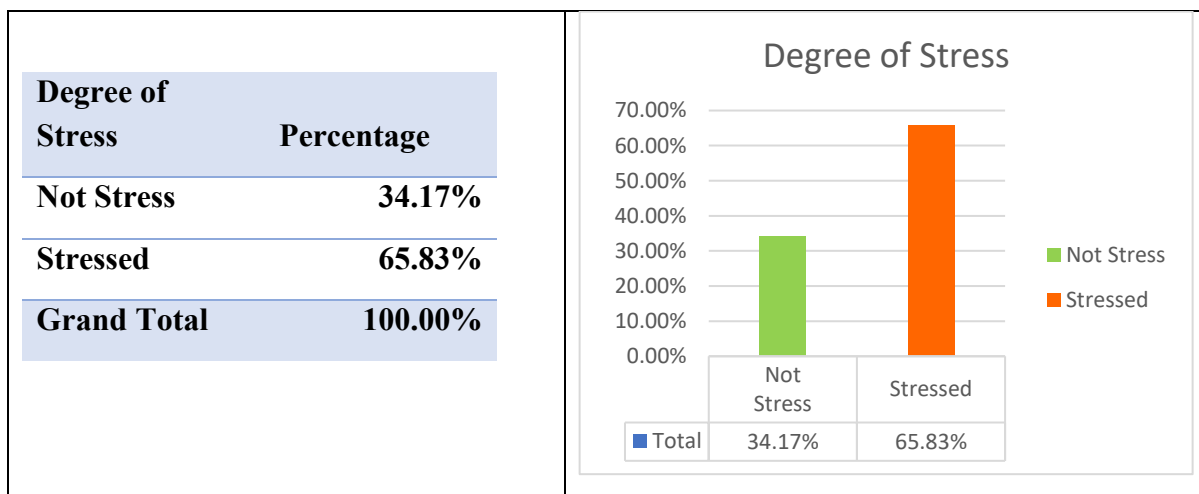


Table 7.7

Analysing the survey data from the General Health Questionnaire (GHQ-12), and from Table 7.7 we can infer that in the Mandirbazar CD Block, South 24 Parganas, 34.17% were found not stressed but an alarming 65.83% of the surveyed people were found to be stressed. The people in this region faced the pandemic and the Amphan cyclone together and as we can see it did take a toll on their mental health.

58. Data on gender:

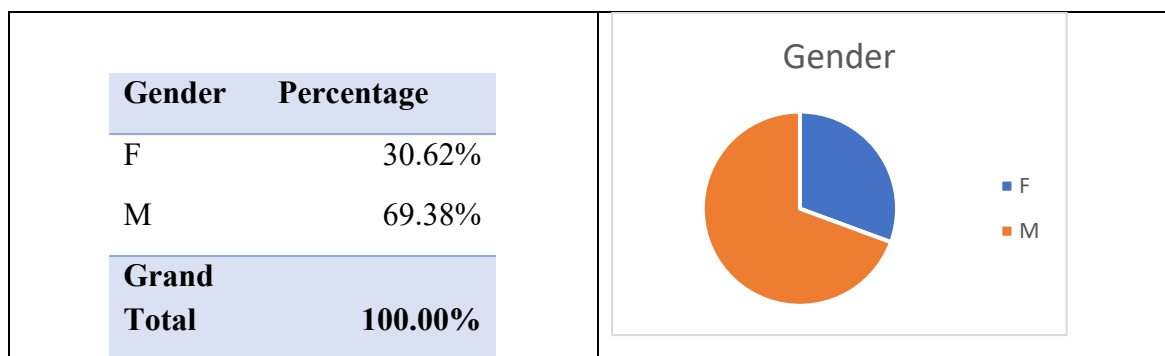


Table 7.8

Analysing the survey data, and from Table 7.8 we can infer that in the Mandirbazar CD Block, South 24 Parganas, among the total surveyed, 30.62% are females while 69.38% are males.

59. Data on qualification:

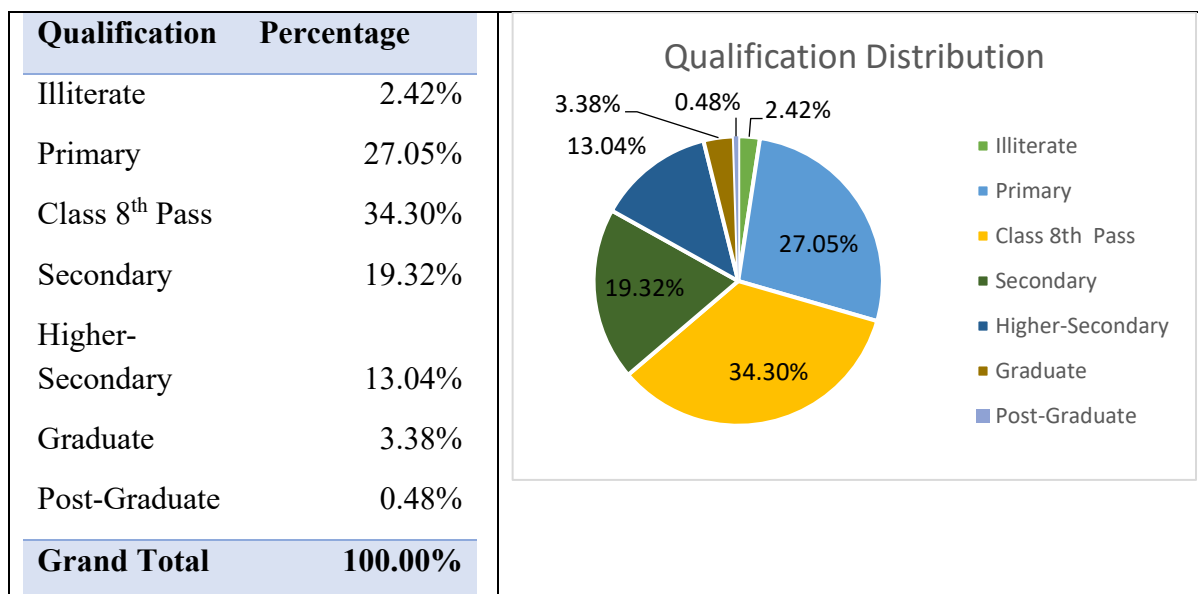


Table 7.9

Analysing from Table 7.9 we can infer that in the Mandirbazar CD Block, South 24 Parganas, that 27.05% of the surveyed have done studies till Primary school followed by 2.42% were found to be illiterates. 34.30% belong Class 8th Pass, 19.32% have passed secondary exams, 13.04% have passed Higher-secondary exams 3.38% are graduates and 0.48% are post-graduates.

60. Data on age:

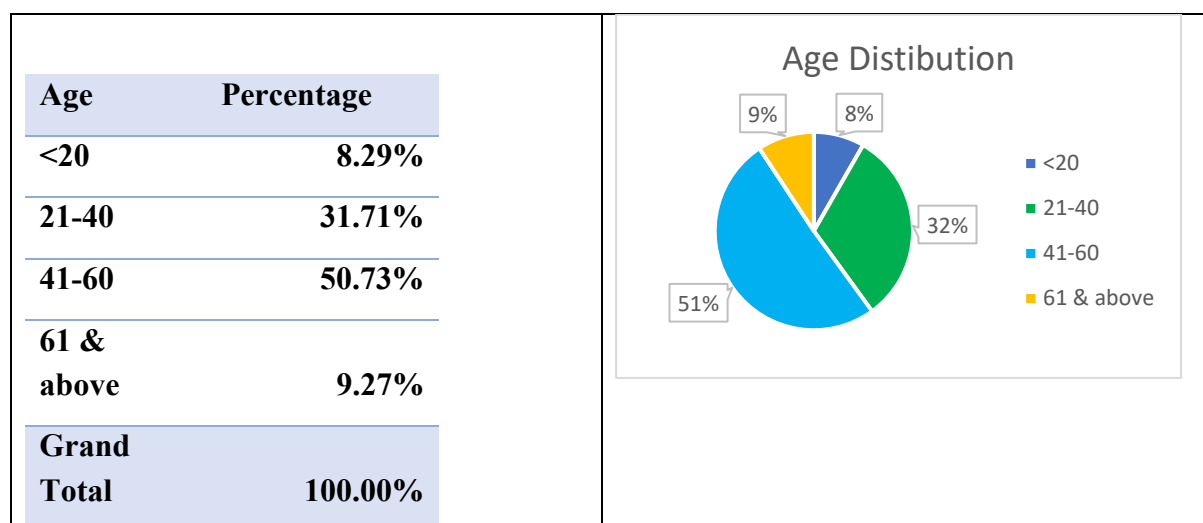


Table 7.10

Analysing the survey data, and from Table 7.10 we can infer that in the Mandirbazar CD Block, South 24 Parganas, 8.29% comprises of up to 20 years of age, 31.71% belonging to the age group 21-40 followed by 50.73% belonging to 41-60 age group and 9.27% belongs to 61 & above.

G) Summary Report on Mathurapur - I Block, South 24 Parganas

- **Name of the CD Block:** MATHURAPUR - I
- **District:** South 24 Parganas
- **Actual Population:** 1,95,104 as per the Census 2011.
- **Number of families in Sample:** 127

61. Family Member Distribution:

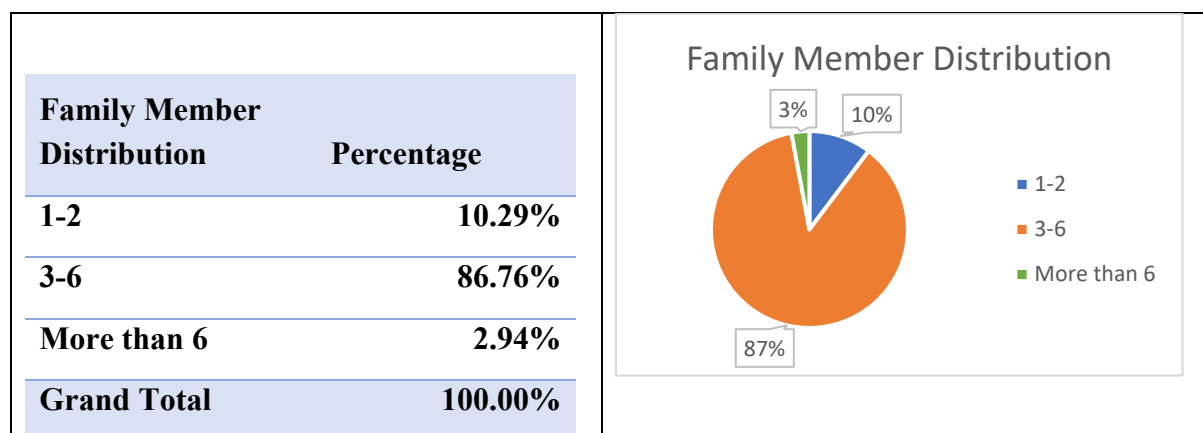


Table 8.1

Analysing the data of the surveyed families, from Table 8.1 we can infer that in the Mathurapur - I CD Block, South 24 Parganas, 10.29% of them have 1 to 2 family members at home, while

majority 86.76% of the surveyed families have 3 to 6 members at home, and 2.94% have more than 6 family members.

62. Family Income Distribution:

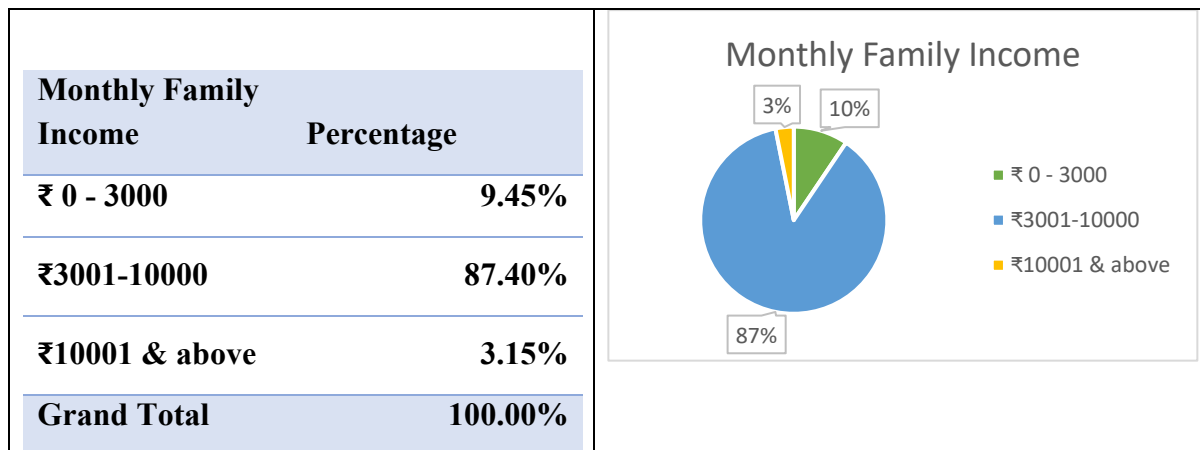


Table 8.2

Analysing the data of the surveyed families, from Table 8.2 we can infer that in the Mathurapur - I CD Block, South 24 Parganas, Monthly Family Income distribution is seen at 9.45% of the families earn around ₹0-3000, 87.40% earns from ₹3000 to ₹10,000 and 3.15% belong to ₹10,000 and above.

63. Awareness of COVID-19:

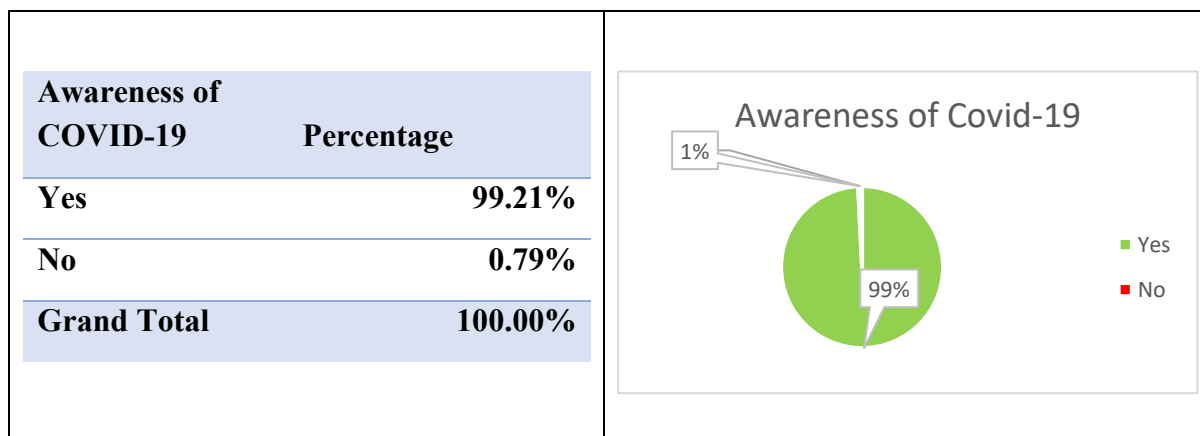


Table 8.3

Analysing the data, from Table 8.3 we can infer that in the Mathurapur - I CD Block, South 24 Parganas, awareness among the surveyed families is very high (99.01%) about COVID-19 pandemic.

64. Occurrence of COVID-19 Cases:

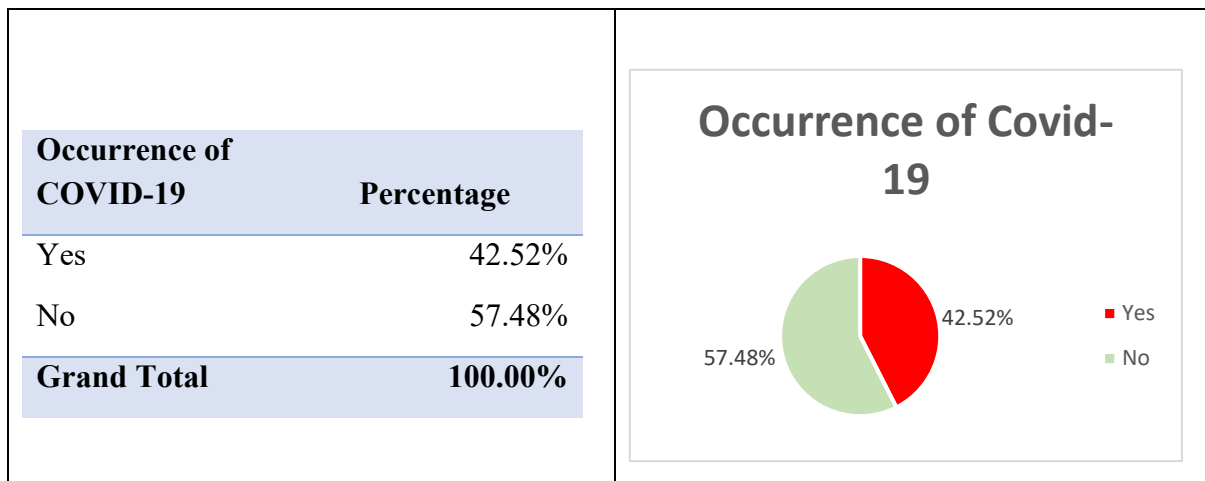


Table 8.4

Analysing the survey data, and from Table 8.4 we can infer that in the Mathurapur - I CD Block, South 24 Parganas, 42.52% of the surveyed persons were down with COVID-19 and most of them got to know it through COVID-19 testing and rest of the response 57.48% in this block were mostly not having any symptoms of covid.

65. Number of Doses of Vaccine taken:

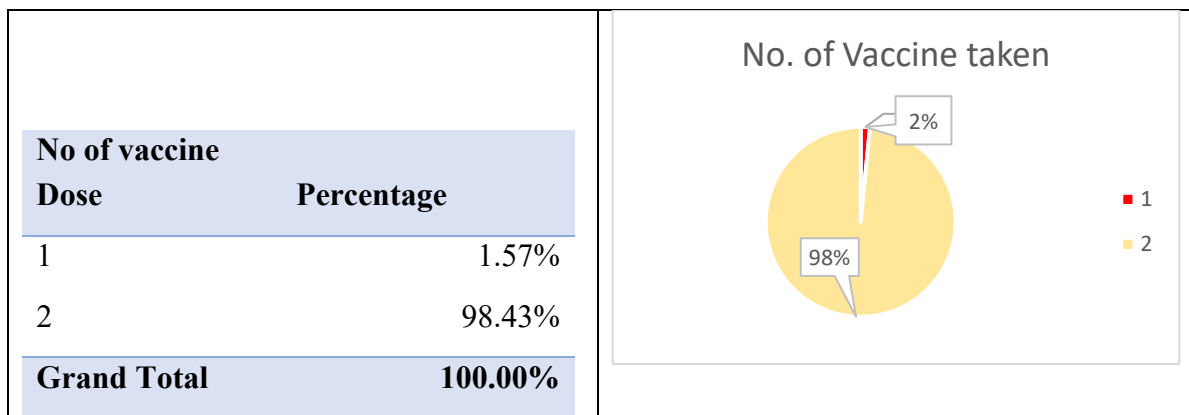


Table 8.5

Analysing the survey data, and from Table 8.5 we can infer that in the Mathurapur - I CD Block, South 24 Parganas, 98.43% of the surveyed persons took two doses of COVID-19 vaccine, 1.57% took a single dose of the vaccine.

66. Damage in Amphan Cyclone:

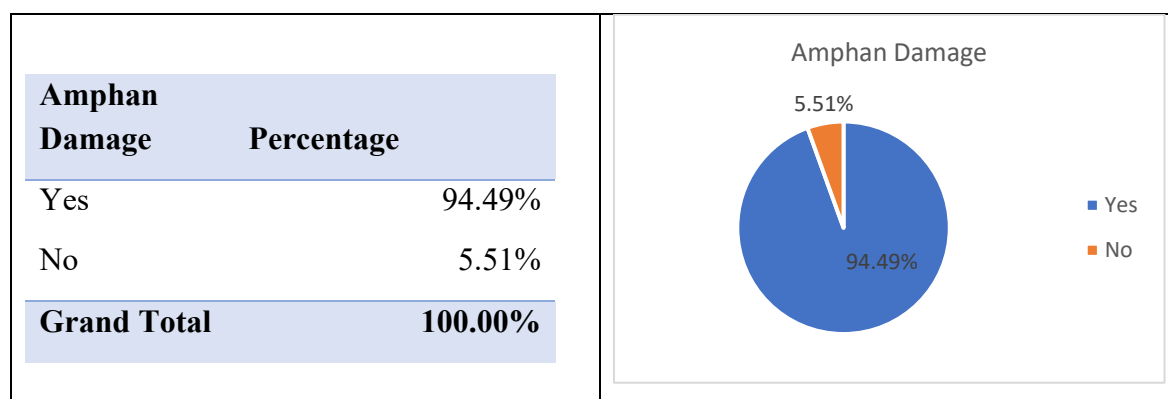


Table 8.6

Analysing the survey data, and from Table 8.6 we can infer that in the Mathurapur - I CD Block, South 24 Parganas, 94.49% of the surveyed persons and their families were affected by the super cyclone Amphan and combined with COVID-19 pandemic the situation turned for the worse. Houses were severely damaged, crops were destroyed, daily labourers lost their job, children from these family had to leave school and many of them were economically ruined.

67. Degree of Stress:

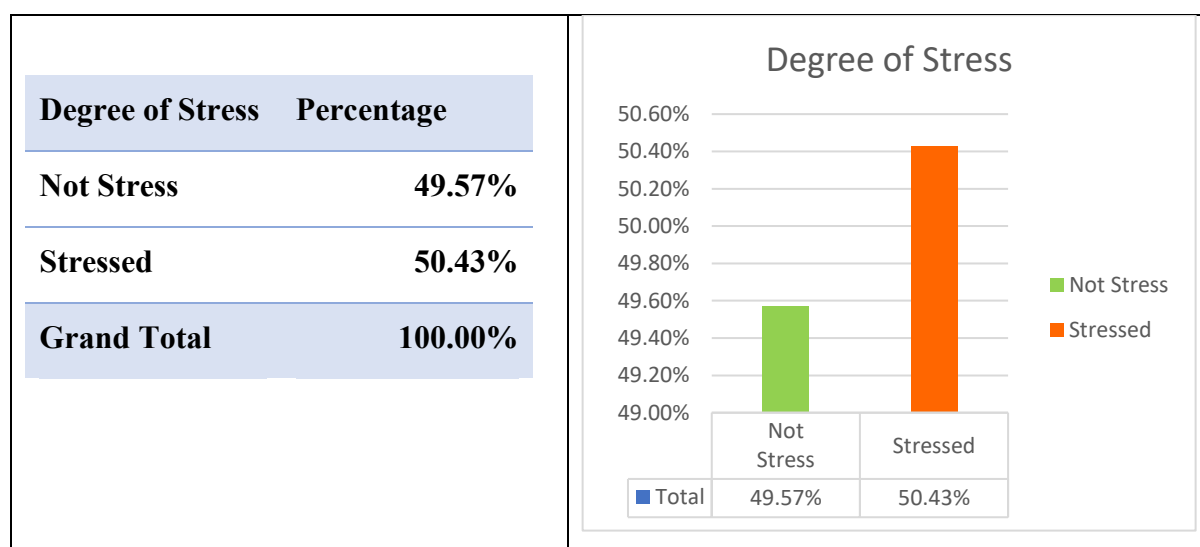


Table 8.7

Analysing the survey data from the General Health Questionnaire (GHQ-12), and from Table 8.7 we can infer that in the Mathurapur - I CD Block, South 24 Parganas, 49.57% were found not stressed and 50.43% of the surveyed people were found to be stressed. The people in this region faced the pandemic and the Amphan cyclone together and as we can see it did take a toll on their mental health.

68. Data on gender:

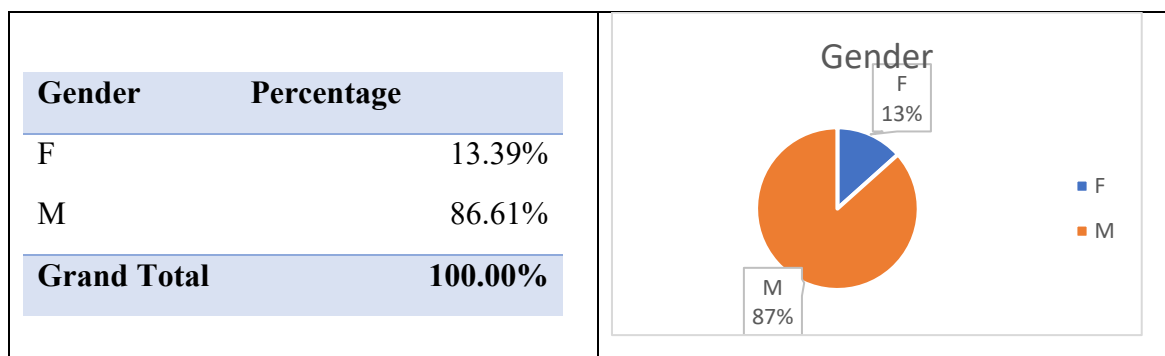


Table 8.8

Analysing the survey data, and from Table 8.8 we can infer that in the Mathurapur - I CD Block, South 24 Parganas, among the total surveyed ,13.39% are females while 86.61% are males.

69. Data on qualification:

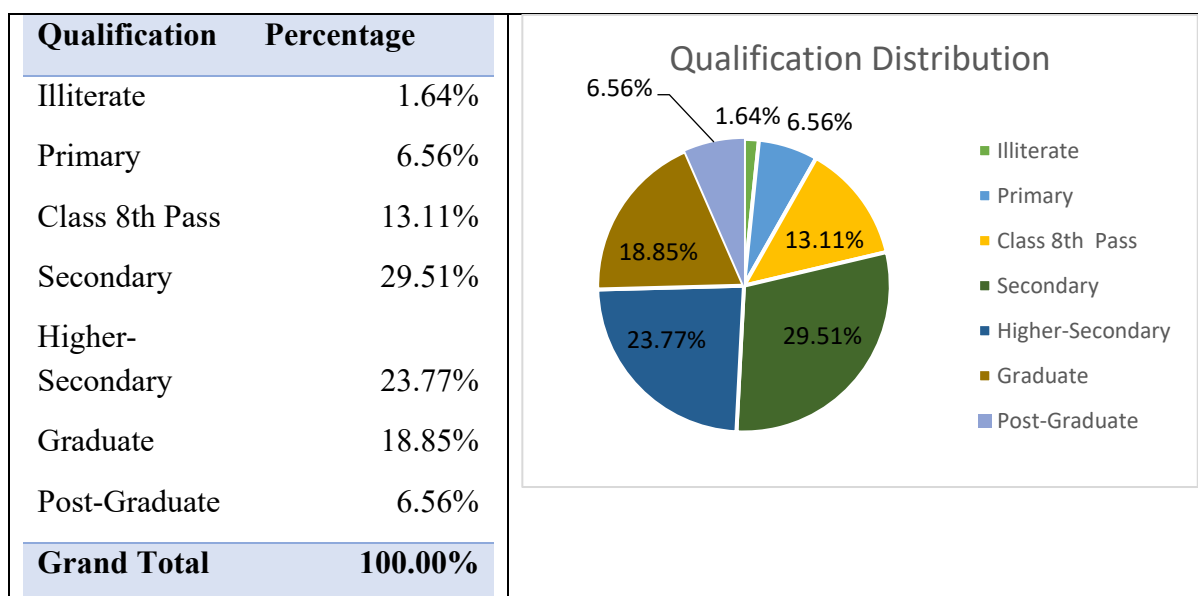


Table 8.9

Analysing from Table 8.9 we can infer that in the Mathurapur - I CD Block, South 24 Parganas, that 6.56% of the surveyed have done studies till Primary school followed by 1.64% were found to be illiterates. 13.11% belong Class 8th Pass, 29.51% have passed secondary exams, 23.77% have passed Higher-secondary exams, 18.85% are graduates and 6.56% are post graduates holder.

70. Data on age:

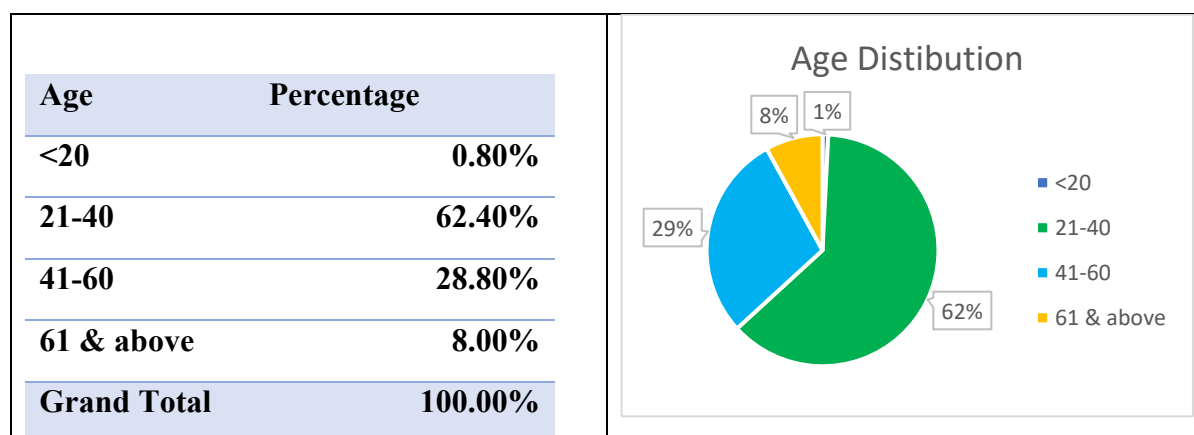


Table 8.10

Analysing the survey data, and from Table 8.10 we can infer that in the Mathurapur - I CD Block, South 24 Parganas, 0.80% comprises of up to 20 years of age, 62.40% belonging to the age group 21-40 followed by 28.880% belonging to 41-60 age group and 8.00% belongs to 61 & above.

H) Summary Report on Patha Pratima Block, South 24 Parganas

- **Name of the CD Block:** PATHARPRATIMA
- **District:** South 24 Parganas
- **Actual Population:** 3,31,823 as per the Census 2011.
- **Number of families in Sample:** 11

71. Family Member Distribution:

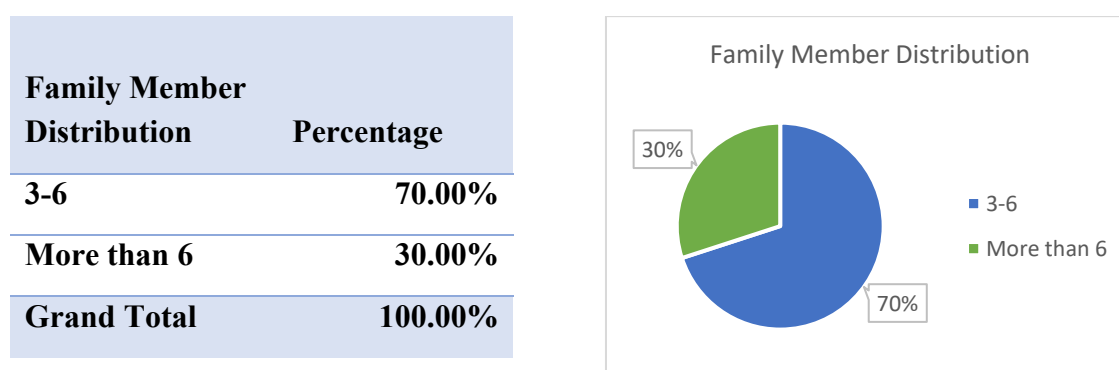


Table 9.1

Analysing the data of the surveyed families, from Table 9.1 we can infer that in the Patha Pratima CD Block, South 24 Parganas, 70% of the surveyed families have 3 to 6 members at home, and 30% have more than 6 family members.

72. Family Income Distribution:

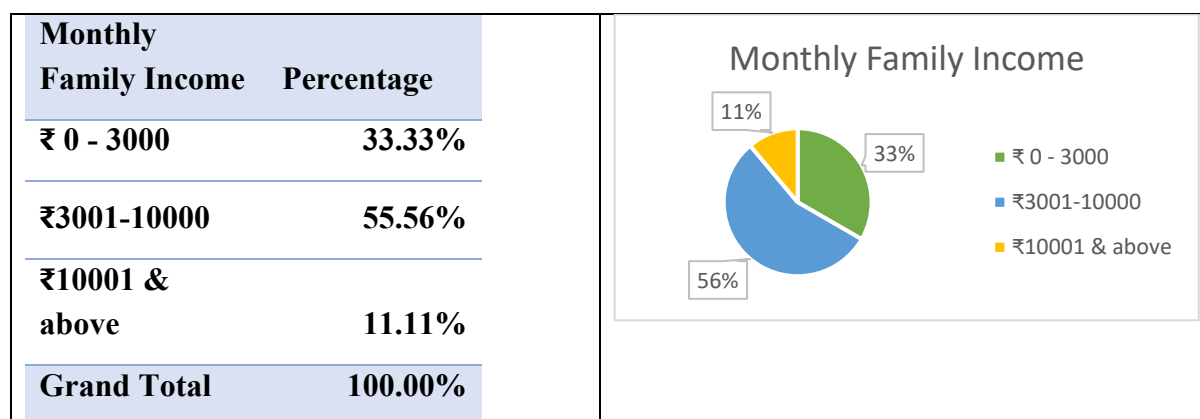


Table 9.2

Analysing the data of the surveyed families, from Table 9.2 we can infer that in the Patha Pratima CD Block, South 24 Parganas, Monthly Family Income distribution is seen at 33.33% of the selected families earn around ₹0-3000, 55.56% earns from ₹3000 to ₹10,000 and 11.11% belong to ₹10,000 and above.

73. Awareness of COVID-19:

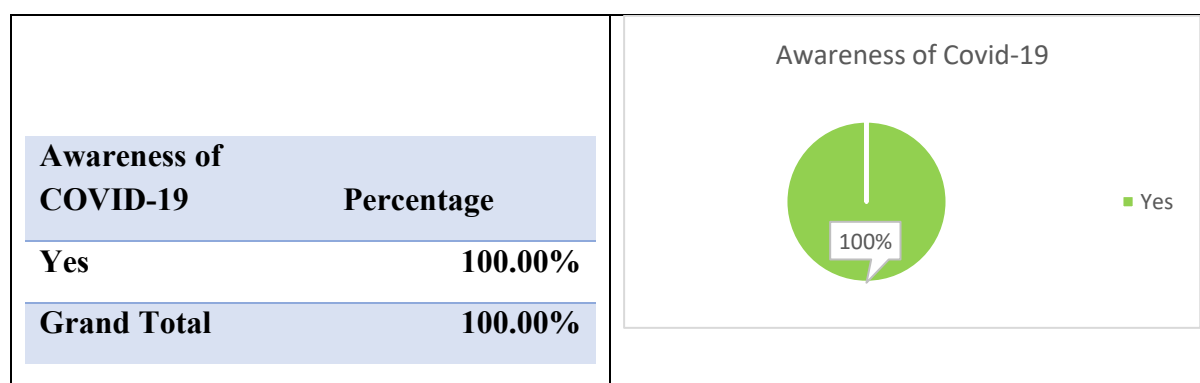


Table 9.3

Analysing the data, from Table 9.3 we can infer that in the Patha Pratima CD Block, South 24 Parganas, awareness among the surveyed families is very high (100%) about COVID-19 pandemic.

74. Occurrence of COVID-19 Cases:

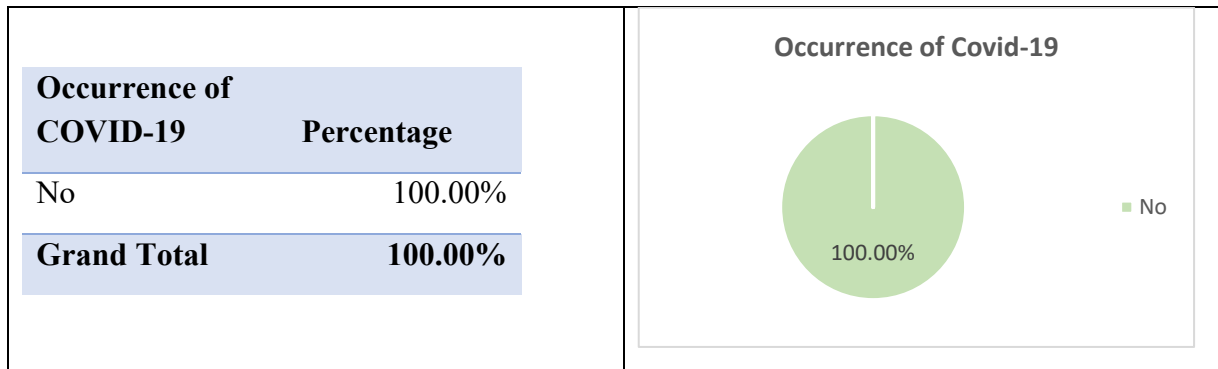


Table 9.4

Analysing the survey data, and from Table 9.4 we can infer that in the Patha Pratima CD Block, South 24 Parganas, all the surveyed persons in this block were mostly not having any symptoms of covid.

75. Number of Doses of Vaccine taken:

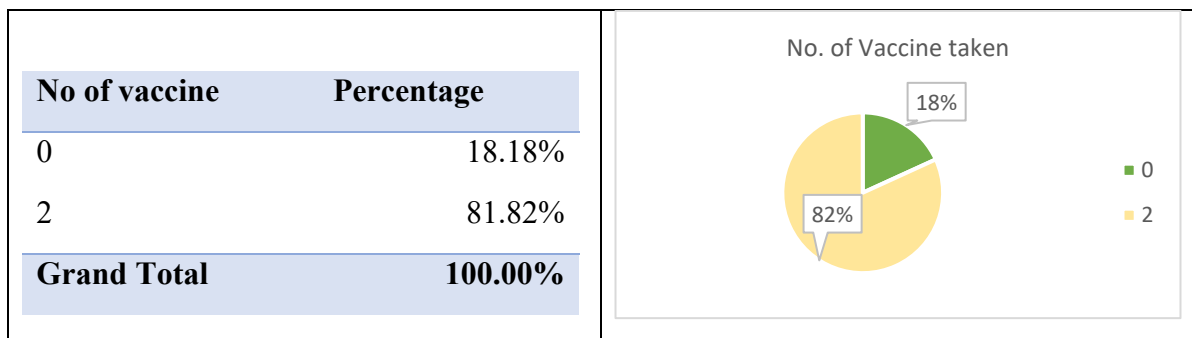


Table 9.5

Analysing the survey data, and from Table 9.5 we can infer that in the Patha Pratima CD Block, South 24 Parganas, 81.82% of the surveyed persons took two doses of COVID-19 vaccine and 18.18% were found to have not taken any doses of the vaccine.

76. Damage in Amphan Cyclone:

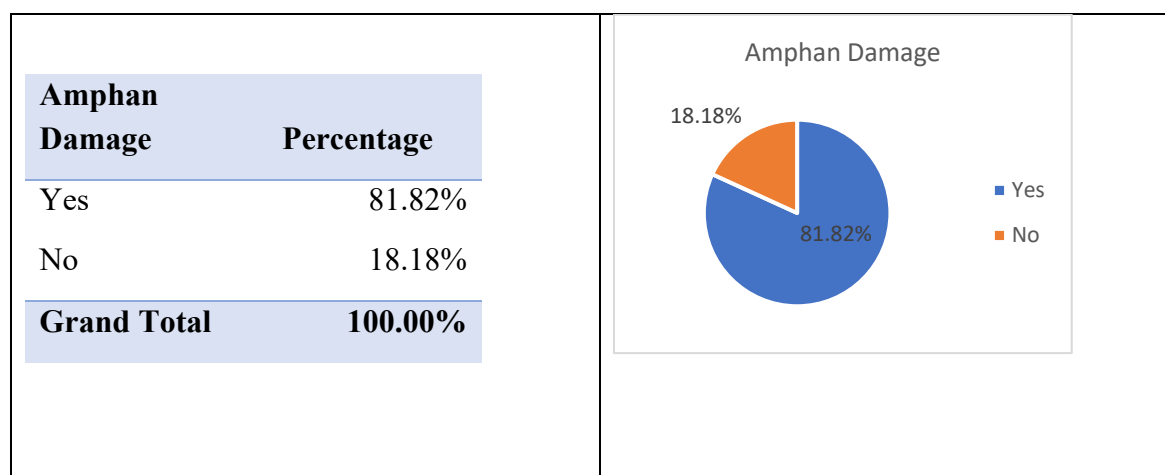


Table 9.6

Analysing the survey data, and from Table 9.6 we can infer that in the Patha Pratima CD Block, South 24 Parganas, most of the surveyed persons (81.82%) and their families were affected by the super cyclone Amphan and combined with COVID-19 pandemic the situation turned for the worse. Houses were severely damaged, crops were destroyed, daily labourers lost their job, children from these family had to leave school and many of them were economically ruined.

77. Degree of Stress:

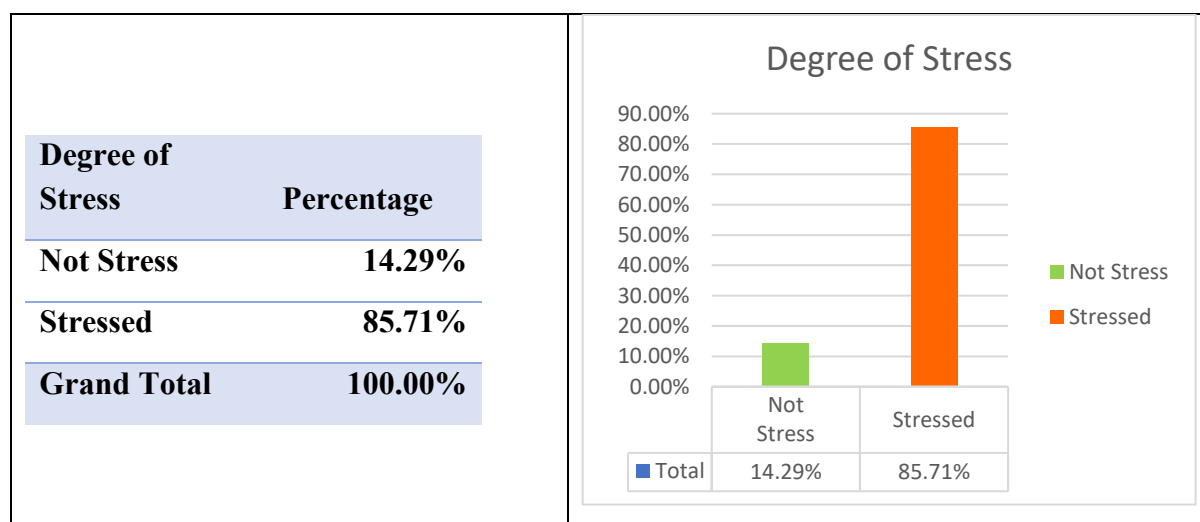


Table 9.7

Analysing the survey data from the General Health Questionnaire (GHQ-12), and from Table 9.7 we can infer that in the Patha Pratima CD Block, South 24 Parganas, 14.29% were found not stressed and 85.71% of the surveyed people were found to be stressed. The people in this region faced the pandemic and the Amphan cyclone together and as we can see it did take a toll on their mental health.

78. Data on gender:

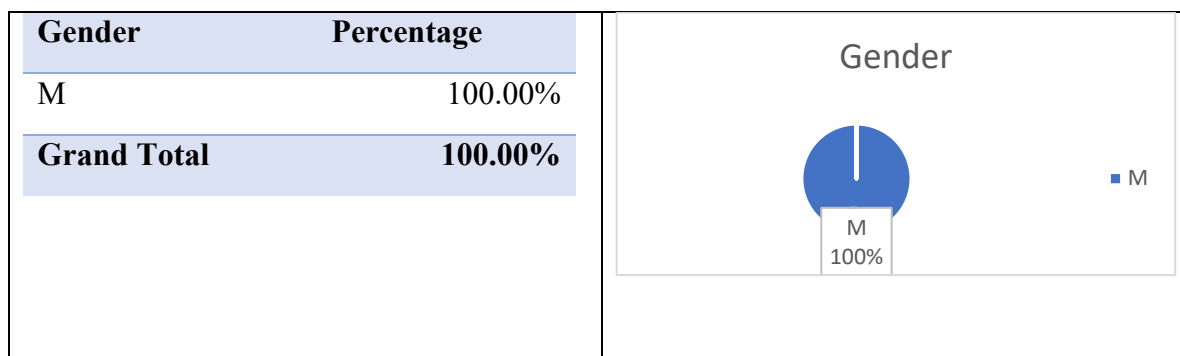


Table 9.8

Analysing the survey data, and from Table 9.8 we can infer that in the Patha Pratima CD Block, South 24 Parganas, among the total surveyed, all are males.

79. Data on qualification:

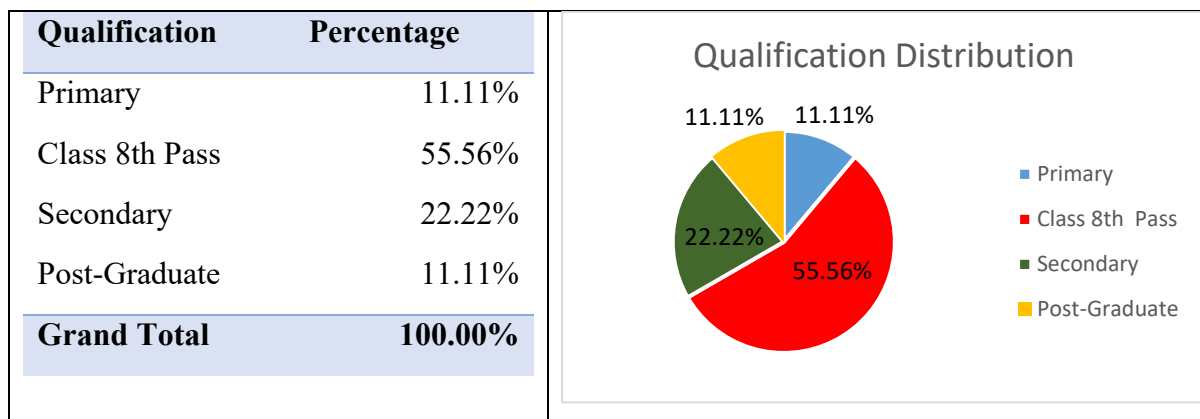


Table 9.9

Analysing from Table 9.9 we can infer that in the Patha Pratima CD Block, South 24 Parganas, that 11.11% of the surveyed have done studies till Primary school followed by 55.56% belong Class 8th Pass, 22.22% have passed secondary exams, and 11.11% are post graduates.

80. Data on age:

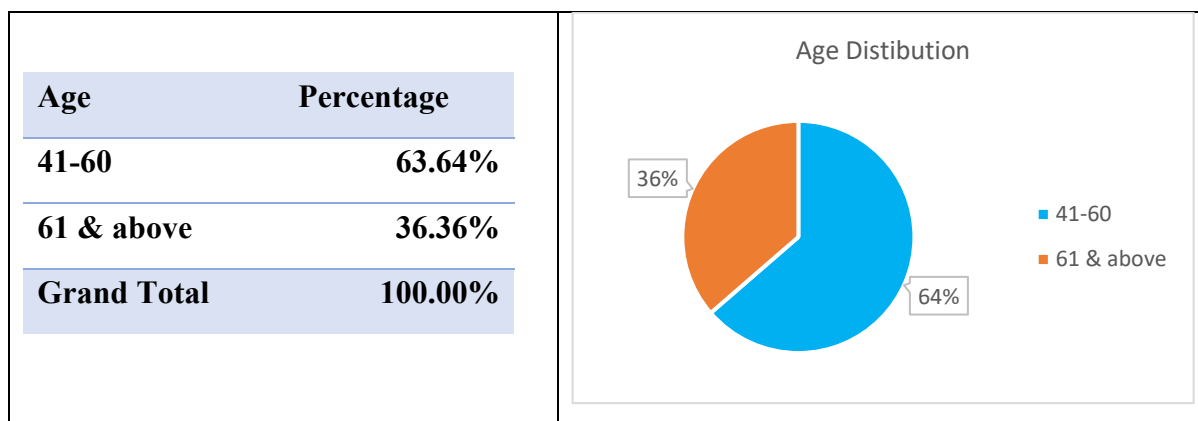


Table 9.10

Analysing the survey data, and from Table 9.10 we can infer that in the Patha Pratima CD Block, South 24 Parganas, 63.64% belonging to 41-60 age group and 36.36% belongs to 61 & above.

I) Summary Report on Sonarpur Block, South 24 Parganas

- **Name of the CD Block:** SONARPUR
- **District:** South 24 Parganas
- **Actual Population:** 2,19,863 as per the Census 2011.
- **Number of families in Sample:** 344

81. Family Member Distribution:

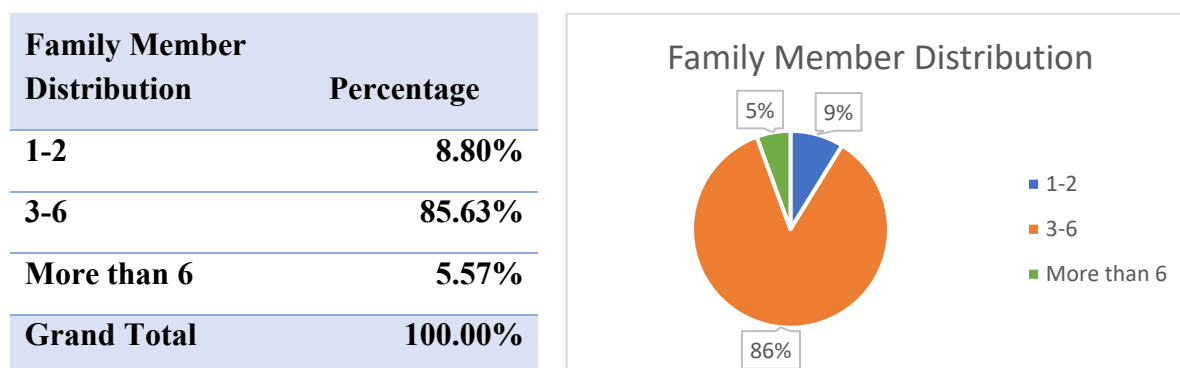


Table 10.1

Analysing the data of the surveyed families, from Table 10.1 we can infer that in the Sonarpur CD Block, South 24 Parganas, 8.80% of them have 1 to 2 family members at home, while 85.63% majority of the surveyed families have 3 to 6 members at home, and 5.57% have more than 6 family members.

82. Family Income Distribution:

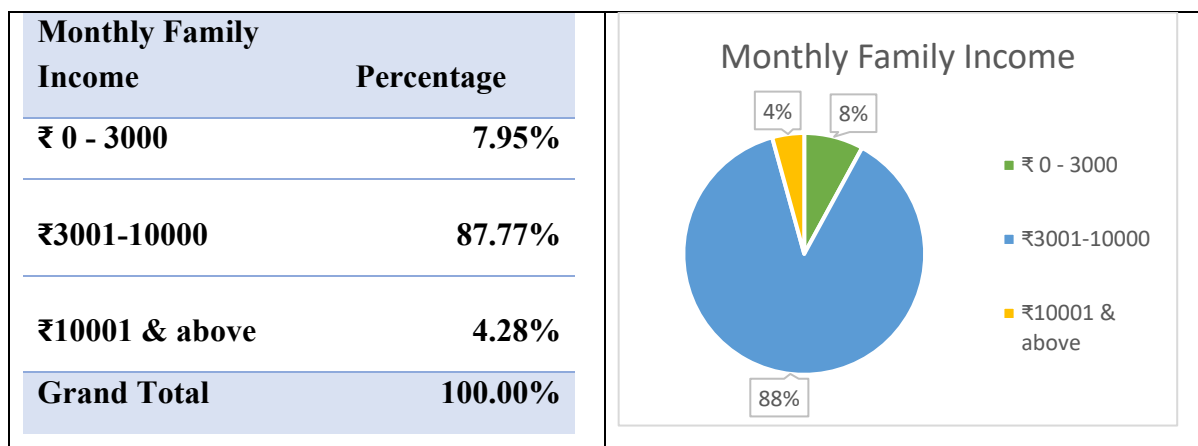


Table 10.2

Analysing the data of the surveyed families, from Table 10.2 we can infer that in the Sonarpur CD Block, South 24 Parganas, Monthly Family Income distribution is seen at 7.95% of the selected families earn around ₹0-3000, 87.77% earns from ₹3000 to ₹10,000 and 4.28% belong to ₹10,000 and above.

83. Awareness of COVID-19:

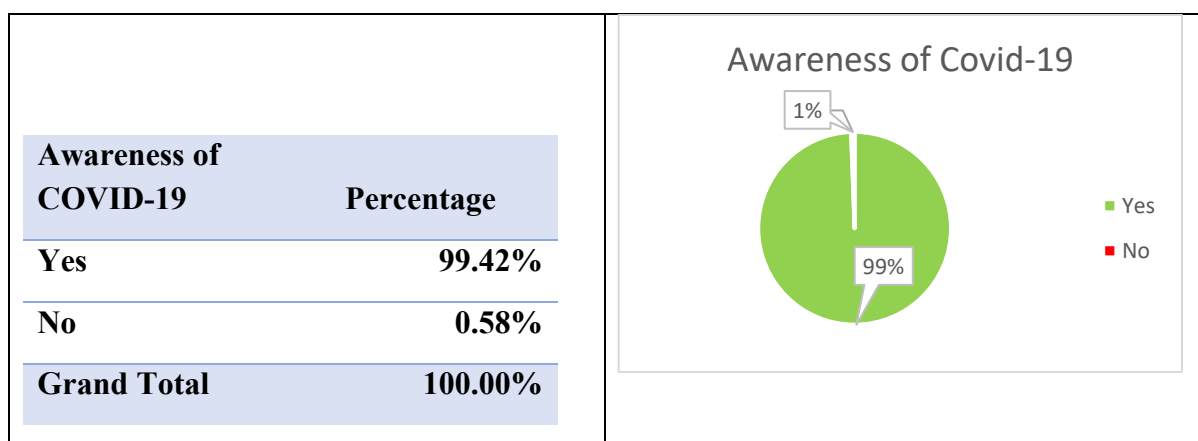


Table 10.3

Analysing the data, from Table 10.3 we can infer that in the Sonarpur CD Block, South 24 Parganas, awareness among the surveyed families is very high (99.42%) about COVID-19 pandemic.

84. Occurrence of COVID-19 Cases:

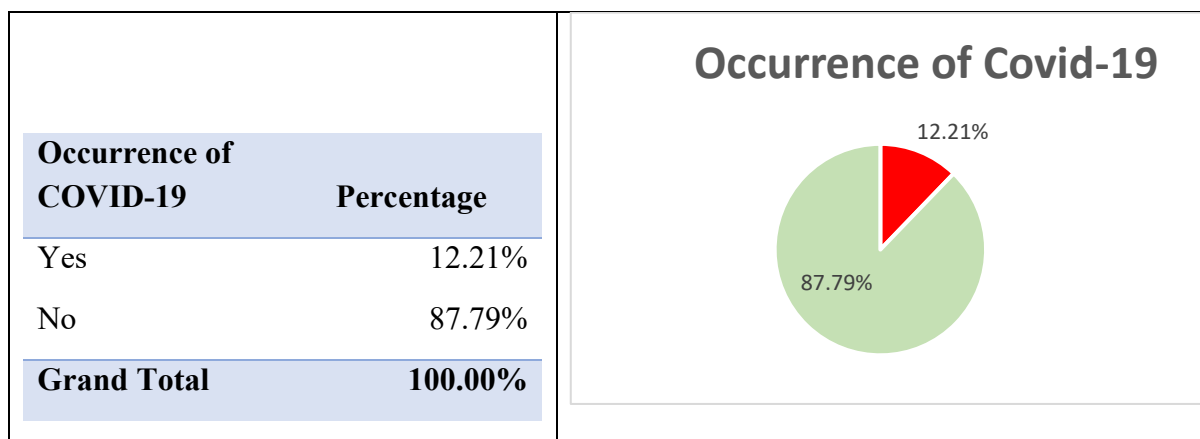


Table 10.4

Analysing the survey data, and from Table 10.4 we can infer that in the Sonarpur CD Block, South 24 Parganas, 12.21% of the surveyed persons were down with COVID-19 and most of them got to know it through COVID-19 testing and rest of the response 87.79% in this block were mostly not having any symptoms of covid.

85. Number of Doses of Vaccine taken:

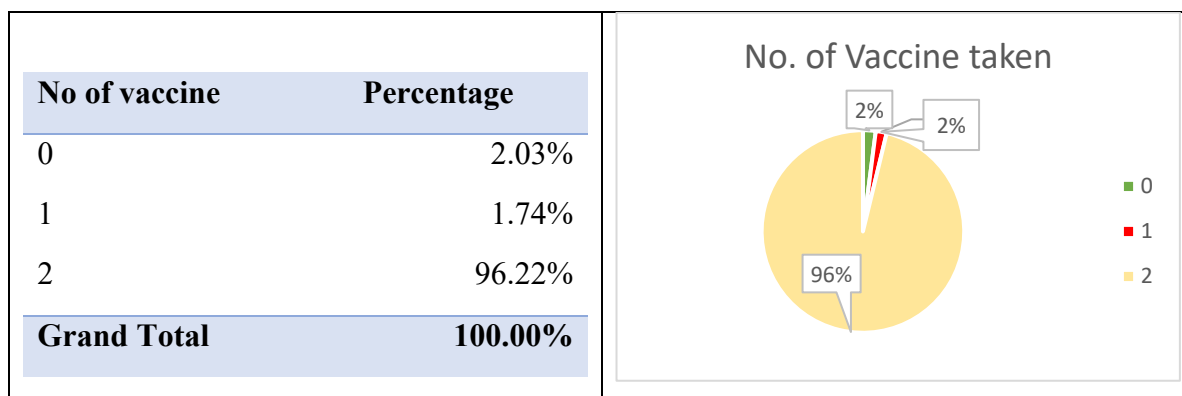


Table 10.5

Analysing the survey data, and from Table 10.5 we can infer that in the Sonarpur CD Block, South 24 Parganas, 96.22% of the surveyed persons took two doses of COVID-19 vaccine 1.74% took a single dose of the vaccine and a mere 2.03% were found to have not taken any doses of the vaccine.

86. Damage in Amphan Cyclone:

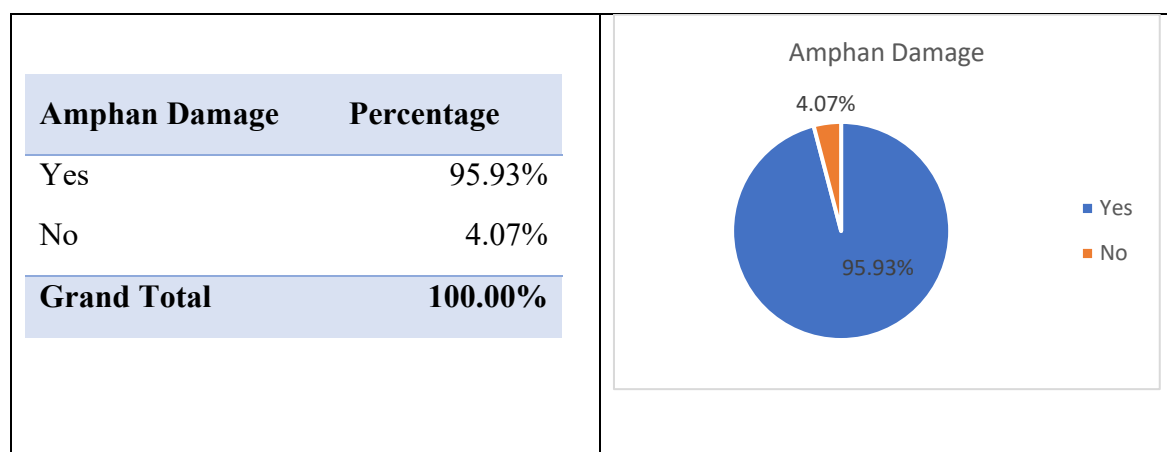


Table 10.6

Analysing the survey data, and from Table 10.6 we can infer that in the Sonarpur CD Block, South 24 Parganas, most of the surveyed persons (95.93%) and their families were affected by the super cyclone Amphan and combined with COVID-19 pandemic the situation turned for the worse. Houses were severely damaged, crops were destroyed, daily labourers lost their job, children from these family had to leave school and many of them were economically ruined.

87. Degree of Stress:

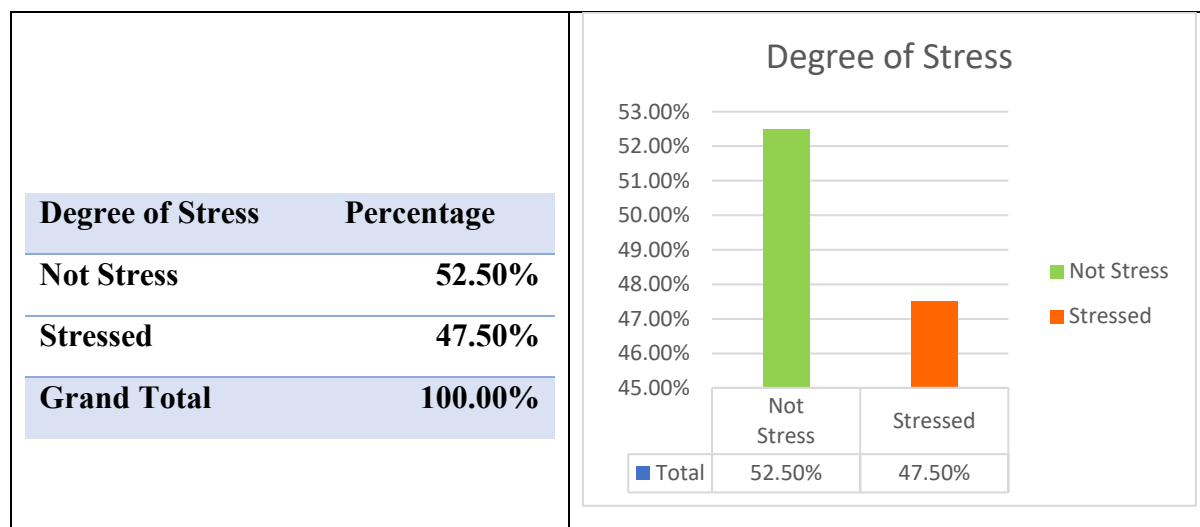


Table 10.7

Analysing the survey data from the General Health Questionnaire (GHQ-12), and from Table 10.7 we can infer that in the Sonarpur CD Block, South 24 Parganas, 52.50% were found not stressed and 47.50% of the surveyed people were found to be stressed. The people in this region faced the pandemic and the Amphan cyclone together and as we can see it did take a toll on their mental health.

88. Data on gender:

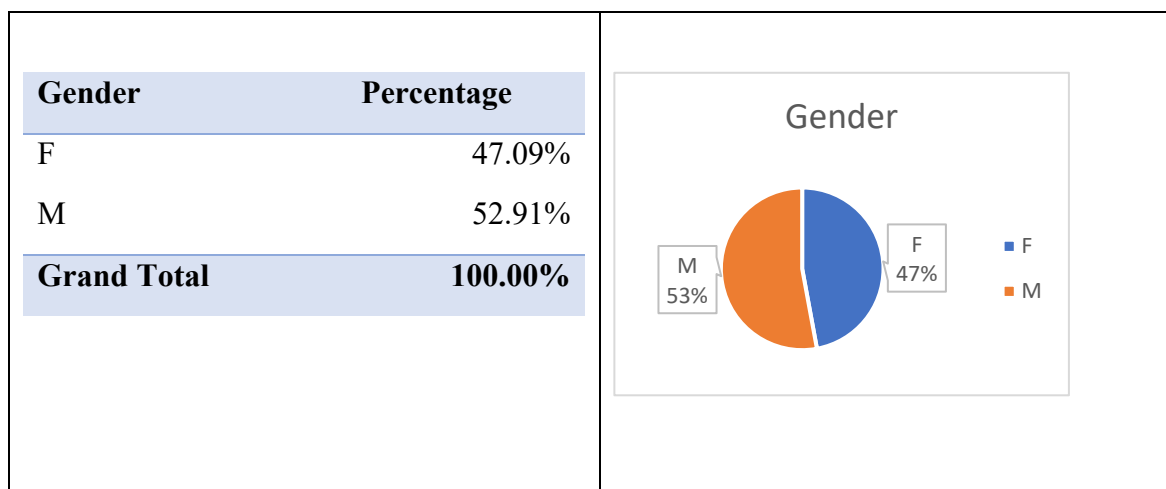


Table 10.8

Analysing the survey data, and from Table 10.8 we can infer that in the Sonarpur CD Block, South 24 Parganas, among the total surveyed, 47.09% are females while 52.91% are males.

89. Data on qualification:

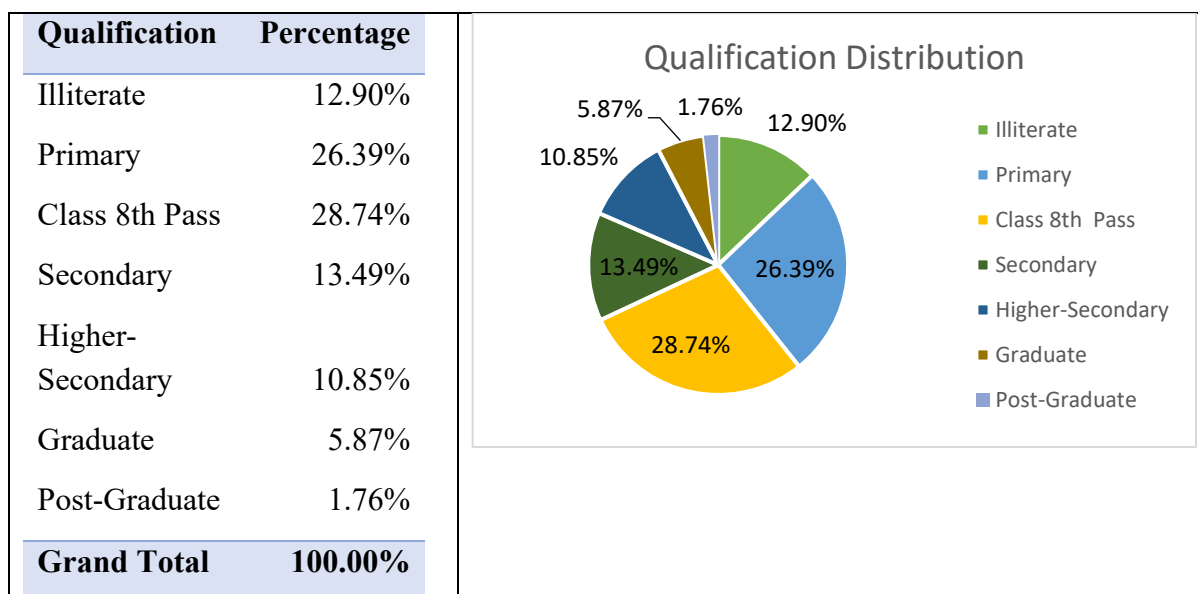


Table 10.9

Analysing from Table 10.9 we can infer that in the Sonarpur CD Block, South 24 Parganas, that 26.39% of the surveyed have done studies till Primary school followed by 12.90% were found to be illiterates. 28.74% belong Class 8th Pass, 13.49% have passed secondary exams, 10.85% have passed Higher-secondary exams, 5.87% are graduates and 1.76% are post graduates.

90. Data on age:

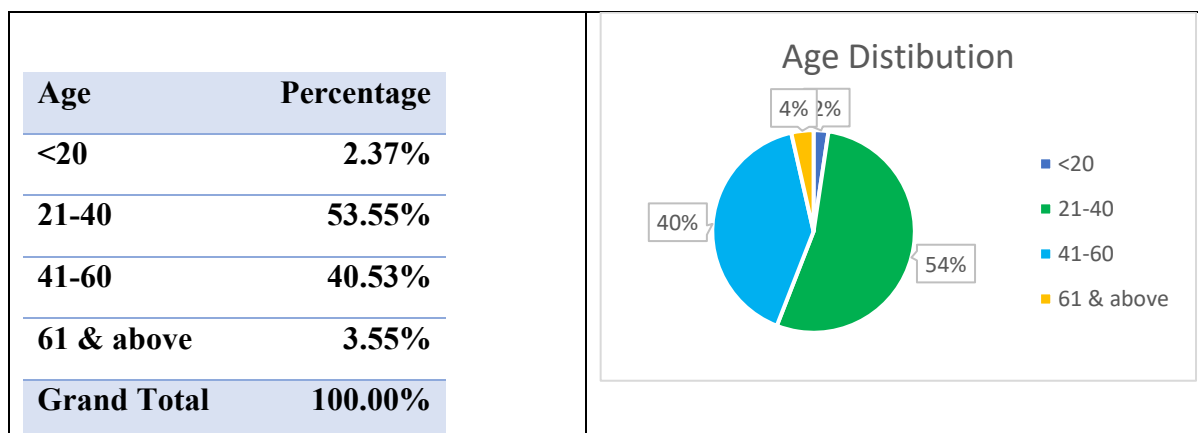


Table 10.10

Analysing the survey data, and from Table 10.10 we can infer that in the Sonarpur CD Block, South 24 Parganas, 2.37% comprises of up to 20 years of age, majority being 53.55% belonging to the age group 21-40 followed by 40.53% belonging to 41-60 age group and 3.55% belongs to 61 & above.

J) Summary Report on Chakdaha Block, Nadia

- **Name of the CD Block:** CHAKDAHA
- **District:** Nadia
- **Actual Population:** 1,33,856 as per the Census 2011.
- **Number of families in Sample:** 222



91. Family Member Distribution:

Family Member Distribution	Percentage
1-2	19.00%
3-6	79.19%
More than 6	1.81%
Grand Total	100.00%

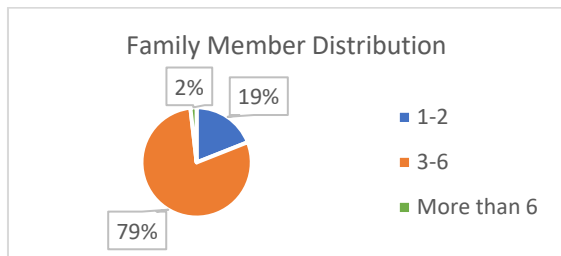


Table 11.1

Analysing the data of the surveyed families, from Table 11.1 we can infer that in the Chakdaha CD Block, Nadia, 19% of the surveyed families have 1-2 members, 79.19% of the surveyed families have 3 to 6 members at home, and 1.81% have more than 6 family members.

92. Family Income Distribution:

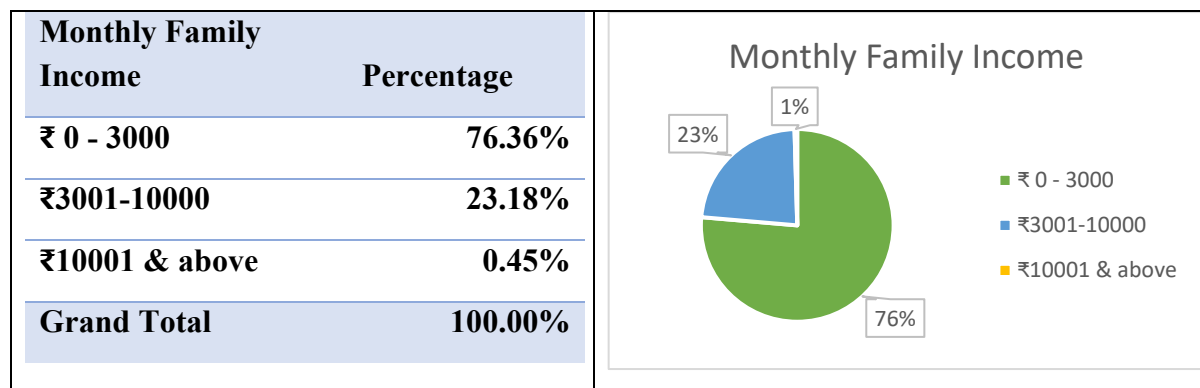


Table 11.2

Analysing the data of the surveyed families, from Table 11.2 we can infer that in the Chakdaha CD Block, Nadia, Monthly Family Income distribution is seen at 76.36% of the selected families earn around ₹0-3000, 23.18% earns from ₹3000 to ₹10,000 and 0.45% belong to ₹10,000 and above.

93. Awareness of COVID-19:

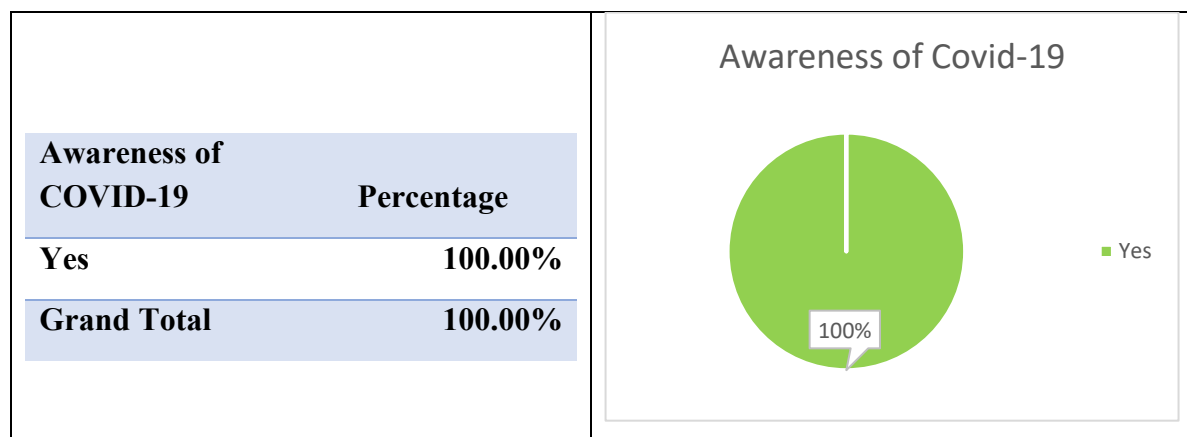


Table 11.3

Analysing the data, from Table 11.3 we can infer that in the Chakdaha CD Block, Nadia, awareness among the surveyed families is very high (100%) about COVID-19 pandemic.

94. Occurrence of COVID-19 Cases:

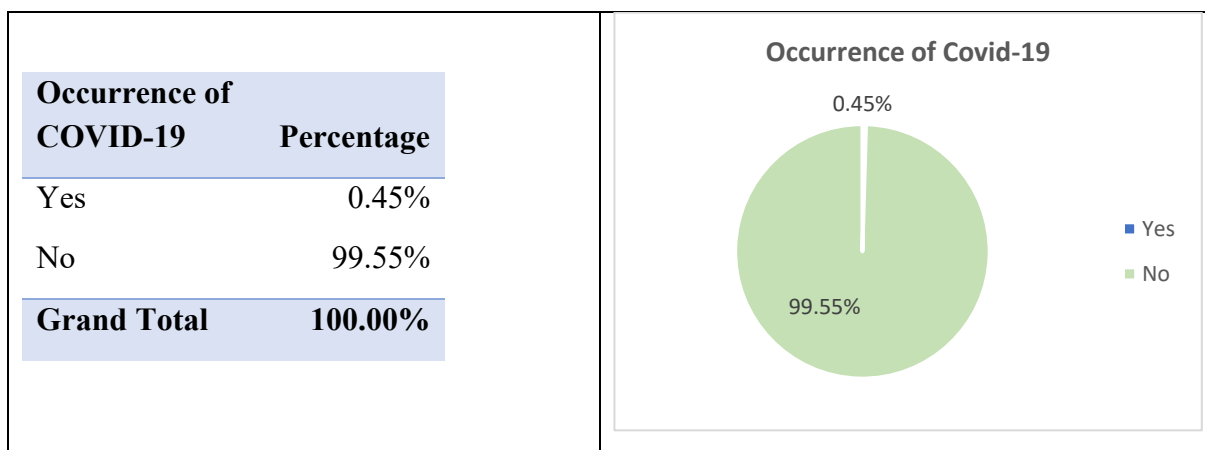


Table 11.4

Analysing the survey data, and from Table 11.4 we can infer that in the Chakdaha CD Block, Nadia, 99.55% of the surveyed persons in this block were mostly not having any symptoms of covid.

95. Number of Doses of Vaccine taken:

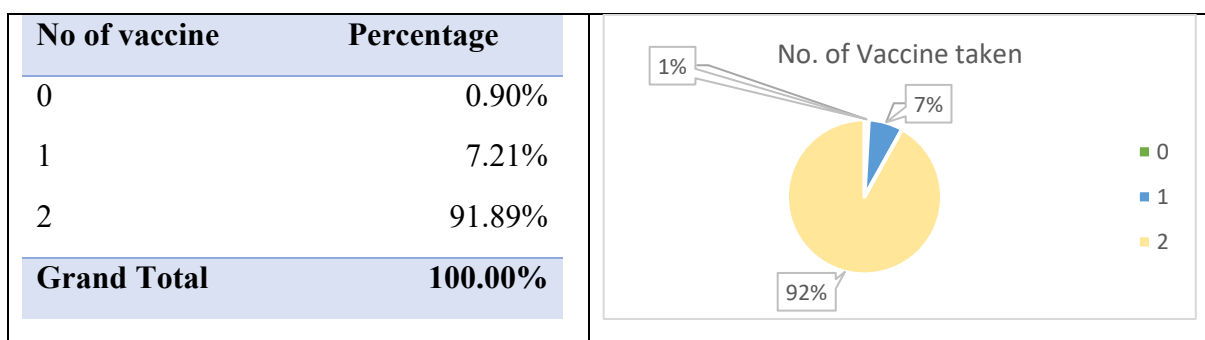


Table 11.5

Analysing the survey data, and from Table 11.5 we can infer that in the Chakdaha CD Block, Nadia, 91.89% of the surveyed persons took two doses of COVID-19 vaccine, 7.21% of the surveyed persons took only one dose of COVID-19 vaccine and 0.90% were found to have not taken any doses of the vaccine.

96. Damage in Amphan Cyclone:

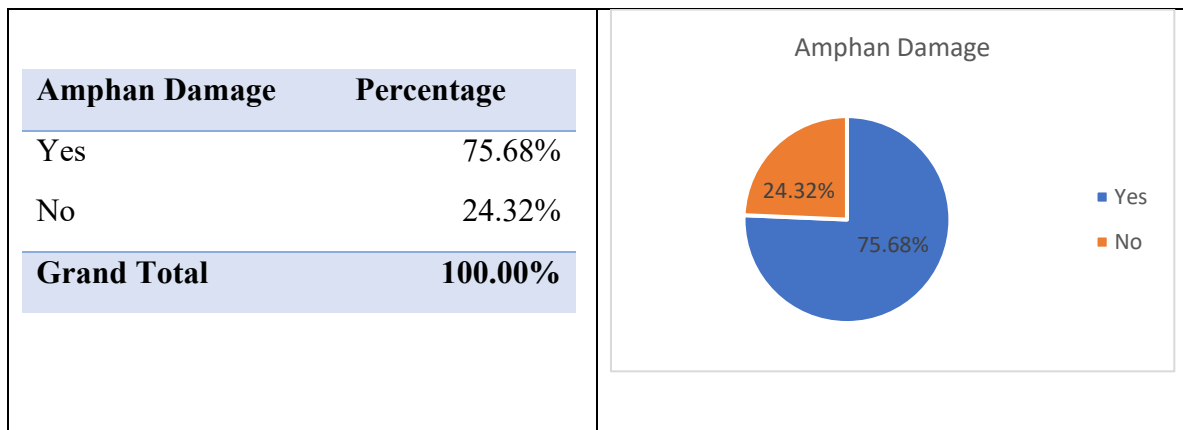


Table 11.6

Analysing the survey data, and from Table 11.6 we can infer that in the Chakdaha CD Block, Nadia, most of the surveyed persons (75.68%) and their families were affected by the super cyclone Amphan and combined with COVID-19 pandemic the situation turned for the worse. Houses were severely damaged, crops were destroyed, daily labourers lost their job, children from these family had to leave school and many of them were economically ruined.

97. Degree of Stress:

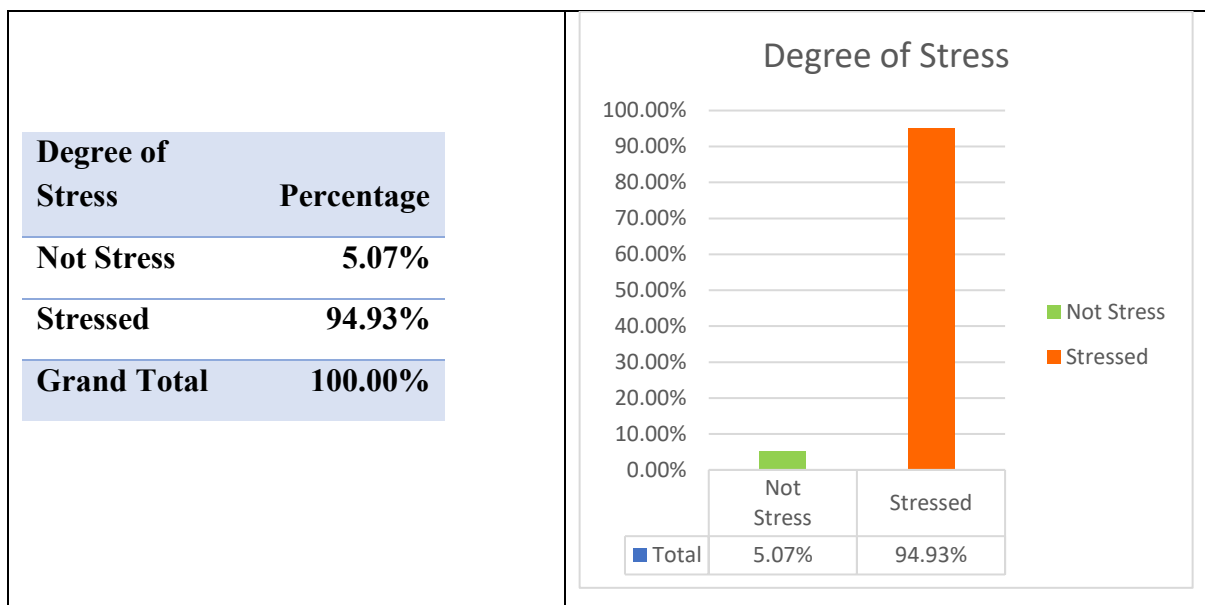


Table 11.7

Analysing the survey data from the General Health Questionnaire (GHQ-12), and from Table 11.7 we can infer that in the Chakdaha CD Block, Nadia, 5.07% were found not stressed and 94.93% of the surveyed people were found to be stressed. The people in this region faced the pandemic and the Amphan cyclone together and as we can see it did take a toll on their mental health.

98. Data on gender:

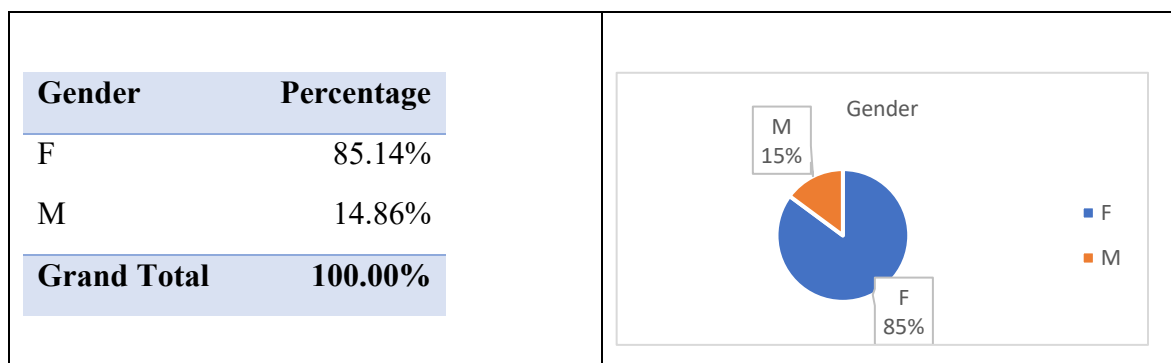


Table 11.8

Analysing the survey data, and from Table 11.8 we can infer that in the Chakdaha CD Block, Nadia, among the total surveyed, 14.86% are males and 85.14% are females.

99. Data on qualification:

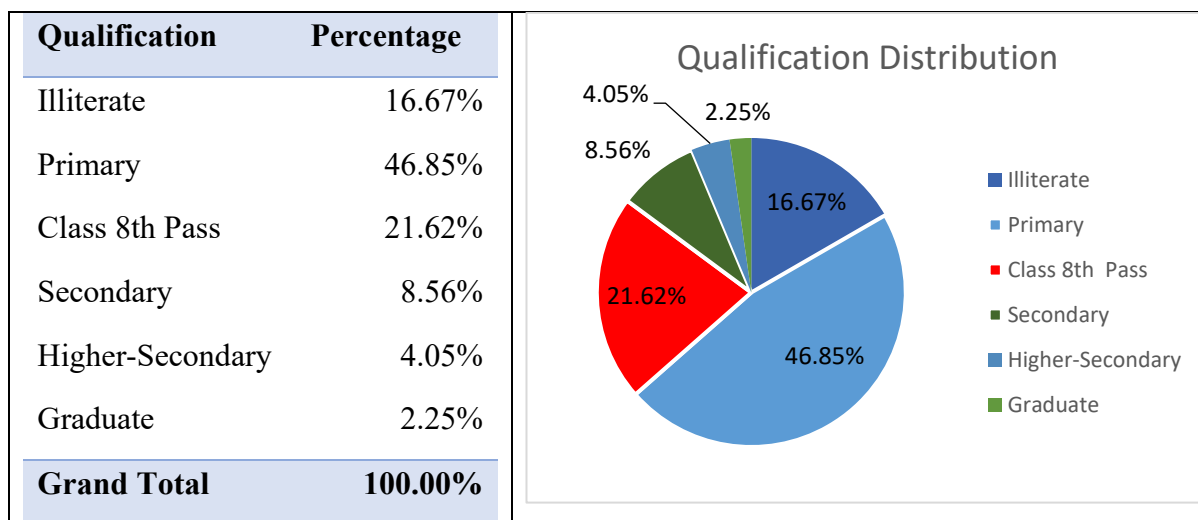


Table 11.9

Analysing from Table 11.9 we can infer that in the Chakdaha CD Block, Nadia, that 16.67% have never gone to school, 46.85% of the surveyed have done studies till Primary school followed by 21.62% belong Class 8th Pass, 8.56% have passed secondary exams, and 4.05% are graduates and 2.25% are post graduates.

100. Data on age:

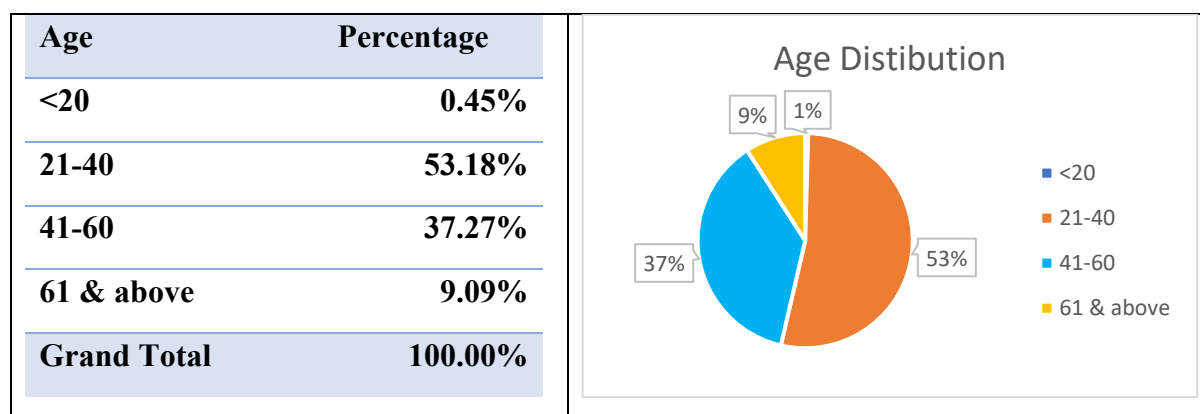


Table 11.10

Analysing the survey data, and from Table 11.10 we can infer that in the Chakdaha CD Block, Nadia, 0.20% belong to <20 years group, 53.18% belong to 21-40years, 37.27% belonging to 41-60 age group and 9.09% belongs to 61 & above.

K) Summary Report on Kalyani Block, Nadia

- **Name of the CD Block:** KALYANI
- **District:** Nadia
- **Actual Population:** 1,00,620 as per the Census 2011.
- **Number of families in Sample:** 230



101. Family Member Distribution:

Family Member Distribution	Percentage
1-2	6.52%
3-6	80.87%
More than 6	12.61%
Grand Total	100.00%

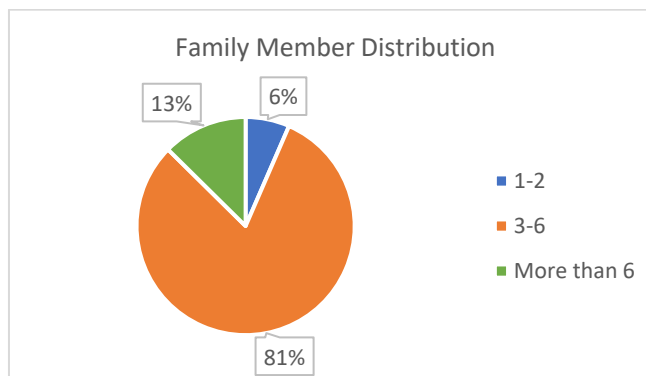


Table 12.1

Analysing the data of the surveyed families, from Table 12.1 we can infer that in the Kalyani CD Block, Nadia District 6.52% of the surveyed families have 1 to 2 family members, 80.87% have 3 to 6 members at home, and 12.61% have more than 6 family members.

102. Family Income Distribution:

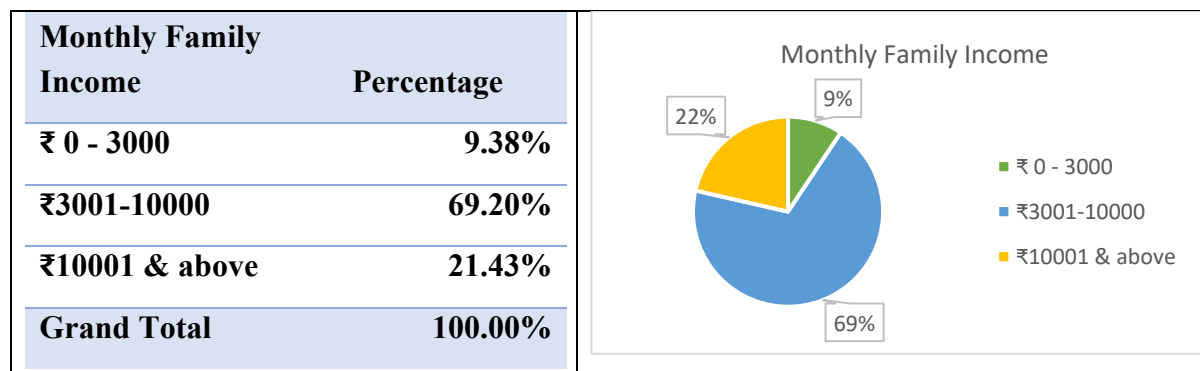


Table 12.2

Analysing the data of the surveyed families, from Table 12.2 we can infer that in the Kalyani CD Block, Nadia, Monthly Family Income distribution is seen at 9.38% of the selected families earn around ₹0-3000, 69.20% earns from ₹3000 to ₹10,000 and 21.43% belong to ₹10,000 and above.

103. Awareness of COVID-19:

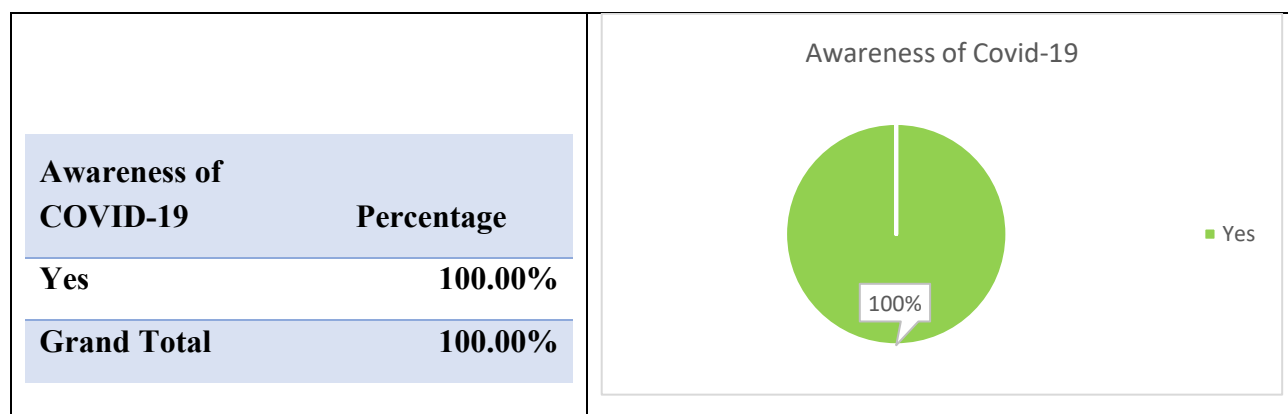


Table 12.3

Analysing the data, from Table 12.3 we can infer that in the Kalyani CD Block, Nadia, awareness among the surveyed families is very high (100%) about COVID-19 pandemic.

104. Occurrence of COVID-19 Cases:

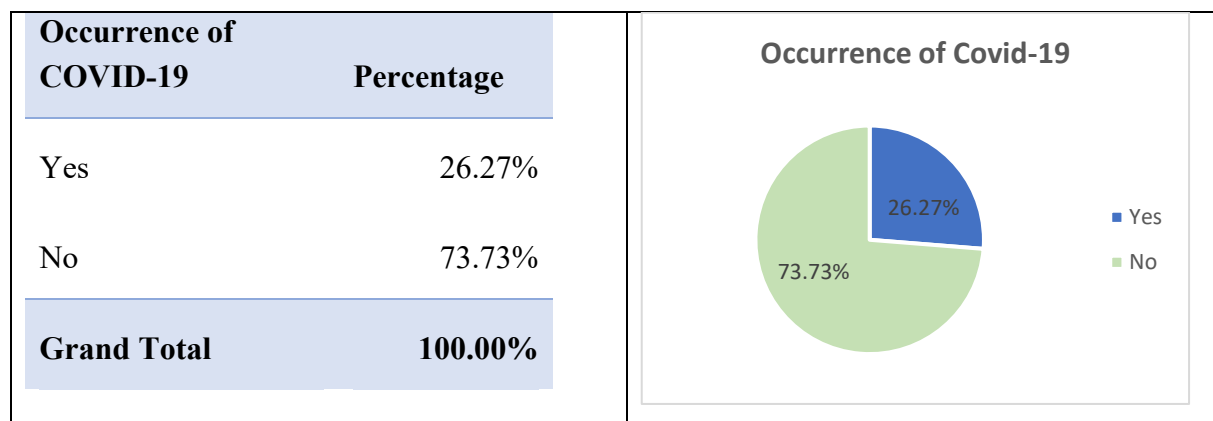


Table 12.4

Analysing the survey data, and from Table 12.4 we can infer that in the Kalyani CD Block, Nadia, 73.73% the surveyed persons in this block were mostly not having any symptoms of COVID-19 and 26.27% were affected with COVID-19 .

105. Number of Doses of Vaccine taken:

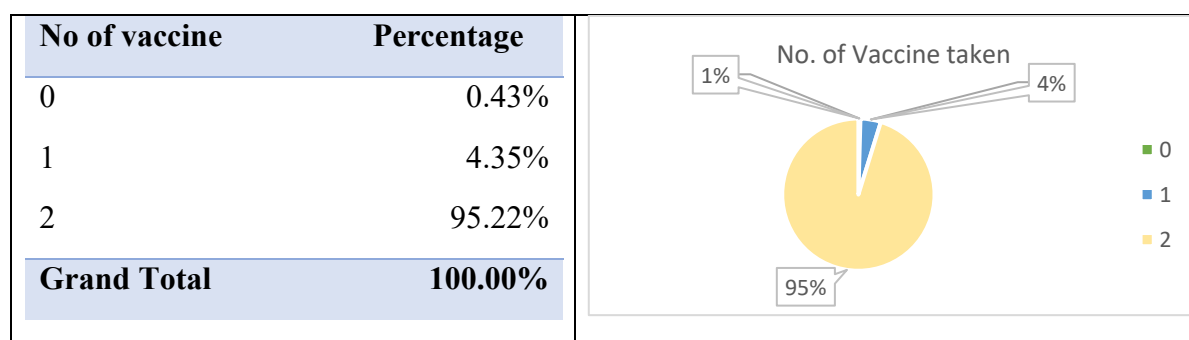


Table 12.5

Analysing the survey data, and from Table 12.5 we can infer that in the Kalyani CD Block, Nadia, 95.22% of the surveyed persons took two doses of COVID-19 vaccine, 4.35% took only 1 dose of the vaccine and 0.43% were found to have not taken any doses of the vaccine.

106. Damage in Amphan Cyclone:

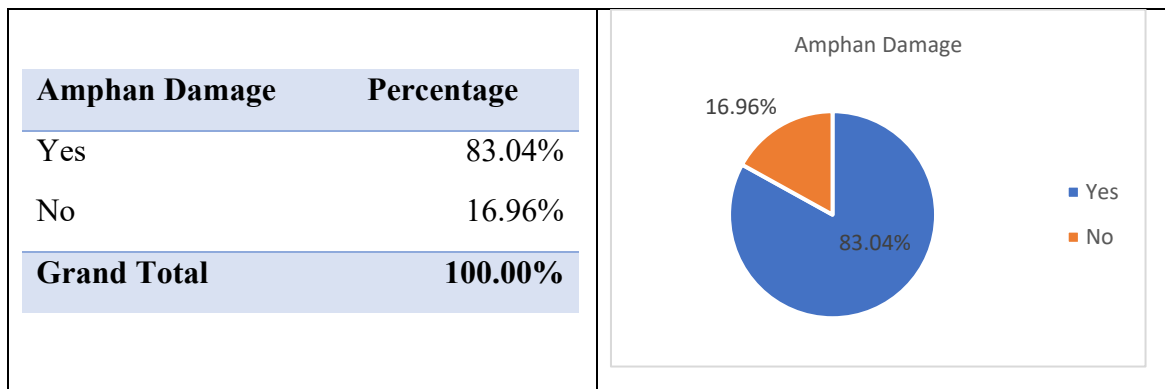


Table 12.6

Analysing the survey data, and from Table 12.6 we can infer that in the Kalyani CD Block, Nadia, most of the surveyed persons (83.04%) and their families were affected by the super cyclone Amphan and combined with COVID-19 pandemic the situation turned for the worse. Houses were severely damaged, crops were destroyed, daily labourers lost their job, children from these family had to leave school and many of them were economically ruined.

107. Degree of Stress:

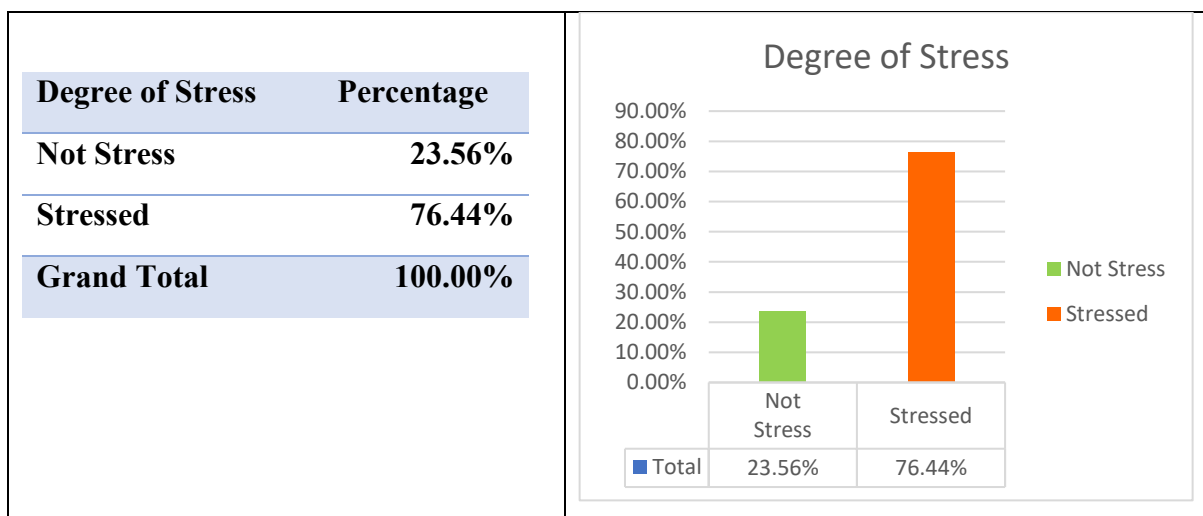


Table 12.7

Analysing the survey data from the General Health Questionnaire (GHQ-12), and from Table 12.7 we can infer that in the Kalyani CD Block, Nadia, 23.56% were found not stressed and 76.44% of the surveyed people were found to be stressed. The people in this region faced the pandemic and the Amphan cyclone together and as we can see it did take a toll on their mental health.

108. Data on gender:

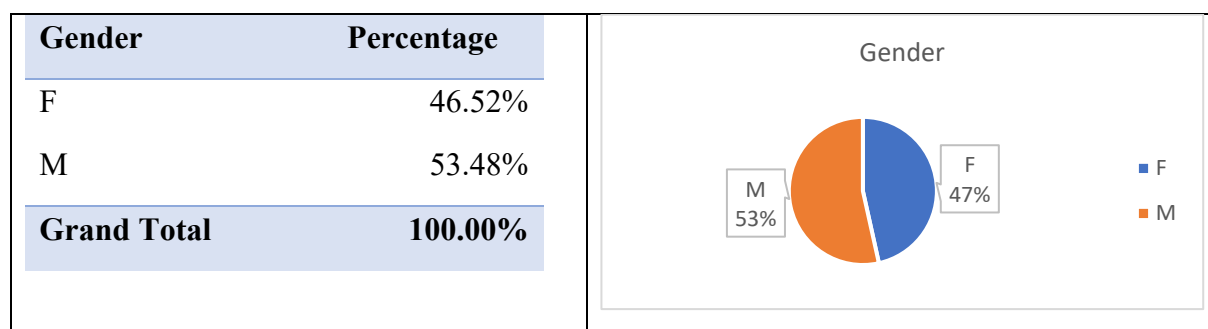


Table 12.8

Analysing the survey data, and from Table 12.8 we can infer that in the Kalyani CD Block, Nadia, among the total surveyed, 53.48% are male and 46.52% are female candidates.

109. Data on qualification:

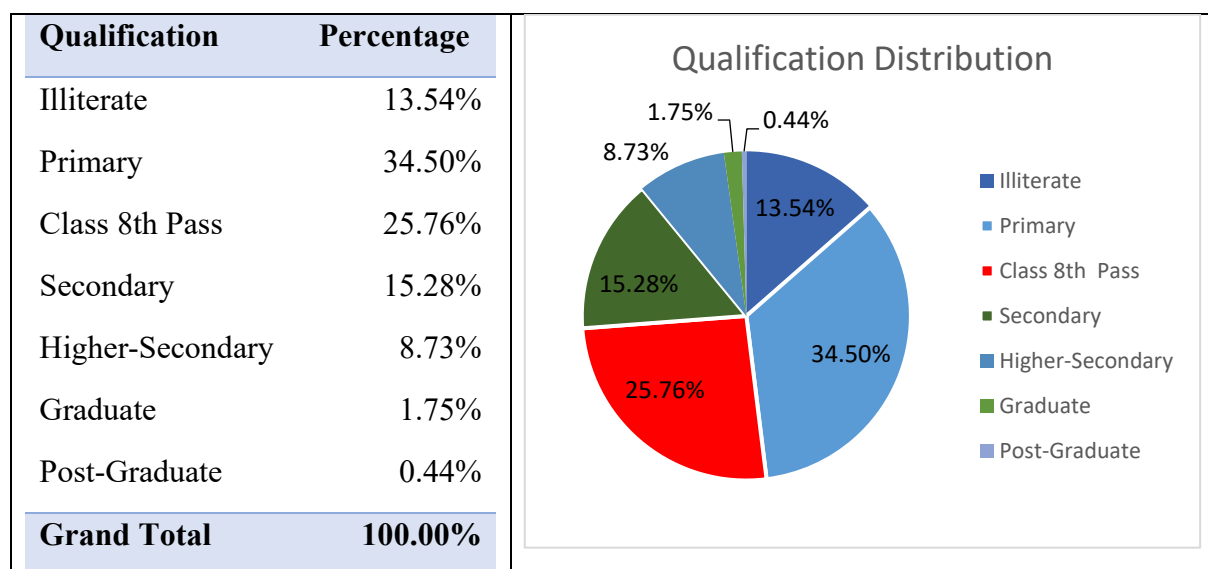


Table 12.9

Analysing from Table 12.9 we can infer that in the Kalyani CD Block, Nadia, that 13.54% are found to be illiterate, 34.50% of the surveyed have done studies till Primary school followed by 25.76% belong Class 8th Pass, 15.28% have passed secondary exams, 8.73% have higher-secondary, 1.75% belong to graduate category and 0.44% are post graduates.

110. Data on age:

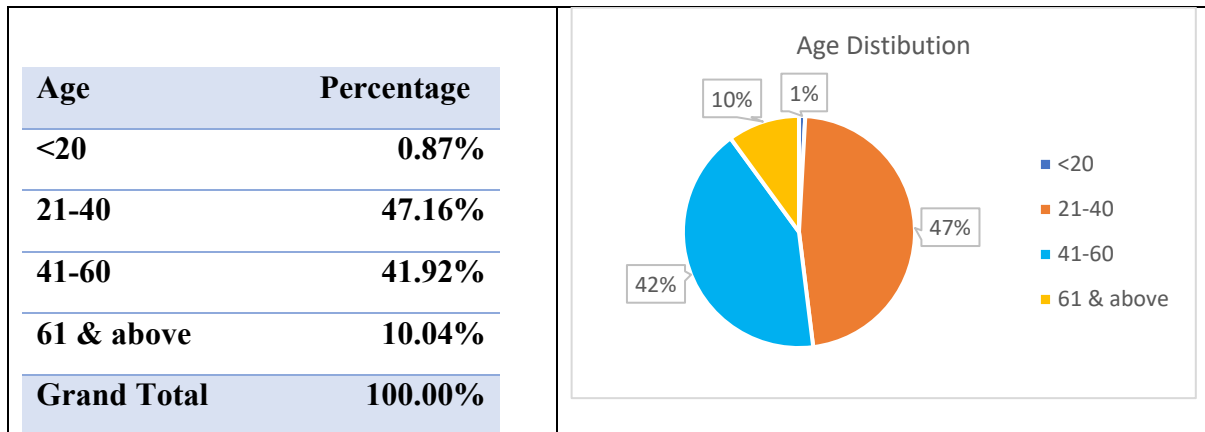


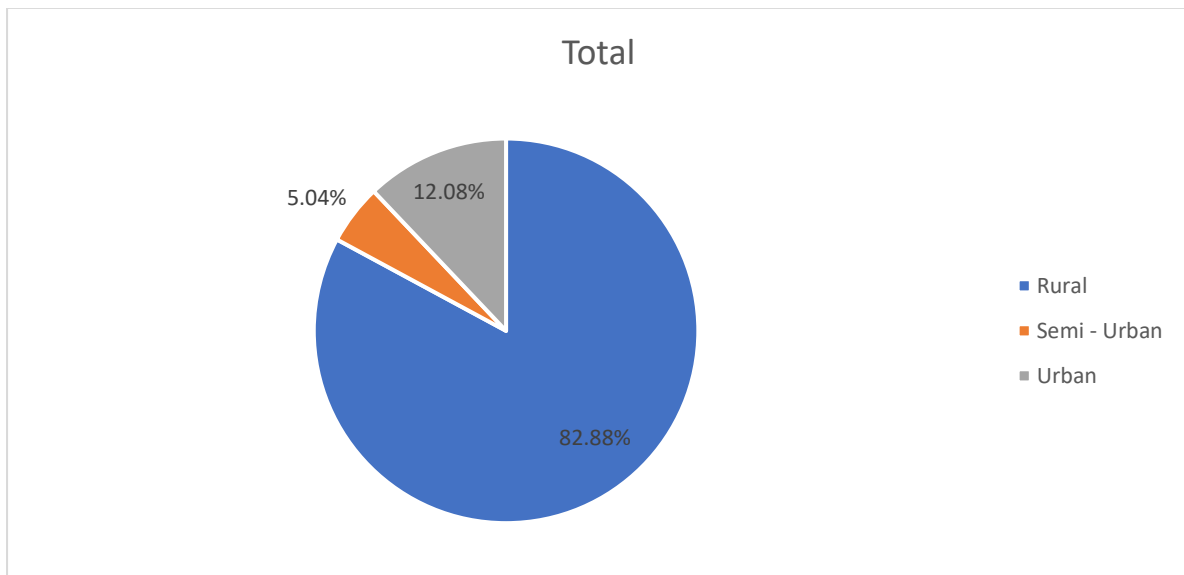
Table 12.10

Analysing the survey data, and from Table 12.10 we can infer that in the Kalyani CD Block, Nadia, age below 20 years are 0.87%, 47.16% belong to 21-40 age group 41.92% belonging to 41-60 age group and 10.04% belongs to 61 & above.

Part II: Observations Depending on Rural, Urban, and Semi-Urban Areas which have been Surveyed

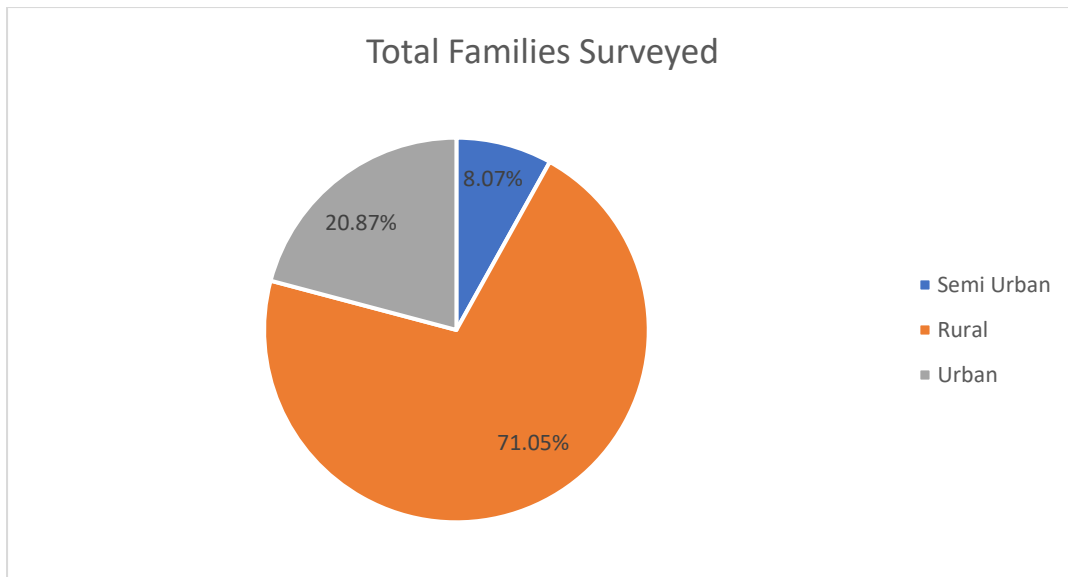
1. Actual population of 11 areas in total:

Row Labels	Sum of Total Population
Rural	82.88%
Semi-Urban	5.04%
Urban	12.08%
Grand Total	100.00%



2. Families surveyed:

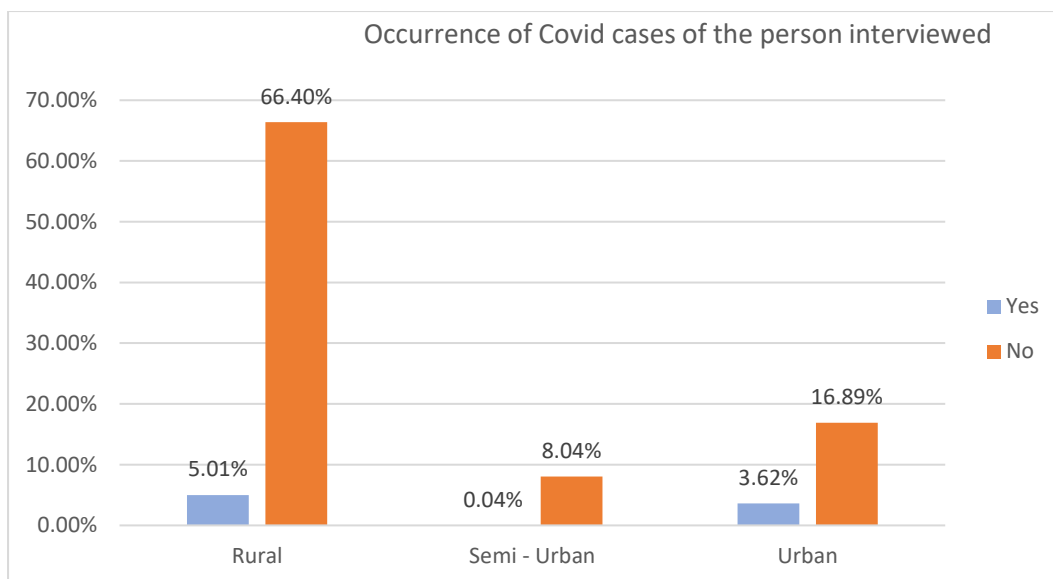
Type of CD Block	Percentage
Semi-Urban	8.07%
Rural	71.05%
Urban	20.87%
Grand Total	100.00%



Out of 2810 surveyed families 71.05% belong to the rural Bengal mostly the Sundarbans region followed by 8.07% belong to the semiurban areas or regions and 20.87% belong to the urban region of the 2 districts that were taken what's the survey namely South 24 parganas and Nadia districts of West Bengal.

3. Occurrence of COVID-19 cases of the person interviewed:

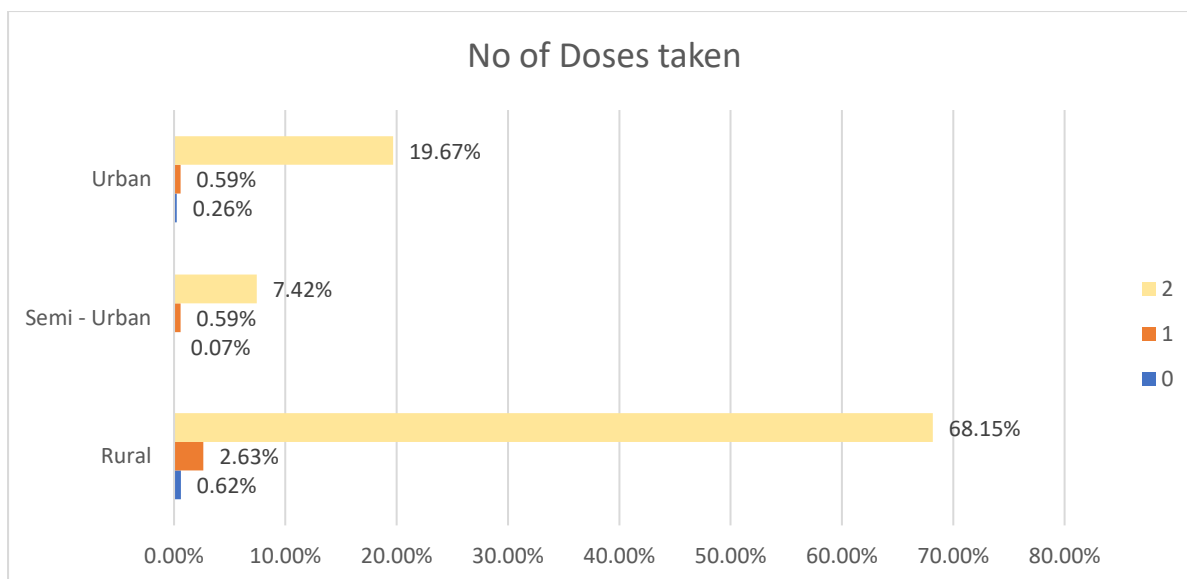
COVID+ case	Column Labels		
	Yes	No	Grand Total
Row Labels			
Rural	5.01%	66.40%	71.41%
Semi-Urban	0.04%	8.04%	8.08%
Urban	3.62%	16.89%	20.51%
Grand Total	8.67%	91.33%	100.00%



From the information that we have gathered from the survey we can see that occurrence of court cases in all types of population namely rural Semi-Urban and urban have been found very small 5.01% in rural 0.04% in semiurban and 3.62% in urban areas. It was reported in the survey that most of the participants did not find or have any COVID-19 symptoms according to the table above.

4. Number of doses a vaccine taken (by the person interviewed):

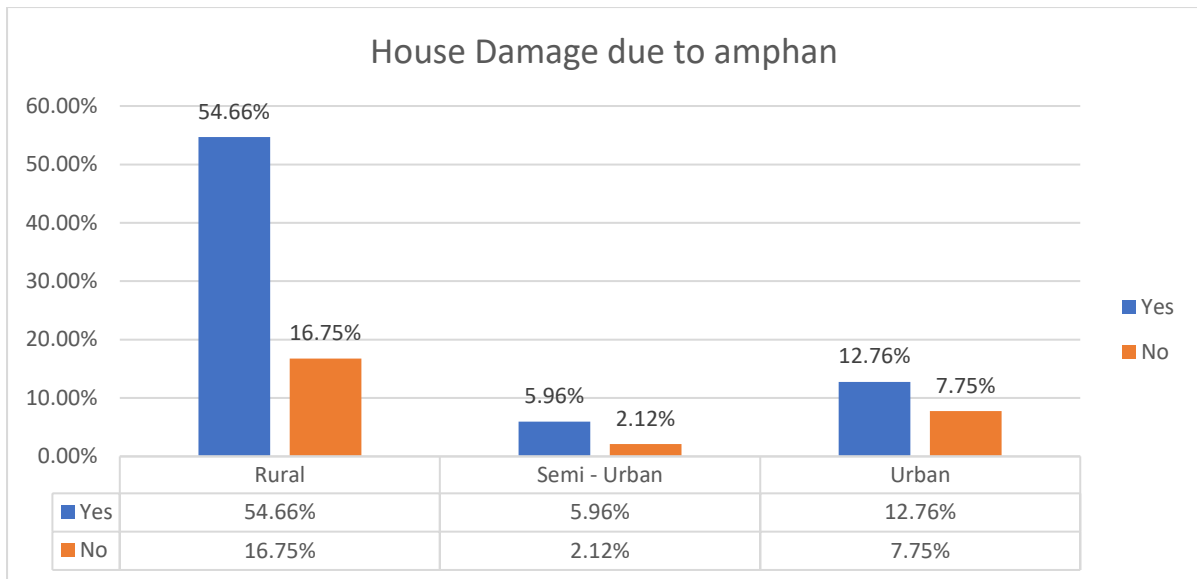
Type of population	No of doses taken			
Row Labels	0	1	2	Grand Total
Rural	0.62%	2.63%	68.15%	71.41%
Semi-Urban	0.07%	0.59%	7.42%	8.08%
Urban	0.26%	0.59%	19.67%	20.51%
Grand Total	0.95%	3.80%	95.25%	100.00%



According to the survey data we have found out that maximum people who had been served has taken both doses off the COVID-19 vaccine. According to the data 68.15% took 2 doses of the vaccine followed by 19.67% in the urban regions and 7.47 percent in the Semi-Urban areas. We can say that most Arthur population wherever about the deadly virus COVID-19 and followed the guidelines accordingly.

5. House damage in Amphan Cyclone:

Type of population	House damage		
	Yes	No	Grand Total
Rural	54.66%	16.75%	71.41%
Semi-Urban	5.96%	2.12%	8.08%
Urban	12.76%	7.75%	20.51%
Grand Total	73.38%	26.62%	100.00%



According to the survey data we have found out that most of the surveyed area where damaged due to Amphan cyclone. The Sundarbans regions which car was mostly the rural area of West Bengal badly affected by the cyclone Amphan and 54.66% of the rural survey people have said that they had their house damaged by the cyclone. 5.96% off the affected people had their house damaged in Semi-Urban areas and 12.76 percent also faced and got their house damaged by Amphan cyclone.

PART III: Stress Report

A) Stress Report on Basanti Block, South 24 Parganas

111. Age & Stress:

G.P./ Block		(Multiple Items)		
Age x Stress	Stress Score			Grand Total
	Not Stressed (0-11)	Stressed (12-36)		
Age Category				
15-40	37.06%	62.94%		100.00%
41-60	37.13%	62.87%		100.00%
61 & above	46.48%	53.52%		100.00%
Grand Total	38.23%	61.77%		100.00%

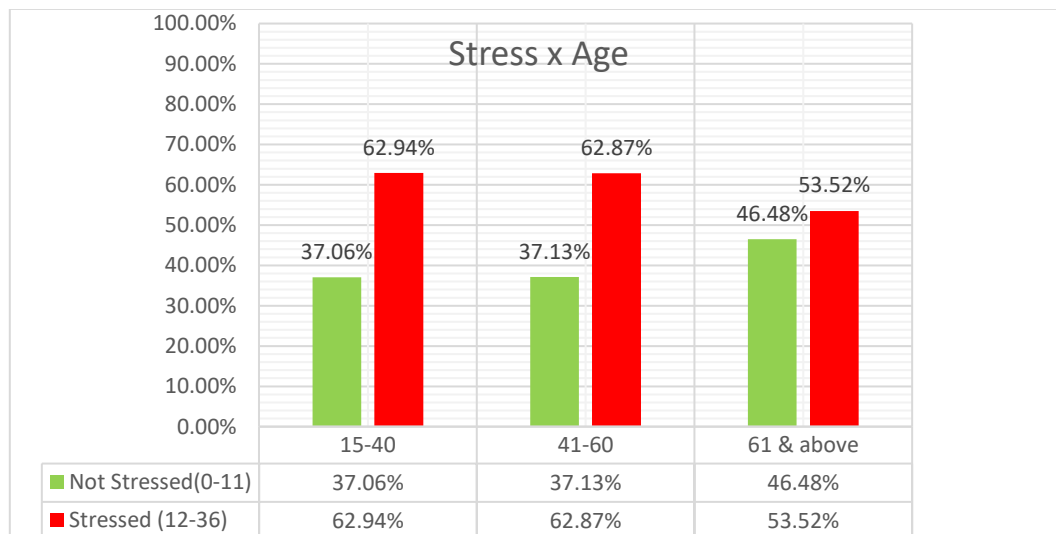


Table 13.1

After analysing Covariant Age with Stress taking all respondents of the Basanti block in consideration, we see that there is 62.94% are stressed between 15-40 age group, 62.87% are stressed among the age group 41-60 years old and 53.52% are stressed among 61 & above.

112. **Qualification x Stress:**

G.P./ Block Basanti CD Block

Qualification x Stress	Stress Score		Grand Total
	Not Stressed (0-11)	Stressed (12-36)	
Qualification			
Illiterate	30.39%	69.61%	100.00%
Primary	43.82%	56.18%	100.00%
Class 8th Passed	38.30%	61.70%	100.00%
Secondary	39.39%	60.61%	100.00%
Higher-Secondary	41.67%	58.33%	100.00%
Graduate	0.00%	100.00%	100.00%
Grand Total	38.16%	61.84%	100.00%

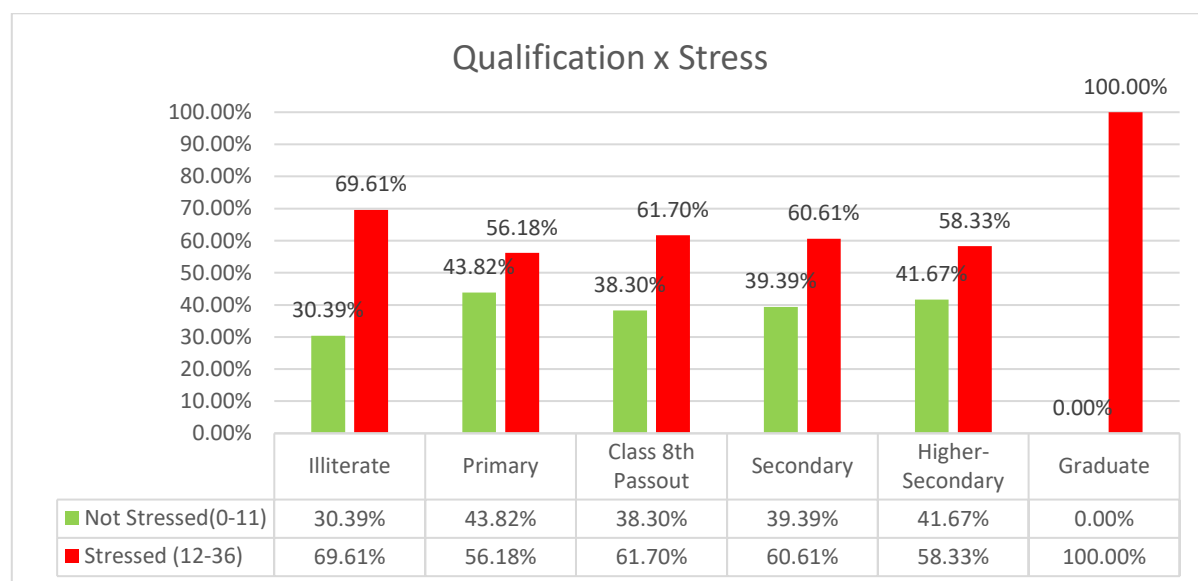


Table 13.2

After analysing Covariant Qualification with Stress taking all respondents of the Basanti block in consideration, we see that among the illiterates 69.61% of this group are stressed. Those who studied till primary school and were stressed are found to be 56.18%. 61.70% were found to be stressed among the Class 8th Passed respondents. 60.61% were found to be stressed among the Secondary Passed respondents. 58.33% were found to be stressed among the Higher Secondary.

113. Family Income Distribution:

G.P./ Block	Basanti CD Block
-------------	------------------

Income x Stress	Stress Score		Grand Total
	Not Stressed (0-11)	Stressed (12-36)	
Income Slab			
₹ 0 - ₹ 3000	37.41%	62.59%	100.00%
₹ 3,000 - ₹ 10,000	28.72%	71.28%	100.00%
₹10,001 & above	0.00%	100.00%	100.00%
Grand Total	35.59%	64.41%	100.00%

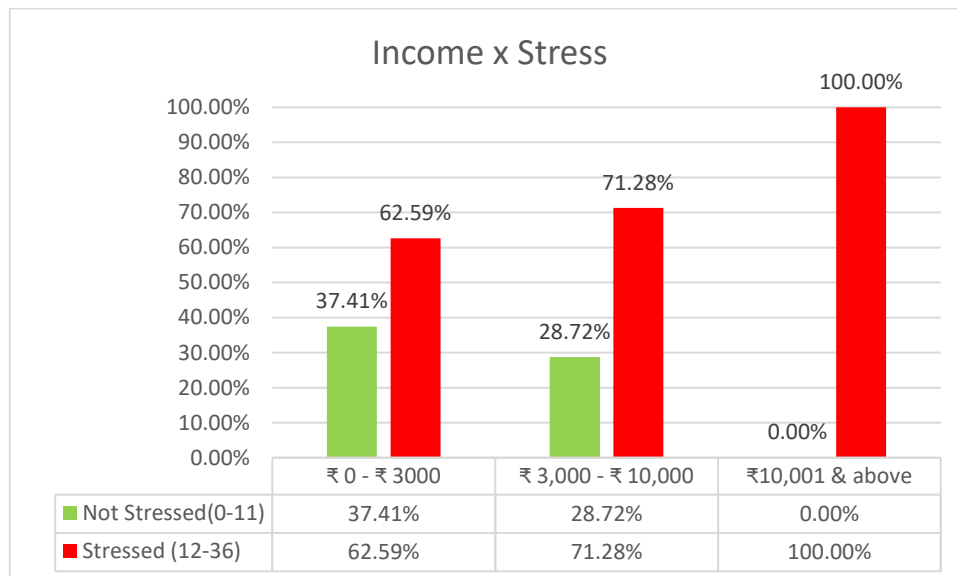


Table 13.3

Analysing covariant Income with Stress taking all respondents of Basanti blocks in consideration we see that 62.59%, 71.28% and 100% were found to be stressed among the ₹ 0 - ₹ 3000, ₹ 3,000 - ₹ 10,000, ₹10,001 & above Income Slab respectively.

114. Data on gender:

Gender Category	Stress Score		
	Not Stressed (0-11)	Stressed (12-36)	Grand Total
Row Labels			
M	40.59%	59.41%	100.00%
F	22.86%	77.14%	100.00%
Grand Total	38.56%	61.44%	100.00%

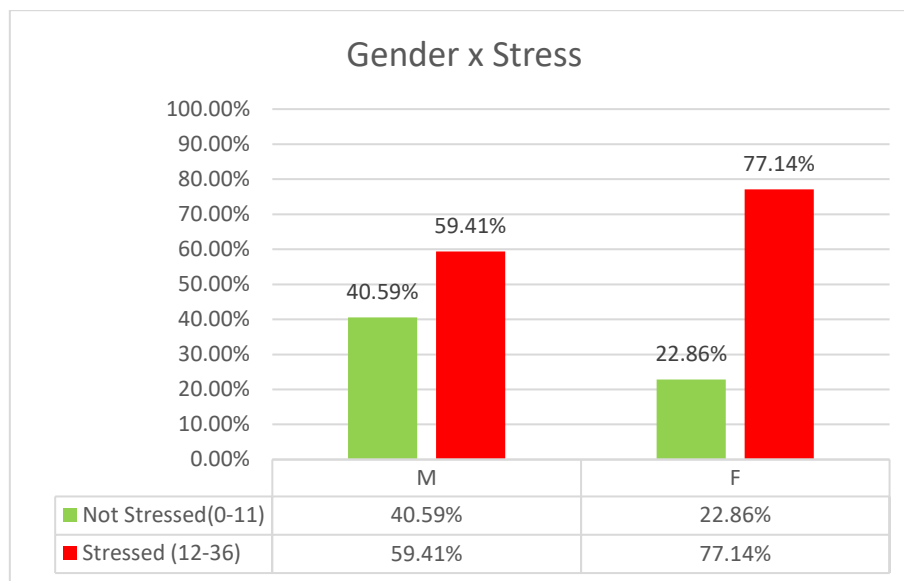


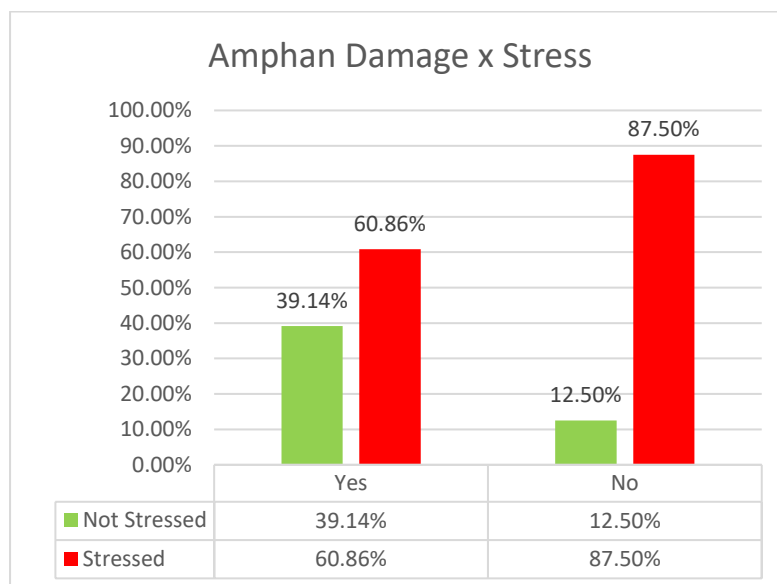
Table 13.4

Analysing the survey data, and from Table 13.4 we can infer that in the Basanti CD Block, South 24 Parganas, among the total surveyed ,11.11% are females while 88.89% are males. Among this we see that 61.85% of the male respondents are stressed whereas 73.18% are stressed among the total female respondents.

115. Data on Amphan Damage:

G.P./ Block		(Multiple Items)		
Amphan Damage	Stress		Grand Total	
	Not Stressed	Stressed		
Row Labels				
Yes	39.14%	60.86%	100.00%	
No	12.50%	87.50%	100.00%	
Grand Total	38.80%	61.20%	100.00%	

Table 13.5



Analysing covariant Amphan Damage with Stress taking all respondents of the Basanti block in consideration we see that 60.86% are stressed among those who were affected by the Amphan damage. Quite interestingly, we have found out according to the data that 87.50% were stressed among those who answered that they were not affected by the cyclone.

116. Data on COVID-19 and Stress:

G.P./ Block Basanti CD Block

COVID-19 Positive	Stress		Grand Total
	Not Stressed	Stressed	
Row Labels			
Yes	68.00%	32.00%	100.00%
No	34.75%	65.25%	100.00%
Grand Total	38.80%	61.20%	100.00%

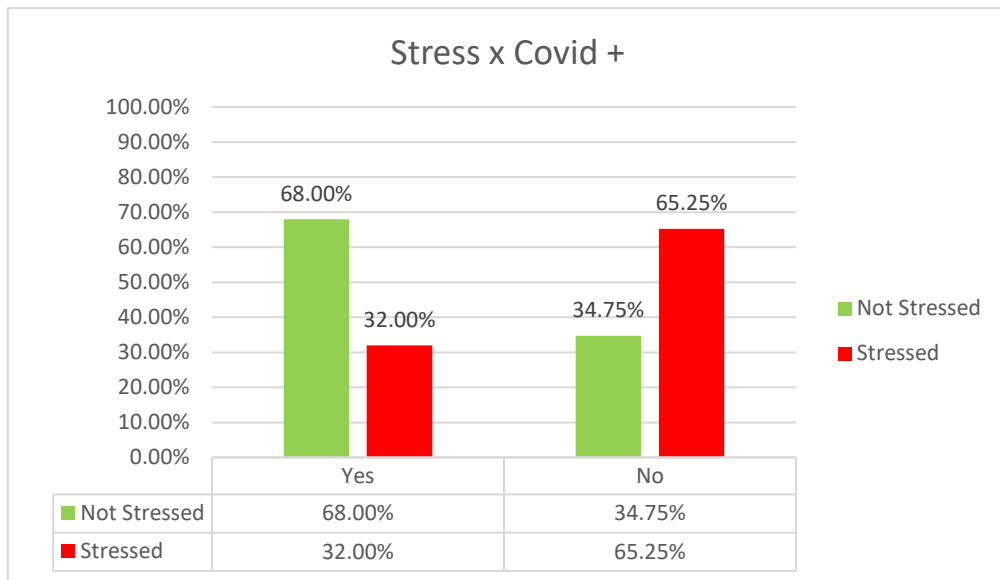


Table 13.6

Analysing covariant Covid+ with Stress taking all respondents of the Basanti block in consideration we see that 32% are stressed among those who were infected by the Covid. Quite interestingly, we have found out according to the data that 65.25% were stressed among those who answered that they were not infected by the virus.

117. Vaccine among Covid+ x Stress:

G.P./ Block	Basanti CD Block
COVID+	Yes

Vaccine doses x Stress	Stress Score		Grand Total
	Not Stressed	Stressed	
No of Doses			
1	0.00%	100.00%	100.00%
2	69.86%	30.14%	100.00%
Grand Total	68.00%	32.00%	100.00%

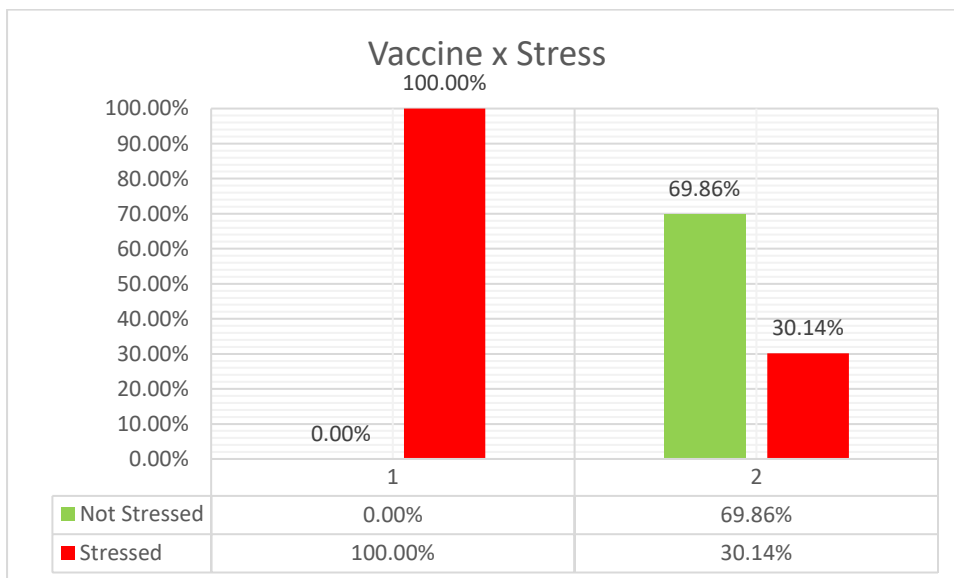


Table 13.7

Analysing covariant Covid+ and Vaccine with Stress taking all respondents of Basanti blocks in consideration we see that 30.14% are stressed among those who took 2 doses of vaccine. But the amount of COVID+ positive were very less.

118. Help due to Amphan Damage x Stress:

G.P./ Block	Basanti CD Block
damage by Amphan	Yes

Help x Stress	Stress		Grand Total
	Not Stressed	Stressed	
Help for Amphan			
Yes	31.58%	68.42%	100.00%
No	39.93%	60.07%	100.00%
Grand Total	39.40%	60.60%	100.00%

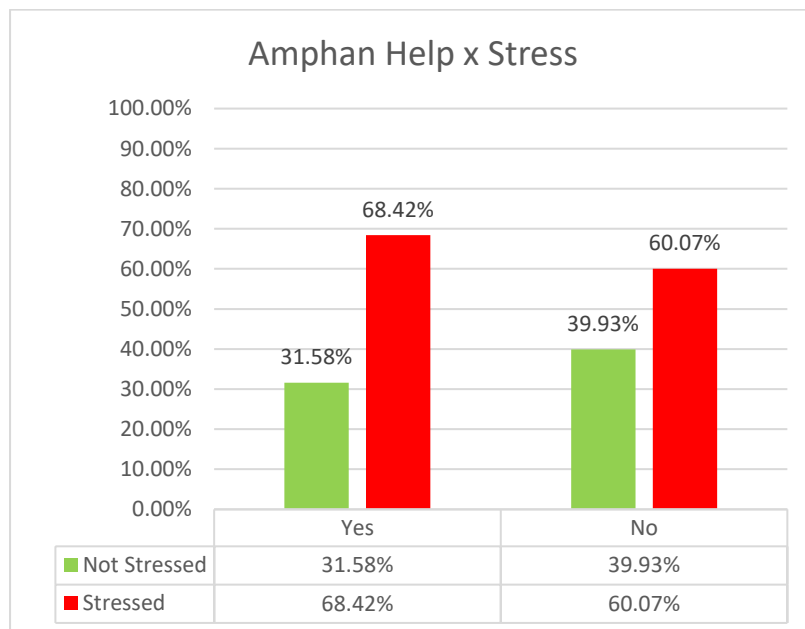


Table 13.8

Analysing covariant Amphan Help received with Stress taking all respondents of the Basanti block in consideration we see that 68.42% were stressed among those who were affected by the cyclone Amphan received help from different sources. 60.07% were also found to be stressed in the category of no help was received from govt or any other organisation.

B) Stress Report on Canning - I Block, South 24 Parganas

119. Age & Stress:

G.P./ Block	Canning CD Block
-------------	------------------

Age x Stress	Stress Score		Grand Total
	Not Stressed (0-11)	Stressed (12-36)	
Age Category			
15-40	30.72%	69.28%	100.00%
41-60	27.09%	72.91%	100.00%
61 & above	44.68%	55.32%	100.00%
Grand Total	31.66%	68.34%	100.00%

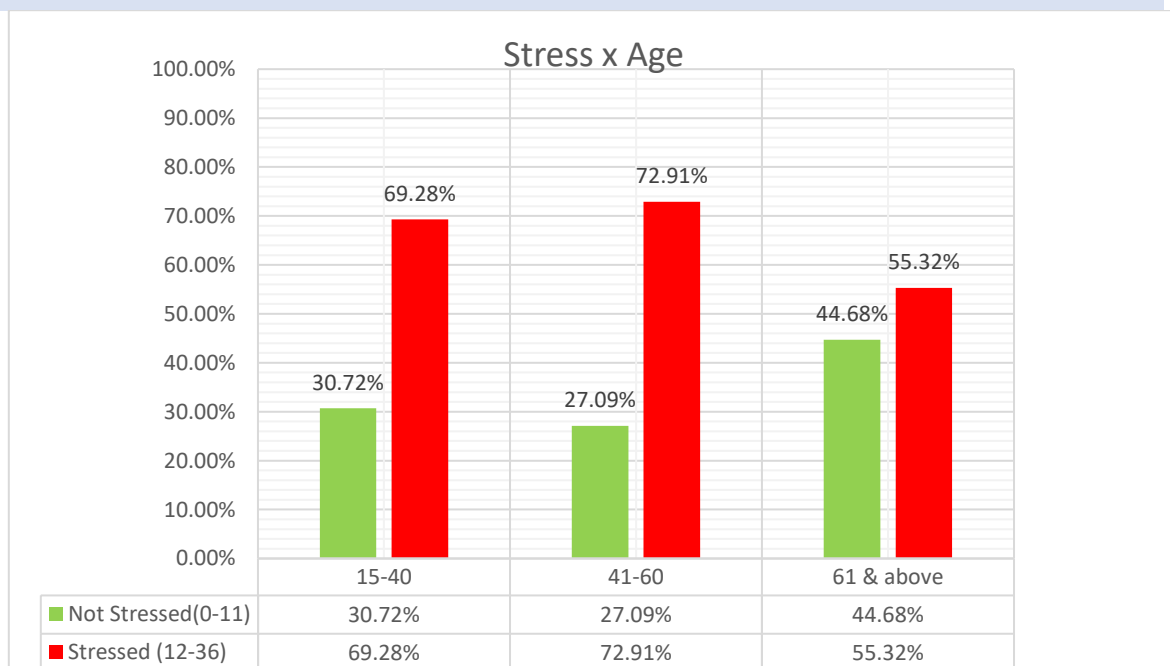


Table 13.9

After analysing Covariant Age with Stress taking all respondents of the Canning-I block in consideration we see that there is 69.28% are stressed between 15-40 age group, 72.91% are stressed among the age group 41-60 years old and 55.32% are stressed among 61 & above.

120. **Qualification x Stress:**

G.P./ Block	Canning CD Block
-------------	------------------

Qualification x Stress	Stress Score		Grand Total
	Not Stressed (0-11)	Stressed (12-36)	
Qualification			
Illiterate	32.06%	67.94%	100.00%
Primary	31.46%	68.54%	100.00%
Class 8th Passed	26.26%	73.74%	100.00%
Secondary	37.93%	62.07%	100.00%
Higher-Secondary	40.63%	59.38%	100.00%
Graduate	16.67%	83.33%	100.00%
Grand Total	31.39%	68.61%	100.00%

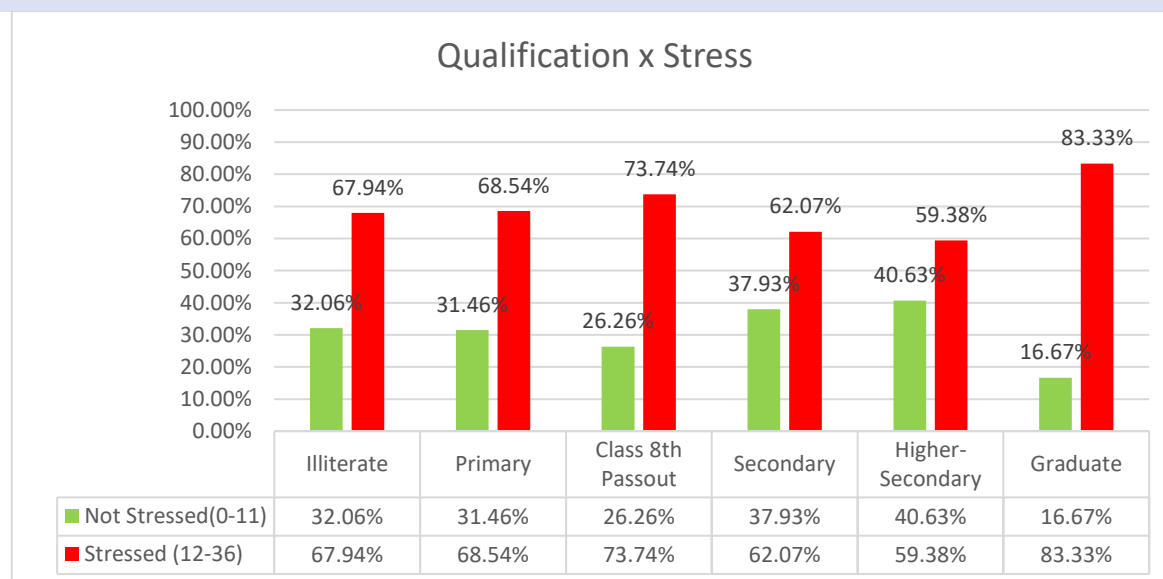


Table 13.10

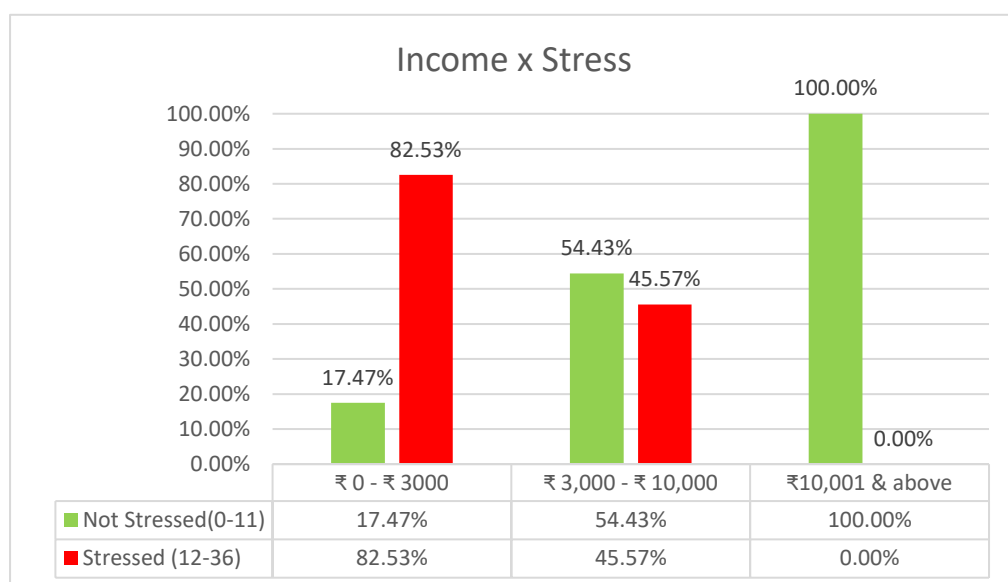
After analysing Covariant Qualification with Stress taking all respondents of the Canning, I block in consideration we see that among the illiterates 67.94% of this group are stressed. The number reduces gradually as the qualification increases. Those who studied till primary school and were stressed are found to be 68.54%. 73.74% were found to be stressed among the Class 8th Passed respondents. 62.07% were found to be stressed among the Secondary Passed respondents. 59.38% and 83.33% were found to be stressed among the Higher Secondary and Graduate groups respectively.

121. Family Income Distribution:

G.P./ Block Canning CD Block

Income x Stress	Stress Score		Grand Total
	Not Stressed (0-11)	Stressed (12-36)	
Income Slab			
₹ 0 - ₹ 3000	17.47%	82.53%	100.00%
₹ 3,000 - ₹ 10,000	54.43%	45.57%	100.00%
₹10,001 & above	100.00%	0.00%	100.00%
Grand Total	28.42%	71.58%	100.00%

Table 13.11



Analysing covariant Income with Stress taking all respondents of Canning I blocks in consideration we see that 82.53%, 45.57% and 0% were found to be stressed among the ₹ 0 - ₹ 3000, ₹ 3,000 - ₹ 10,000, ₹10,001 & above Income Slab respectively.

122. Data on gender:

G.P./ Block Canning CD Block

Gender Category	Stress Score		Grand Total
	Not Stressed (0-11)	Stressed (12-36)	
Row Labels			
M	31.61%	68.39%	100.00%
F	31.25%	68.75%	100.00%
Grand Total	31.56%	68.44%	100.00%

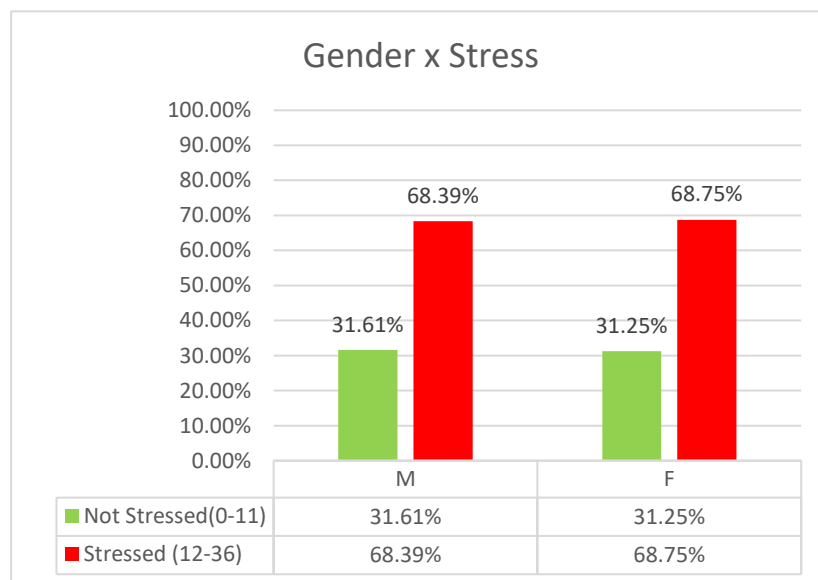


Table 13.12

Analysing the survey data, and from Table 13.12 we can infer that in the Canning I CD Block, South 24 Parganas, among the total surveyed we see that 68.39% of the male respondents are stressed whereas 68.75% are stressed among the total female respondents.

123. Data on Amphan Damage:

G.P./ Block		Canning CD Block		
Amphan Damage	Stress		Grand Total	
	Not Stressed	Stressed		
Row Labels				
Yes	31.56%	68.44%	100.00%	
No	0.00%	100.00%	100.00%	
Grand Total	31.46%	68.54%	100.00%	

Table 22.5

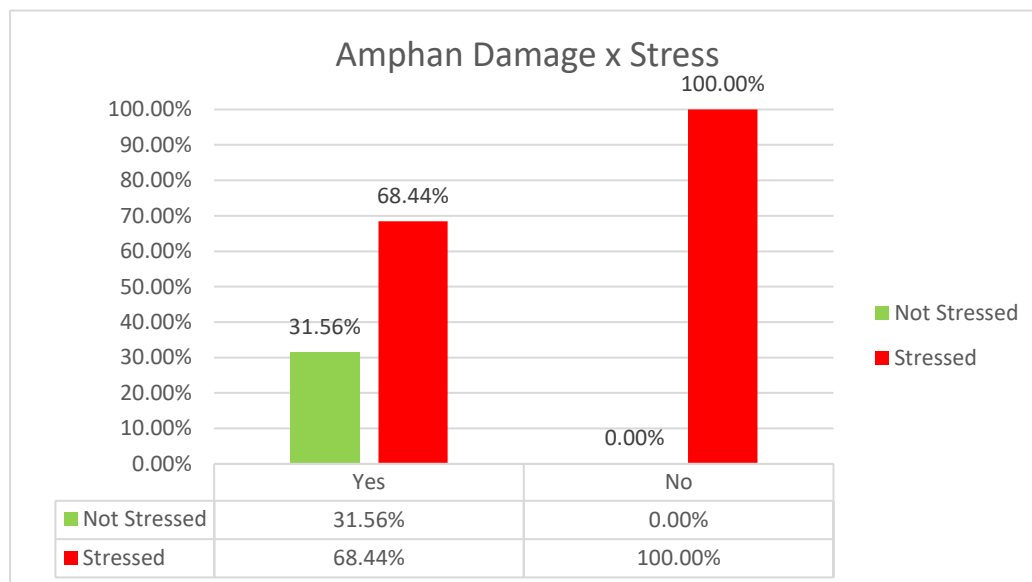
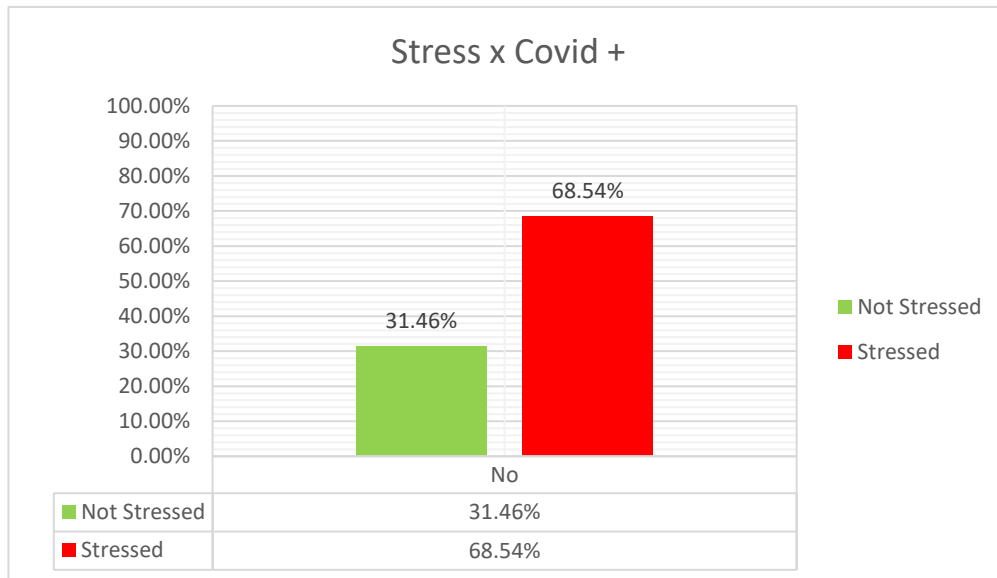


Table 13.13

Analysing covariant Amphan Damage with Stress taking all respondents of the Canning I block in consideration we see that 68.44% are stressed among those who were affected by the Amphan damage. Quite interestingly, we have found out according to the data that 100% were stressed among those who answered that they were not affected by the cyclone.

124. Data on COVID-19 and Stress:



G.P./ Block Canning CD Block

COVID-19 Positive	Stress		Grand Total
	Not Stressed	Stressed	
Row Labels			
No	31.46%	68.54%	100.00%
Grand Total	31.46%	68.54%	100.00%

Table 13.14

Analysing covariant Covid+ with Stress taking all respondents of Canning I block in consideration we have found out according to the data that 68.54% were stressed among those who answered that they were not infected by the virus.

125. Vaccine among Covid+ x Stress:

G.P./ Block	Canning CD Block
13. have you been COVID+ve before?	Yes

Vaccine doses x Stress	Stress Score
No of Doses	Grand Total
Grand Total	0

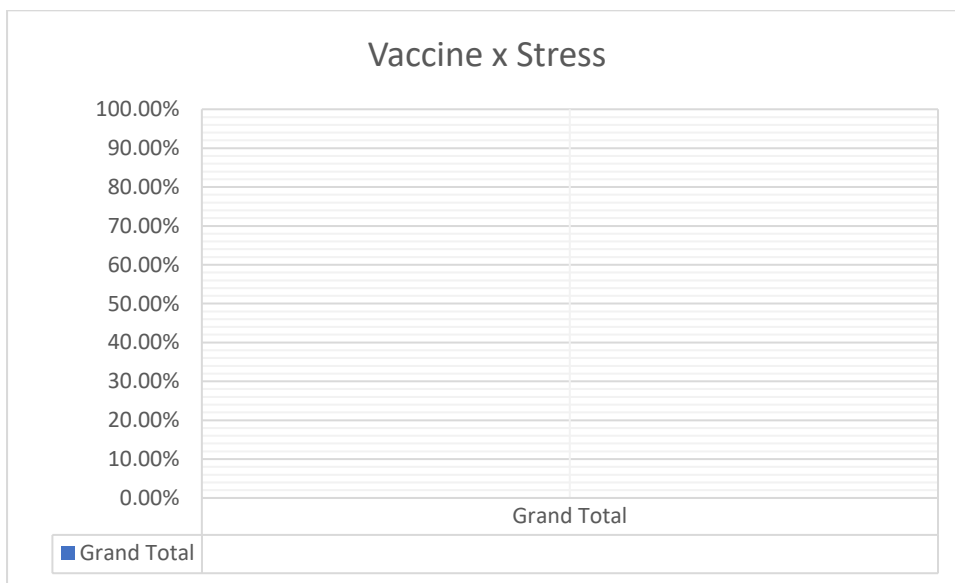


Table 13.15

Analysing covariant Covid+ and Vaccine with Stress taking all respondents of Basanti blocks in consideration we saw there were no respondents with COVID-19 positive data. Hence analysis can't be done for this criterion.

126. Help due to Amphan Damage x Stress:

G.P./ Block	Canning CD Block
damage by Amphan	Yes

Help Received	Stress		Grand Total
	Not Stressed	Stressed	
Yes	71.15%	28.85%	100.00%
No	27.87%	72.13%	100.00%
Grand Total	31.50%	68.50%	100.00%

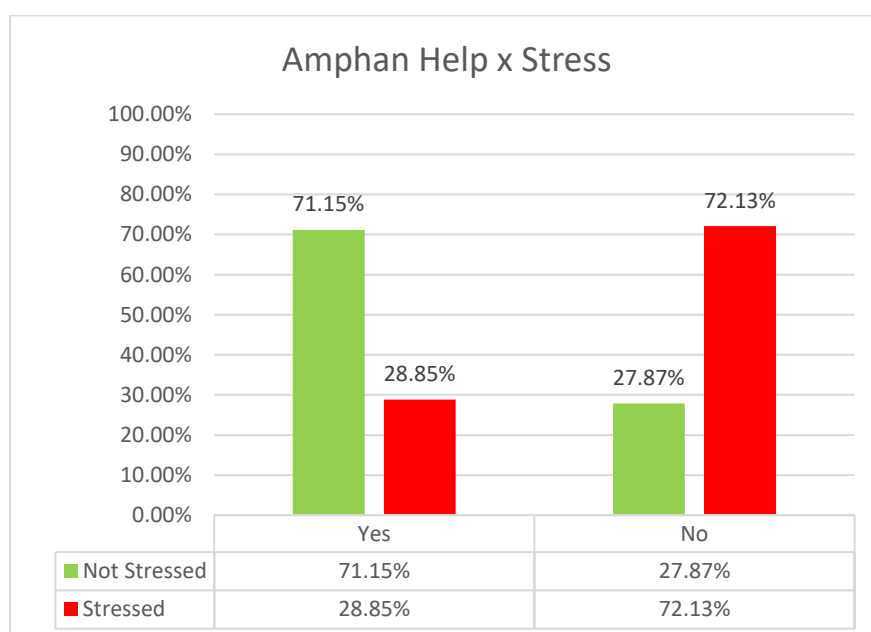


Table 13.16

Analysing covariant Amphan Help received with Stress taking all respondents of the Canning I block in consideration we see that 28.85% were stressed among those who were affected by the cyclone Amphan received help from different sources. 72.13% were also found to be stressed in the category of no help was received from govt or any other organisation.

C) Stress Report on Kulpi Block, South 24 Parganas

127. Age & Stress:

G.P./ Block (Multiple Items)

Age x Stress	Stress Score		
	Not Stressed (0-11)	Stressed (12-36)	Grand Total
Age Category			
15-40	62.50%	37.50%	100.00%
41-60	52.94%	47.06%	100.00%
61 & above	0.00%	100.00%	100.00%
Grand Total	55.77%	44.23%	100.00%

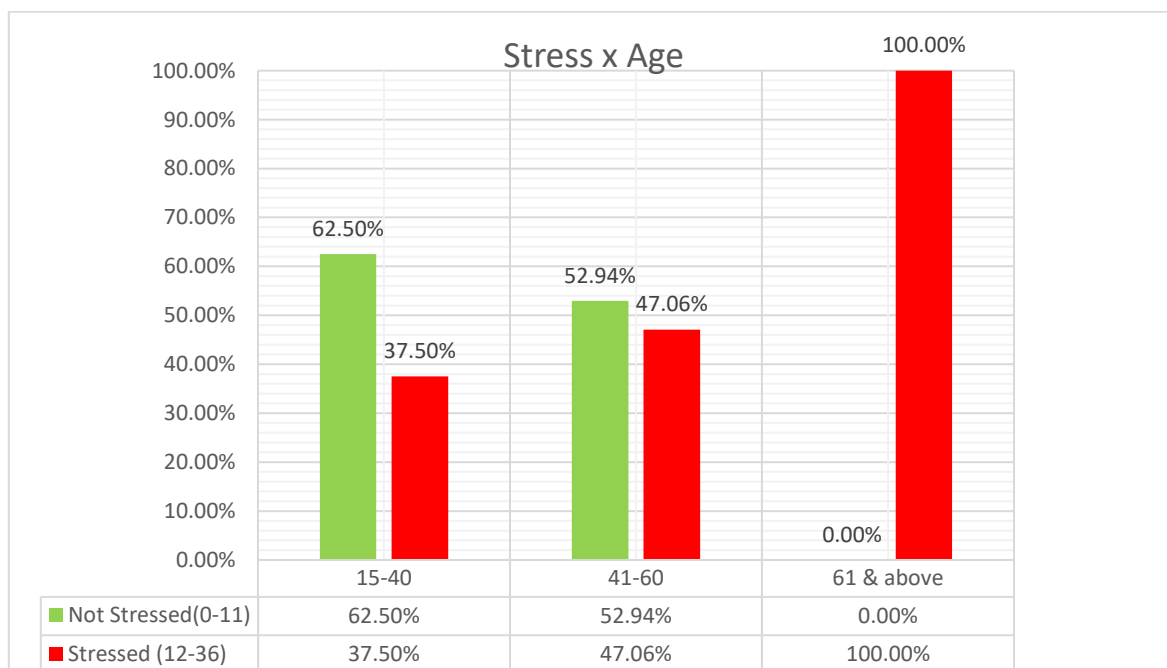


Table 13.17

After analysing Covariant Age with Stress taking all respondents of the Kulpi block in consideration, we see that there is 37.50% are stressed between 15-40 age group, 47.06% are stressed among the age group 41-60 years old and 100% are stressed among 61 & above.

128. **Qualification x Stress:**

G.P./ Block (Multiple Items)

Qualification x Stress	Stress Score		Grand Total
	Not Stressed (0-11)	Stressed (12-36)	
Qualification			
Illiterate	50.00%	50.00%	100.00%
Primary	38.46%	61.54%	100.00%
Class 8th Passed	73.33%	26.67%	100.00%
Secondary	60.00%	40.00%	100.00%
Higher-Secondary	50.00%	50.00%	100.00%
Grand Total	54.72%	45.28%	100.00%

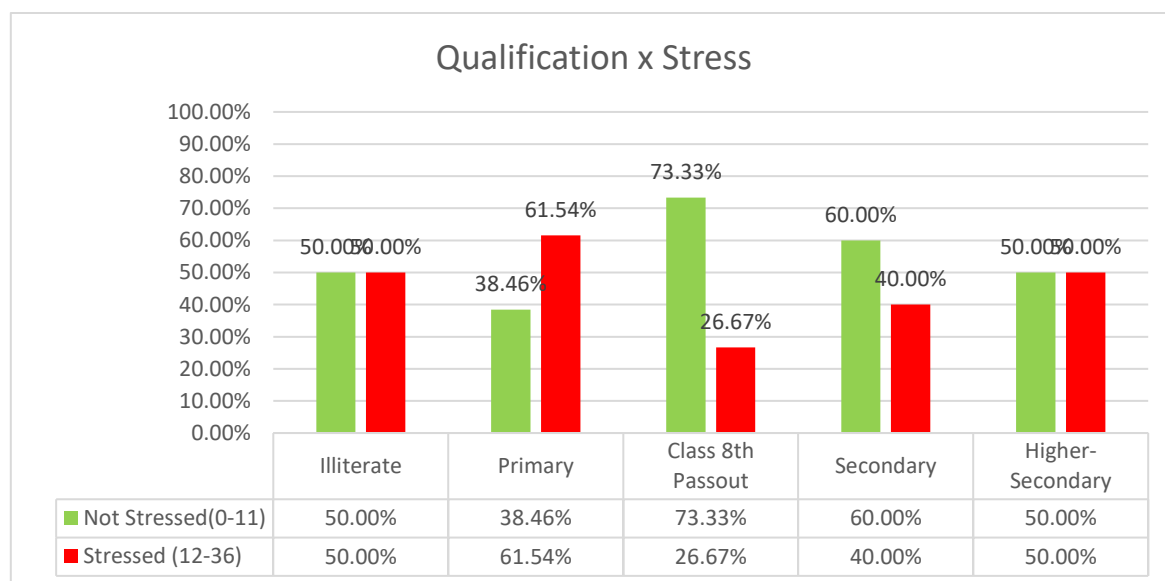


Table 13.18

After analysing Covariant Qualification with Stress taking all respondents of the Kulpi block in consideration, we see that among the illiterates 50% of this group are stressed. The number reduces gradually as the qualification increases. Those who studied till primary school and were stressed are found to be 61.54%. 26.67% were found to be stressed among the Class 8th Passed respondents. 40% were found to be stressed among the Secondary Passed respondents. 50% were found to be stressed among the Higher Secondary.

129. Family Income Distribution:

G.P./ Block	Canning CD Block
-------------	------------------

Income x Stress	Stress Score		
	Not Stressed (0-11)	Stressed (12-36)	Grand Total
Income Slab			
₹ 0 - ₹ 3000	17.47%	82.53%	100.00%
₹ 3,000 - ₹ 10,000	54.43%	45.57%	100.00%
₹10,001 & above	100.00%	0.00%	100.00%
Grand Total	28.42%	71.58%	100.00%

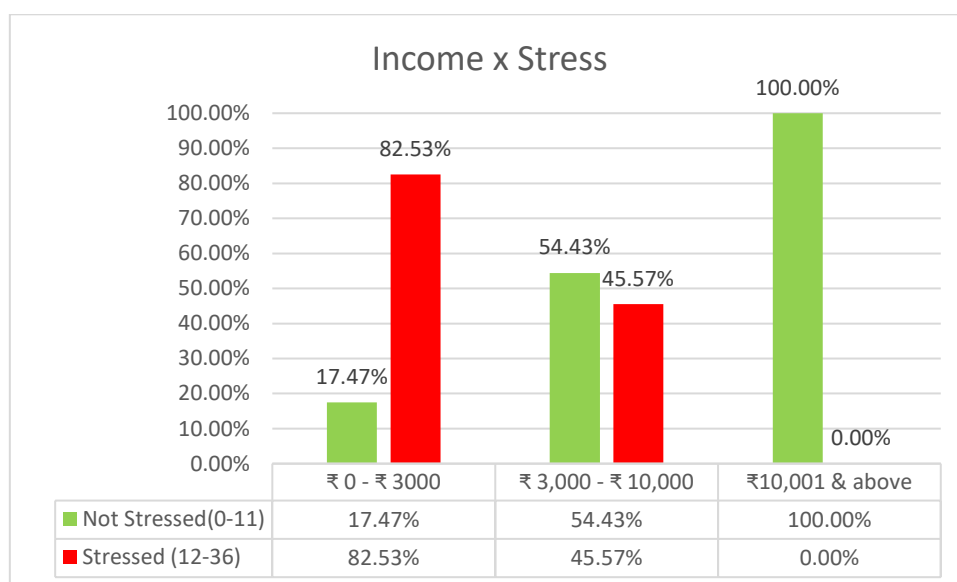


Table 13.19

Analysing covariant Income with Stress taking all respondents of Kulpi blocks in consideration we see that 82.53%, 45.57% and 0% were found to be stressed among the ₹ 0 - ₹ 3000, ₹ 3,000 - ₹ 10,000, ₹10,001 & above Income Slab respectively.

130. Data on gender:

G.P./ Block (Multiple Items)

Gender Category	Stress Score		Grand Total
	Not Stressed (0-11)	Stressed (12-36)	
M	50.00%	50.00%	100.00%
F	77.78%	22.22%	100.00%
Grand Total	54.72%	45.28%	100.00%

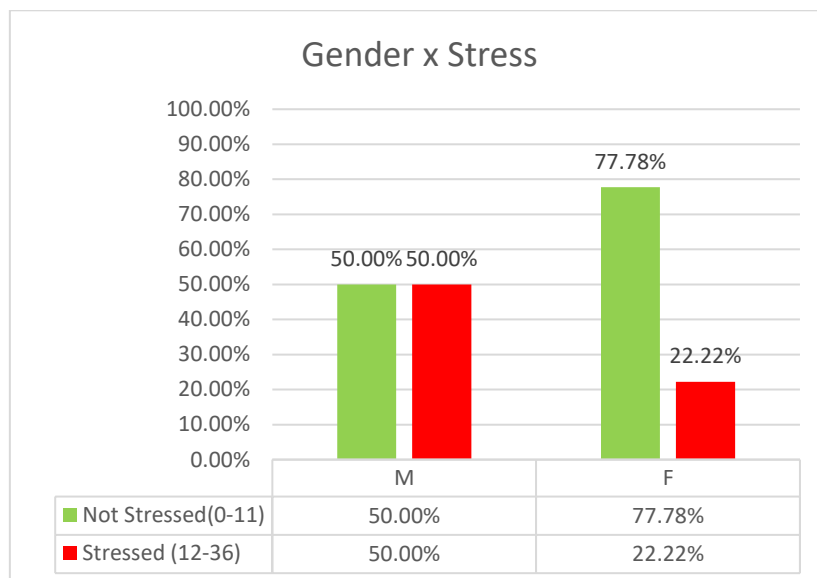


Table 13.20

Analysing the survey data, and from Table 13.20 we can infer that in the Kulpi CD Block, South 24 Parganas, 50% of the male respondents are stressed whereas 22.22% are stressed among the total female respondents.

131. Data on Amphan Damage:

G.P./ Block (Multiple Items)			
Amphan Damage	Stress		Grand Total
	Not Stressed	Stressed	
Row Labels			
Yes	54.72%	45.28%	100.00%
Grand Total	54.72%	45.28%	100.00%

Table 32.5

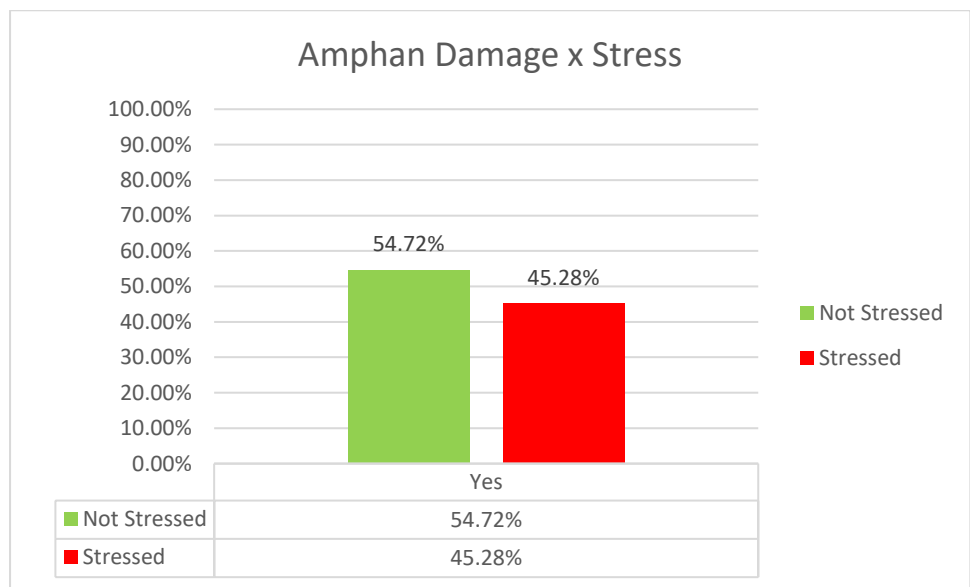


Table 13.21

Analysing covariant Amphan Damage with Stress taking all respondents of the Kulpi block in consideration we see that 45.28% are stressed among those who were affected by the Amphan damage.

132. Data on COVID-19 and Stress:

G.P./ Block (Multiple Items)

COVID-19 Positive	Stress		Grand Total
	Not Stressed	Stressed	
Yes	0.00%	100.00%	100.00%
No	55.77%	44.23%	100.00%
Grand Total	54.72%	45.28%	100.00%

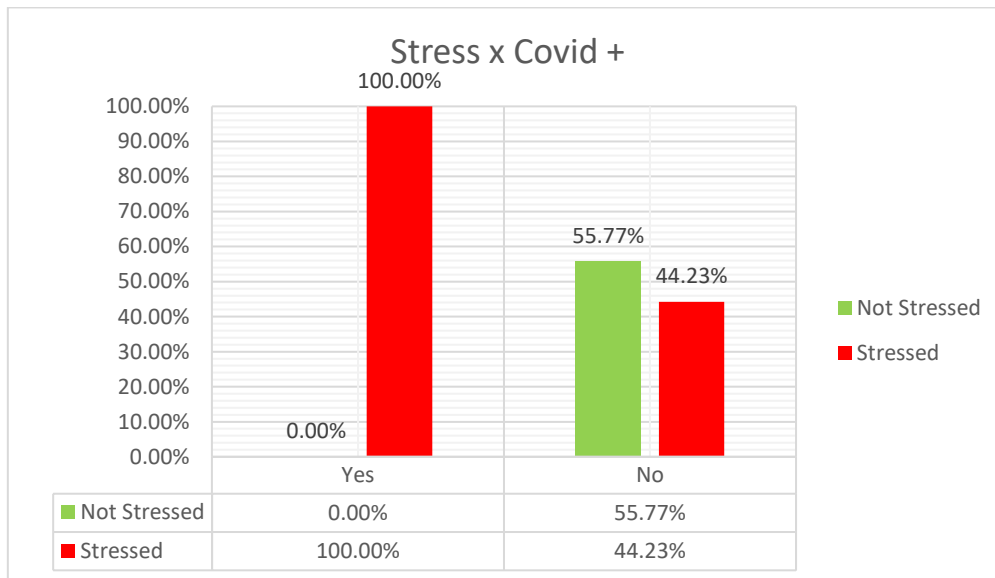


Table 13.22

Analysing covariant Covid+ with Stress taking all respondents of the Kulpi block in consideration we see that 100% are stressed among those who were infected by the Covid. Quite interestingly, we have found out according to the data that 44.23% were stressed among those who answered that they were not infected by the virus.

133. Vaccine among Covid+ x Stress:

G.P./ Block	(Multiple Items)
13. have you been COVID+ve before?	Yes

Vaccine doses x Stress	Stress Score	
	Stressed	Grand Total
No of Doses		
2	100.00%	100.00%
Grand Total	100.00%	100.00%

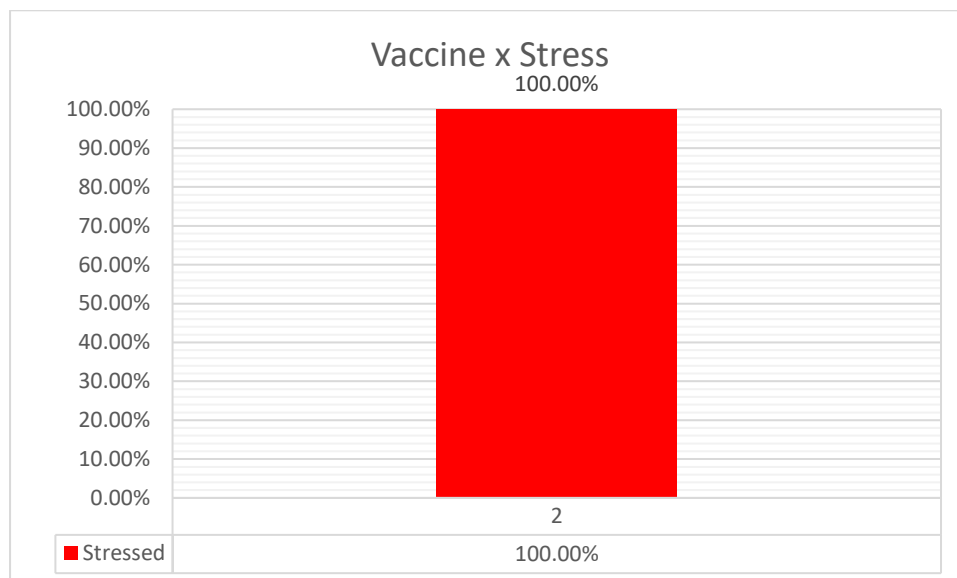


Table 13.23

Analysing covariant Covid+ and Vaccine with Stress taking all respondents of Kulpi blocks in consideration we see that 100% are stressed among those who took 2 doses of vaccine. But the amount of COVID+ positive were very less.

134. Help due to Amphan Damage x Stress:

G.P./ Block damage by Amphan	(Multiple Items) Yes
------------------------------------	-----------------------------

Help Received	Stress		Grand Total
	Not Stressed	Stressed	
Yes	0.00%	100.00%	100.00%
No	55.77%	44.23%	100.00%
Grand Total	54.72%	45.28%	100.00%

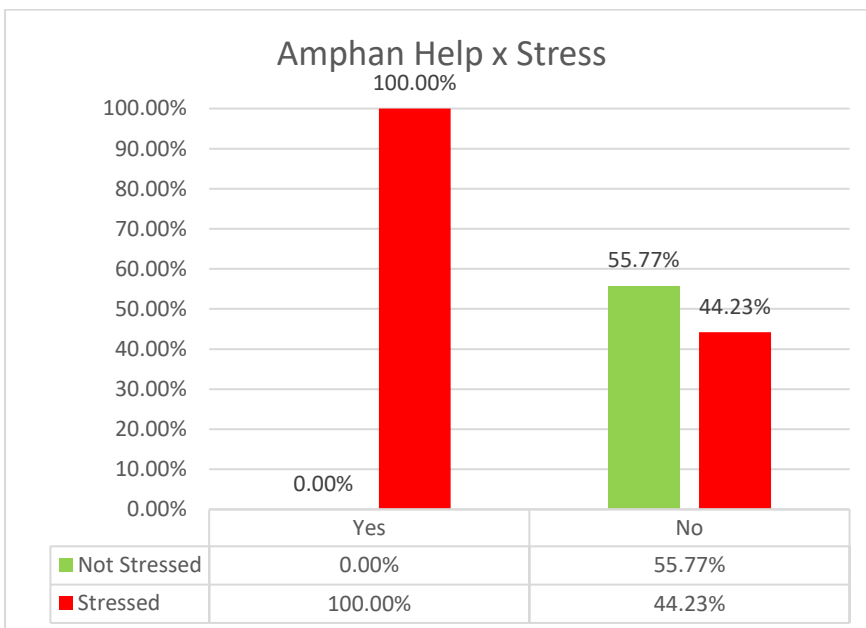


Table 13.24

Analysing covariant Amphan Help received with Stress taking all respondents of the Kulpi block in consideration we see that 100% were stressed among those who were affected by the cyclone Amphan received help from different sources. 44.23% were also found to be stressed in the category of no help was received from govt or any other organisation.

D) Stress Report on Kultali Block, South 24 Parganas

135. Age & Stress:

G.P./ Block	KULTALI
-------------	---------

Age x Stress	Stress Score		
	Not Stressed (0-11)	Stressed (12-36)	Grand Total
Age Category			
15-40	34.78%	65.22%	100.00%
41-60	39.44%	60.56%	100.00%
61 & above	58.82%	41.18%	100.00%
Grand Total	39.49%	60.51%	100.00%

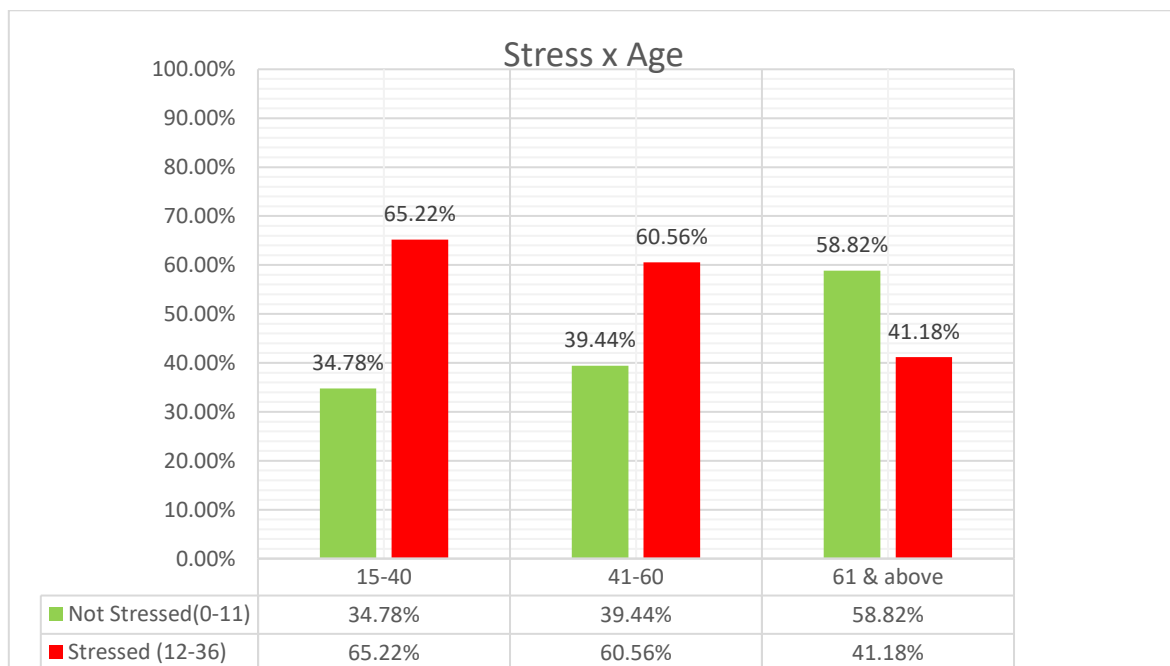


Table 13.25

After analysing Covariant Age with Stress taking all respondents of the Kultali block in consideration we see that there is 65.22% are stressed between 15-40 age group, 60.56% are stressed among the age group 41-60 years old and 41.18% are stressed among 61 & above.

136. **Qualification x Stress:**

G.P./ Block	KULTALI
-------------	---------

Qualification x Stress	Stress Score		
	Not Stressed (0-11)	Stressed (12-36)	Grand Total
Qualification			
Illiterate	53.85%	46.15%	100.00%
Primary	38.82%	61.18%	100.00%
Class 8th Passed	27.03%	72.97%	100.00%
Secondary	53.85%	46.15%	100.00%
Higher-Secondary	28.57%	71.43%	100.00%
Graduate	0.00%	100.00%	100.00%
Post-Graduate	100.00%	0.00%	100.00%
Grand Total	38.75%	61.25%	100.00%

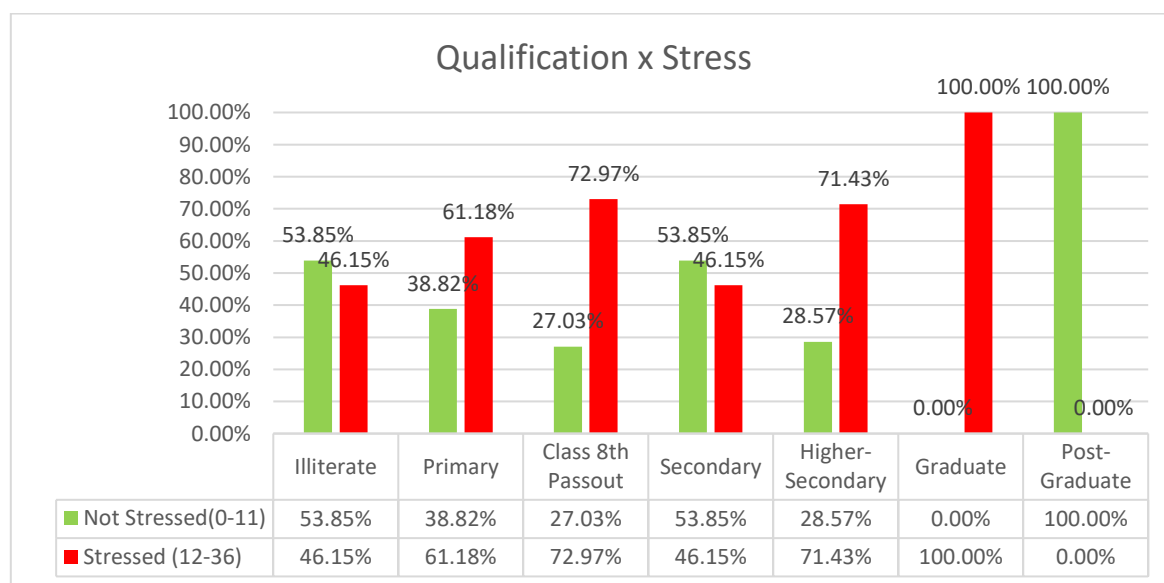


Table 13.26

After analysing Covariant Qualification with Stress taking all respondents of the Kultali block in consideration we see that among the illiterates 46.15% of this group are stressed. Those who studied till primary school and were stressed are found to be 61.18%. 72.97% were found to be stressed among the Class 8th Passed respondents. 46.15% were found to be stressed among the

Secondary Passed respondents. 71.43% were found to be stressed among the Higher Secondary.

137. Family Income Distribution:

G.P./ Block		KULTALI		
Income x Stress	Stress Score			Grand Total
	Not Stressed (0-11)	Stressed (12-36)		
Income Slab				
₹ 0 - ₹ 3000	80.00%	20.00%		100.00%
₹ 3,000 - ₹ 10,000	16.33%	83.67%		100.00%
₹10,001 & above	40.00%	60.00%		100.00%
Grand Total	39.24%	60.76%		100.00%

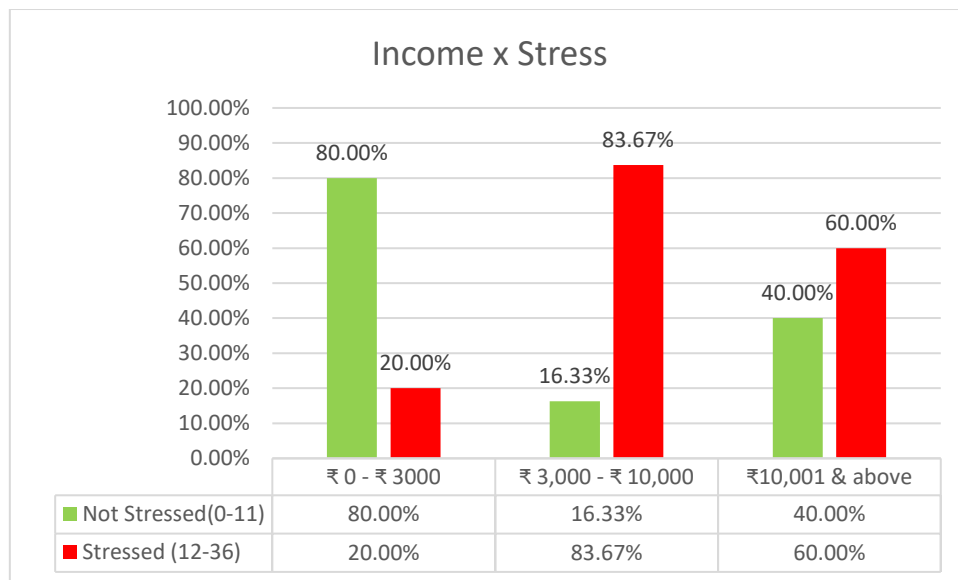


Table 13.27

Analysing covariant Income with Stress taking all respondents of Kultali blocks in consideration we see that 20%, 83.67% and 60% were found to be stressed among the ₹ 0 - ₹ 3000, ₹ 3,000 - ₹ 10,000, ₹10,001 & above Income Slab respectively.

138. Data on gender:

G.P./ Block	KULTALI
-------------	---------

Gender Category	Stress Score		
	Not Stressed (0-11)	Stressed (12-36)	Grand Total
M	37.96%	62.04%	100.00%
F	43.48%	56.52%	100.00%
Grand Total	38.75%	61.25%	100.00%

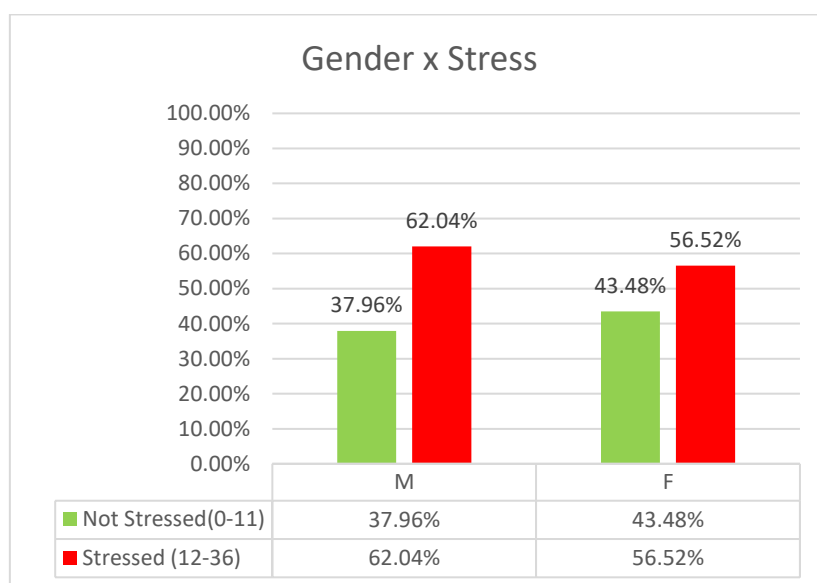


Table 13.28

Analysing the survey data, and from Table 13.28 we can infer that in the Kultali CD Block, South 24 Parganas, 62.04% of the male respondents are stressed whereas 56.52% are stressed among the total female respondents.

139. Data on Amphan Damage:

G.P./ Block KULTALI

Amphan Damage Stress			
	Not Stressed	Stressed	Grand Total
Row Labels			
Yes	38.75%	61.25%	100.00%
Grand Total	38.75%	61.25%	100.00%

Table 42.5

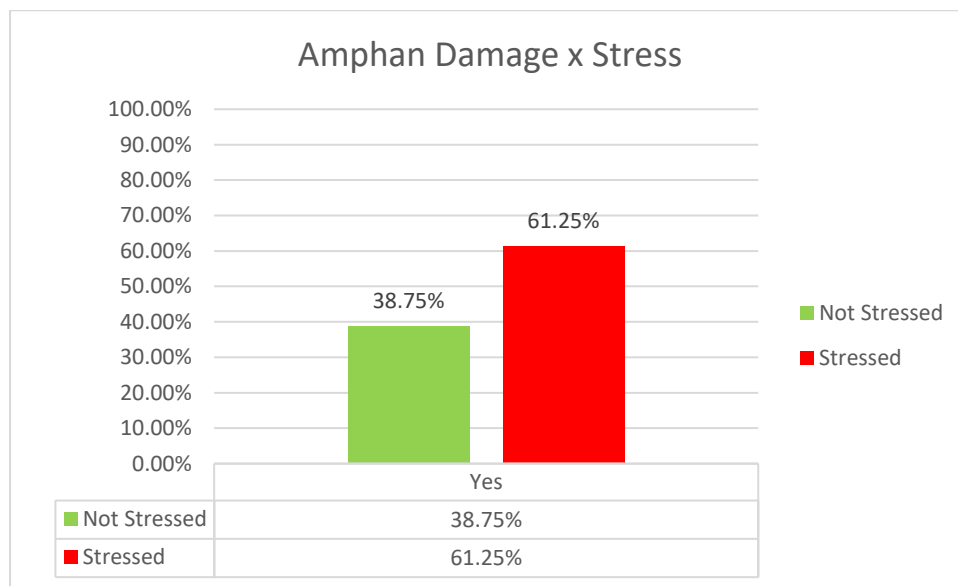


Table 13.29

Analysing covariant Amphan Damage with Stress taking all respondents of the Kultali block in consideration we see that 61.25% are stressed among those who were affected by the Amphan damage.

140. Data on COVID-19 and Stress:

G.P./ Block KULTALI

COVID-19 Positive	Stress		Grand Total
	Not Stressed	Stressed	
Row Labels			
No	38.75%	61.25%	100.00%
Grand Total	38.75%	61.25%	100.00%

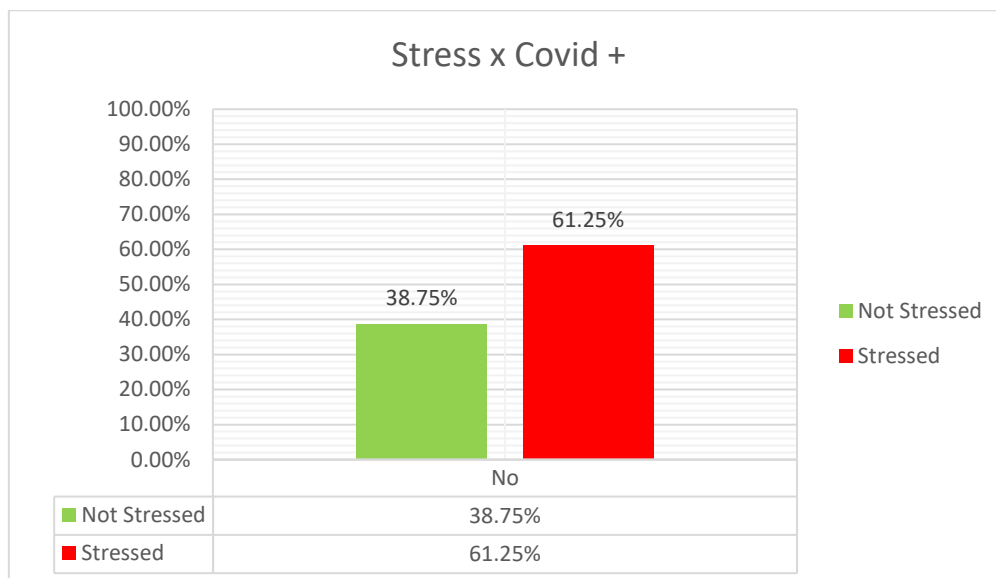


Table 13.30

Analysing covariant Covid+ with Stress taking all respondents of the Kultali block in consideration we have found out according to the data that 61.25% were stressed among those who answered that they were not infected by the virus.

141. Vaccine among Covid+ x Stress:

G.P./ Block	KULTALI
13. have you been COVID+ve before?	Yes

Vaccine doses x Stress	Stress Score
No of Doses	Grand Total
Grand Total	0

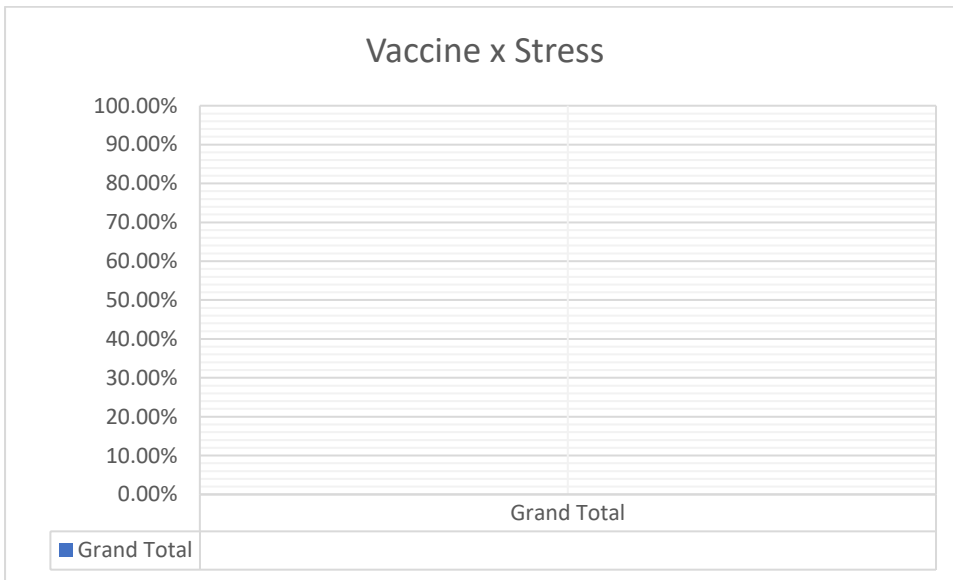


Table 13.31

No Covid+ person was interviewed in this block.

142. Help due to Amphan Damage x Stress:

G.P./ Block	KULTALI
damage by Amphan	Yes

Help Received	Stress		Grand Total
	Not Stressed	Stressed	
Yes	100.00%	0.00%	100.00%
No	37.97%	62.03%	100.00%
Grand Total	38.36%	61.64%	100.00%

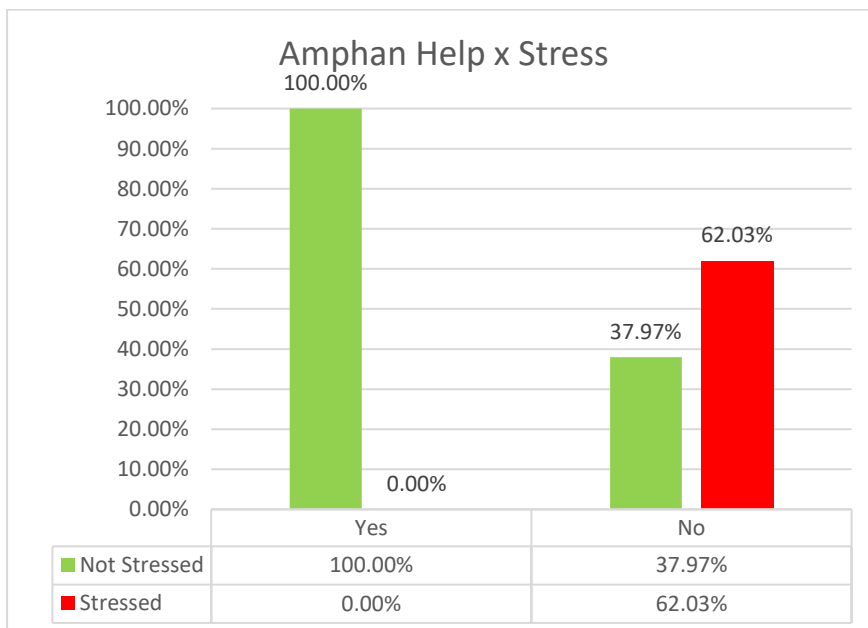


Table 13.32

Analysing covariant Amphan Help received with Stress taking all respondents of the Kultali block in consideration we see that 0% were stressed among those who were affected by the cyclone Amphan received help from different sources. 62.03% were also found to be stressed in the category of no help was received from govt or any other organisation.

E) Stress Report on Magrahat Block, South 24 Parganas

143. Age & Stress:

G.P./ Block	MAGRAHAT- I
-------------	-------------

Age x Stress	Stress Score		
	Not Stressed (0-11)	Stressed (12-36)	Grand Total
Age Category			
15-40	78.79%	21.21%	100.00%
41-60	66.67%	33.33%	100.00%
Grand Total	76.92%	23.08%	100.00%

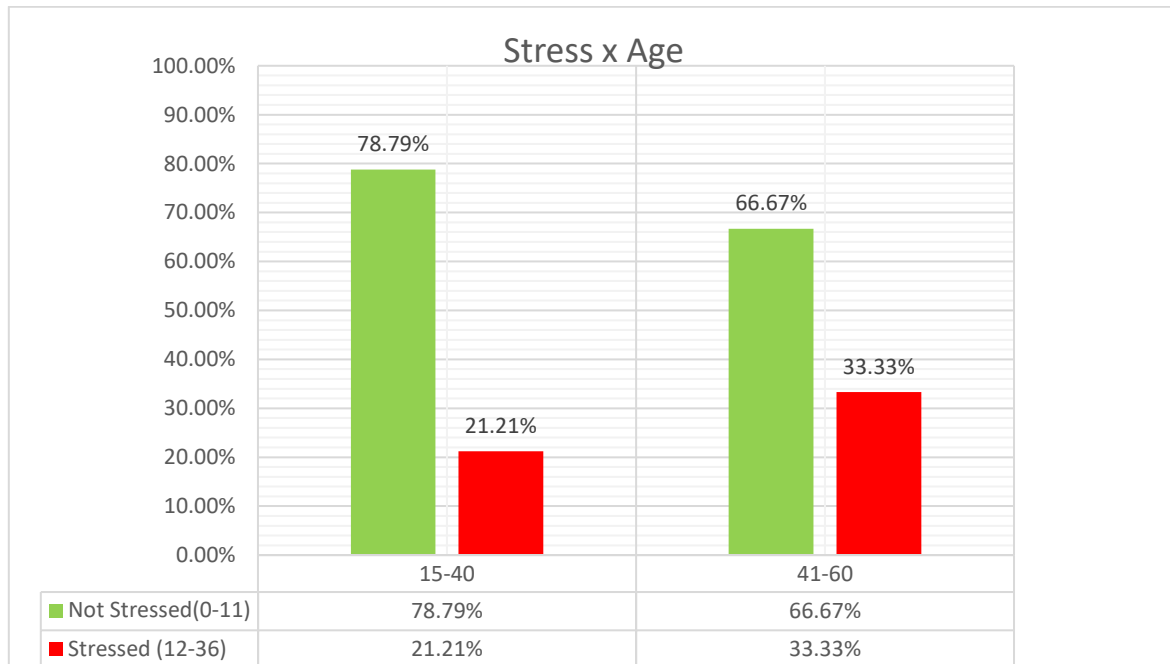


Table 13.33

After analysing Covariant Age with Stress taking all respondents of the Magrahat - I block in consideration we see that there is 21.21% are stressed between 15-40 age group, 33.33% are stressed among the age group 41-60 years old.

144. **Qualification x Stress:**

G.P./ Block MAGRAHAT- I

Qualification x Stress	Stress Score		
	Not Stressed (0-11)	Stressed (12-36)	Grand Total
Qualification			
Class 8th Passed	60.00%	40.00%	100.00%
Secondary	78.95%	21.05%	100.00%
Higher-Secondary	100.00%	0.00%	100.00%
Graduate	80.00%	20.00%	100.00%
Grand Total	76.92%	23.08%	100.00%

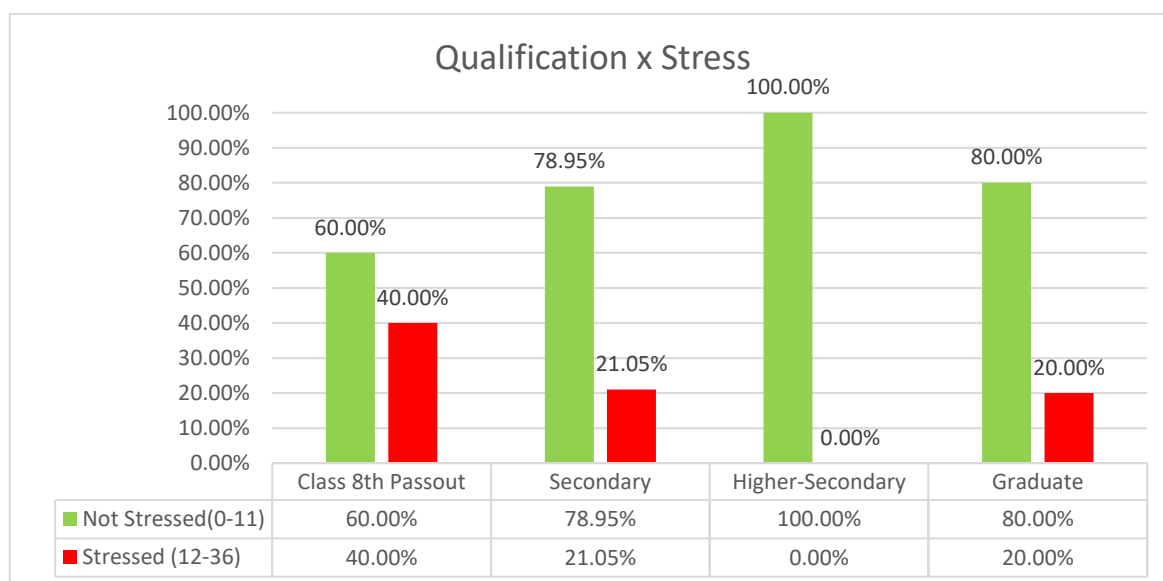


Table 13.34

After analysing Covariant Qualification with Stress taking all respondents of the Magrahat - I block in consideration we see that 40% were found to be stressed among the Class 8th Passed respondents. 21.05% were found to be stressed among the Secondary Passed respondents. 0% were found to be stressed among the Higher Secondary and 20% were found to be stressed among the graduates.

145. Family Income Distribution:

G.P./ Block MAGRAHAT- I

Income x Stress	Stress Score		Grand Total
	Not Stressed (0-11)	Stressed (12-36)	
Income Slab			
₹ 3,000 - ₹ 10,000	70.83%	29.17%	100.00%
₹10,001 & above	84.62%	15.38%	100.00%
Grand Total	75.68%	24.32%	100.00%

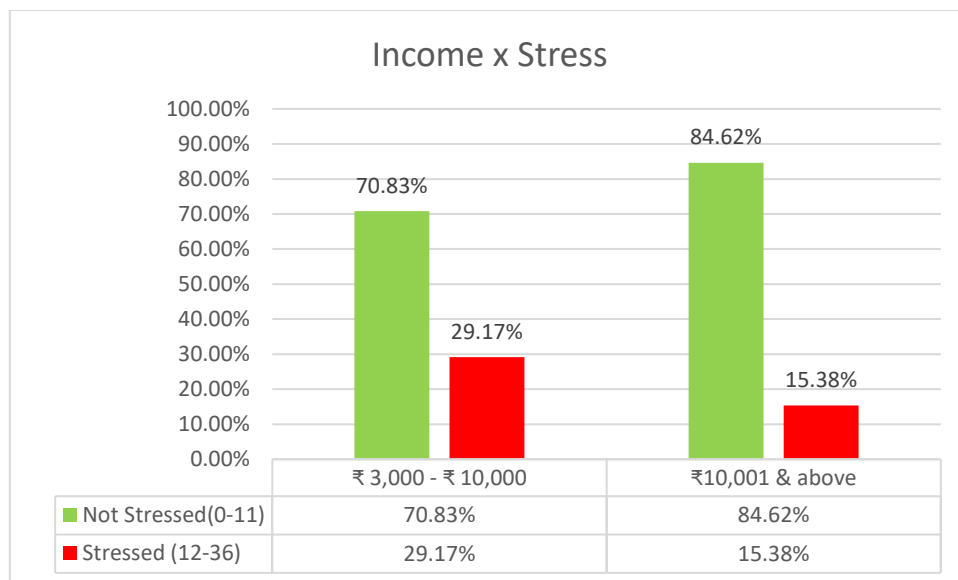


Table 13.35

Analysing covariant Income with Stress taking all respondents of Magrahat - I blocks in consideration we see that 29.17%, and 15.38% were found to be stressed among the ₹ 0 - ₹ 3000, ₹10,001 & above Income Slab respectively.

146. Data on gender:

G.P./ Block	MAGRAHAT- I
-------------	-------------

Gender Category	Stress Score		Grand Total
	Not Stressed (0-11)	Stressed (12-36)	
M	84.38%	15.63%	100.00%
F	42.86%	57.14%	100.00%
Grand Total	76.92%	23.08%	100.00%

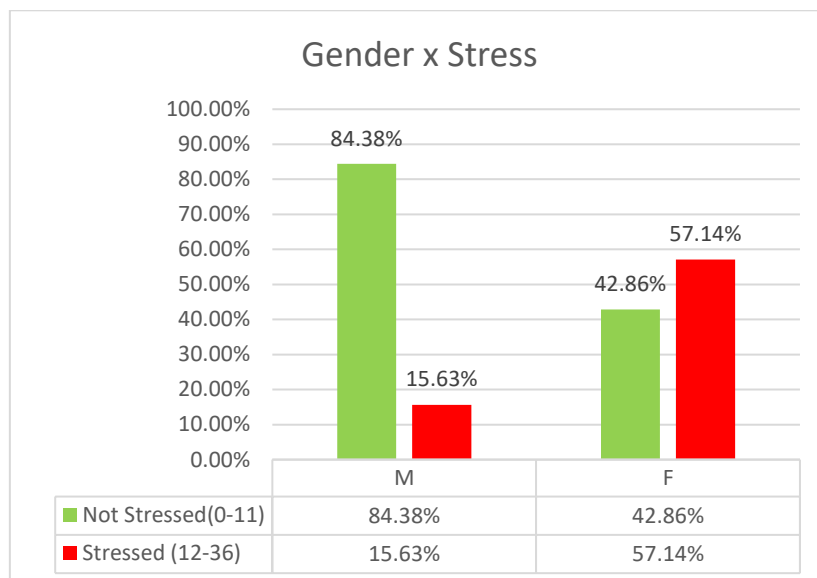


Table 13.36

Analysing the survey data, and from Table 13.36 we can infer that in the Magrahat - I CD Block, 15.63% of the male respondents are stressed whereas 57.14% are stressed among the total female respondents.

147. Data on Amphan Damage:

G.P./ Block MAGRAHAT- I

Amphan Damage	Stress		Grand Total
	Not Stressed	Stressed	
Yes	76.92%	23.08%	100.00%
Grand Total	76.92%	23.08%	100.00%

Table 52.5

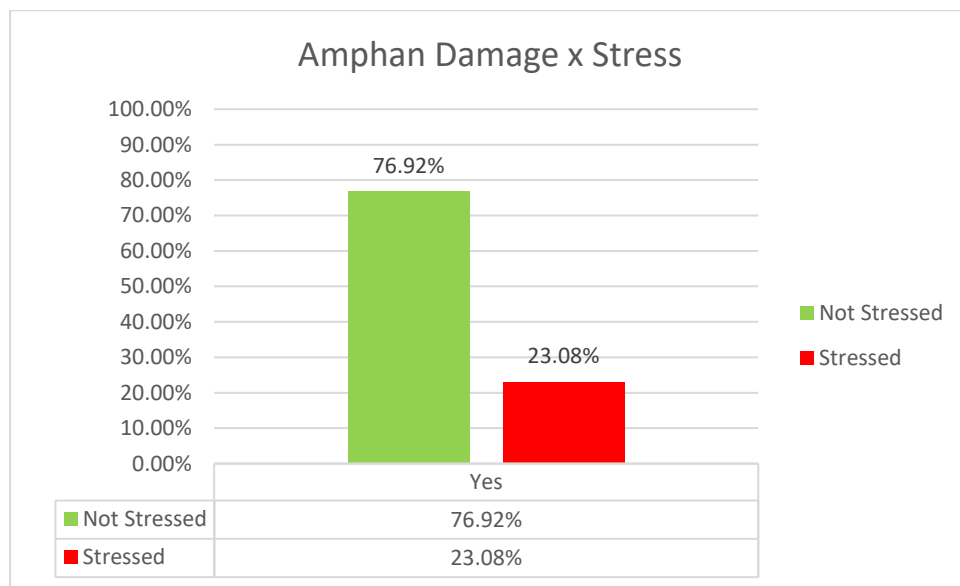


Table 13.37

Analysing covariant Amphan Damage with Stress taking all respondents of the Magrahat - I block in consideration we see that 23.08% are stressed among those who were affected by the Amphan damage.

148. Data on COVID-19 and Stress:

G.P./ Block MAGRAHAT- I

COVID-19 Positive	Stress		Grand Total
	Not Stressed	Stressed	
Row Labels			
No	76.92%	23.08%	100.00%
Grand Total	76.92%	23.08%	100.00%

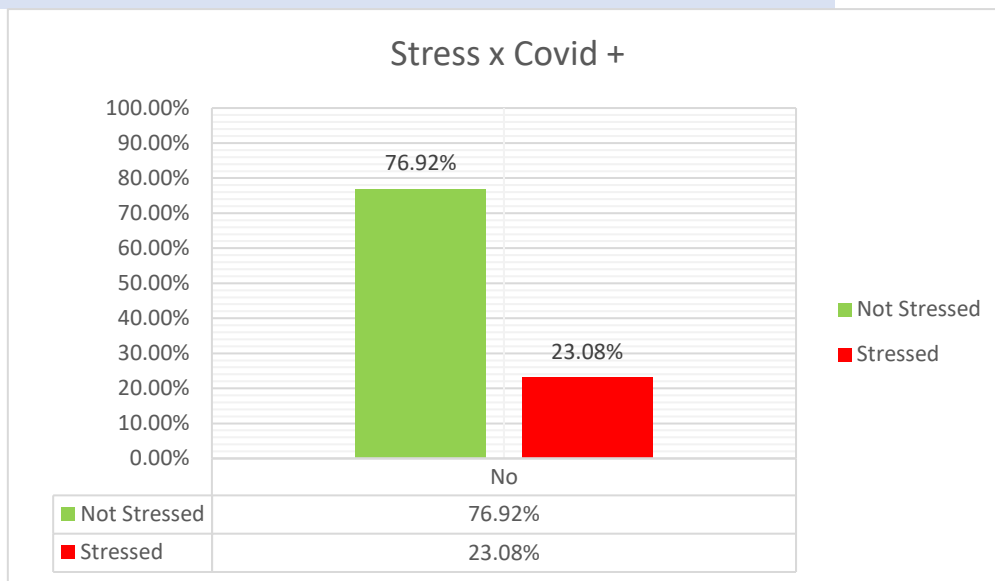


Table 13.38

Analysing covariant Covid+ with Stress taking all respondents of the Magrahat - I block in consideration we have found out according to the data that 23.08% were stressed among those who answered that they were not infected by the virus.

149. Vaccine among Covid+ x Stress:

G.P./ Block	MAGRAHAT- I
13. have you been COVID+ve before?	Yes

Vaccine doses x Stress	Stress Score
	Grand Total
No of Doses	
Grand Total	0

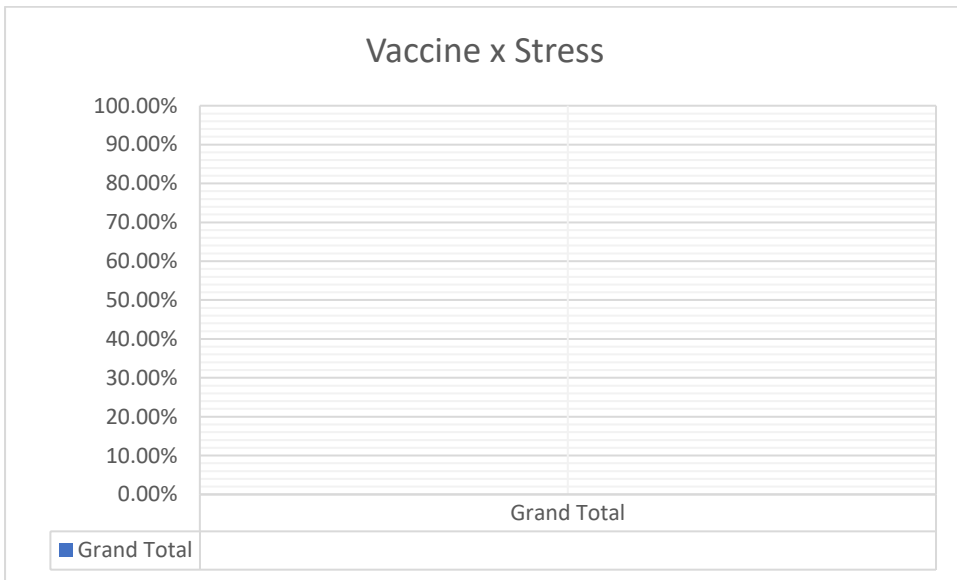


Table 13.39

No Covid+ person was interviewed in this block.

150. Help due to Amphan Damage x Stress:

G.P./ Block	MAGRAHAT- I
damage by Amphan	Yes

Help Received	Stress		Grand Total
	Not Stressed	Stressed	
Yes	50.00%	50.00%	100.00%
No	81.82%	18.18%	100.00%
Grand Total	76.92%	23.08%	100.00%

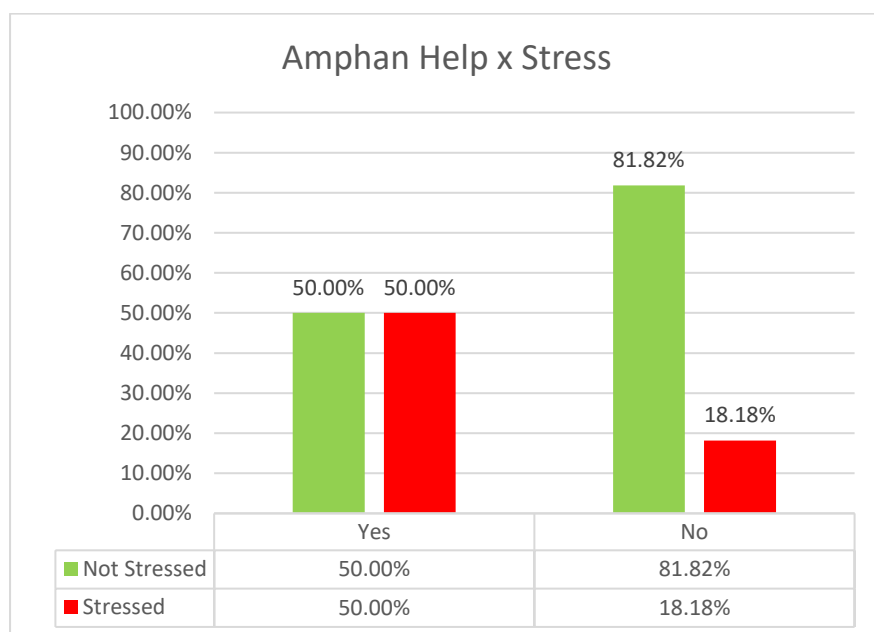


Table 13.40

Analysing covariant Amphan Help received with Stress taking all respondents of the Magrahat - I block in consideration we see that 50% were stressed among those who were affected by the cyclone Amphan received help from different sources. 18.18% were also found to be stressed in the category of no help was received from govt or any other organisation.

F) Stress Report on Mandirbazar Block, South 24 Parganas

151. Age & Stress:

G.P./ Block (Multiple Items)

Age x Stress	Stress Score		
	Not Stressed (0-11)	Stressed (12-36)	Grand Total
Age Category			
15-40	25.97%	74.03%	100.00%
41-60	41.41%	58.59%	100.00%
61 & above	31.58%	68.42%	100.00%
Grand Total	34.36%	65.64%	100.00%

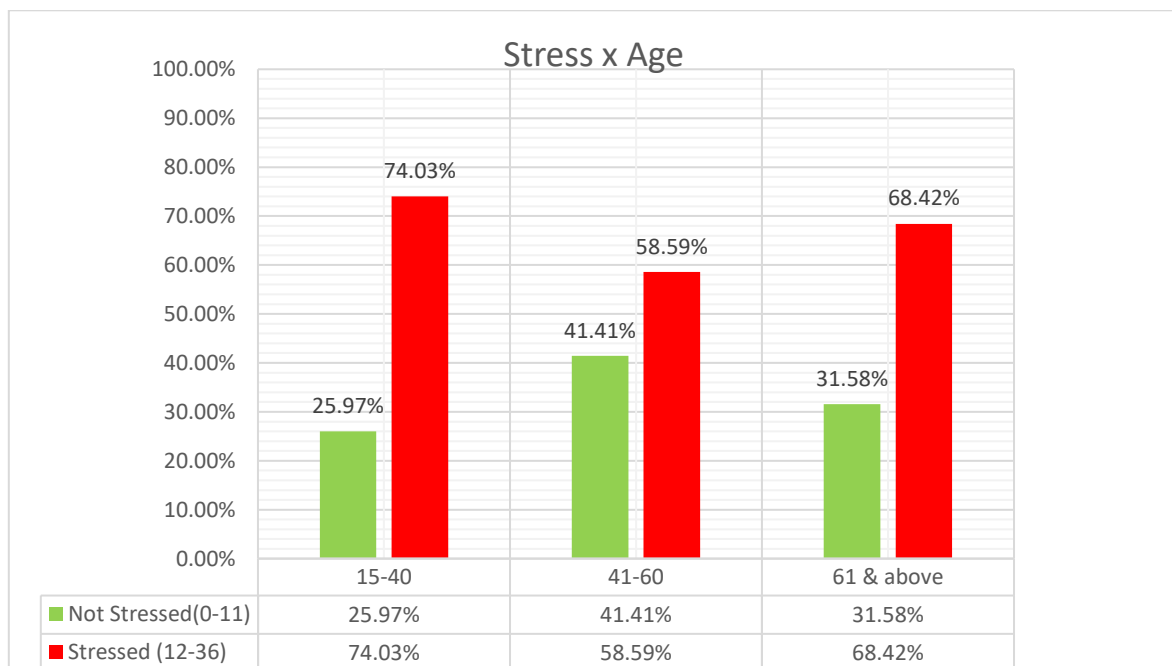


Table 13.41

After analysing Covariant Age with Stress taking all respondents of the Mandirbazar block in consideration we see that there is 74.03% are stressed between 15-40 age group, 58.59% are stressed among the age group 41-60 years old and 68.42% are stressed among 61 & above.

152. **Qualification x Stress:**

G.P./ Block (Multiple Items)

Qualification x Stress	Stress Score		
	Not Stressed (0-11)	Stressed (12-36)	Grand Total
Qualification			
Illiterate	20.00%	80.00%	100.00%
Primary	35.85%	64.15%	100.00%
Class 8th Passed	30.88%	69.12%	100.00%
Secondary	40.54%	59.46%	100.00%
Higher-Secondary	26.92%	73.08%	100.00%
Graduate	42.86%	57.14%	100.00%
Post-Graduate	0.00%	100.00%	100.00%
Grand Total	33.50%	66.50%	100.00%

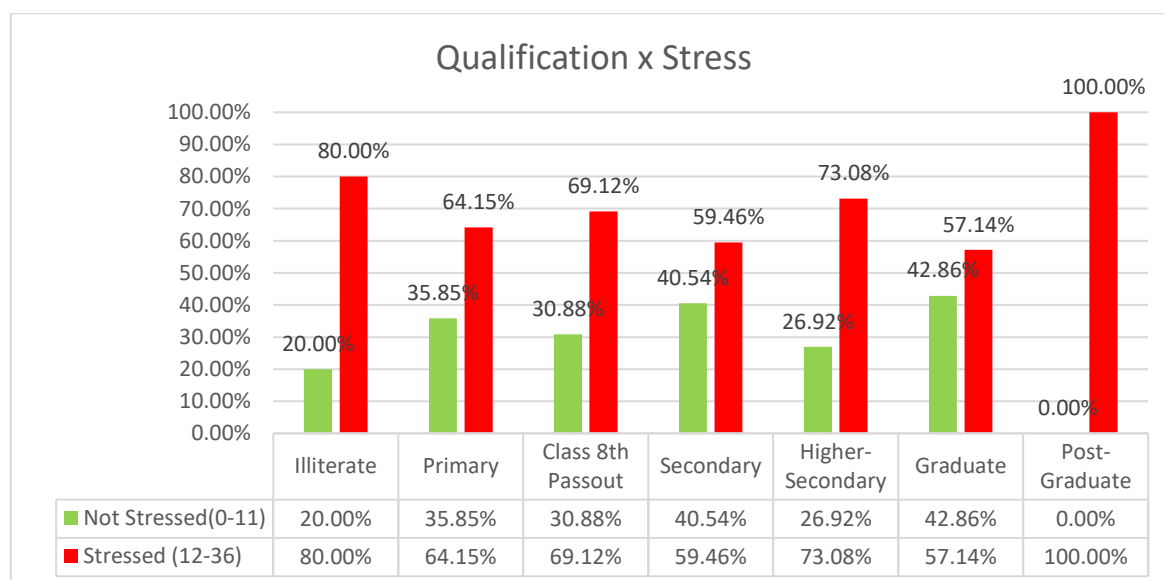


Table 13.42

After analysing Covariant Qualification with Stress taking all respondents of the Mandirbazar block in consideration, we see that among the illiterates 80% of this group are stressed. Those who studied till primary school and were stressed are found to be 64.15%. 69.12% were found to be stressed among the Class 8th Passed respondents. 59.46% were found to be stressed among

the Secondary Passed respondents. 73.08% were found to be stressed among the Higher Secondary and 57.14% were found among graduates.

153. Family Income Distribution:

G.P./ Block		(Multiple Items)		
Income x Stress	Stress Score		Grand Total	
	Not Stressed (0-11)	Stressed (12-36)		
Income Slab				
₹ 0 - ₹ 3000	18.31%	81.69%	100.00%	
₹ 3,000 - ₹ 10,000	42.15%	57.85%	100.00%	
₹10,001 & above	60.00%	40.00%	100.00%	
Grand Total	34.01%	65.99%	100.00%	

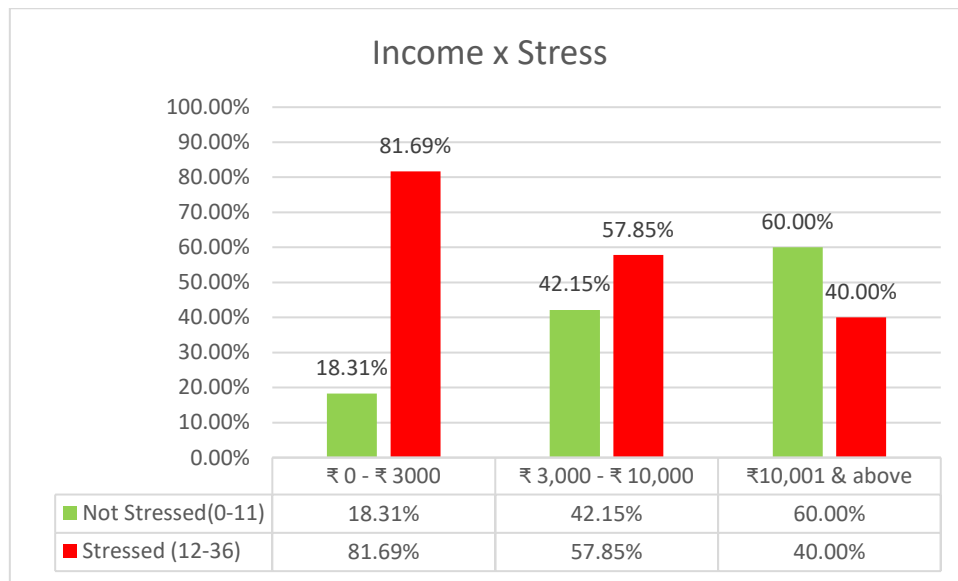


Table 13.43

Analysing covariant Income with Stress taking all respondents of Mandirbazar blocks in consideration we see that 81.69%, 57.85% and 40% were found to be stressed among the ₹ 0 - ₹ 3000, ₹ 3,000 - ₹ 10,000, ₹10,001 & above Income Slab respectively.

154. Data on gender:

G.P./ Block (Multiple Items)

Gender Category	Stress Score		Grand Total
	Not Stressed (0-11)	Stressed (12-36)	
M	40.58%	59.42%	100.00%
F	19.67%	80.33%	100.00%
Grand Total	34.17%	65.83%	100.00%

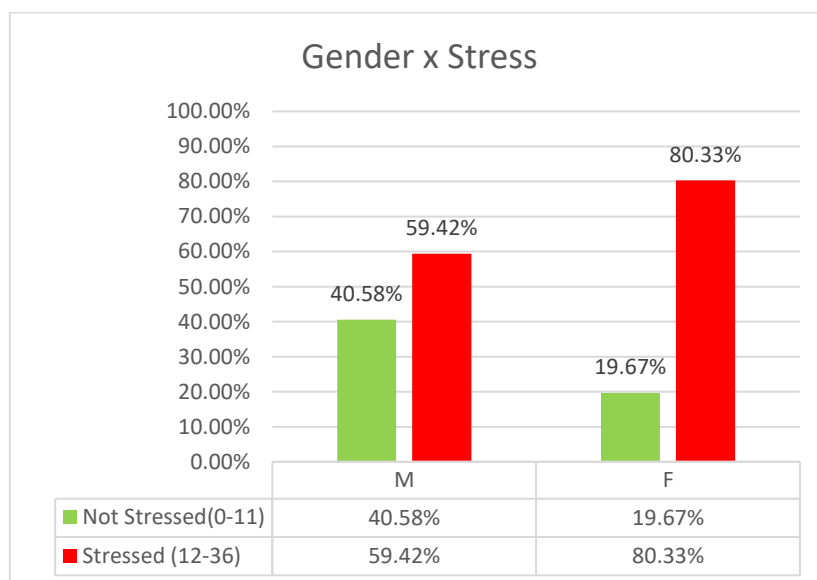


Table 13.44

Analysing the survey data, and from Table 13.44 we can infer that in the Mandirbazar CD Block, South 24 Parganas, 59.42% of the male respondents are stressed whereas 80.33% are stressed among the total female respondents.

155. Data on Amphan Damage:

G.P./ Block (Multiple Items)

Amphan Damage	Stress		Grand Total
	Not Stressed	Stressed	
Row Labels			
Yes	32.54%	67.46%	100.00%
No	43.33%	56.67%	100.00%
Grand Total	34.17%	65.83%	100.00%

Table 62.5

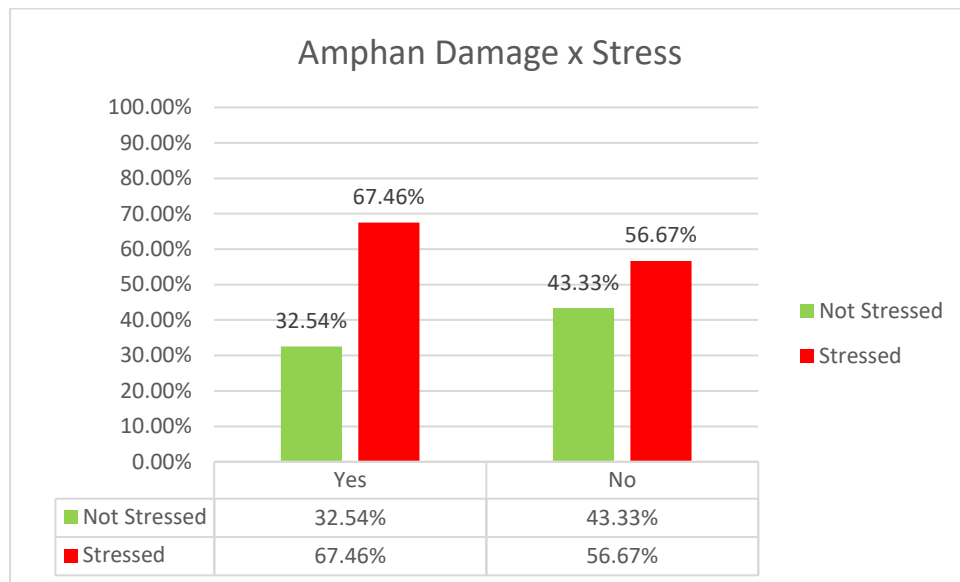


Table 13.45

Analysing covariant Amphan Damage with Stress taking all respondents of the Mandirbazar block in consideration we see that 67.46% are stressed among those who were affected by the Amphan damage. Quite interestingly, we have found out according to the data that 56.67% were stressed among those who answered that they were not affected by the cyclone.

156. Data on COVID-19 and Stress:

G.P./ Block (Multiple Items)

COVID-19 Positive	Stress		Grand Total
	Not Stressed	Stressed	
Yes	100.00%	0.00%	100.00%
No	33.50%	66.50%	100.00%
Grand Total	34.17%	65.83%	100.00%

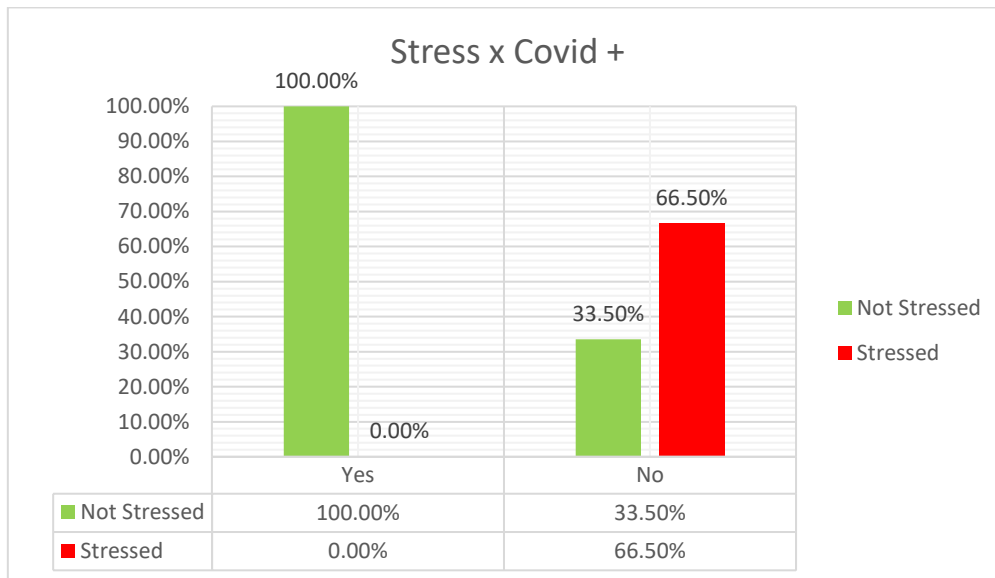


Table 13.46

Analysing covariant Covid+ with Stress taking all respondents of the Mandirbazar block in consideration we see that 0% are stressed among those who were infected by the Covid. Quite interestingly, we have found out according to the data that 66.50% were stressed among those who answered that they were not infected by the virus.

157. Vaccine among Covid+ x Stress:

G.P./ Block	(Multiple Items)
13. have you been COVID+ve before?	Yes

Vaccine doses x Stress	Stress Score	
	Not Stressed	Grand Total
No of Doses		
2	100.00%	100.00%
Grand Total	100.00%	100.00%

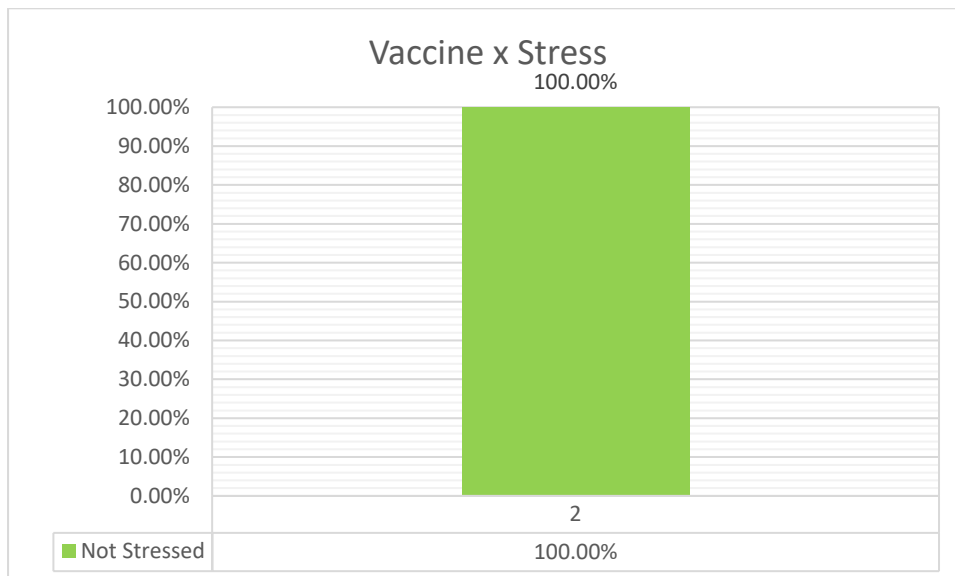


Table 13.47

Analysing covariant Covid+ and Vaccine with Stress taking all respondents of Mandirbazar blocks in consideration we see that 0% are stressed among those who took 2 doses of vaccine. But the amount of COVID+ positive were very less.

158. Help due to Amphan Damage x Stress:

G.P./ Block damage by Amphan	(Multiple Items) Yes
------------------------------------	-------------------------

Help Received	Stress		Grand Total
	Not Stressed	Stressed	
Yes	32.26%	67.74%	100.00%
No	33.58%	66.42%	100.00%
Grand Total	33.33%	66.67%	100.00%

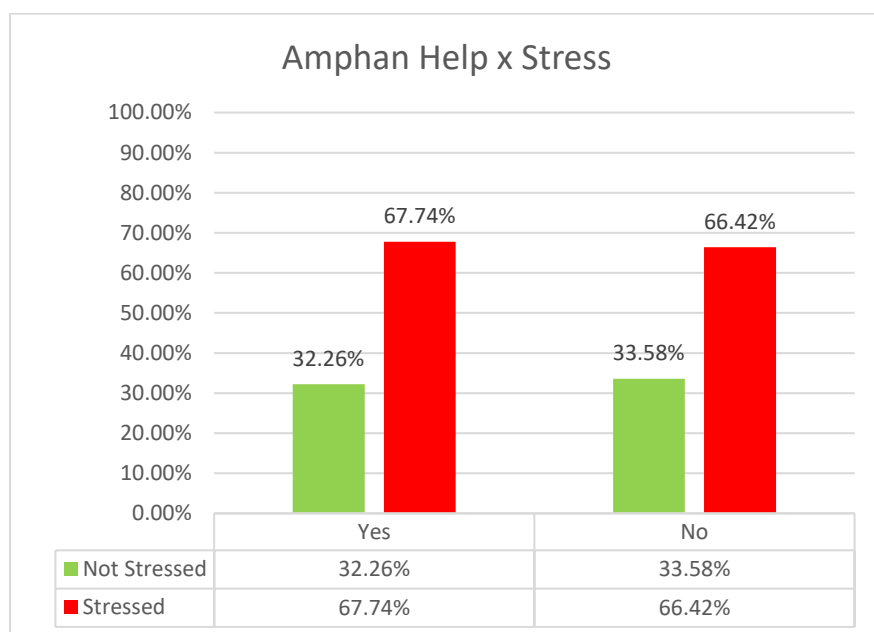


Table 13.48

Analysing covariant Amphan Help received with Stress taking all respondents of the Mandirbazar block in consideration we see that 67.74% were stressed among those who were affected by the cyclone Amphan received help from different sources. 66.42% were also found to be stressed in the category of no help was received from govt or any other organisation.

G) Stress Report on Mathurapur I Block, South 24 Parganas

159. Age & Stress:

G.P./ Block	MATHURAPUR-I
-------------	--------------

Age x Stress	Stress Score		Grand Total
	Not Stressed (0-11)	Stressed (12-36)	
Age Category			
15-40	60.81%	39.19%	100.00%
41-60	33.33%	66.67%	100.00%
61 & above	0.00%	100.00%	100.00%
Grand Total	48.70%	51.30%	100.00%

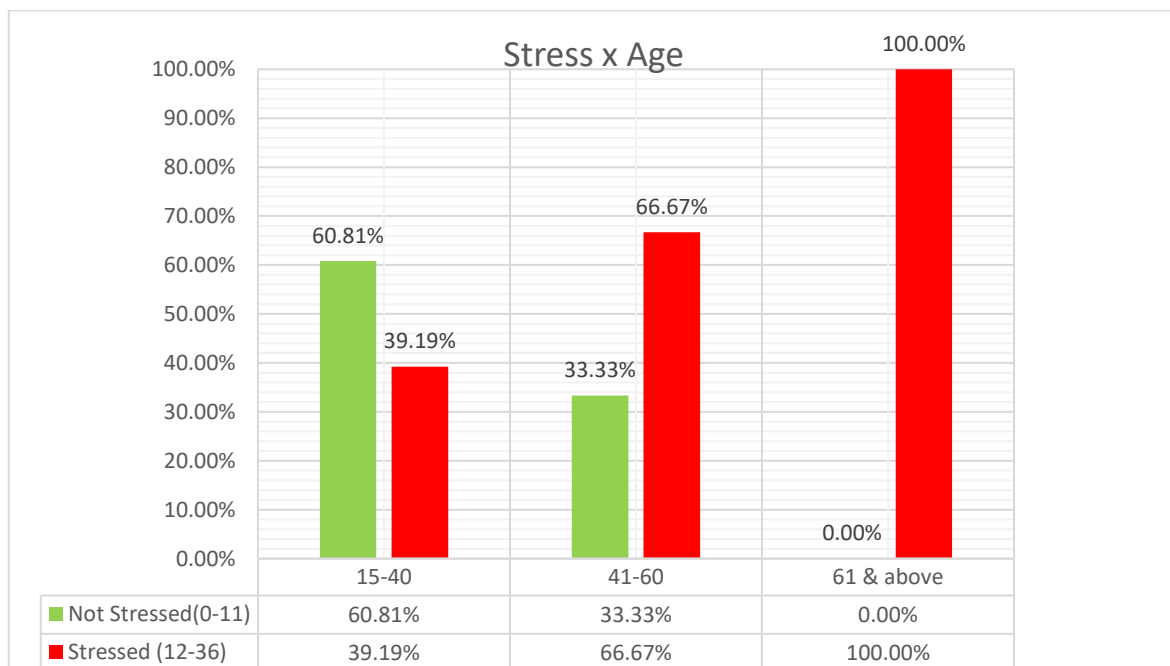


Table 13.49

After analysing Covariant Age with Stress taking all respondents of the Mathurapur - I block in consideration we see that there is 39.19% are stressed between 15-40 age group, 66.67% are stressed among the age group 41-60 years old and 100% are stressed among 61 & above.

160. **Qualification x Stress:**

G.P./ Block MATHURAPUR-I

Qualification x Stress	Stress Score		Grand Total
	Not Stressed (0-11)	Stressed (12-36)	
Qualification			
Illiterate	50.00%	50.00%	100.00%
Primary	50.00%	50.00%	100.00%
Class 8th Passed	42.86%	57.14%	100.00%
Secondary	55.88%	44.12%	100.00%
Higher-Secondary	50.00%	50.00%	100.00%
Graduate	43.48%	56.52%	100.00%
Post-Graduate	75.00%	25.00%	100.00%
Grand Total	51.33%	48.67%	100.00%

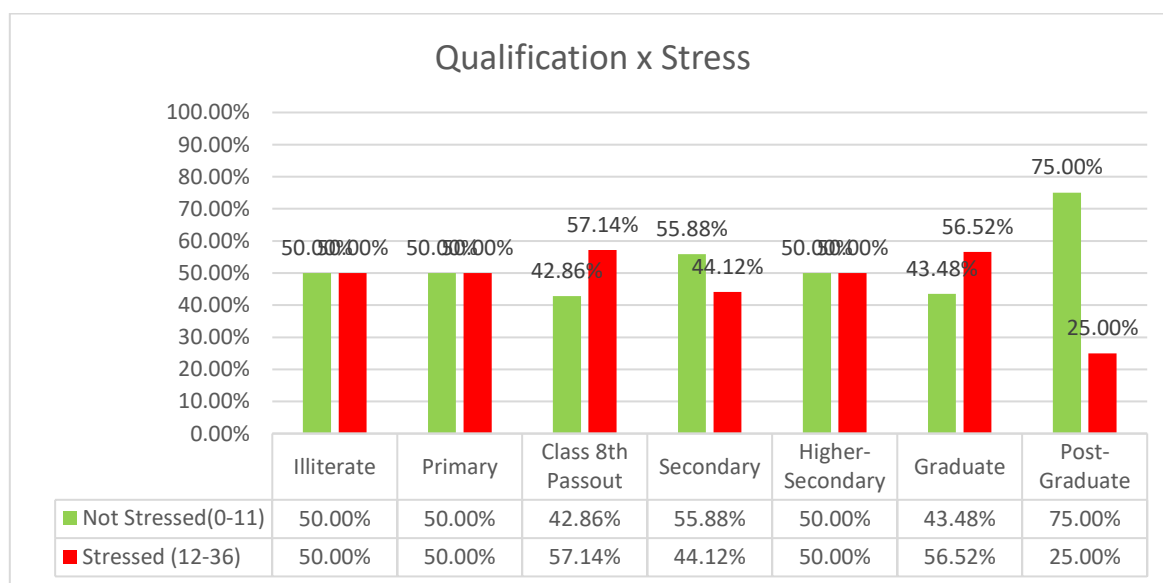


Table 13.50

After analysing Covariant Qualification with Stress taking all respondents of the Mathurapur - I block in consideration we see that among the illiterates 50% of this group are stressed. Those who studied till primary school and were stressed are found to be 50%. 57.14% were found to be stressed among the Class 8th Passed respondents. 44.12% were found to be stressed among

the Secondary Passed respondents. 50%, 56.52% and 25% were found to be stressed among the Higher Secondary, Graduate and post-graduate respondents respectively.

161. Family Income Distribution:

G.P./ Block		MATHURAPUR-I		
Income x Stress	Stress Score		Stressed (12-36)	Grand Total
	Not Stressed (0-11)			
Income Slab				
₹ 0 - ₹ 3000	41.67%	58.33%	100.00%	
₹ 3,000 - ₹ 10,000	50.98%	49.02%	100.00%	
₹10,001 & above	33.33%	66.67%	100.00%	
Grand Total	49.57%	50.43%	100.00%	

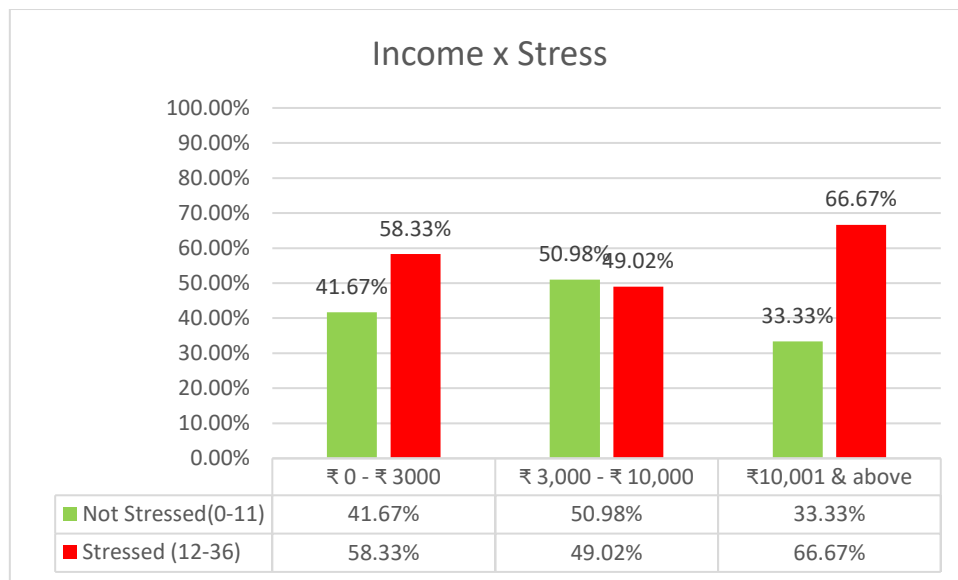


Table 13.51

Analysing covariant Income with Stress taking all respondents of Mathurapur - I blocks in consideration we see that 58.33%, 49.02% and 66.67% were found to be stressed among the ₹ 0 - ₹ 3000, ₹ 3,000 - ₹ 10,000, ₹10,001 & above Income Slab respectively.

162. Data on gender:

G.P./ Block MATHURAPUR-I

Gender Category	Stress Score		
	Not Stressed (0-11)	Stressed (12-36)	Grand Total
M	46.53%	53.47%	100.00%
F	68.75%	31.25%	100.00%
Grand Total	49.57%	50.43%	100.00%

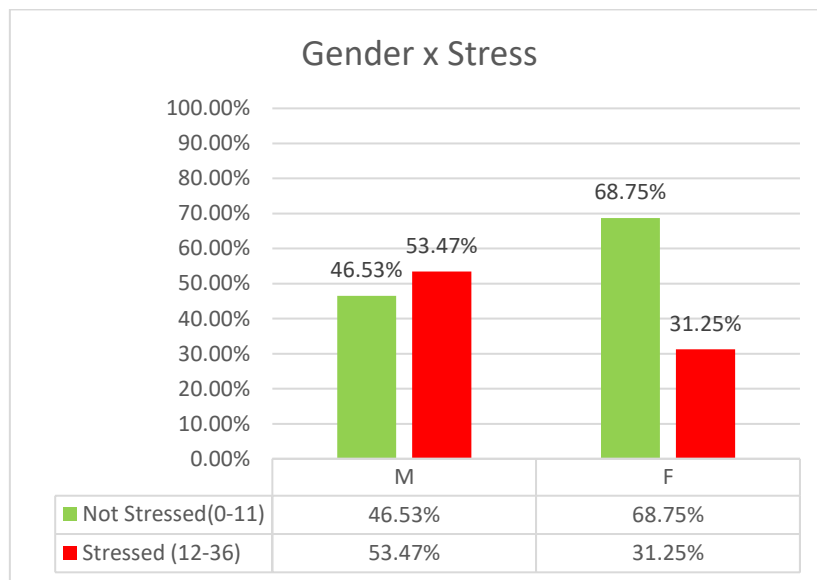


Table 13.52

Analysing the survey data, and from Table 13.52 we can infer that in the Mathurapur I CD Block, South 24 Parganas, among the total surveyed, we see that 53.47% of the male respondents are stressed whereas 31.25% are stressed among the total female respondents.

163. Data on Amphan Damage:

G.P./ Block MATHURAPUR-I

Amphan Damage Stress			
	Not Stressed	Stressed	Grand Total
Row Labels			
Yes	46.36%	53.64%	100.00%
No	100.00%	0.00%	100.00%
Grand Total	49.57%	50.43%	100.00%

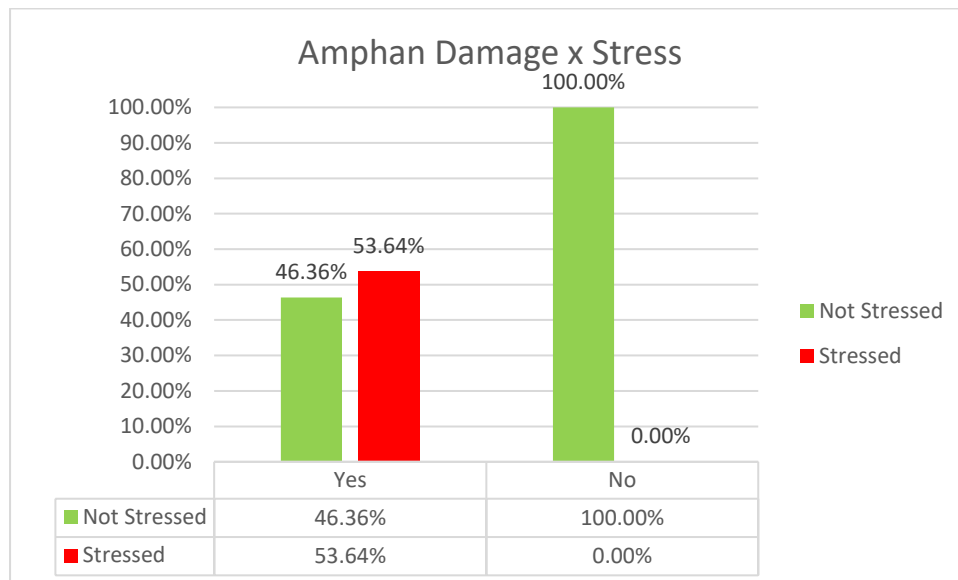


Table 13.53

Analysing covariant Amphan Damage with Stress taking all respondents of the Mathurapur - I block in consideration we see that 53.64% are stressed among those who were affected by the Amphan damage. Quite interestingly, we have found out according to the data that 0% were stressed among those who answered that they were not affected by the cyclone.

164. Data on COVID-19 and Stress:

G.P./ Block MATHURAPUR-I

COVID-19 Positive	Stress		Grand Total
	Not Stressed	Stressed	
Yes	10.42%	89.58%	100.00%
No	76.81%	23.19%	100.00%
Grand Total	49.57%	50.43%	100.00%

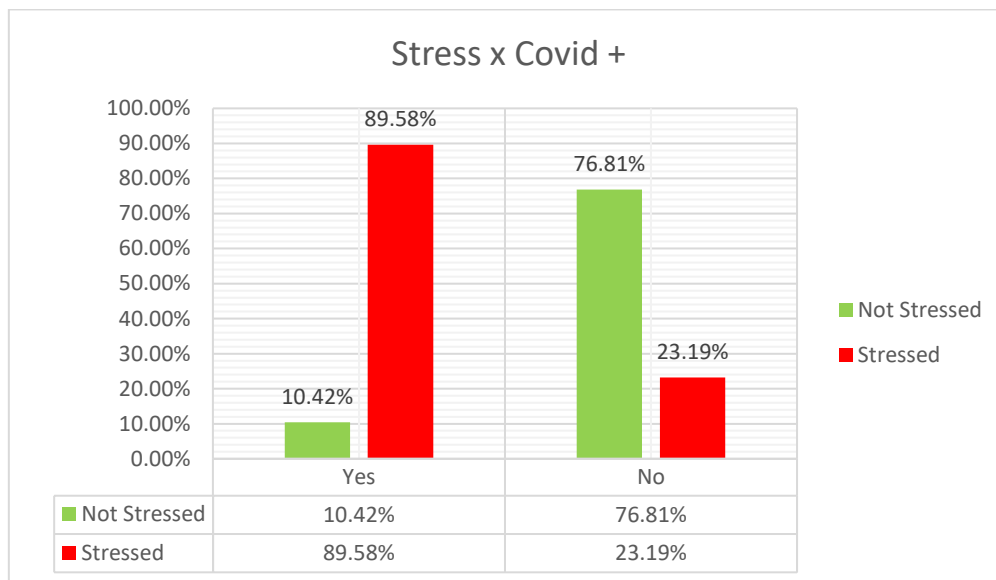


Table 13.54

Analysing covariant Covid+ with Stress taking all respondents of the Mathurapur - I block in consideration we see that 89.58% are stressed among those who were infected by the Covid. Quite interestingly, we have found out according to the data that 23.19% were stressed among those who answered that they were not infected by the virus.

165. Vaccine among Covid+ x Stress:

G.P./ Block	MATHURAPUR-I
13. have you been COVID+ve before?	Yes

Vaccine doses x Stress	Stress Score		Grand Total
	Not Stressed	Stressed	
No of Doses			
2	10.42%	89.58%	100.00%
Grand Total	10.42%	89.58%	100.00%

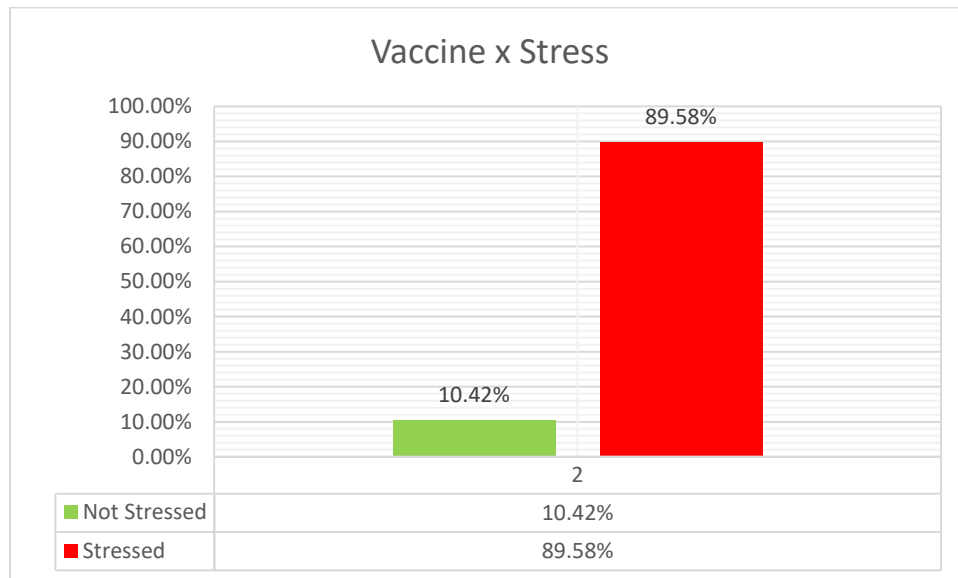


Table 13.55

Analysing covariant Covid+ and Vaccine with Stress taking all respondents of Mathurapur - I blocks in consideration we see that 89.58% are stressed among those who took 2 doses of vaccine. But the amount of COVID+ positive were very less.

166. Help due to Amphan Damage x Stress:

G.P./ Block damage by Amphan	(Multiple Items) Yes
------------------------------------	-------------------------

Help Received	Stress		Grand Total
	Not Stressed	Stressed	
Yes	73.68%	26.32%	100.00%
No	30.36%	69.64%	100.00%
Grand Total	33.74%	66.26%	100.00%

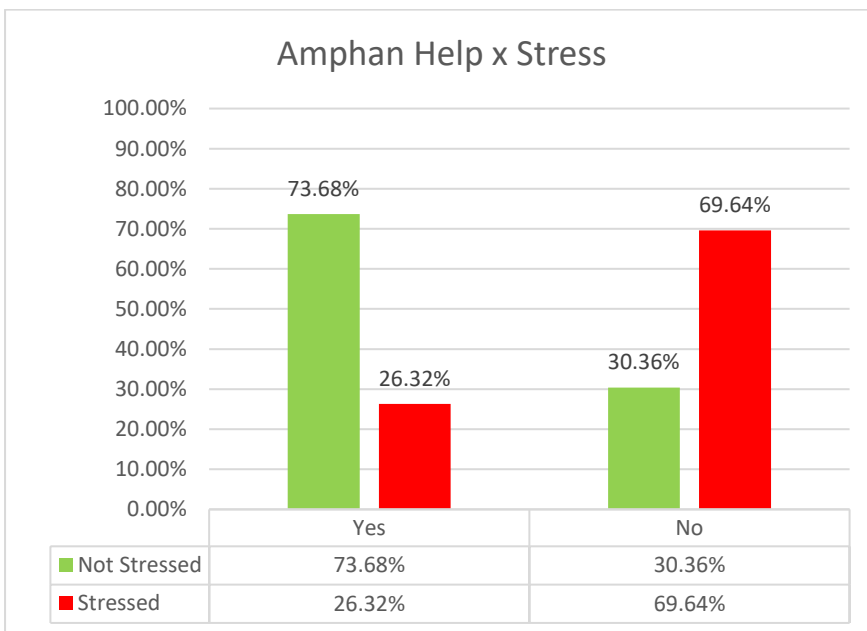


Table 13.56

Analysing covariant Amphan Help received with Stress taking all respondents of the Mathurapur - I block in consideration we see that 26.32% were stressed among those who were affected by the cyclone Amphan received help from different sources. 69.64% were also found to be stressed in the category of no help was received from govt or any other organisation.

H) Stress Report on Patha Pratima Block, South 24 Parganas

167. Age & Stress:

G.P./ Block	Patha Pratima
-------------	---------------

Age x Stress	Stress Score		
	Not Stressed (0-11)	Stressed (12-36)	Grand Total
Age Category			
41-60	25.00%	75.00%	100.00%
61 & above	0.00%	100.00%	100.00%
Grand Total	14.29%	85.71%	100.00%

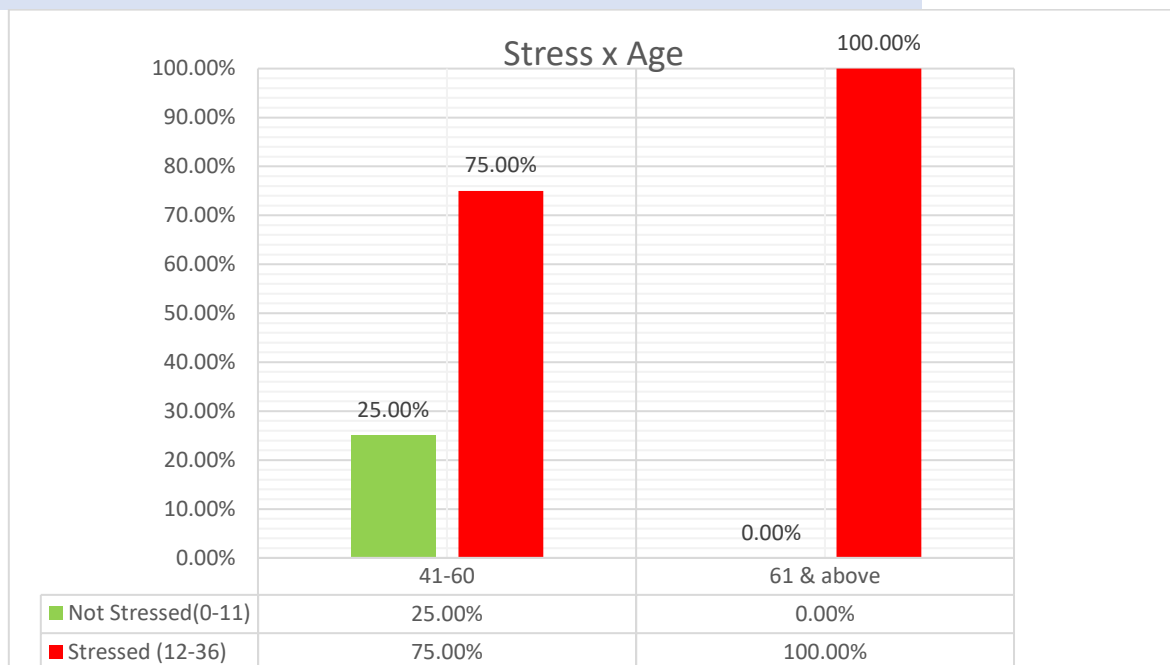


Table 13.57

After analysing Covariant Age with Stress taking all respondents of the Patha Pratima block in consideration we see that there is 75% are stressed among the age group 41-60 years old and 100% are stressed among 61 & above.

168. **Qualification x Stress:**

G.P./ Block Patha Pratima

Qualification x Stress	Stress Score		
	Not Stressed (0-11)	Stressed (12-36)	Grand Total
Qualification			
Primary	0.00%	100.00%	100.00%
Class 8th Passed	0.00%	100.00%	100.00%
Secondary	0.00%	100.00%	100.00%
Post-Graduate	100.00%	0.00%	100.00%
Grand Total	14.29%	85.71%	100.00%

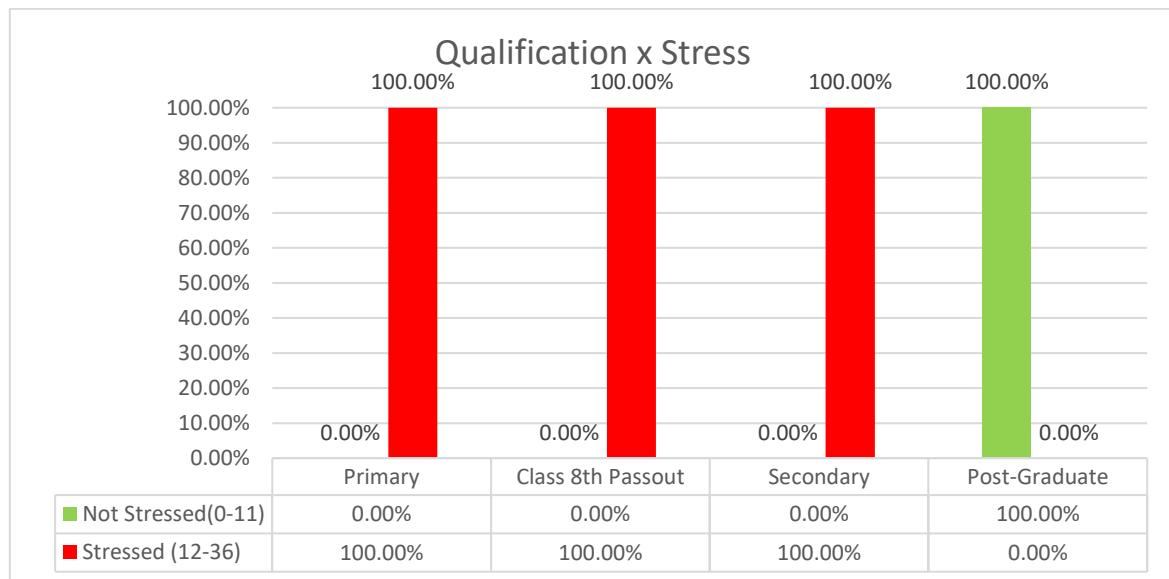


Table 13.58

After analysing Covariant Qualification with Stress taking all respondents of the Patha Pratima block in consideration we see that those who studied till primary school and were stressed are found to be 100%. 100% were found to be stressed among the Class 8th Passed respondents. 100% were found to be stressed among the Secondary Passed respondents. 100% were found to be stressed among the Post graduates.

169. Family Income Distribution:

G.P./ Block Patha Pratima

Income x Stress	Stress Score		Grand Total
	Not Stressed (0-11)	Stressed (12-36)	
Income Slab			
₹ 0 - ₹ 3000	0.00%	100.00%	100.00%
₹ 3,000 - ₹ 10,000	0.00%	100.00%	100.00%
₹10,001 & above	100.00%	0.00%	100.00%
Grand Total	16.67%	83.33%	100.00%

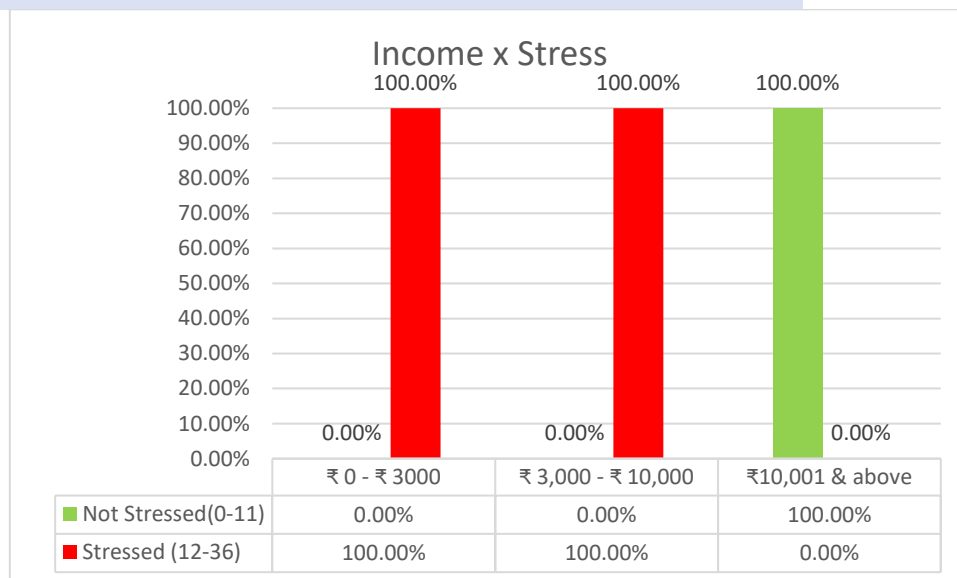


Table 13.59

Analysing covariant Income with Stress taking all respondents of Patha Pratima blocks in consideration we see that 100%, 100% and 0% were found to be stressed among the ₹ 0 - ₹ 3000, ₹ 3,000 - ₹ 10,000, ₹10,001 & above Income Slab respectively.

170. Data on gender:

G.P./ Block	Patha Pratima
-------------	---------------

Gender Category	Stress Score		
	Not Stressed (0-11)	Stressed (12-36)	Grand Total
M	14.29%	85.71%	100.00%
Grand Total	14.29%	85.71%	100.00%

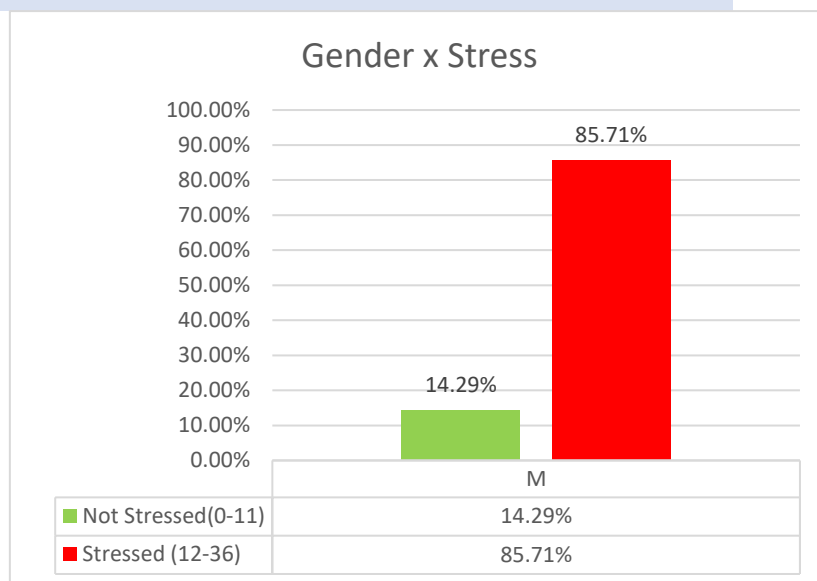


Table 13.60

Analysing the survey data, and from Table 13.60 we can infer that in the Patha Pratima CD Block, South 24 Parganas, among the total surveyed ,85.71% are males who are stressed. No females were interviewed in this area.

171. Data on Amphan Damage:

G.P./ Block Patha Pratima

Amphan Damage	Stress		Grand Total
	Not Stressed	Stressed	
Yes	14.29%	85.71%	100.00%
Grand Total	14.29%	85.71%	100.00%

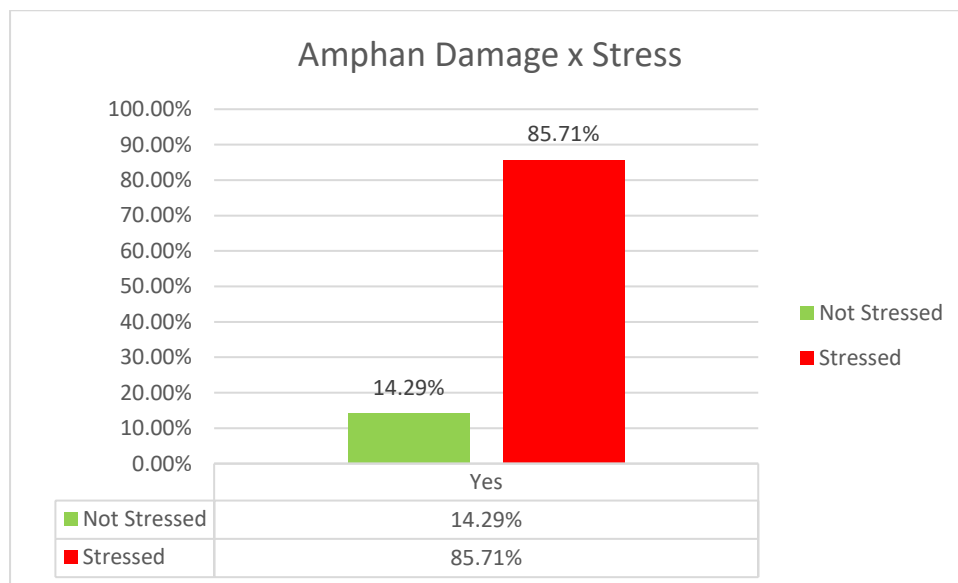


Table 13.61

Analysing covariant Amphan Damage with Stress taking all respondents of the Patha Pratima block in consideration we see that 85.71% are stressed among those who were affected by the Amphan damage.

172. Data on COVID-19 and Stress:

G.P./ Block Patha Pratima

COVID-19 Positive	Stress		Grand Total
	Not Stressed	Stressed	
Row Labels			
No	14.29%	85.71%	100.00%
Grand Total	14.29%	85.71%	100.00%

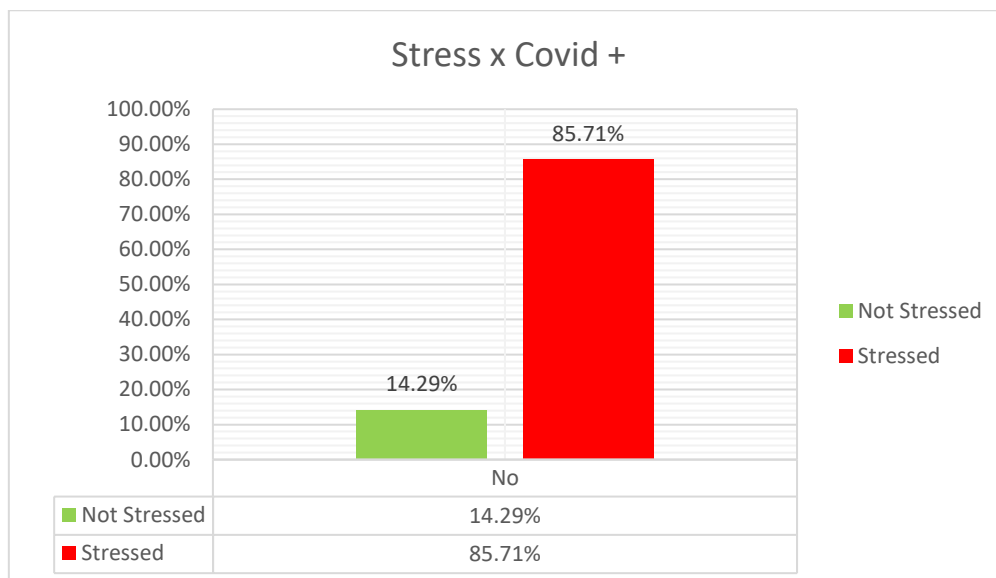


Table 13.62

Analysing covariant Covid+ with Stress taking all respondents of the Patha Pratima block in consideration we have found out according to the data that 85.71% were stressed among those who answered that they were not infected by the virus.

173. Vaccine among Covid+ x Stress:

G.P./ Block	Patha Pratima
13. have you been COVID+ve before?	Yes

Vaccine doses x Stress	Stress Score
	Grand Total
No of Doses	
Grand Total	0

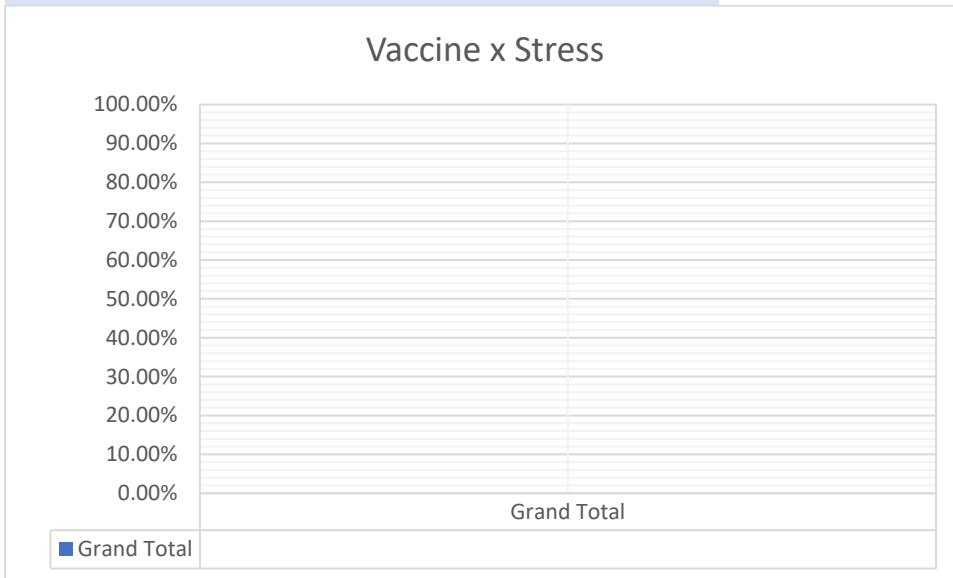


Table 13.63

No COVID-19 positive Patient was interviewed in this region.

174. Help due to Amphan Damage x Stress:

G.P./ Block Patha Pratima

Amphan Damage	Stress		Grand Total
	Not Stressed	Stressed	
Yes	14.29%	85.71%	100.00%
Grand Total	14.29%	85.71%	100.00%

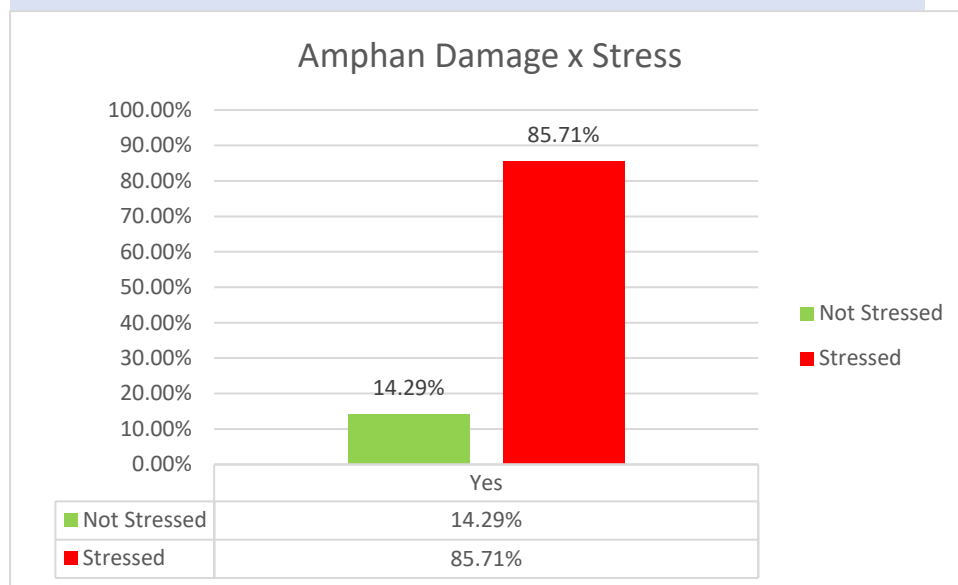


Table 13.64

Analysing covariant Amphan Help received with Stress taking all respondents of the Patha Pratima block in consideration we see that 85.71% were stressed among those who were affected by the cyclone Amphan received help from different sources.

D) Stress Report on Sonarpur Block, South 24 Parganas

175. Age & Stress:

G.P./ Block	SONARPUR
-------------	----------

Age x Stress	Stress Score		
	Not Stressed (0-11)	Stressed (12-36)	Grand Total
Age Category			
15-40	51.69%	48.31%	100.00%
41-60	54.69%	45.31%	100.00%
61 & above	50.00%	50.00%	100.00%
Grand Total	52.85%	47.15%	100.00%

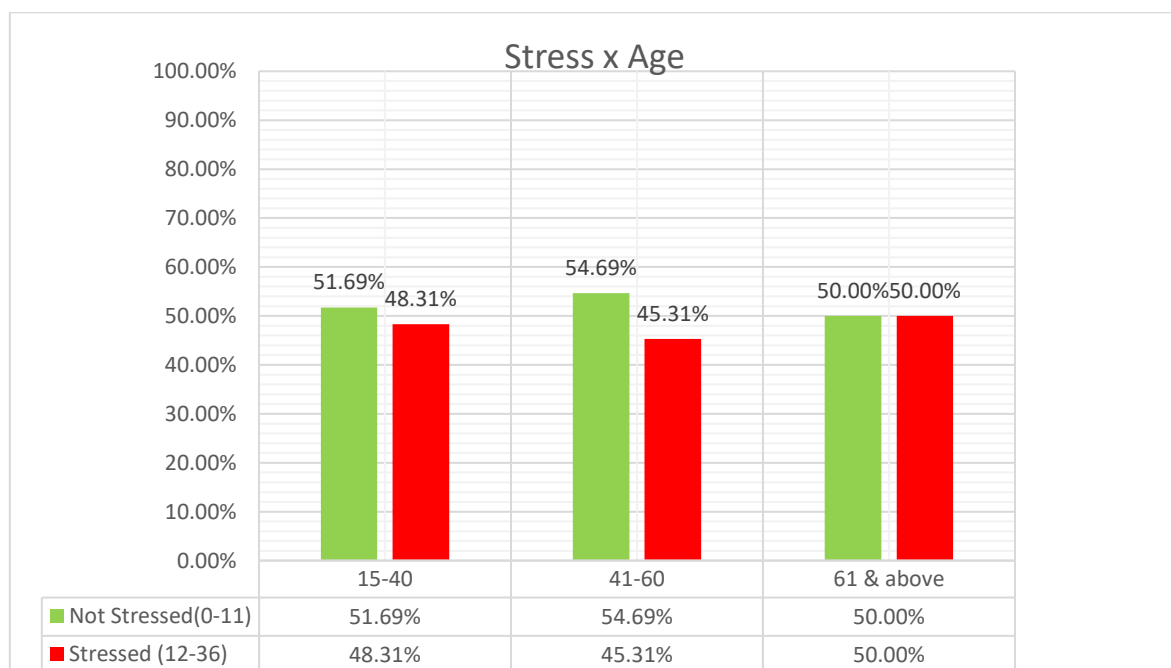


Table 13.65

After analysing Covariant Age with Stress taking all respondents of the Sonarpur block in consideration we see that there is 48.31% are stressed between 15-40 age group, 45.31% are stressed among the age group 41-60 years old and 50% are stressed among 61 & above.

176. **Qualification x Stress:**

G.P./ Block SONARPUR

Qualification x Stress	Stress Score		Grand Total
	Not Stressed (0-11)	Stressed (12-36)	
Qualification			
Illiterate	14.63%	85.37%	100.00%
Primary	55.56%	44.44%	100.00%
Class 8th Passed	55.43%	44.57%	100.00%
Secondary	64.29%	35.71%	100.00%
Higher-Secondary	61.11%	38.89%	100.00%
Graduate	60.00%	40.00%	100.00%
Post-Graduate	60.00%	40.00%	100.00%
Grand Total	52.37%	47.63%	100.00%

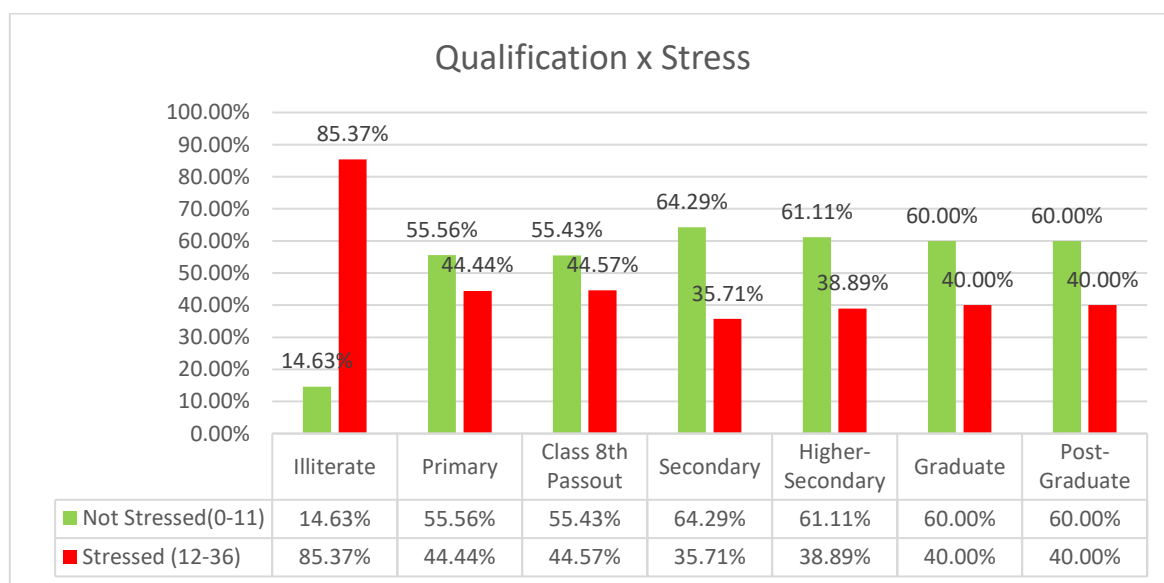


Table 13.66

After analysing Covariant Qualification with Stress taking all respondents of the Sonarpur block in consideration we see that among the illiterates 85.37% of this group are stressed. Those who studied till primary school and were stressed are found to be 44.44%. 44.57% were found

to be stressed among the Class 8th Passed respondents. 35.71% were found to be stressed among the Secondary Passed respondents. 38.89%, 40% and 40% were found to be stressed among the Higher Secondary, Graduate and post-graduate respondents respectively.

177. Family Income Distribution:

G.P./ Block		SONARPUR		
Income x Stress	Stress Score			Grand Total
	Not Stressed (0-11)	Stressed (12-36)		
Income Slab				
₹ 0 - ₹ 3000	54.55%	45.45%		100.00%
₹ 3,000 - ₹ 10,000	51.67%	48.33%		100.00%
₹10,001 & above	85.71%	14.29%		100.00%
Grand Total	53.44%	46.56%		100.00%

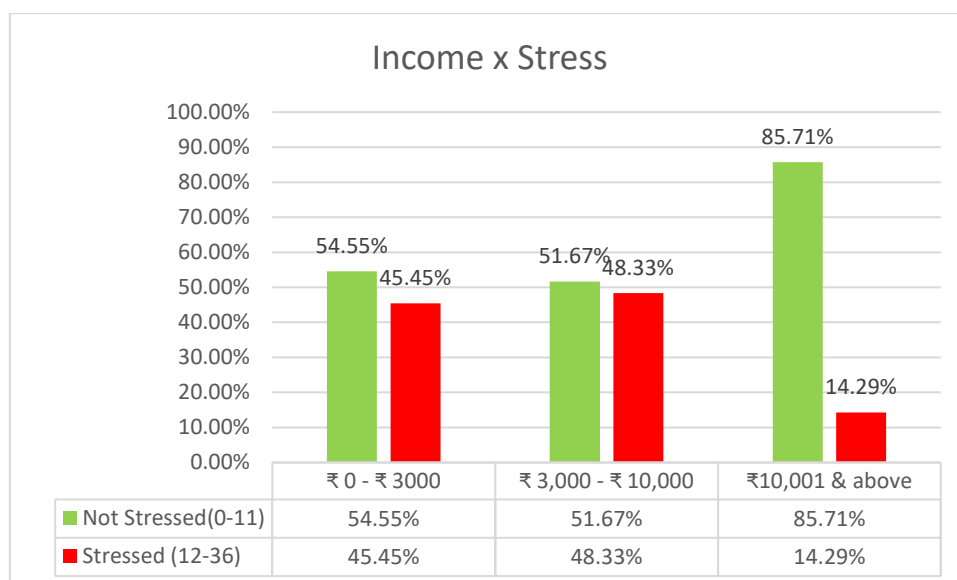


Table 13.67

Analysing covariant Income with Stress taking all respondents of Sonarpur blocks in consideration we see that 45.45%, 48.33% and 14.29% were found to be stressed among the ₹ 0 - ₹ 3000, ₹ 3,000 - ₹ 10,000, ₹10,001 & above Income Slab respectively.

178. Data on gender:

G.P./ Block	SONARPUR
-------------	----------

Gender Category	Stress Score		
	Not Stressed (0-11)	Stressed (12-36)	Grand Total
M	54.82%	45.18%	100.00%
F	50.00%	50.00%	100.00%
Grand Total	52.50%	47.50%	100.00%

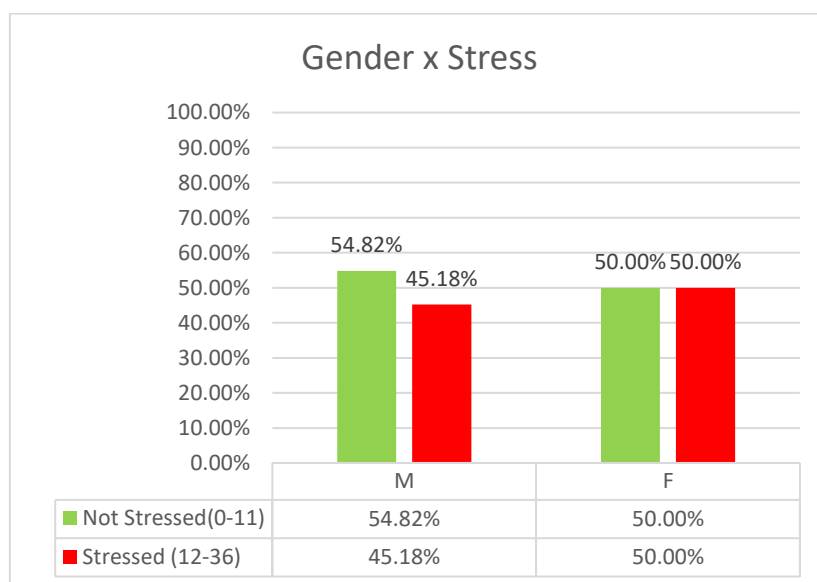


Table 13.68

Analysing the survey data, and from Table 13.68 we can infer that in the Sonarpur CD Block, South 24 Parganas, 45.18% of the male respondents are stressed whereas 50% are stressed among the total female respondents.

179. Data on Amphan Damage:

G.P./ Block	SONARPUR
-------------	----------

Amphan Damage	Stress		Grand Total
	Not Stressed	Stressed	
Yes	52.60%	47.40%	100.00%
No	50.00%	50.00%	100.00%
Grand Total	52.50%	47.50%	100.00%

Table 72.5

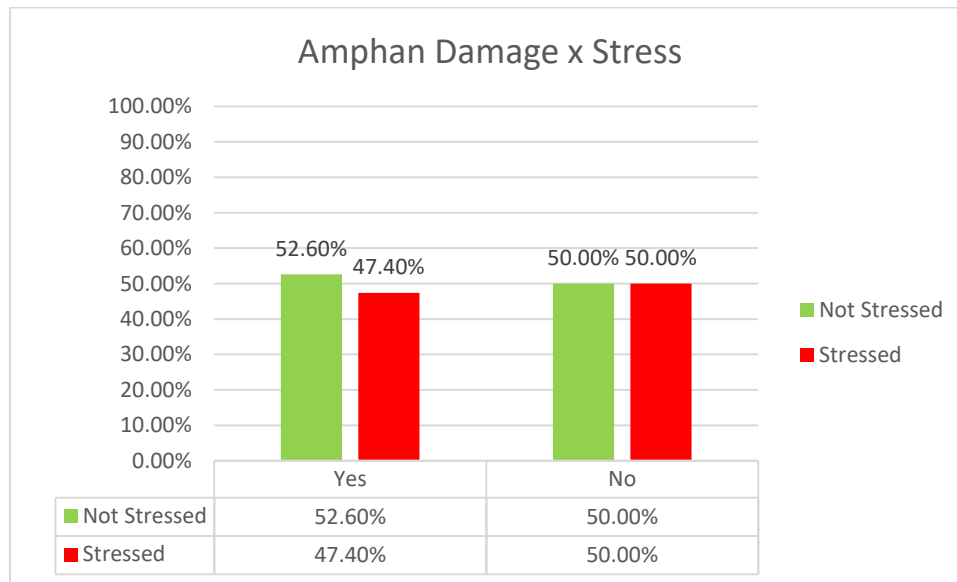


Table 13.69

Analysing covariant Amphan Damage with Stress taking all respondents of the Sonarpur block in consideration we see that 47.40% are stressed among those who were affected by the Amphan damage. Quite interestingly, we have found out according to the data that 50% were stressed among those who answered that they were not affected by the cyclone.

180. Data on COVID-19 and Stress:

G.P./ Block SONARPUR

COVID-19 Positive	Stress		Grand Total
	Not Stressed	Stressed	
Yes	97.50%	2.50%	100.00%
No	46.07%	53.93%	100.00%
Grand Total	52.50%	47.50%	100.00%

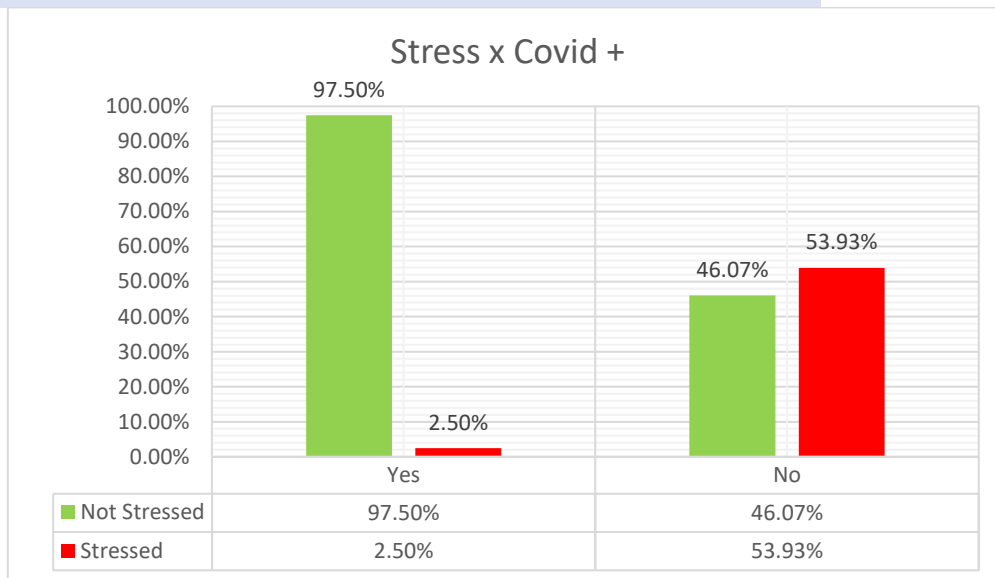


Table 13.70

Analysing covariant Covid+ with Stress taking all respondents of the Sonarpur block in consideration we see that 2.50% are stressed among those who were infected by the Covid. Quite interestingly, we have found out according to the data that 53.93% were stressed among those who answered that they were not infected by the virus.

181. Vaccine among Covid+ x Stress:

G.P./ Block	SONARPUR
13. have you been COVID+ve before?	Yes

Vaccine doses x Stress	Stress Score		Grand Total
	Not Stressed	Stressed	
No of Doses			
2	97.50%	2.50%	100.00%
Grand Total	97.50%	2.50%	100.00%

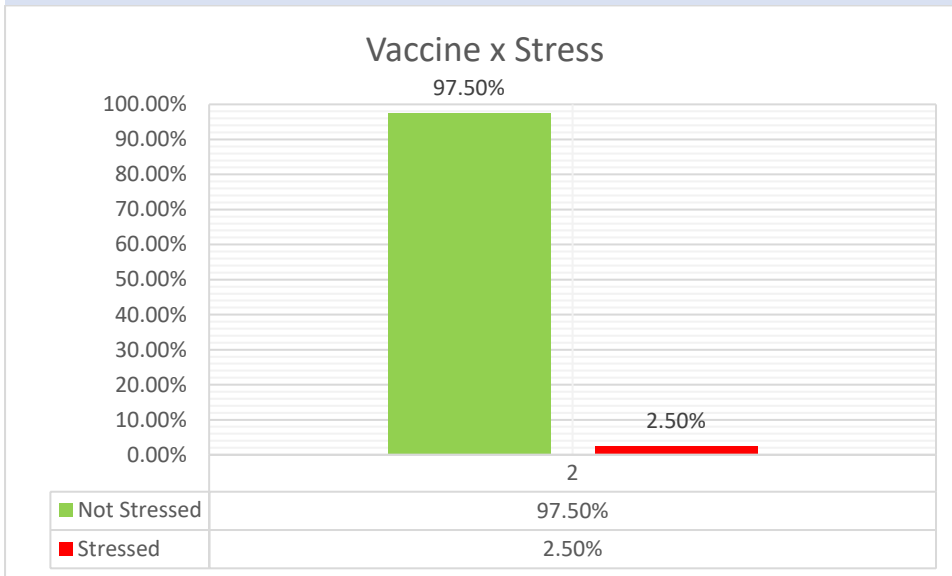


Table 13.71

Analysing covariant Covid+ and Vaccine with Stress taking all respondents of Sonarpur blocks in consideration we see that 2.50% are stressed among those who took 2 doses of vaccine. But the amount of COVID+ positive were very less.

182. Help due to Amphan Damage x Stress:

G.P./ Block	SONARPUR
damage by Amphan	Yes

Help Received	Stress		Grand Total
	Not Stressed	Stressed	
Yes	0.00%	100.00%	100.00%
No	52.23%	47.77%	100.00%
Grand Total	51.70%	48.30%	100.00%

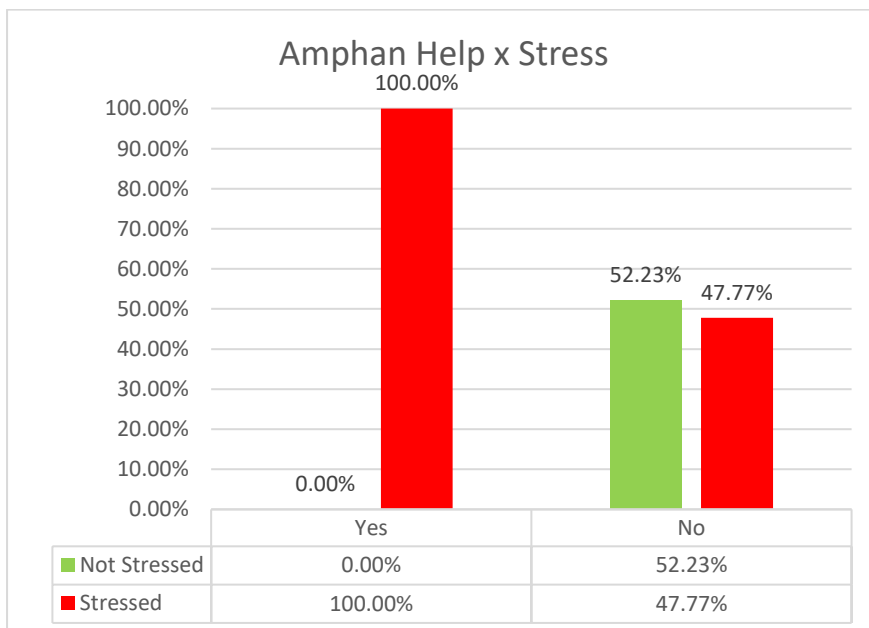


Table 13.72

Analysing covariant Amphan Help received with Stress taking all respondents of the Sonarpur block in consideration we see that 100% were stressed among those who were affected by the cyclone Amphan received help from different sources. 47.77% were also found to be stressed in the category of no help was received from govt or any other organisation.

J) Stress Report on Chakdaha Block, Nadia

183. Age & Stress:

G.P./ Block	CHAKDAHA
-------------	----------

Age x Stress	Stress Score		
	Not Stressed (0-11)	Stressed (12-36)	Grand Total
Age Category			
15-40	5.98%	94.02%	100.00%
41-60	3.75%	96.25%	100.00%
61 & above	5.56%	94.44%	100.00%
Grand Total	5.12%	94.88%	100.00%

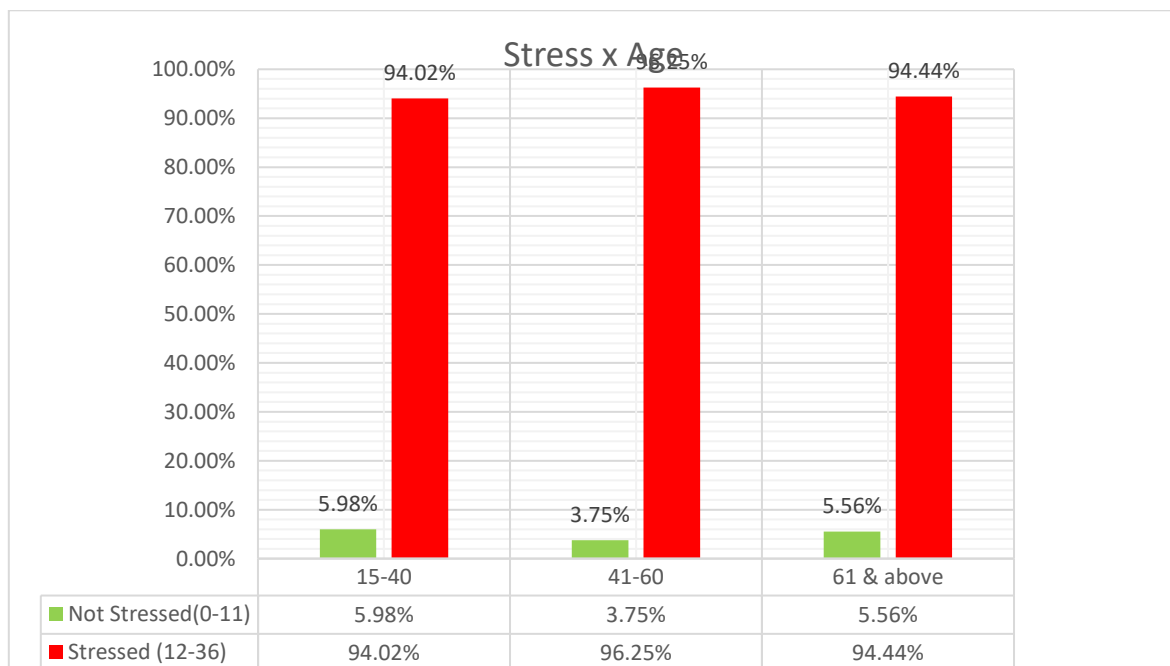


Table 13.73

After analysing Covariant Age with Stress taking all respondents of the Chakdaha block in consideration we see that there is 94.02% are stressed between 15-40 age group, 96.25% are stressed among the age group 41-60 years old and 94.44% are stressed among 61 & above.

184. **Qualification x Stress:**

G.P./ Block CHAKDAHA

Qualification x Stress	Stress Score		Grand Total
	Not Stressed (0-11)	Stressed (12-36)	
Qualification			
Illiterate	0.00%	100.00%	100.00%
Primary	6.93%	93.07%	100.00%
Class 8th Passed	0.00%	100.00%	100.00%
Secondary	5.26%	94.74%	100.00%
Higher-Secondary	0.00%	100.00%	100.00%
Graduate	60.00%	40.00%	100.00%
Grand Total	5.07%	94.93%	100.00%

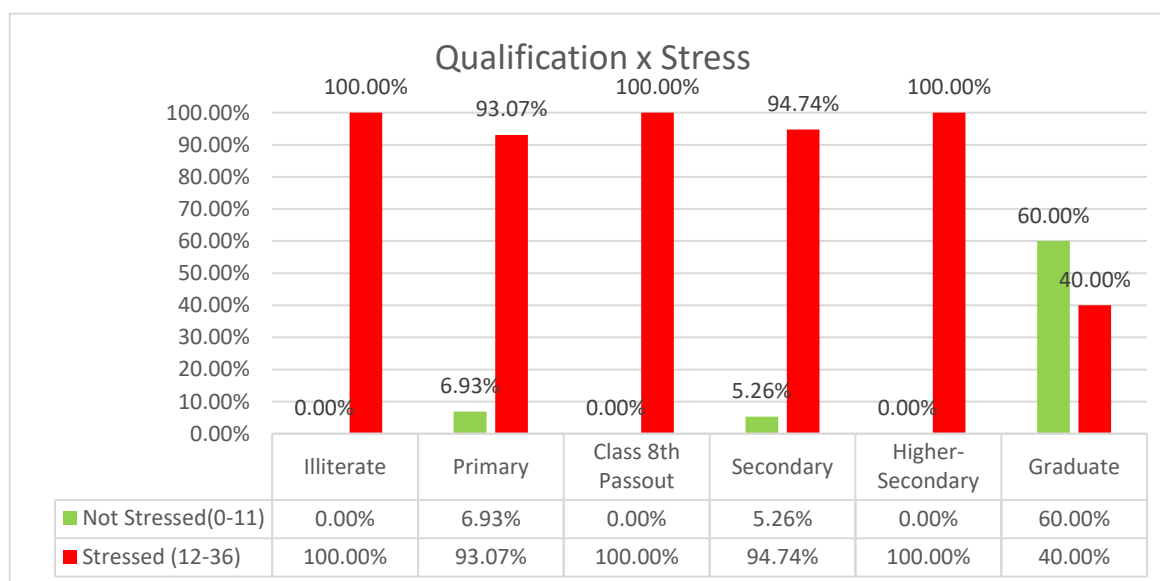


Table 13.74

After analysing Covariant Qualification with Stress taking all respondents of the Chakdaha block in consideration, we see that among the illiterates 100% of this group are stressed. Those who studied till primary school and were stressed are found to be 93.07%. 100% were found to be stressed among the Class 8th Passed respondents. 94.74% were found to be stressed among the Secondary Passed respondents. 58.33% were found to be stressed among the Higher Secondary.

185. Family Income Distribution:

G.P./ Block CHAKDAHA

Income x Stress	Stress Score		Grand Total
	Not Stressed (0-11)	Stressed (12-36)	
Income Slab			
₹ 0 - ₹ 3000	4.85%	95.15%	100.00%
₹ 3,000 - ₹ 10,000	6.00%	94.00%	100.00%
₹10,001 & above	0.00%	100.00%	100.00%
Grand Total	5.09%	94.91%	100.00%

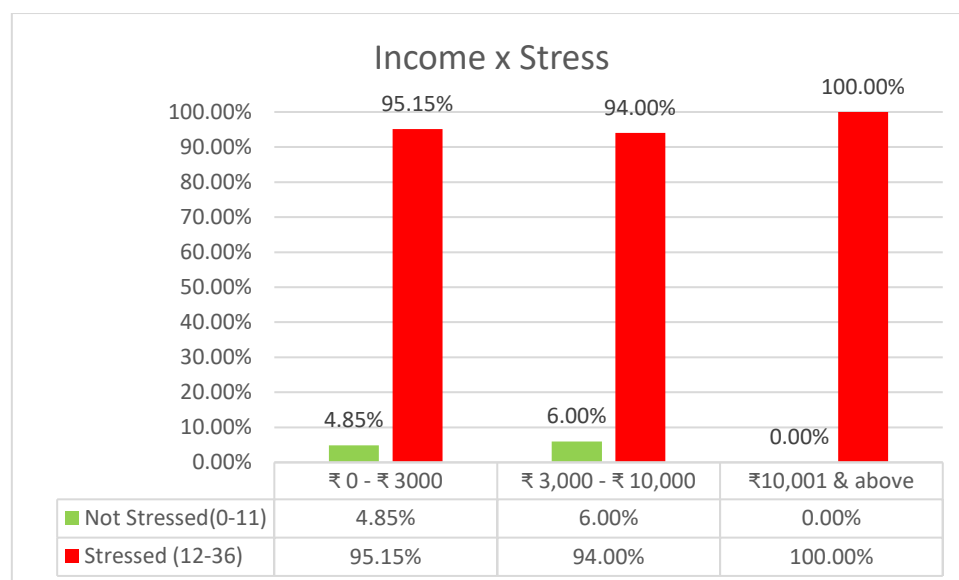


Table 13.75

Analysing covariant Income with Stress taking all respondents of Chakdaha blocks in consideration we see that 95.15%, 94% and 100% were found to be stressed among the ₹ 0 - ₹ 3000, ₹ 3,000 - ₹ 10,000, ₹10,001 & above Income Slab respectively.

186. Data on gender:

G.P./ Block	CHAKDAHA
-------------	----------

Gender Category	Stress Score		
	Not Stressed (0-11)	Stressed (12-36)	Grand Total
M	6.06%	93.94%	100.00%
F	4.89%	95.11%	100.00%
Grand Total	5.07%	94.93%	100.00%

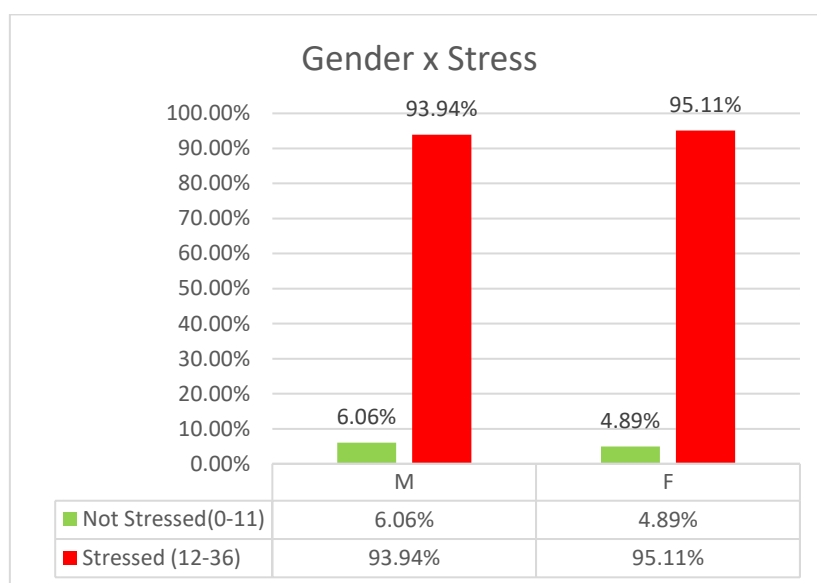


Table 13.76

Analysing the survey data, and from Table 13.76 we can infer that in the Chakdaha CD Block, we see that 93.94% of the male respondents are stressed whereas 95.11% are stressed among the total female respondents.

187. Data on Amphan Damage:

G.P./ Block	CHAKDAHA
-------------	----------

Amphan Damage	Stress		Grand Total
	Not Stressed	Stressed	
Yes	1.83%	98.17%	100.00%
No	15.09%	84.91%	100.00%
Grand Total	5.07%	94.93%	100.00%

Table 82.5

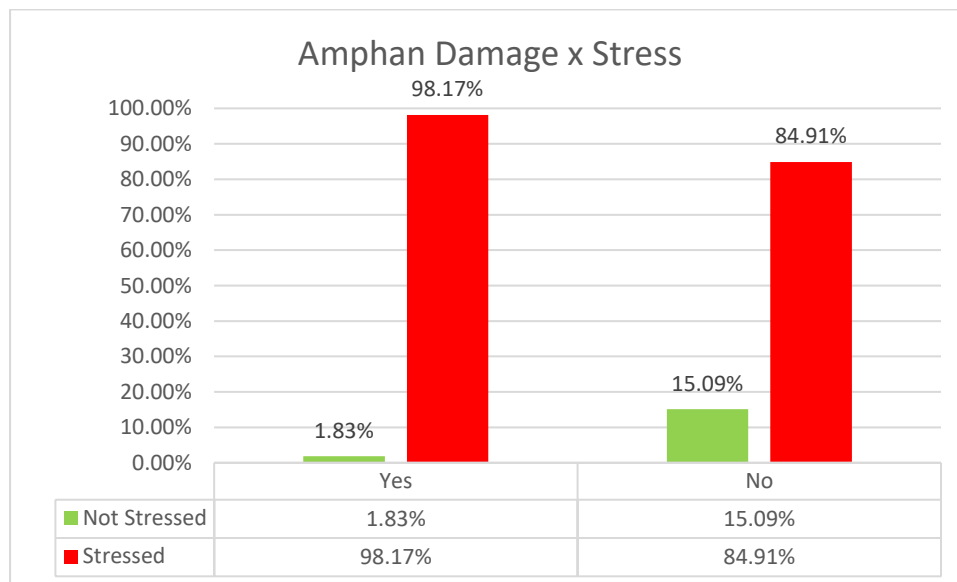


Table 13.77

Analysing covariant Amphan Damage with Stress taking all respondents of the Chakdaha block in consideration we see that 98.17% are stressed among those who were affected by the Amphan damage. Quite interestingly, we have found out according to the data that 84.91% were stressed among those who answered that they were not affected by the cyclone.

188. Data on COVID-19 and Stress:

G.P./ Block CHAKDAHA

COVID-19 Positive	Stress		Grand Total
	Not Stressed	Stressed	
Row Labels			
Yes	100.00%	0.00%	100.00%
No	4.65%	95.35%	100.00%
Grand Total	5.09%	94.91%	100.00%

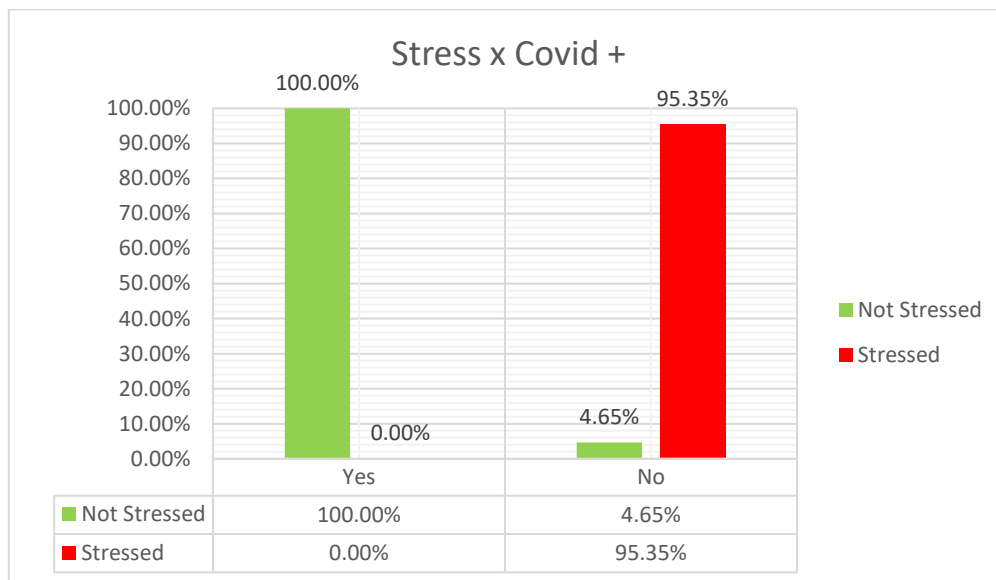


Table 13.78

Analysing covariant Covid+ with Stress taking all respondents of the Chakdaha block in consideration we see that 0% are stressed among those who were infected by the Covid. Quite interestingly, we have found out according to the data that 95.35% were stressed among those who answered that they were not infected by the virus.

189. Vaccine among Covid+ x Stress:

G.P./ Block	CHAKDAHA
13. have you been COVID+ve before?	Yes

Vaccine doses x Stress	Stress Score	
	Not Stressed	Grand Total
No of Doses		
2	100.00%	100.00%
Grand Total	100.00%	100.00%

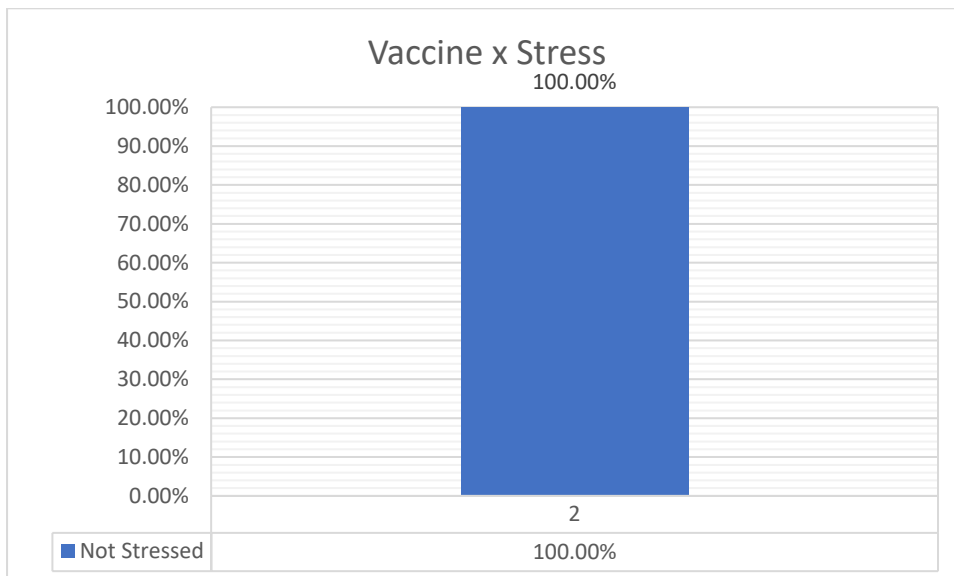


Table 13.79

Analysing covariant Covid+ and Vaccine with Stress taking all respondents of Chakdaha blocks in consideration we see that 0% are stressed among those who took 2 doses of vaccine. But the amount of COVID+ positive were very less.

190. Help due to Amphan Damage x Stress:

G.P./ Block	CHAKDAHA
damage by Amphan	Yes

Help Received	Stress		Grand Total
	Not Stressed	Stressed	
Row Labels			
Yes	0.00%	100.00%	100.00%
No	2.14%	97.86%	100.00%
Grand Total	1.84%	98.16%	100.00%

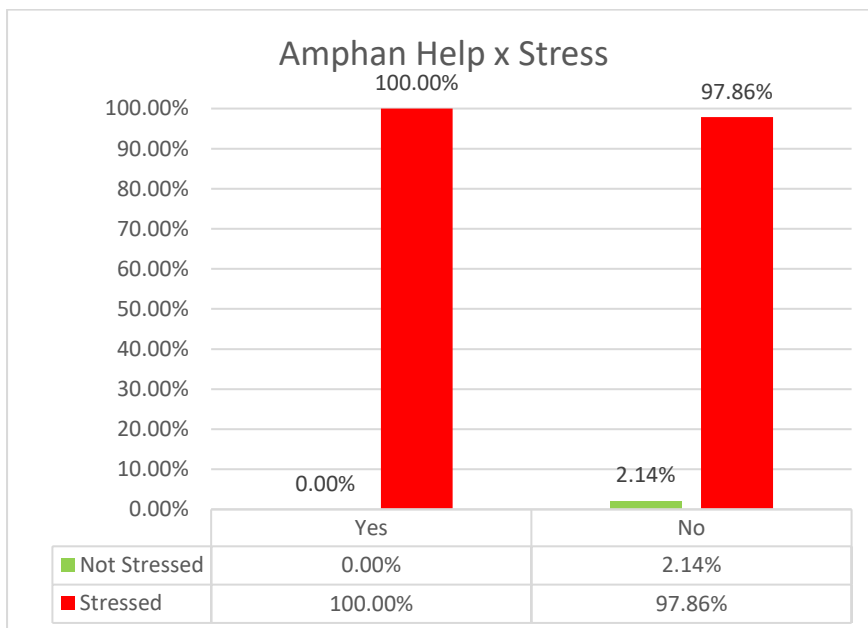


Table 13.80

Analysing covariant Amphan Help received with Stress taking all respondents of the Chakdaha block in consideration we see that 100% were stressed among those who were affected by the cyclone Amphan received help from different sources. 97.86% were also found to be stressed in the category of no help was received from govt or any other organisation.

K) Stress Report on Kalyani Block, Nadia

191. Age & Stress:

G.P./ Block	KALYANI
-------------	---------

Age x Stress	Stress Score		
	Not Stressed (0-11)	Stressed (12-36)	Grand Total
Age Category			
15-40	23.58%	76.42%	100.00%
41-60	24.21%	75.79%	100.00%
61 & above	17.39%	82.61%	100.00%
Grand Total	23.21%	76.79%	100.00%

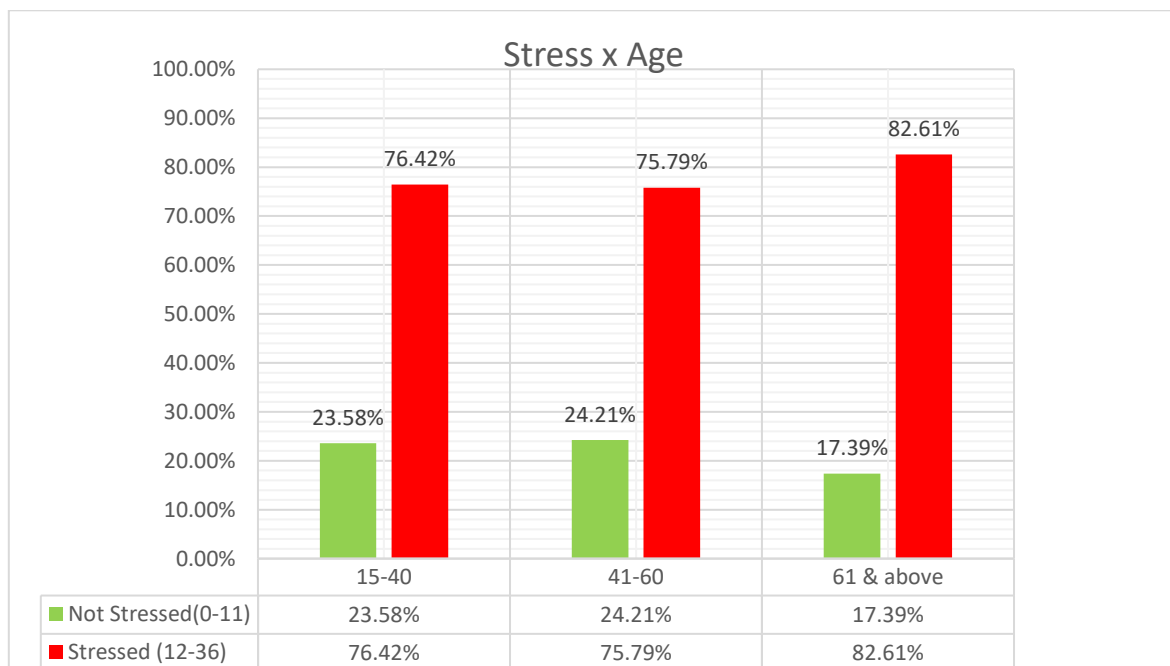


Table 13.81

After analysing Covariant Age with Stress taking all respondents of the Kalyani block in consideration, we see that there is 76.42% are stressed between 15-40 age group, 75.79% are stressed among the age group 41-60 years old and 82.61% are stressed among 61 & above.

192. **Qualification x Stress:**

G.P./ Block	KALYANI
-------------	---------

Qualification x Stress	Stress Score		Grand Total
	Not Stressed (0-11)	Stressed (12-36)	
Qualification			
Illiterate	3.33%	96.67%	100.00%
Primary	25.64%	74.36%	100.00%
Class 8th Passed	27.12%	72.88%	100.00%
Secondary	17.65%	82.35%	100.00%
Higher-Secondary	36.84%	63.16%	100.00%
Graduate	75.00%	25.00%	100.00%
Post-Graduate	0.00%	100.00%	100.00%
Grand Total	23.56%	76.44%	100.00%

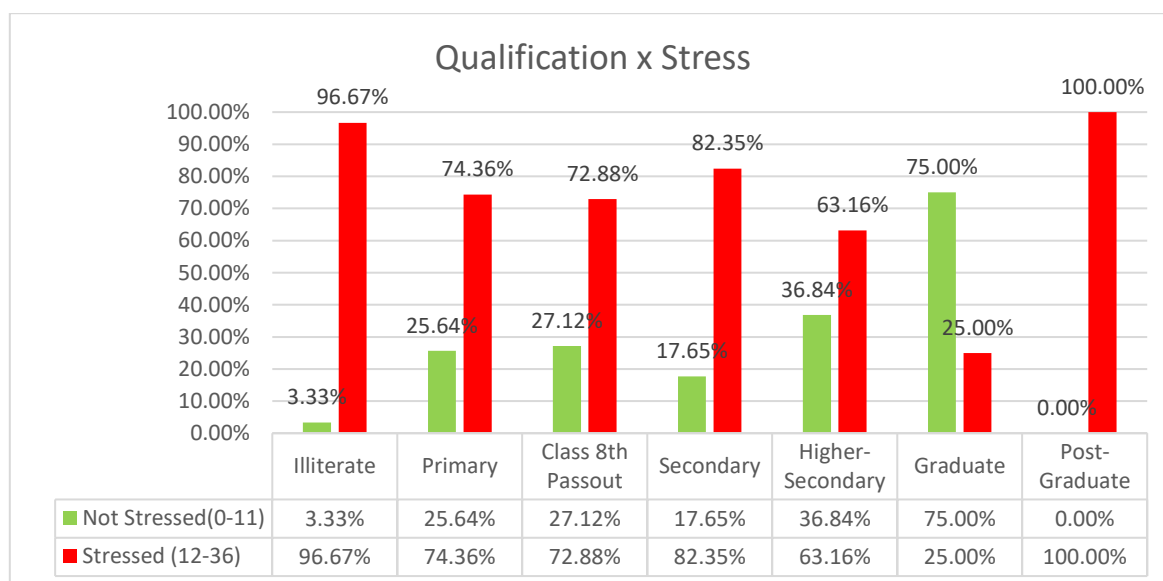


Table 13.82

After analysing Covariant Qualification with Stress taking all respondents of the Kalyani block in consideration, we see that among the illiterates 96.67% of this group are stressed. Those who studied till primary school and were stressed are found to be 74.36%. 72.88% were found to be stressed among the Class 8th Passed respondents. 82.35% were found to be stressed among the

Secondary Passed respondents. 63.16% were found to be stressed among the Higher Secondary and 25% are graduated who are stressed and 100% are post graduate who are stressed.

193. Family Income Distribution:

G.P./ Block KALYANI

Income x Stress	Stress Score		
	Not Stressed (0-11)	Stressed (12-36)	Grand Total
Income Slab			
₹ 0 - ₹ 3000	31.58%	68.42%	100.00%
₹ 3,000 - ₹ 10,000	19.08%	80.92%	100.00%
₹10,001 & above	35.42%	64.58%	100.00%
Grand Total	23.74%	76.26%	100.00%

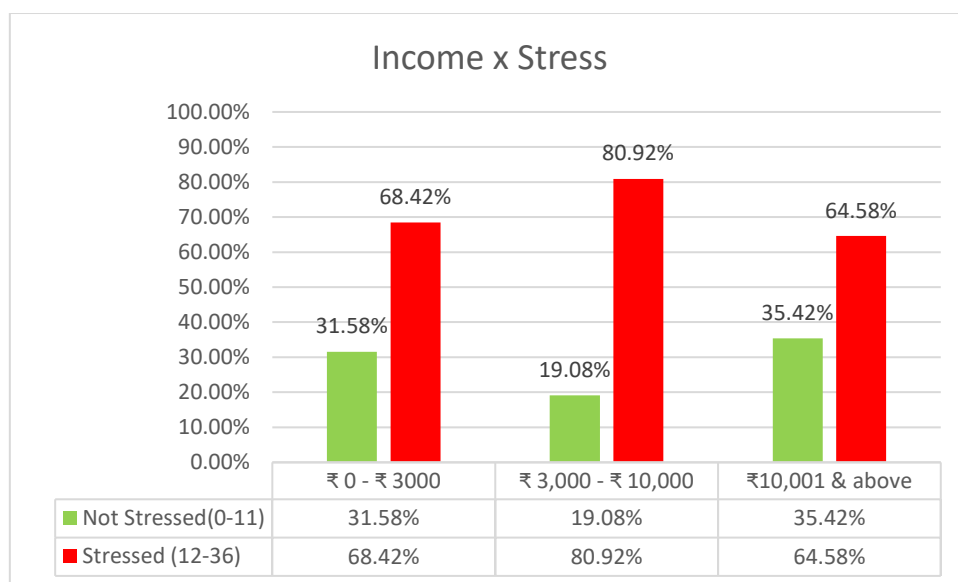


Table 13.83

Analysing the survey data, and from Table 13.83 we can infer that in the Kalyani CD Block, Nadia, 11.95% of the surveyed persons were down with COVID-19 and most of them got to know it through COVID-19 testing and rest of the response 88.05% in this block were mostly not having any symptoms of covid.

194. Data on gender:

G.P./ Block	KALYANI
-------------	---------

Gender Category	Stress Score		
	Not Stressed (0-11)	Stressed (12-36)	Grand Total
M	26.67%	73.33%	100.00%
F	20.00%	80.00%	100.00%
Grand Total	23.56%	76.44%	100.00%

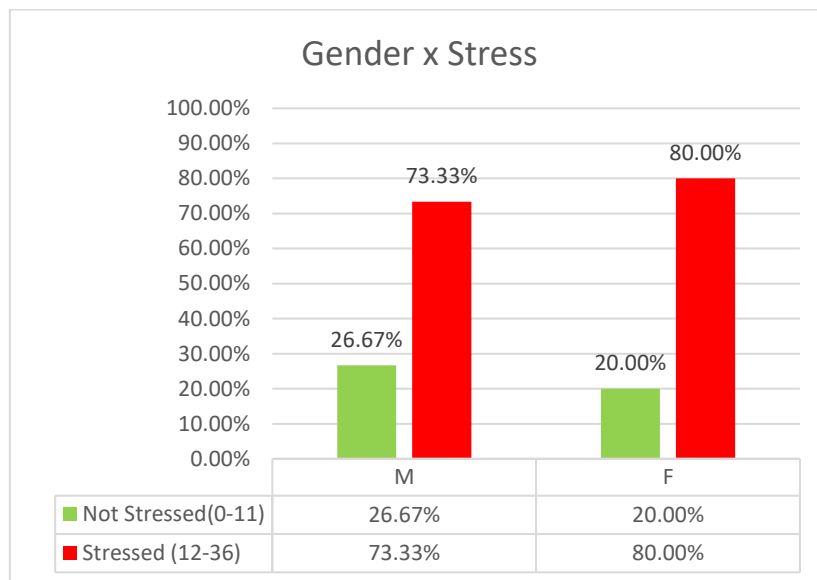


Table 13.84

Analysing the survey data of Kalyani Block, we see that 73.33% of the male respondents are stressed whereas 80% are stressed among the total female respondents.

195. Data on Amphan Damage:

G.P./ Block KALYANI

Amphan Damage Stress			
	Not Stressed	Stressed	Grand Total
Row Labels			
Yes	15.51%	84.49%	100.00%
No	63.16%	36.84%	100.00%
Grand Total	23.56%	76.44%	100.00%

Table 92.5

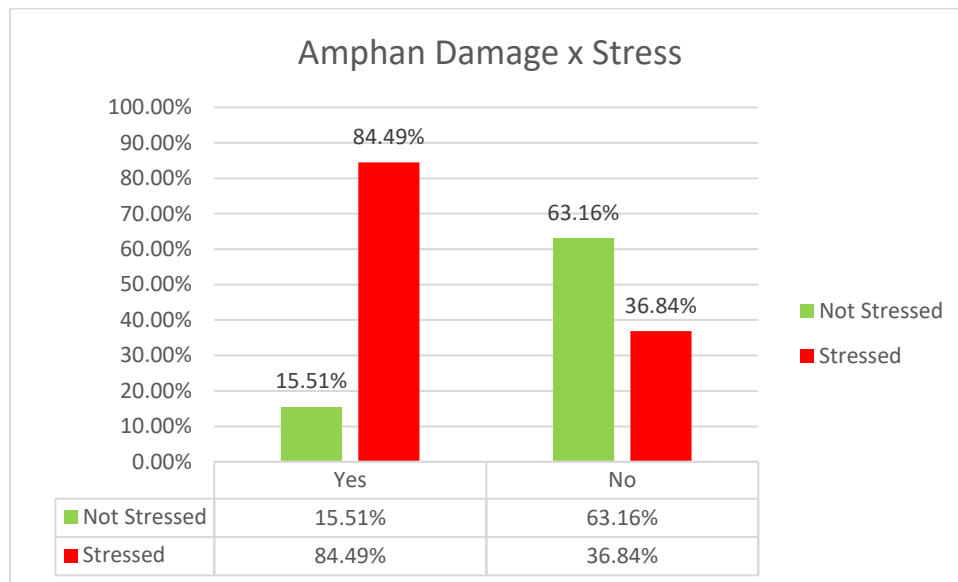


Table 13.85

Analysing covariant Amphan Damage with Stress taking all respondents of the Kalyani block in consideration we see that 84.49% are stressed among those who were affected by the Amphan damage.36.84% were found to be stressed among those who were not Stressed (found to be affected by Amphan which indicates that other factors are at play.

196. Data on COVID-19 and Stress:

G.P./ Block KALYANI

COVID-19 Positive	Stress		Grand Total
	Not Stressed	Stressed	
Row Labels			
Yes	3.57%	96.43%	100.00%
No	27.39%	72.61%	100.00%
Grand Total	21.13%	78.87%	100.00%

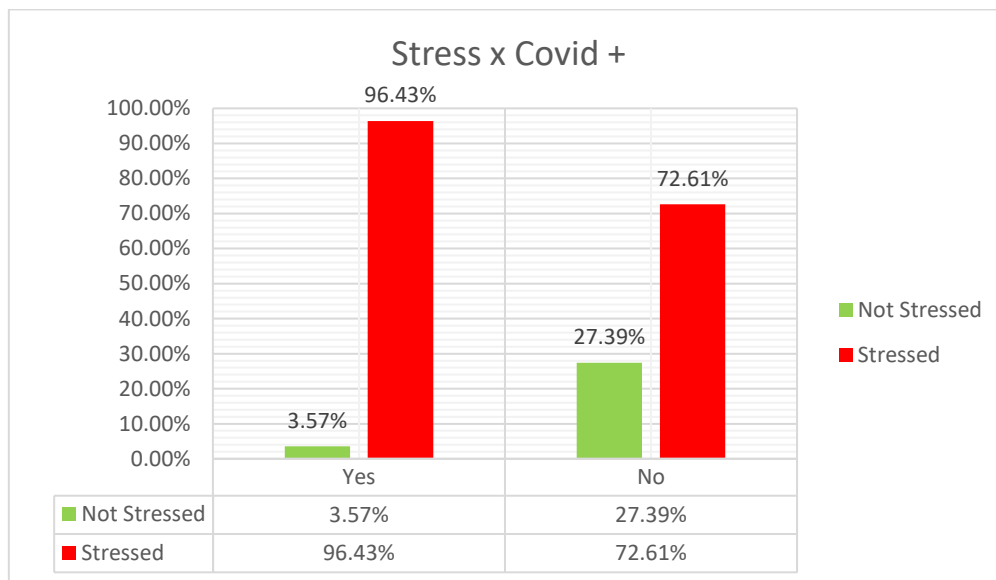


Table 13.85

Analysing covariant Covid+ with Stress taking all respondents of the Kalyani block in consideration we see that 96.43% are stressed among those who were infected by the Covid. Quite interestingly, we have found out according to the data that 72.61% were stressed among those who answered that they were not infected by the virus.

197. Vaccine among Covid+ x Stress:

G.P./ Block	KALYANI
13. have you been COVID+ve before?	Yes

Vaccine doses x Stress	Stress Score		Grand Total
	Not Stressed	Stressed	
No of Doses			
1	0.00%	100.00%	100.00%
2	3.85%	96.15%	100.00%
Grand Total	3.57%	96.43%	100.00%

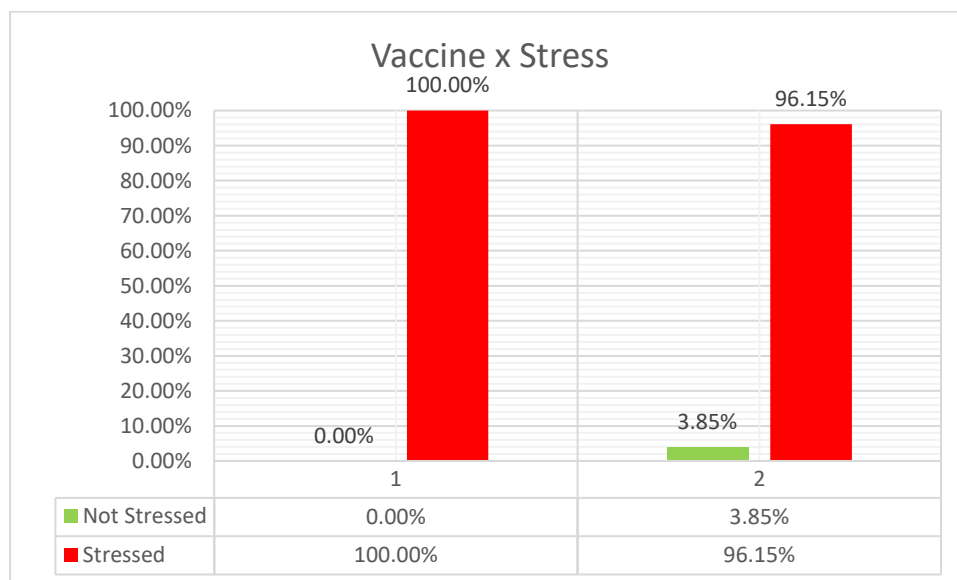


Table 13.86

Analysing covariant Covid+ and Vaccine with Stress taking all respondents of Kalyani blocks in consideration we see that 96.15% are stressed among those who took 2 doses of vaccine. But the amount of COVID+ positive were very less.

198. Help due to Amphan Damage x Stress:

G.P./ Block	KALYANI
damage by Amphan	Yes

Help Received	Stress		Grand Total
	Not Stressed	Stressed	
Yes	10.71%	89.29%	100.00%
No	13.70%	86.30%	100.00%
Grand Total	13.22%	86.78%	100.00%

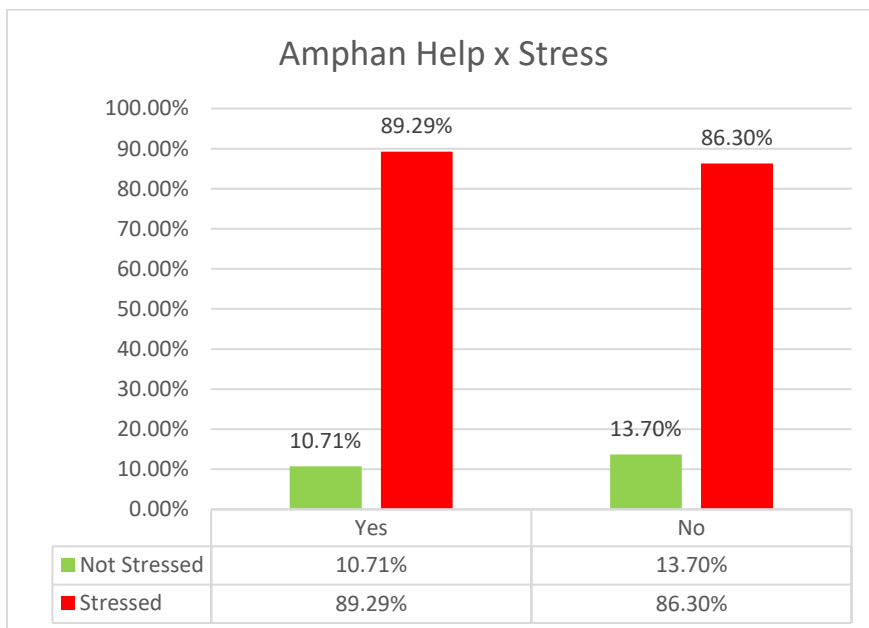


Table 13.87

Analysing covariant Amphan Help received with Stress taking all respondents of the Kalyani block in consideration we see that 89.29% of the surveyed people were stressed among those who were affected by the cyclone Amphan received help from various sources. 86.3% were also found to be stressed in the category of no help was received from govt or any other organisation.

PART IV: FINAL ANALYSIS

L) Stress Report on All 11 Blocks

199. Age & Stress:

G.P./ Block	(All)
-------------	-------

Age x Stress	Stress Score		
	Not Stressed (0-11)	Stressed (12-36)	Grand Total
Age Category			
15-40	35.16%	64.84%	100.00%
41-60	33.93%	66.07%	100.00%
61 & above	37.83%	62.17%	100.00%
Grand Total	34.98%	65.02%	100.00%

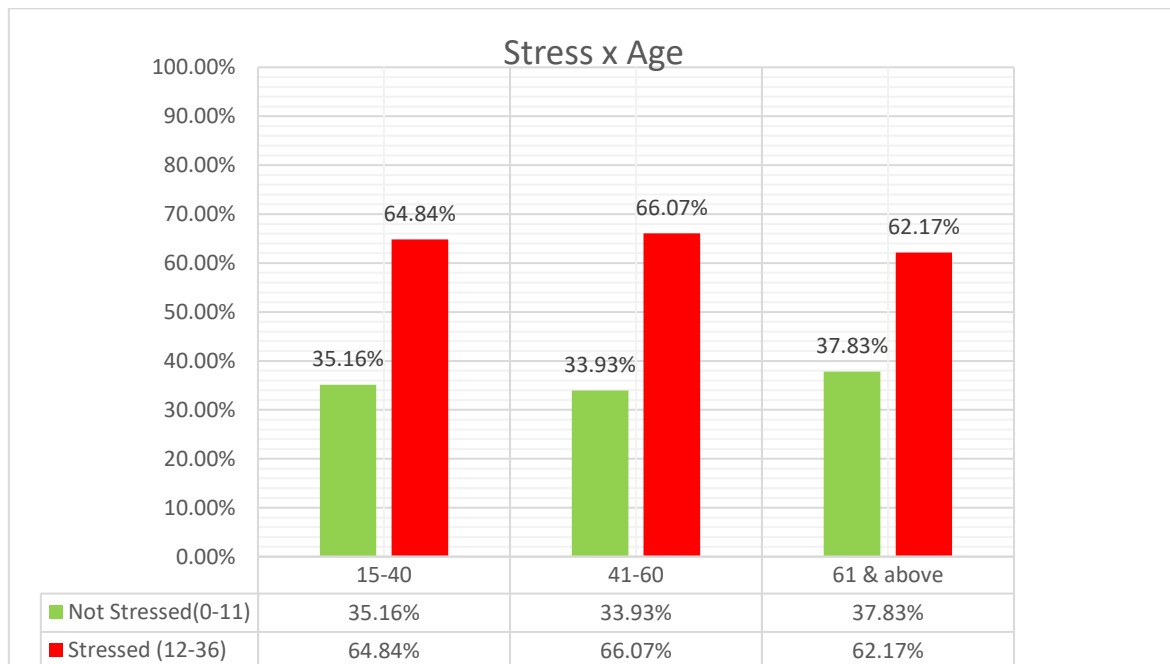


Table 13.88

After analysing Covariant Age with Stress taking all respondents of the blocks in consideration, we see that there is 64.84% are stressed between 15-40 age group, 66.07% are stressed among the age group 41-60 years old and 62.17% are stressed among 61 & above.

200. **Qualification x Stress:**

G.P./ Block (All)		Qualification x Stress		
Qualification	Stress Score		Grand Total	
	Not Stressed (0-11)	Stressed (12-36)		
Illiterate	25.76%	74.24%	100.00%	
Primary	33.96%	66.04%	100.00%	
Class 8th Passed	33.95%	66.05%	100.00%	
Secondary	43.01%	56.99%	100.00%	
Higher-Secondary	43.22%	56.78%	100.00%	
Graduate	47.37%	52.63%	100.00%	
Post-Graduate	69.57%	30.43%	100.00%	
Grand Total	34.88%	65.12%	100.00%	

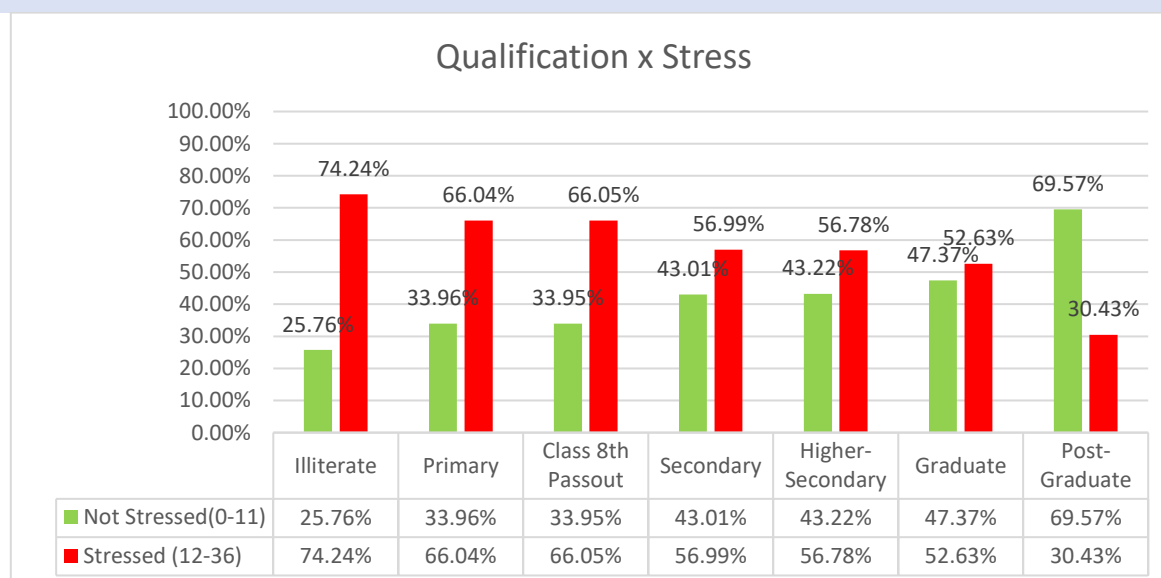


Table 13.89

After analysing Covariant Qualification with Stress taking all respondents of the blocks in consideration, we see that among the illiterates 74.24% of this group are stressed. The number reduces gradually as the qualification increases. Those who studied till primary school and were stressed are found to be 66.04%. 66.05% were found to be stressed among the Class 8th Passed respondents. 56.99% were found to be stressed among the Secondary Passed respondents. 56.78%, 52.63% and 30.43% were found to be stressed among the Higher Secondary, Graduate and post-graduate respondents respectively.

201. Family Income Distribution:

G.P./ Block (All)

Income x Stress	Stress Score		Grand Total
	Not Stressed (0-11)	Stressed (12-36)	
Income Slab			
₹ 0 - ₹ 3000	26.48%	73.52%	100.00%
₹ 3,000 - ₹ 10,000	39.98%	60.02%	100.00%
₹10,001 & above	52.88%	47.12%	100.00%
Grand Total	33.70%	66.30%	100.00%

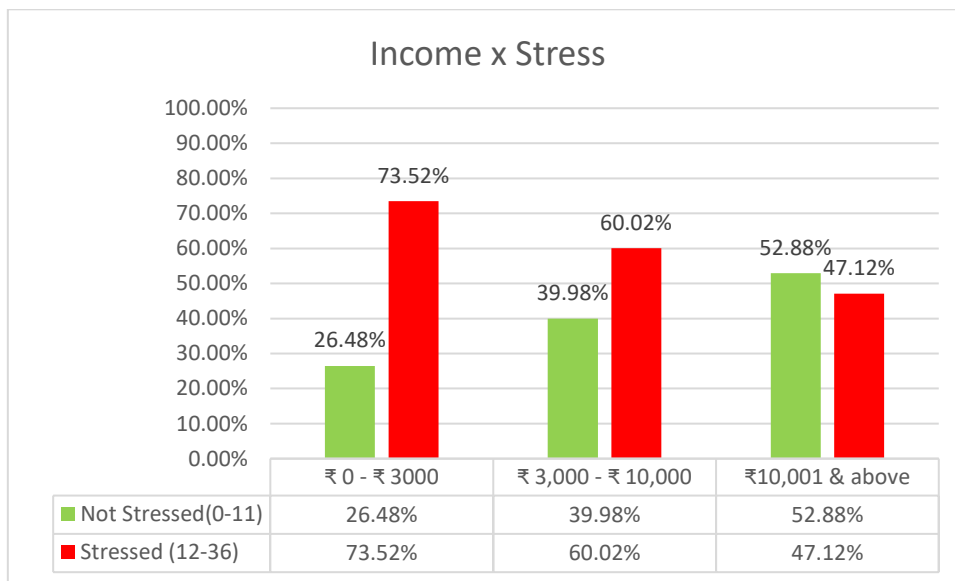


Table 13.90

Analysing covariant Income with Stress taking all respondents of the blocks in consideration we see that 73.52%, 60.02% and 47.12% were found to be stressed among the ₹ 0 - ₹ 3000, ₹ 3,000 - ₹ 10,000, ₹10,001 & above Income Slab respectively.

202. Data on gender:

G.P./ Block (All)

Gender Category	Stress Score		Grand Total
	Not Stressed (0-11)	Stressed (12-36)	
M	38.15%	61.85%	100.00%
F	26.82%	73.18%	100.00%
Grand Total	35.05%	64.95%	100.00%

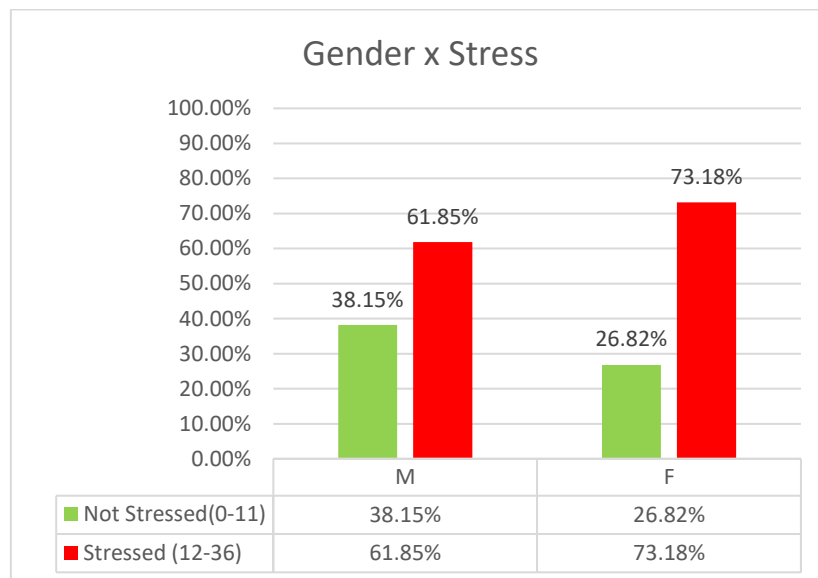


Table 13.91

Analysing covariant Gender with Stress taking all respondents of the blocks in consideration we see that 61.85% of the male respondents are stressed whereas 73.18% are stressed among the total female respondents.

203. Data on Amphan Damage:

G.P./ Block		(All)		
Amphan Damage	Stress		Grand Total	
	Not Stressed	Stressed		
Row Labels				
Yes	34.83%	65.17%	100.00%	
No	39.33%	60.67%	100.00%	
Grand Total	35.09%	64.91%	100.00%	

Table 102.5

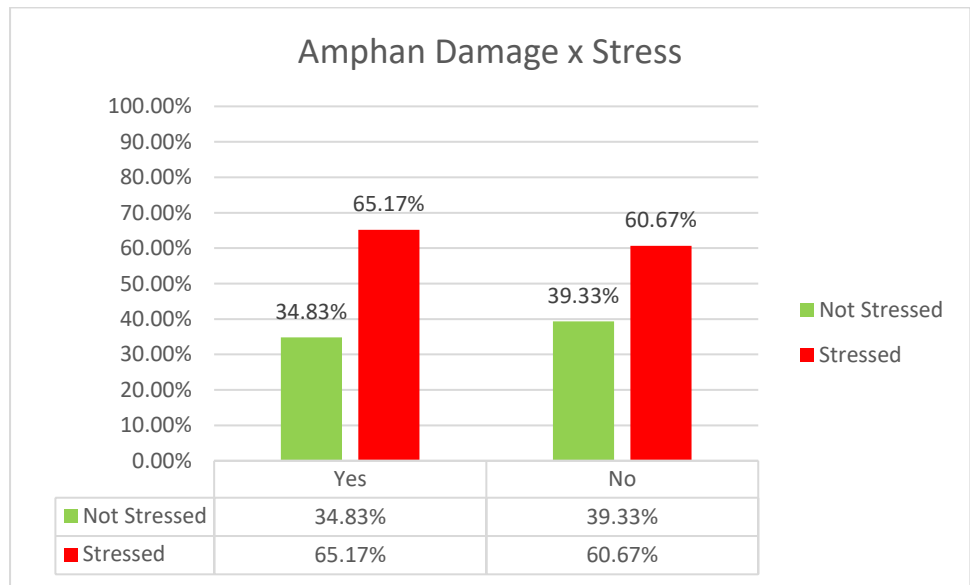


Table 13.92

Analysing covariant Amphan Damage with Stress taking all respondents of the blocks in consideration we see that 65.17% are stressed among those who were affected by the Amphan damage. Quite interestingly, we have found out according to the data that 60.67% were stressed among those who answered that they were not affected by the cyclone.

204. Data on COVID-19 and Stress:

G.P./ Block		(All)		
COVID-19 Positive	Stress		Grand Total	
	Not Stressed	Stressed		
Row Labels				
Yes	44.84%	55.16%	100.00%	
No	34.03%	65.97%	100.00%	
Grand Total	34.95%	65.05%	100.00%	

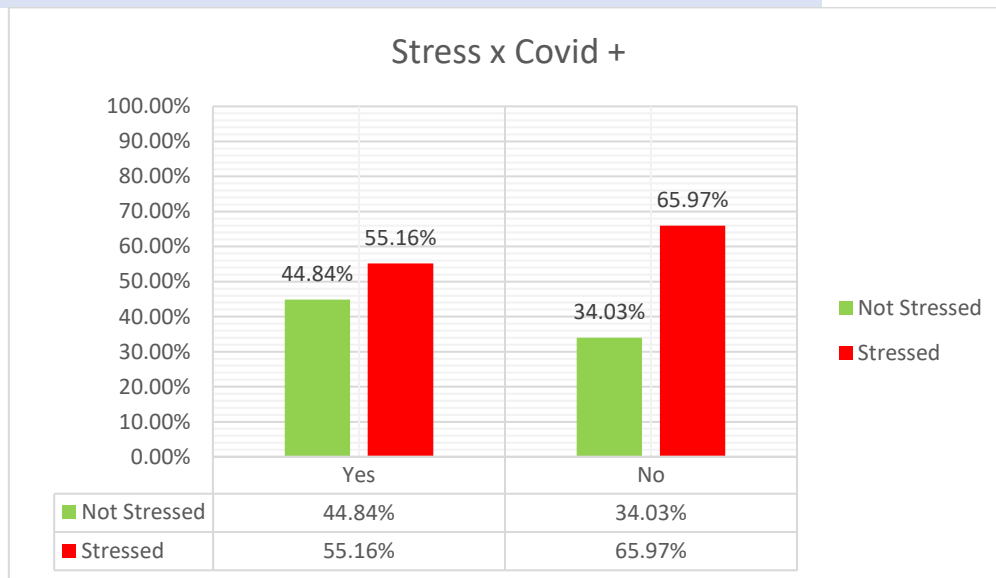


Table 13.93

Analysing covariant Covid+ with Stress taking all respondents of the blocks in consideration we see that 55.16% are stressed among those who were infected by the Covid. Quite interestingly, we have found out according to the data that 65.97% were stressed among those who answered that they were not infected by the virus.

205. Vaccine among Covid+ x Stress:

G.P./ Block	(All)
13. have you been COVID+ve before?	Yes

Vaccine doses x Stress	Stress Score		Grand Total
	Not Stressed	Stressed	
No of Doses			
1	0.00%	100.00%	100.00%
2	46.08%	53.92%	100.00%
Grand Total	44.84%	55.16%	100.00%

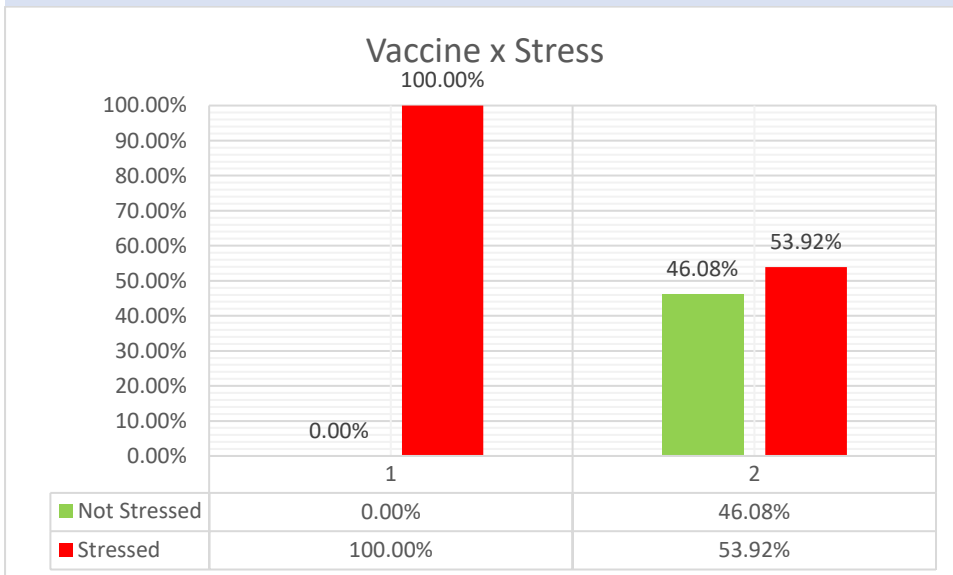


Table 13.94

Analysing covariant Covid+ and Vaccine with Stress taking all respondents of the blocks in consideration we see that 53.92% are stressed among those who took 2 doses of vaccine. But the amount of COVID+ positive were very less is almost all the rural blocks.

206. Help due to Amphan Damage x Stress:

G.P./ Block	(All)
damage by Amphan	Yes

Help Received	Stress		Grand Total
	Not Stressed	Stressed	
Yes	37.57%	62.43%	100.00%
No	34.37%	65.63%	100.00%
Grand Total	34.62%	65.38%	100.00%

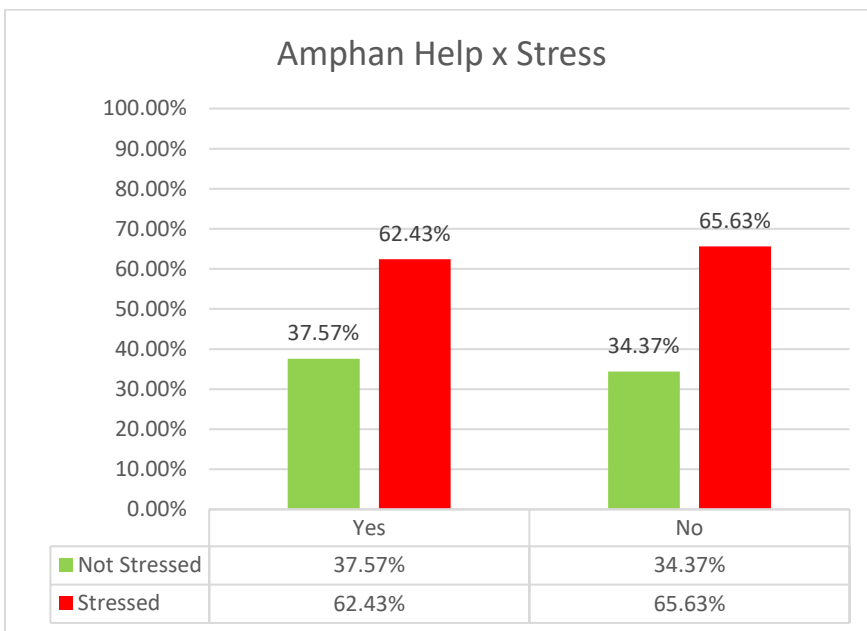


Table 13.95

Analysing covariant Amphan Help received with Stress taking all respondents of the blocks in consideration we see that 62.43% were stressed among those who were affected by the cyclone Amphan received help from different sources. 65.63% were also found to be stressed in the category of no help was received from govt or any other organisation.

CHAPTER 4: CONCLUSION

3.1 Social Dropout

According to UNICEF India report, schools in India have almost completely reopened. This reopening of schools in India takes place after a massive decrease in the number of cases due to the COVID-19 pandemic. However due to schools closing or shifting to online mode of education for the past two years, a UNICEF India report suggest that the dropout rate of the girl child has increased.

As per a poll conducted by UNICEF on the International Women's Day 2022, it was reported that at least 38% of despondence knew of a girl who had dropped out of school. While 33% respondents said that the girl who had dropped out of school were engaged in domestic work. 25% of respondents also reported that the girls who had dropped out got married.

3.2 Child Marriage

The number of child marriages reported across the country increased from 523 in 2019 to 785 in 2020, the year when COVID-19 pandemic forced a nation-wide lockdown, as per data presented in the Lok Sabha.

Among states, Tamil Nadu and Karnataka witnessed a steep increase in the number of child marriages in 2020, according to data collected by the National Crime Records Bureau (NCRB).

In Tamil Nadu, the number increased from 46 in 2019 to 77 in 2020, while in Karnataka, the number went up from 111 in 2019 to 184 in 2020. Assam saw an increase from 115 child marriages in 2019 to 138 in 2020 while in Telangana the number went up from 35 to 60.

This trend of increase in child marriages was also seen in Odisha's tribal districts in 2021, *The Federal* had reported in September 2021 — *Schools shut, tribal kids led into child marriage*.

“There were at least 493 incidents of child marriage of some form in just six blocks of Odisha and two blocks of Jharkhand between April 1, 2020, and July 31, 2021,” according to a survey by A Society for Promotion of Inclusive and Relevant Education (ASPIRE), an NGO working on Right to Education.

The pandemic and the closure of schools due to COVID-induced lockdown forced many poor people to marry their daughters off at a young age. “Children, especially girls, were made to spend more time in their houses as schools were shut and online classes were held. As they spent more time on their mobile phones, parents become suspicious and thought it fit to marry off their daughters,” said Tamil Nadu Child Rights Watch convener Prof Andrew Sesuraj.

Ranjana Kumari, director of Centre for Social Research, Delhi, and chairperson of the NGO Women Power Connect-Girls Not Brides, did not see an immediate end to this. “During and after the pandemic, there is going to be a massive rise in child marriages. We have not only

failed to create new policies to protect children but also failed to implement the existing ones,” she said.

Former UNICEF official R Vidyasagar said that the loss of livelihood led to many child marriages. “The feeling is that once the girl is married, there is one person less to feed. Sometimes the groom’s family also pays bribes for young brides. The dowry is also less for young children,” he said.

“Stopping child marriages alone will not help. The government must carry people along by providing them alternative livelihood options and support for girl child,” Vidyasagar added.

3.3 COVID-19 Attack and Effects on Social and Economic Life

According to WHO, The COVID-19 pandemic has led to a dramatic loss of human life worldwide and presents an unprecedented challenge to public health, food systems and the world of work. The economic and social disruption caused by the pandemic is devastating: tens of millions of people are at risk of falling into extreme poverty, while the number of undernourished people, currently estimated at nearly 690 million, could increase by up to 132 million by the end of the year.

The pandemic has been affecting the entire food system and has laid bare its fragility. Border closures, trade restrictions and confinement measures have been preventing farmers from accessing markets, including for buying inputs and selling their produce, and agricultural workers from harvesting crops, thus disrupting domestic and international food supply chains and reducing access to healthy, safe and diverse diets. The pandemic has decimated jobs and placed millions of livelihoods at risk. As breadwinners lose jobs, fall ill and die, the food security and nutrition of millions of women and men are under threat, with those in low-income countries, particularly the most marginalized populations, which include small-scale farmers and indigenous peoples, being hardest hit.

Millions of agricultural workers – waged and self-employed – while feeding the world, regularly face high levels of working poverty, malnutrition and poor health, and suffer from a lack of safety and labour protection as well as other types of abuse. With low and irregular incomes and a lack of social support, many of them are spurred to continue working, often in unsafe conditions, thus exposing themselves and their families to additional risks. Further, when experiencing income losses, they may resort to negative coping strategies, such as distress sale of assets, predatory loans or child labour. Migrant agricultural workers are particularly vulnerable, because they face risks in their transport, working and living conditions and struggle to access support measures put in place by governments.

According to the UN Department of Economic and Social Affairs (UNDESA), the COVID-19 outbreak affects all segments of the population and is particularly detrimental to members of those social groups in the most vulnerable situations, continues to affect populations, including people living in poverty situations, older persons, persons with disabilities, youth, and

indigenous peoples. Early evidence indicates that that the health and economic impacts of the virus are being borne disproportionately by poor people.

As emphasized by the United Nations Secretary-General, during the launch of a COVID-19 Global Humanitarian Response Plan on 23 March 2020 “We must come to the aid of the ultra-vulnerable – millions upon millions of people who are least able to protect themselves. This is a matter of basic human solidarity. It is also crucial for combating the virus. This is the moment to step up for the vulnerable.”

3.4 Predictive Analysis

Explanatory Variables

We are interested to see how much the six covariates

- I. Age
- II. Gender
- III. Qualification
- IV. Income
- V. COVID-19 (whether the respondent has got COVID-19 or not)
- VI. Amphan (whether the household has been damaged by Amphan or not)

explain the GHQ score of a respondent. In the previous sections of this report, we have seen that all the above six variables may play a vital role on the GHQ score of a respondent. The variables Gender, Covid, Amphan are dichotomous, i.e., have two categories each. It also has to be noted that for some societal or psychological reasons, one may report an incorrect income by stating a lower than actual figure. Therefore, we have categorized the income variable in three groups: low, medium, high. We also have categorized the variables Age into three (0 for age group 15-40; 1 for age group 41-60, 2 for age above 61), Qualification into seven (0 for Illiterate; 1 for primary; 2 for Class 8th Passed; 3 for Secondary; 4 for Higher Secondary; 5 for Graduate; 6 for Post - graduate) categories respectively.

Response Variable

It is mention-worthy that one typically is interested in knowing his/her state of stress (i.e., stressed or not stressed) rather knowing his/her exact GHQ score. Consequently, working with the categorical variable *Stress* (defined as a variable which takes value 1 for a person with GHQ score greater than 12 and takes value zero for a person having GHQ score less than or equal to 12) is more convenient and desirable from the psychological and statistical perspective.

One might ask what the rationale is behind considering the stress level as the response variable and the other six variables as explanatory predictors. This is because our goal is to study the effect of different demographic, sociological and economic factors on stress level. Also, the variables Age, Gender, Covid, Amphan are easily observable per se whereas stress level is a much more subtle and complicated characteristic.

Logistic Regression Model

We fit a logistic regression model with considering the variable Stress (as defined above) as the response variable and the six categorical variables as predictors mentioned above. The (binary) logistic model (or logit model) is a statistical model that models the probability of one event (out of two alternatives, in our case these two alternatives are being stressed and not stressed) taking place by having the log-odds (the logarithm of the odds) for the event be a linear combination of one or more predictor variables. In our case, there are six categorical predictors. Let p denote the probability of a person being stressed. The ratio $\frac{p}{1-p}$ then represents the odds of a person being stressed and the quantity $\log\left(\frac{p}{1-p}\right)$ is called the log-odds. The logistic regression models the log-odds as a linear combination of the predictor variables. The coefficients in the linear combinations are the parameters of our model.

Training Data and Test Data

Our revised (revised because we have categorized our original variables) dataset consists of 2801 rows (corresponding to 2801 respondents) and 7 columns (corresponding to the seven variables: one response and the six categorical predictors). Note that we already know the state of stress for each of the 2801 respondents. Now, to assess the strength of relationships among the response and the predictors, we divide our dataset into two parts randomly (one part having nearly 80% of the rows of the total data while the other having 20% rows of the total data). The larger dataset is called *training data* while the smaller dataset is referred to as the *test data*. Note that, the test data is not used to estimate the parameters of the model while the training data is not used to validate /measure the performance of our model.

Estimation and Confusion Matrix

We fit a logistic regression model on our training data and estimate the values of the parameters from this model. we fit the test data with a logistic model with previously obtained estimated parameter values. In each row of the test data, based on the six information (corresponding to the six predictors) we predict whether the respondent corresponding to that row is stressed or not. So, for each row, we have one actual information and one predicted information regarding the stress of that respondent. From these, we obtain a confusion table like below:

	Actual		
	Stressed	Not Stressed	
Predicted Stressed	a	b	a+b
Predicted Not Stressed	c	d	c+d
Total	a+c	b+d	a+b+c+d

The misclassification error rate is defined as the ratio $\frac{b+c}{a+b+c+d} = \frac{b+c}{2801}$.

Concluding Remarks

For our logistic regression model, the misclassification error rate is 0.32. This means, on average, among 10 respondents, the model predicts the stress level of around 7 respondents correctly. This is a satisfactory performance of our model. This also illustrates that the six categorical predictors together play a vital role in one's stress level and at the same point of time they do not explain stress level fully. This is expected because there are always some sociological and psychological factors which are very specific from person to person and which are not captured by the six categorical variables considered here.

CHAPTER 5: REFERENCES

- 1) Ren, F. F., & Guo, R. J. (2020). Public Mental Health in Post-COVID-19 Era. *Psychiatria Danubina*, 32(2), 251-255.
- 2) Martin, M., Saltzman, L. Y., Henry, V., Broussard, C., & Hansel, T. C. (2022). Mental Health and Well-Being for Aging Adults During the COVID-19 Pandemic. *Aging & Mental Health*, 26(9), 1889-1898.
- 3) Grover, S., Mehra, A., Sahoo, S., Avasthi, A., Tripathi, A., D'Souza, A., ... & Kumar, P. (2020). State of Mental Health Services in Various Training Centers in India During the Lockdown and COVID-19 Pandemic. *Indian Journal of Psychiatry*, 62(4), 363-369.
- 4) Mondal, B. K., Sahoo, S., Paria, P., Chakraborty, S., & Alamri, A. M. (2021). Multi-Sectoral Impact Assessment During the 1st Wave of COVID-19 Pandemic in West Bengal (India) for Sustainable Planning and Management. *Arabian Journal of Geosciences*, 14(23), 1-26.
- 5) Chakraborty, K., & Chatterjee, M. (2020). Psychological Impact of COVID-19 Pandemic on General Population in West Bengal: A Cross-Sectional Study. *Indian Journal of Psychiatry*, 62(3), 266-272.
- 6) Mukherjee, M., Maity, C., & Chatterjee, S. (2021). Media Use Pattern as an Indicator of Mental Health in the COVID-19 Pandemic: Dataset from India. *Data in Brief*, 34, 106722.
- 7) Chacko, N., & Jayaram, C. (2022). Response of the Bay of Bengal to Super Cyclone Amphan Examined Using Synergistic Satellite and In-Situ Observations. *Oceanologia*, 64(1), 131-144.
- 8) Nieto, I., Navas, J. F., & Vázquez, C. (2020). The Quality of Research on Mental Health Related to the COVID-19 Pandemic: A Note of Caution after a Systematic Review. *Brain, Behavior, & Immunity-Health*, 7, 100123.
- 9) Rahman, M. M., Saifuzzaman, M., Ahmed, A., Mahin, M. F., & Shetu, S. F. (2021). Impact of COVID-19 on Mental Health: A Quantitative Analysis of Anxiety and Depression Based on Regular Life and Internet Use. *Current Research in Behavioral Sciences*, 2, 100037.
- 10) Ahmed, R., Mohapatra, M., Dwivedi, S., & Giri, R. K. (2021). Characteristic Features of Super Cyclone 'Amphan' Observed Through Satellite Images. *Tropical Cyclone Research and Review*, 10(1), 16-31.
- 11) Harvey-Dunstan, T. C., Jenkins, A. R., Gupta, A., Hall, I. P., & Bolton, C. E. (2022). Patient-Related Outcomes in Patients Referred to a Respiratory Clinic with Persisting Symptoms Following Non-Hospitalised COVID-19. *Chronic Respiratory Disease*, 19, 14799731211069391.
- 12) Dal Santo, T., Sun, Y., Wu, Y., He, C., Wang, Y., Jiang, X., ... & Thombs, B. D. (2022). Systematic Review of Mental Health Symptom Changes by Sex or Gender in Early-COVID-19 Compared to Pre-Pandemic. *Scientific Reports*, 12(1), 1-14.
- 13) Seens, H., Lu, Z., Fraser, J., MacDermid, J. C., Walton, D. M., & Grewal, R. (2022). An Intersectional Approach to Identifying Factors Associated with Anxiety and Depression Following the COVID-19 Pandemic. *Scientific Reports*, 12(1), 1-8.

- 14) Jones, E. A., Mitra, A. K., & Bhuiyan, A. R. (2021). Impact of COVID-19 on Mental Health in Adolescents: A Systematic Review. *International Journal of Environmental Research and Public Health*, 18(5), 2470.
- 15) Lindert, J., Jakubauskiene, M., & Bilsen, J. (2021). The COVID-19 Disaster and Mental Health: Assessing, Responding and Recovering. *European Journal of Public Health*, 31(Supplement_4), iv31-iv35.
- 16) Sharma, P., Sharma, S., & Singh, N. (2020). COVID-19: Endangering Women's Mental and Reproductive Health. *Indian Journal of Public Health*, 64(6), 251-252.
- 17) Riedel, B., Horen, S. R., Reynolds, A., & Hamidian Jahromi, A. (2021). Mental Health Disorders in Nurses During the COVID-19 Pandemic: Implications and Coping Strategies. *Frontiers in Public Health*, 1597.
- 18) Lucas, D. N., & Bamber, J. H. (2021). Pandemics and Maternal Health: The Indirect Effects of COVID-19. *Anaesthesia*, 76, 69-75.
- 19) Mullins, A., O'Donnell, R., Morris, H., Ben-Meir, M., Hatzikiriakidis, K., Brichko, L., & Skouteris, H. (2022). The Effect of My Health Record Use in the Emergency Department on Clinician-Assessed Patient Care: Results from a Survey. *BMC Medical Informatics and Decision Making*, 22(1), 1-9.
- 20) Slone, M., Pe'er, A., & Mor, F. (2022). Previous Trauma Exposure and Self-Mastery as Moderators of Psychiatric Effects of Home Isolation During the COVID-19 Pandemic: A Field Study. *BMC Psychiatry*, 22(1), 1-10.
- 21) Stufano, A., Lucchese, G., Stahl, B., Grattagliano, I., Dassisti, L., Lovreglio, P., ... & Iavicoli, I. (2022). Impact Of COVID-19 Emergency on The Psychological Well-Being of Susceptible Individuals. *Scientific Reports*, 12(1), 1-10.
- 22) Ashby, G. B., Riggan, K. A., Huang, L., Torbenson, V. E., Long, M. E., Wick, M. J., ... & Rivera-Chiauzzi, E. Y. (2022). "I had so many life-changing decisions I had to make without support": A Qualitative Analysis of Women's Pregnant and Postpartum Experiences during the COVID-19 Pandemic. *BMC Pregnancy and Childbirth*, 22(1), 1-11.
- 23) Bandelow, B., & Wedekind, D. (2022). Internet Psychotherapeutic Interventions for Anxiety Disorders—A Critical Evaluation. *BMC Psychiatry*, 22(1), 1-9.
- 24) Yuan, R. K., Zitting, K. M., Maskati, L., & Huang, J. (2022). Increased Sleep Duration and Delayed Sleep Timing During the COVID-19 Pandemic. *Scientific Reports*, 12(1), 1-9.
- 25) El-Sherif, D. M., & Abouzid, M. (2022). Analysis Of Mhealth Research: Mapping the Relationship Between Mobile Apps Technology and Healthcare during COVID-19 Outbreak. *Globalization and Health*, 18(1), 1-11.
- 26) Irandoost, S. F., Yoosefi Lebni, J., Safari, H., Khorami, F., Ahmadi, S., Soofizad, G., & Ebadi Fard Azar, F. (2022). Explaining The Challenges and Adaptation Strategies of Nurses in Caring for Patients with COVID-19: A Qualitative Study in Iran. *BMC Nursing*, 21(1), 1-16.
- 27) Caton, E., Chaplin, H., Carpenter, L., Sweeney, M., Tung, H. Y., de Souza, S., ... & Norton, S. (2022). The Impact of Consecutive COVID-19 Lockdowns in England on Mental Wellbeing in People with Inflammatory Arthritis. *BMC Rheumatology*, 6(1), 1-8.

- 28) Golz, C., Richter, D., Sprecher, N., & Gurtner, C. (2022). Mental Health-Related Communication in a Virtual Community: Text Mining Analysis of a Digital Exchange Platform During the COVID-19 Pandemic. *BMC Psychiatry*, 22(1), 1-8.
- 29) Carmel, S., Bachner, Y. G., & Cohn-Schwartz, E. (2022). Psychological Reactions to the Coronavirus Pandemic: A Comparative Study of Holocaust Survivors and Other Older Adults in Israel. *BMC Psychiatry*, 22(1), 1-10.
- 30) Lekagul, A., Chattong, A., Rueangsom, P., Waleewong, O., & Tangcharoensathien, V. (2022). Multi-Dimensional Impacts of Coronavirus Disease 2019 Pandemic on Sustainable Development Goal Achievement. *Globalization and Health*, 18(1), 1-10.
- 31) Case, K. R., Wang, C. P., Hosek, M. G., Lill, S. F., Howell, A. B., Taylor, B. S., ... & Tsevat, J. (2022). Health-Related Quality of Life and Social Determinants of Health Following COVID-19 Infection in a Predominantly Latino Population. *Journal of Patient-Reported Outcomes*, 6(1), 1-9.
- 32) Benzakour, L., Kakoraiti, E., Perrin, A., Cereghetti, S., & Assal, F. (2022). Psychiatric Reaction of an Intensive Care Unit Survivor in the Context of Coronavirus Disease 2019: A Case Report. *Journal of Medical Case Reports*, 16(1), 1-6.
- 33) Deimel, D., Köhler, T., Dyba, J., Graf, N., & Firk, C. (2022). Mental Health of COVID-19 Risk Groups During the First COVID-19 Lockdown in Germany: A Cross-Sectional Study. *BMC Public Health*, 22(1), 1-10.
- 34) Beaudry, G., Drouin, O., Gravel, J., Smyrnova, A., Bender, A., Orri, M., ... & Chadi, N. (2022). A Comparative Analysis of Pediatric Mental Health-Related Emergency Department Utilization in Montréal, Canada, Before and During the COVID-19 Pandemic. *Annals of General Psychiatry*, 21(1), 1-10.
- 35) Ayhan-Balik, C. H., Karakaya, S., & Kutlu, F. Y. (2022). Factors Affecting Anxiety and Depression During the First Wave of the COVID-19 Pandemic: A Cross-Sectional Study of Three Different Populations. *The Egyptian Journal of Neurology, Psychiatry and Neurosurgery*, 58(1), 1-10.
- 36) Pineda, V. S., & Corburn, J. (2020). Disability, Urban Health Equity, and the Coronavirus Pandemic: Promoting Cities for All. *Journal of Urban Health*, 97(3), 336-341.
- 37) Edwards, M. (2021). *Telehealth Resource Webliography for COVID-19 Pandemic*. USA: Northeast Telehealth Resource Center. Retrieved from <https://netrc.org/docs/COVID-19 - Epidemic-Telehealth-Toolkit-NETRC-March-2020.pdf>
- 38) WHO (2021). *COVID-19 Strategic Preparedness and Response Plan (SPRP 2021)*. Geneva: WHO. Retrieved from <https://www.who.int/publications/i/item/WHO-WHE-2021.02>.
- 39) ILO (2020). *COVID-19 and the World of Work: Impact and Policy Responses*. Geneva: ILO. Retrieved from https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/documents/briefingnote/wcms_738753.pdf

Web Resources

- <https://www.who.int/docs/default-source/coronaviruse/covid-strategy-update-14april2020.pdf>
- file:///C:/Users/user/Downloads/WHO-2019-nCoV-health_workforce-2020.1-eng.pdf
- https://unstats.un.org/unsd/ccsa/documents/covid19-report-ccsa_vol2.pdf
- <https://www.un.org/sexualviolenceinconflict/wp-content/uploads/2020/06/report/policy-brief-the-impact-of-COVID-19-on-women-en-1.pdf>
- www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/documents/briefingnote/wcms_738753.pdf
- <https://apps.who.int/iris/bitstream/handle/10665/335940/WHO-EURO2020-1148-40894-55356-eng.pdf?sequence=1&isAllowed=y>

Health Communication Toolkit for COVID-19

Health Communication Toolkit during the time of COVID-19 has been very effective to successfully communicate with the audience. State and local health department staff can use or adapt these readymade materials to educate their community about investigation and contact tracing for COVID-19.

Within each component of communication (source, audience, message, channels and feedback), we will learn about the concepts, characteristics and prerequisites that we will need to consider for effective communication with our community.

Key Elements of Health Communication:

Health Communication Strategies Aim to Change People's Knowledge, Attitudes, and/or Behaviours:

- Increase risk perception
- Reinforce positive behaviours.
- Influence social norms.
- Increase availability of support and needed services.
- Empower individuals to change or improve their health conditions.

Checklist for Long-term care (LTC) facilities:

COVID-19 outbreaks in long-term care (LTC) facilities can have devastating effects on the health and well-being of residents, as they are vulnerable to serious infection due to their age and possible underlying medical conditions. Strengthening infection prevention and control (IPC) practice is crucial to prevent spread of COVID-19.

‘Facility’ refers to long-term care facility and ‘Staff’ refers to any employee of the LTC facility who provides care and support to residents. This checklist can be used by facility administrators, IPC focal points or staff, internal or external professionals.

There are seven elements of the checklist which include:

- Facility information
- Organization and planning
- Safe and healthy work environment
- Equipment and supplies
- Cleaning, disinfection, and waste disposal

- Education and training (for Staff, Residents and Visitors)
- Communication

Key Messages:

Case investigation and contact tracing slow the spread of COVID-19 by

- Letting people diagnosed with COVID-19 (cases) know they should isolate to avoid exposing others and assist with notifying their close contacts so they (contacts) can get tested and quarantined.
- Letting people who may have been exposed to COVID-19 (contacts) know that they should monitor their health for signs and symptoms of COVID-19, and get tested and quarantined.
- Providing resources to people diagnosed with or exposed to COVID-19 about isolation, testing, quarantine, and vaccination.

The Bottom Line: Choosing to help your health department slow the spread of COVID-19 protects you, your family, and your community.

Talking points:

Explain case investigation and contact tracing

- **Case investigation:** Case investigation is the process health departments use to work with people who have COVID-19. Case investigators
 - Ask people with COVID-19 and to monitor their health.
 - Help people with COVID-19 recall everyone to isolate they had close contact with during the time when they might have been able to spread COVID-19 to other people.
 - Ask people with COVID-19 to notify everyone they were in close contact with to tell them that they have been exposed to COVID-19.
 - Provide connections to supportive services while a person is isolating.
- **Contact tracing:** Contact tracing is the process health departments use to work with people who have been in close contact with someone with COVID-19. Contact tracers
 - Let people know they might have been exposed to COVID-19 and should monitor their health for signs and symptoms of COVID-19.
 - Help people who might have been exposed to COVID-19 get tested when needed.
 - Ask people to follow public health recommendations including wearing a mask, getting tested, and quarantined.

Encourage people with COVID-19 to isolate and encourage people who might have been exposed to COVID-19 to quarantine when needed

- If you have COVID-19, stay at home and away from others for 10 days (isolate), except to get medical care.
- If you might have been in close contact with someone who has COVID-19, you should get tested and quarantined. Exceptions include
 - Fully vaccinated people
 - People who have tested positive for COVID-19 within the past 90 days and recovered
 - Any close contacts who have symptoms or test positive for COVID-19 should isolate, regardless of vaccination status or history of prior infection.

Encourage members of your community to access vaccination services

- Everyone 5 years of age and older is now eligible to get a free COVID-19 vaccination. There are several ways for you to find vaccination providers.

Encourage members of your community to answer the phone from health professionals

- We all need to work together to slow the spread of COVID-19.
- If you are a close contact, a local official may call you to conduct contact tracing, even if you have been fully vaccinated.
- Be part of the solution and answer the phone—it may be a local official calling to let you know your test result came back positive for COVID-19, or that you have been in close contact with someone who had COVID-19.
- Discussions with health department staff are confidential. This means that your personal and medical information will be kept private and only shared with those who may need to know, like your healthcare provider.
- Your name will not be shared with those you came in contact with. The health department will only notify people you were in close contact with that they might have been exposed to COVID-19.
- Your information will be collected for health purposes only and will not be shared with any other agencies, like law enforcement or immigration.

Encourage your community to follow state and local health department guidance

- Follow your local health department guidance on ways to prevent getting sick and what to do if you are sick.

- Check your local health department’s website for information about options in your area to possibly shorten the quarantine period for people who were in close contact with COVID-19.

Encourage people who have COVID-19 to tell their close contacts

- If you have COVID-19, tell your close contacts so that they can monitor their health, stay at home, and get tested while waiting to hear from local officials .

What to do if you come into close contact with someone with COVID-19?

- A public health worker, other professional, or the person you came into close contact with may tell you that you are a close contact and have been exposed to COVID-19.
- Follow recommendations for quarantine, testing, and wearing a well-fitting mask. Quarantine recommendations vary based on up-to-date COVID-19 vaccination status or history of prior COVID-19 infection in the past 90 days.
- Monitor your symptoms. If you have an emergency warning sign (including trouble breathing), seek emergency medical care immediately.
- If you develop symptoms, get tested immediately and isolated from others. If your test result is positive, follow recommendations to isolate.
- If you need help, health department staff can provide information about the best time to get a vaccine and resources for COVID-19 testing in your area.

Why should people wear masks?

Masks are a key measure to reduce transmission and save lives.

Wearing well-fitted masks should be used as part of a comprehensive ‘**Do it all!**’ approach including maintaining physical distancing, avoiding crowded, closed and close-contact settings, ensuring good ventilation of indoor spaces, cleaning hands regularly, and covering sneezes and coughs with a tissue or bent elbow. Depending on the type, masks can be used for either protection of healthy persons or to prevent onward transmission, or both.

When should masks be worn by the public?

In settings where there is community or cluster transmission of SARS-CoV-2, irrespective of vaccination status or history of prior infection, wearing a well-fitting mask that covers the nose and mouth is recommended for the public when interacting with individuals who are not members of their household:

- In indoor settings where ventilation is known to be poor or cannot be assessed, or the ventilation system is not properly maintained, regardless of whether physical distancing of at least 1 metre can be maintained;
- In indoor settings that have adequate ventilation if physical distancing of at least 1 metre cannot be maintained; or
- In outdoor settings where physical distancing of at least 1 metre cannot be maintained.

It's not always easy to determine the quality of ventilation. If you have any doubts, it's safer to simply wear a mask. While wearing a mask, you should continue to maintain physical distance from others as much as possible. Wearing a mask does not mean you can have close contact with people

Hand Sanitizer Use

To prevent the spread of infections and decrease the risk of getting sick, it is important to frequently wash your hands. FDA reminds consumers to wash their hands often with soap and water for at least 20 seconds, especially after going to the bathroom; before eating; and after coughing, sneezing, or blowing one's nose. If soap and water are not readily available, the Centers for Disease Control and Prevention (CDC) recommends consumers use an alcohol-based hand sanitizer that contains at least 60 percent alcohol. FDA reminds consumers that no drugs, including hand sanitizers, are approved to prevent the spread of COVID-19.

Tips on How to Use Hand Sanitizer

Do not use hand sanitizer if your hands are visibly dirty or greasy; wash your hands with soap and water instead. If you use hand sanitizers, read and follow the Drug Facts label, particularly the warnings section. Rub hand sanitizer all over your hands, making sure to get between your fingers and on the back of your hands. Do not wipe or rinse off the hand sanitizer before it is dry. Rub your hands until they feel completely dry before performing activities that may involve heat, sparks, static electricity, or open flames. Do not make your own hand sanitizer. The FDA does not recommend that consumers make

their own hand sanitizer. If made incorrectly, hand sanitizer can cause adverse events such as skin burns.

Tips on Safety Related to Hand Sanitizer Use

FDA is warning consumers and health care professionals that the agency has seen a sharp increase in hand sanitizer products that are labeled to contain ethanol (also known as ethyl alcohol) but that have tested positive for methanol or 1-propanol contamination. Methanol and 1-propanol are toxic substances that can be life-threatening when ingested. Check your hand sanitizer with the FDA's searchable list. If the name, manufacturer, or National Drug Code (NDC) number matches one of the companies or products on the list, the FDA urges consumers to immediately stop using the hand sanitizer. Dispose of the hand sanitizer bottle in a hazardous waste container, if available, or dispose of as recommended by local waste management and recycling centers. Do not flush or pour these products down the drain or mix with other liquids. Do not drink hand sanitizer. This is particularly important for young children, especially toddlers, who may be attracted by the pleasant smell or brightly colored bottles of hand sanitizer. Children are at higher risk of accidentally swallowing hand sanitizer, and due to their smaller body size, are at high risk for health problems after swallowing hand sanitizer. Hand sanitizer should be stored out of reach of children. Children should be supervised when using hand sanitizer. Consumers who have been exposed to hand sanitizer contaminated with methanol or 1-propanol and are experiencing symptoms should seek immediate medical treatment for potential reversal of toxic effects. Methanol exposure can result in nausea, vomiting, headache, blurred vision, permanent blindness, seizures, coma, permanent damage to the nervous system or death. Ingesting 1-propanol can cause central nervous system (CNS) depression, which can result in death. Symptoms of 1-propanol exposure can include confusion, decreased consciousness, and slow pulse and breathing. Call your doctor if you experience a serious reaction to hand sanitizer.

Web Resources

- <https://www.cdc.gov/coronavirus/2019-ncov/daily-life-coping/contact-tracing.html>
- <https://apps.who.int/iris/bitstream/handle/10665/333847/WPR-DSE-2020-028-eng.pdf?sequence=1&isAllowed=y>

Annotated Bibliography

Policy, Practice and Strategy Documents on COVID-19:

1) Abonyi, George. Managing wicked policy problems with lessons from COVID. Researchgate.2021

https://www.researchgate.net/publication/342276618_Managing_wicked_policy_problems_with_lessons_from_COVID

The COVID global pandemic has had devastating impacts on public health, economic performance, poverty, and social stability. Many effects linked to COVID are in fact man-made. They are consequences of decisions by policy makers attempting to manage an unfolding crisis. Framed in this way, the COVID pandemic is not only a public health problem, but a broader public policy problem; requiring decisions on what should be done, when, by whom, to what ends, with what acceptable impacts. It is an example of a wicked (policy) problem. The application of the social learning framework, anchored in coordinated local experimentation, is presented here as a potentially useful approach to the management of such policy problems.

2) Alavi Z, Haque R, Felzer-Kim IT, et al. Implementing COVID-19 mitigation in the community mental health setting: March 2020 and lessons learned. Community Ment. Health J. [epub ahead of print], July 2020

In March 2020, at the beginning of the COVID-19 pandemic, state-funded community mental health service programs (CMHSP) in Michigan, organized into 10 regions known as a “Prepaid Inpatient Health Plan” (PIHP), grappled with the task of developing a modified plan of operations, while complying with mitigation and social distancing guidelines. With the premise that psychiatric care is essential healthcare, a panel of physician and non-physician leaders representing Region 5, met and developed recommendations, and feedback iteratively, using an adaptive modified Delphi methodology. This facilitated the development of a service and patient prioritization document to triage and to deliver behavioral health services in 21 counties which comprised Region 5 PIHP.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7367164/>

3) American Psychiatric Association. Psychiatrists use of telepsychiatry during COVID-19 public health emergency: Policy recommendations. APA, June 2020 pdf.

APA received almost 600 responses to the initial survey conducted in June 2020. The respondents received the follow-up survey in January with about 20 percent of the original participants participating in the follow-up. The follow-up results continued to reflect trends in national research on telehealth that shows improved access to care, reduced no-show rates, and a high rate of patient satisfaction. The second survey built upon the results of the first by adding new questions, which revealed additional trends among members about their use of telehealth and how it has been influenced by broad regulatory changes across the country.

4) American Psychiatric Association. Telepsychiatry and COVID-19. APA website, April 2020.

On March 6, 2020, the Coronavirus Preparedness and Response Supplemental Appropriations Act was signed into law. This statute gives the Secretary of Health and Human Services (HHS) the authority to waive geographic and originating site Medicare telehealth reimbursement restrictions for mental health services overall, during certain emergency periods. For new telepsychiatry encounters provided to patients under the waiver that would have been office visits, psychiatrists should consider their office as the place of service (POS) and use the place of service code 11.

5) Association of Social Work Boards. Regulatory provisions for social work emergency responders and COVID-19 policy actions. ASWB, April 6, 2020

As part of the critical infrastructure workforce, social workers have been deemed essential during the public health crisis we are now experiencing. Social workers are responding to increased client needs in a time of uncertainty and disruption that has produced problems like food insecurity, inability to pay bills, anxiety, and other mental health challenges. Social work regulators and policy makers are responding, too, so that the need for social work services is met even as regulatory boards maintain a focus on public protection.

6) Bartels SJ, Baggett TP, Freudenreich O, Bird BL. COVID-19 emergency reforms in Massachusetts to support behavioral health care and reduce mortality of people with serious mental illness. *Psychiatr. Serv.* [epub ahead of print], May 2020

People with serious mental illness are at disproportionate risk of COVID-19 morbidity and mortality because of high rates of risk factors that directly parallel those related to poor coronavirus outcomes, including smoking, chronic obstructive pulmonary disease, cardiovascular disease, and diabetes, along with housing instability, homelessness, food insecurity, and poverty. Community-based behavioral health organizations are also at risk of adverse outcomes because of dramatic declines in revenues and a diminished workforce. The State of Massachusetts has responded to this crisis by rapidly implementing a variety of policy, regulatory, and payment reforms. This column describes some of these reforms, which are designed to enhance remote telehealth delivery of care, ensure access to needed medications and residential care staff, and support the financial livelihood of community-based behavioral health services.

7) Benecke AV, Bäuerle A, Jansen C, et al. Techniques, methods, and dissemination of community-based psychological support strategies in times of the COVID-19 pandemic. *J. Prim. Care Community Health* 11:2150132720943328, 2020

In times of the coronavirus pandemic caused by SARS-CoV-2 psychological support needs to meet certain requirements. Due to the lockdown in many countries of the world, the every-day activities of millions of people are reduced to a minimum. This may cause increased psychosomatic symptoms in persons with pre-existing mental illnesses, and additionally raises new challenges for the general population. As a result of the current contact restrictions, access to psychotherapy is further complicated. To guarantee the best possible care under the given conditions, we developed the CoPE (Coping with Corona: Extended Psychosomatic care in Essen) concept. CoPE is delivered by telephone or video calls as well as online contents. The materials presented at our webpage www.cope-corona.de aim to easily reach citizens affected by symptoms such as worries, depression or anger and let them receive readily understandable expert knowledge and training in basic self-help methods.

8) Bhattacharya, Sohini. We cannot have a one-size-fits-all communication strategy. *IDR*.2021

As a civil society organisation that does not work on service delivery, we at Breakthrough debated our community response to COVID-19 endlessly. The voices pouring out of black boxes on my Zoom screen were frustrated and angry. My colleagues said, “We are fighting several pandemics at various levels, as technology and social media has made misinformation fly at a rapid rate. This has made it difficult for us to get back the rapport we generally enjoy with the communities with whom we work. We are now being viewed with suspicion because we are talking about vaccines and treatments.”²⁰²¹.

<https://idronline.org/article/fundraising-and-communications/lessons-from-covid19-on-designing-awareness-campaigns-in-india/>

9) Britwum K, Catrone R, Smith GD, Koch DS. A university-based social services parent-training model: a telehealth adaptation during the COVID-19 pandemic. *Behav. Anal. Pract.* [epub ahead of print] August, 2020

With the COVID-19 pandemic resulting in social-distancing recommendations, many service providers find themselves altering the way they must provide medically necessary therapy. Even with the advent of more advanced telehealth technologies, the implementation of behavioral programming falls mainly on the caregivers of the clients that are served. This crisis brings to light ethical dilemmas and upends the current ways many programs may have been implemented across the world. As a result, a reevaluation of how these services is delivered is in order. This article reviews how a university-based, state-funded service delivery program (USSDP) provided essential and necessary services during the COVID-19 pandemic. Specifically, the purpose of this article is to describe how the USSDP quickly adopted a telehealth care model in a program that previously had not delivered services in this modality. Ethical, contextual, and competency-based factors are reviewed in the context of this organization, followed by a dialogue on broader generalization suggestions utilizing an active support model of care within telehealth restrictions.

10) Brown, Alastair and Horton, Richard. A planetary health perspective on COVID-19: a call for papers. *The Lancet*.v395, issue10230, date: April 04,2020.

It is natural during the unfolding coronavirus disease 2019 (COVID-19) pandemic to focus on emergency response planning, including containment, treatment procedures, and vaccine development, and nobody would doubt the need for these measures. However, an emergency can

also open a window of opportunity for reflection and learning. We live in increasingly global, interdependent, and environmentally constrained societies and the COVID-19 pandemic exemplifies these aspects of our world. We would therefore be wise to take a broad integrated perspective on this disease, the impacts of which are already spilling over into the realms of economics, international trade, politics, and inequality.

11) Chauhan Preysi, K. Saini Navreet, G. Srinivasan and Dabas Heena. COVID-19 in India - Impact and Mitigation Strategies. *Biomedical & Pharmacology Journal*, June 2021. Vol. 14(2), p. 643-650.

The magnitude of the outbreak of corona virus disease (COVID-19) is exponentially increasing in world causing significant mortality and morbidity. Like other parts of the world, India is also struggling with COVID-19 crisis. As per data by the ministry of health and family welfare (MoHFW) till June 4, 2020, India had total 2,26,770 confirmed cases of COVID-19, out of which 1,10,960 were active cases, 1,09,461 cured/discharged cases with 6348 deaths and one migration. Objective: This review deals with the impact of COVID-19 in India and the strategies adopted by the Indian government to mitigate the viral infection Data Sources: The studies published in the English language and indexed in PubMed were searched using MeSH terms COVID-19, impact, India, and health strategies. Data about strategies were acquired from the government of India official websites, government official news, and documents.

https://www.researchgate.net/publication/353216498_COVID-19_in_India-Impact_and_Mitigation_Strategies

12) Clary L, Wang C, Byrne ME, Monaghan M. COVID-19 pandemic-related practices and policies affecting the continuity of behavioral health care among children with diabetes. *Transl. Behav. Med.* [epub ahead of print], July 2020

COVID-19 has led to substantial challenges in continuing to deliver behavioral health care to all patients, including children with chronic diseases. In case of diabetes, maintaining strong connections among children, their families, and their care team is essential to promote and sustain daily adherence to a complex medical regimen. The purpose of this paper is to describe

COVID-19 pandemic related practices and policies affecting the continuity of behavioral health care among children with diabetes. Challenges and opportunities were encountered at the provider, patient and family levels throughout the transition period from in-person to online care to ensure continuity of services. Institutional, regional and national policies that impacted the care team's capacity to respond swiftly to patients' changing needs were counterbalanced by those related to standards care education and training and resource constraints.

13) Farida Husaini, Talha Ahmad, Nasheed Imtiaz. Quality of life and mental health of people during pandemic Covid-19 in India. International Journal of Psychology Research, Volume 2, Issue 1, 2020, Pages 09-13

The year 2020 has been full of crises till date as the world is experiencing pandemic COVID-19. The pandemic out-break started in 2019 in Wuhan, China and later spread throughout the world confining the whole human population down in their homes. The outbreak of the virus is not only dangerous to our physical health targeting our immune system but is adversely affecting the quality of life and mental health of people. It has not only locked the business and companies out of service but has also limited the options of survival. This asymptomatic virus has not spared any socio-economic class or age. All section of society be it the business class, the student body, the housewives or the serving class have been equally affected by the virus. Due to the strict and sudden lockdown all over the country, people find it difficult to fulfil their basic needs which in turn are deteriorating the living conditions and quality of life placing high pressure on their mental health. Quality of Life can be said as a condition of life perceived by individuals. It is the combination of both objective as well as subjective constructs like health, food, living conditions along with satisfaction, happiness, and emotional and social well-being.

<https://www.psychologyjournal.in/archives/2020/vol2/issue1/3-1-11>

14) Jose, Sahana; Joshi, Natasha. What has COVID-19 taught us about disaster response? IDR.2021.

COVID-19 has been this disaster, and the second wave earlier this year was ferocious. It caught most people off guard; accelerated at an incredible pace, leading to the wholesale collapse of an already shambolic public health system; and left silent epidemics we are yet to contend with in its wake.

As the crisis started to unfold, civil society organisations came into play the first and the fastest. Owing to their connection with the ground and vital intel, grassroots organisations became the first responders. But, at the same time, another remarkable effort swept across the country—that of ordinary citizen volunteers. People who had never participated in social service or relief efforts found themselves making calls for oxygen or rations, driving ambulances, tending to sick people, or raising funds.

<https://idronline.org/article/ecosystem-development/what-has-covid-19-taught-us-about-disaster-response/>

15) Kopelovich SL, Monroe-DeVita M, Buck BE, et al. Community mental health care delivery during the COVID-19 pandemic: practical strategies for improving care for people with serious mental illness. *Community Ment. Health J.* [epub ahead of print], June 2020

The COVID-19 pandemic has presented a formidable challenge to care continuity for community mental health clients with serious mental illness and for providers who have had to quickly pivot the modes of delivering critical services. Despite these challenges, many of the changes implemented during the pandemic can and should be maintained. These include offering a spectrum of options for remote and in-person care, greater integration of behavioral and physical healthcare, prevention of viral exposure, increased collaborative decision-making related to long-acting injectable and clozapine use, modifying safety plans and psychiatric advance directives to include new technologies and broader support systems, leveraging natural supports, and integration of digital health interventions. This paper represents the authors' collaborative attempt to both reflect the changes to clinical practice we have observed in CMHCs across the US during this pandemic and to suggest how these changes can align with best practices identified in the empirical literature.

16) Medalia A, Lynch DA, Herlands T. Telehealth conversion of serious mental illness recovery services during the COVID-19 crisis. *Psychiatr. Serv.* 71(8):872, 2020

The COVID-19 crisis has challenged mental health care, especially for those with serious mental illness. This population has typically been provided in-person pharmacotherapy and/or recovery-oriented behavioral health services (RSs), but social distancing mandates have required rapid shifts in care management. Easing of telehealth regulations during the crisis has allowed for flexibility to approach RSs differently and to maintain care for this vulnerable population. If

agencies can surmount the challenges to rapid and total transformation of the RS system, potential benefits include continuity of care and better mental and medical health outcomes.

17) Richardson J, Ingoglia C. Best practices for telehealth during COVID-19 public health emergency. National Council for Behavioral Health, March 23, 2020 pdf

Medicare has expanded telehealth coverage that enables beneficiaries to receive a wider range of healthcare services from their doctors without having to travel to a healthcare facility. More detailed information on Medicare changes can be accessed here. Changes include: o Allowing beneficiaries to receive telehealth services within their homes o CMS will not enforce an established relationship requirement (HHS will not conduct audits to enforce that a patient has a prior established relationship with a particular practitioner) o Authorized use of telephones that have audio and video capabilities as acceptable equipment for telehealth.

18) Sharma N, Mohanty K.K. and Patil S.A. COVID-19 and India: Survival Strategies. International Journal of Innovations in Biological and Chemical Sciences, Volume 13, 2020, 40-48.

The Novel Corona Virus (COVID 19) infection has become public health emergency of international significance. The situation is becoming critical due to lack of knowledge gaps in the epidemiology, transmission dynamics, investigation tools and management. In this article, we review the present condition of COVID-19 in the World, in general and in India. The transmission through aerosol is an area of great concern. The diagnosis is confirmed with PCR based testing of appropriate respiratory samples. The management is primarily supportive with screening of suspected cases and their contacts, isolation of symptomatic cases and home quarantine of asymptomatic contacts. Standard infection control and prevention techniques should be followed. To control this highly transmissible disease requires individual coordination.

https://www.researchgate.net/publication/353429298_COVID-19_and_India_Survival_Strategies

19) Squazzoni, Flaminio; Polhill, J. Gareth; Edmonds, Bruce; Ahrweiler, Petra; Antosz, Patrycja; Scholz, Geeske; Chappin, Emile; Borit, Melania; Verhagen, Harko; Giardini, Francesca. Computational Models that Matter During a Global Pandemic Outbreak: A Call to Action.

University of Groningen. JASSS - The Journal of Artificial Societies and Social Simulation, 23(2), [10]. 2020

The COVID-19 pandemic is causing a dramatic loss of lives worldwide, challenging the sustainability of our health care systems, threatening economic meltdown, and putting pressure on the mental health of individuals (due to social distancing and lock-down measures). The pandemic is also posing severe challenges to the scientific community, with scholars under pressure to respond to policymakers' demands for advice despite the absence of adequate, trusted data. Understanding the pandemic requires fine-grained data representing specific local conditions and the social reactions of individuals. While experts have built simulation models to estimate disease trajectories that may be enough to guide decision-makers to formulate policy measures to limit the epidemic, they do not cover the full behavioural and social complexity of societies under pandemic crisis. Modelling that has such a large potential impact upon people's lives is a great responsibility. This paper calls on the scientific community to improve the transparency, access, and rigour of their models.

<https://doi.org/10.18564/jasss.4298>

20)Tahan HM. Essential case management practices amidst the Novel Coronavirus Disease 2019 (COVID-19) crisis: Part 1: Tele-case management, surge capacity, discharge planning, and transitions of care. Prof. Case Manag. [epub ahead of print], May 2020

This is the first of a 2-part article that discusses essential case management practices and strategies amidst the novel coronavirus disease 2019 (COVID-19). The series showcases the potential professional case managers have in support of managing during a crisis such as this global pandemic. Part I discusses re-envisioned roles and responsibilities of case managers and leaders known to address patients' needs during a crisis, with a special focus on telehealth, tele-case management, surge capacity, redeployment, discharge planning, and transitions of care.

21) Koriem, Khaled Mohamed Korieh (2023). Human Health and COVID-19: Metabolome Approach. *Biointerface Research in Applied Chemistry*, Volume 13, Issue 115 February 2023

The small molecule in biological sample is refer to metabolome. This study refers to human health and COVID-19 from metabolome point of view. Human health is a social, mental and

physical wellbeing of any human without any disease. Exercises helps in body movement and improves physical fitness and health. Sleep is also important for any human being because it maintains mood, memory and biological functions. When COVID-19 broke out it has changed the natural function of human health.

Mental health and stress management

22) Harvey-Dunstan, Theresa C; Jenkins, Alex R^a; Gupta, Ayushman; Hall, Ian P; Bolton, Charlotte E. (2022). Patient-related outcomes in patients referred to a respiratory clinic with persisting symptoms following non-hospitalised COVID-19. *Chronic Respiratory Disease*, Volume 1929 December 2022

This study shows how survivors of COVID-19 can go for work and do all regular work even not being hospitalized with persisting respiratory symptoms presenting to clinic. This research identifies reduced quality of life, fatigue and dysregulated breathing.

23) Dal Santo, Tiffany^a; Sun, Ying^a; Wu, Yin; He, Chen^a; Wang, Yutong^a; Jiang, Xiaowen^a; Li, Kexin^a; Bonardi, Olivia^a; Krishnan, Ankur^a; Boruff, Jill T.^c; Rice, Danielle B.; Markham, Sarah^e (2022). Systematic review of mental health symptom changes by sex or gender in early-COVID-19 compared to pre-pandemic. *Scientific*, Volume 12, Issue 1

This study refers to mental health changes from pre COVID 19 to during COVID-19 by sex and gender. Reports of greater negative mental health changes in women compared to men based on cross sectional research that has not accounted for pre COVID-19 differences.

24) He, Wei; Zhao, Xueyin; Yang, Zhiying; Min, Yan; Wu, Yi-Hsuan; Kang, Qingcong; Frost, Eleanor^c; Gao, Peng; Yang, Yang; Chen, Xinyu; Chen, Lijin; Lu, Ying^e (2022). Changes in lifestyles and depressive symptom among patients with chronic diseases during COVID-19 lockdown. *Scientific Reports*, Volume 12, Issue 1 December 2022

This research tries to investigate the impact of COVID-19 lockdown on lifestyle behaviors and depressive symptoms among patients with non-communicable diseases. During lockdown a survey was carried out to collect information on lifestyle and depressive symptoms during COVID-19.

25)Seens, Hoda;Lu, Ze;Fraser, James;MacDermid, Joy C.;Walton, David M.;Grewal, Ruby(2022).An intersectional approach to identifying factors associated with anxiety and depression following the COVID-19 pandemic.*Scientific Reports, Volume 12*, Issue 1December 2022.

This is a cross sectional online study where the personal and intersectional factors associated with increased symptoms of anxiety and depression following COVID-19 pandemic. Women, other gendered individuals and specially those who care for children need to be aware and respond to health practitioners , psychiatrists and policy makers.

26)Mullins, Alexandra;O'Donnell, Renee^a;Morris, Heather^a;Ben-Meir, Michael;Hatzikiriakidis, Kostas^a;Brichko, Lisa^{a, c, e};Skouteris, Helen(2022).The effect of My Health Record use in the emergency department on clinician-assessed patient care: results from a survey. *BMC Medical Informatics and Decision Making, Volume 22*, Issue 1December 2022

This study aims to explorer the perspectives of emerging emergency department clinician's regarding my health record, national electronic health record off Australia. There was a web based survey done with 393 nursing, pharmacy, physician and other health stuff within the emergency department at metropolitan public hospital at Melbourne between May to December 2021 delta and omicron COVID19 outbreak.

27)Slone, Michel;Pe'er, Ayelet;Mor, Flora (2022).Previous trauma exposure and self-mastery as moderators of psychiatric effects of home isolation during the Covid-19 pandemic: a field study. *BMC Psychiatry, Volume 22*, Issue 1December 2022.

This study reveals the psychotic effects of home isolation and quarantine, the effects of interacting previous traumatic events and the effects of self mastery as a resilience factor that could mitigate negative effects. Therapy and interventions based on promoting self-mastery could exert a significant effect on lowering psychiatric symptoms during stressful periods of home isolation.

28) Barbosa-Camacho, Francisco José^a;Romero-Limón, OlayaMoramay^{a, b};Ibarrola-Peña, Juan Carlos^c;Almanza-Mena, Yolanda Lorelei^a;Pintor-Belmontes, Kevin Josué^d;Sánchez-López, Verónica Alexandra^a;Chejfec-Ciociano, Jonathan Matías^{a, c};Guzmán-Ramírez, Bertha Georgina^a;Sapién-Fernández, José Héctor^a;Guzmán-Ruvalcaba, Mario Jesús^{a, b};Nájar-Hinojosa, Rodrigo^a;Ochoa-Rodriguez, Itzel (2022).Depression, anxiety, and academic performance in COVID-19: a cross-sectional study.*BMC Psychiatry, Volume 22, Issue 1*December 2022.

This study is associated with depression and anxiety which prevailed for months of social isolation and which have created a negative impact on anyone's quality of life. If they are not treated promptly and appropriately there will always be this negative impact on their livelihood. This study also determines if the change to online courses and the presence of depression and anxiety symptoms during prophet 19 has any difference in the college students academic achievement.

29)Stufano, Angela^a;Lucchese, Guglielmo^b;Stahl, Benjamin^{b, c, d, e};Grattagliano, Ignazio^f;Dassisti, Liliana^f;Lovreglio, Piero;Flöel, Agnes^b;avicoli, Ivo^g.(2022).) Impact of COVID-19 emergency on the psychological well-being of susceptible individuals. *Scientific Reports, Volume 12, Issue 1*December 2022.

This study aims to evaluate psychological well being during the COVID-19 crisis with the university workers when they are suffering from one or more diseases likely to increase the risk of severe outcomes during COVID 19 infection . This paper uses non linear dimension reduction technique and regression methods 245 variables in order to access demographic occupation and health related factors during COVID-19 crisis.

30) Ashby, Grayson B.^a;Riggan, Kirsten A.^b;Huang, Lily^c;Torbenson, Vanessa E.^d;Long, Margaret E.^d;Wick, Myra J.^d;Allyse, Megan A.^{b, d};Rivera-Chiauzzi, Enid Y. (2022).“I had so many life-changing decisions I had to make without support”: a qualitative analysis of women's pregnant and postpartum experiences during the COVID-19 pandemic. *BMC Pregnancy and Childbirth, Volume 22, Issue 1*December 2022.

There are many studies conducted early in the pandemic found that pregnant woman increased in mental health concerns in response to pandemic related stress. This survey explores the way in which cuvette 19 pregnant patients where impacted. There were few respondents who were

feeling great uncertainty social isolation because they had limited social and practical support and disaffected negative mental health as a result of pandemic.

31) Bandelow, Borwin, Bandelow B.;Wedekind, Dirk (2022).Internet psychotherapeutic interventions for anxiety disorders – a critical evaluation.*BMC Psychiatry, Volume 22*, Issue 1December 2022.

This study talks about Internet delivered psychotherapeutic interventions which increased during the COVID 19 pandemic. There were 39 randomized control studies of psychotherapeutic interventions for anxiety disorders and performed a meta-analysis.

32) Yuan, Robin K.;Zitting, Kirsi-Marja^a;Maskati, Liyaan^b;Huang, Jeff(2022).Increased sleep duration and delayed sleep timing during the COVID-19 pandemic.*Scientific Reports, Volume 12*, Issue 1December 2022

Sleep is an important part of human health cycle. Lockdown policies worldwide have laid changes in sleep timing, quality and duration. This is a study which uses self-reported data from around 64,858 users who were using smart phones around the world over the period from 2019 to 2020. This research has found that there is an increase in bedtime as well as significant delay in sleep timing specially on weekends.

33) El-Sherif, Dina M.; Abouzid, Mohamed (2022). Analysis of mHealth research: mapping the relationship between mobile apps technology and healthcare during COVID-19 outbreak. *Globalization and Health, Volume 18*, Issue 1December 2022.

The study uses bibliometric quantitative analysis and network visualization to find out research trends and areas of particular interest. Mobile health applications offer various uses for illness monitoring and treatment to improve medical care and promote health and wellbeing.

34) Irandoost, SeyedFahim^a;Yoosefi Lebni, Javad;Safari, Hossein^{c, d};Khorami, Farhad^e;Ahmadi, Sina^f;Soofizad, Goli^g;EbadiFard Azar, Farbod^c(2022).Explaining the challenges and adaptation strategies of nurses in caring for patients with COVID-19: a qualitative study in Iran.*BMC Nursing, Volume 21*, Issue 1December 2022.

Doctors and nurses play a vital role as the pandemic broke out. This study is mainly based on a qualitative method to describe the problems and adaptation of techniques that nurses are taking to treat COVID-19 patients. Sampling used here is purposive and snowball sampling where also

used to get access to participants and collect data. Experience and challenges that they have faced while working in the COVID situation and adaptation strategies for work conditions, creating an empathetic atmosphere in the workplace have been analysed.

35) Caton, Emma^a, Caton E.;Chaplin, Hema^a;Carpenter, Lewis^a;Sweeney, Melissa^a;Tung, Hsiu Yen^a;de Souza, Savia^b;Galloway, James^b;Nikiphorou, Elena^b;Norton, Sam (2022).The impact of consecutive COVID-19 lockdowns in England on mental wellbeing in people with inflammatory arthritis.*BMC Rheumatology, Volume 6*, Issue 1December 2022 .

When the pandemic broke out throughout the world and UK meet the first lockdown inflammatory arthritis patients were reported of worsening in emotional distress. This study reflex the qualitatively explored the impact of consecutive lockdown periods on mental well being in people with inflammatory arthritis There are 4 main themes on which the data have been identified which are included in the study.

36) GolzC.^a, GolzC.;RichterD.^{a, b};SprecherN.^a;Gurtner C.(2022)Mental health-related communication in a virtual community: text mining analysis of a digital exchange platform during the Covid-19 pandemic.*BMC Psychiatry, Volume 22*, Issue 1December 2022.

One of the most important reasons why human beings survived during the pandemic was the use of virtual communities. This played an important role in mental health and well being during the covenant in pandemic by helping others to prevent loneliness. Pandamic has accelerated the use of digital solutions 4 people with pre existing mental health problems. This study aims to identify and describe the communication pattern and formal expression of users using the digital platforms during the first lockdown in 2020.

37) Carmel, Sara;Bachner, Yaacov G.^{a, b};Cohn-Schwartz, Ella (2022).Psychological reactions to the coronavirus pandemic: a comparative study of Holocaust survivors and other older adults in Israel.*BMC Psychiatry, Volume 22*, Issue 1December 2022.

This study is based on psychological reactions of the older adults living in Israel during the COVID-19 pandemic situation. Mainly the Holocaust survivors who are more valuable than other older adults because of the traumatic early life history and the emotional and physical stress that they have faced brings negative effects on their mental health

38) Mahmood, Qaisar Khalid^a, Mahmood Q.K.;Sohail, Malik Muhammad^b;Qureshi, WaheedAhmad;Zakar, Rubeena;Wrona, Kamil J.;Fischer, Florian(2022). Role of positive mental health in reducing fears related to COVID-19 and general anxiety disorder in Khyber Pakhtunkhwa, Pakistan.*BMC Psychology*, Volume 10, Issue 1December 2022.

This study mainly explores the role of mental health to cook with fears related to COVID 19 an anxiety disorder in a particular community in Pakistan. The mental wellbeing is badly affected due to compliance with preventative measures in containing the COVID-19 pandemic.

39)Lekagul, Angkana;Chatpong, Anamika;Rueangsom, Putthipanya;Waleewong, Orratai;Tangcharoensathien, Viroj (2022)) Multi-dimensional impacts of Coronavirus disease 2019 pandemic on Sustainable Development Goal achievement.*Globalization and Health*, Volume 18, Issue 1December 2022.

This research mainly aims on the multidimensional impacts of the pandemic on people, prosperity, planet, partnership and peace. The coronavirus disease has triggered health, social and economic crisis to derail progress and achievement of the sustainable development goals. The magnitude of impacts is determined by the level a vulnerability and inequity in the society add the effectiveness of comprehensive pandemic responses.

40) Rezaei-Hachesu, Vida^a;Fe'li, ShadiNaderyan^b;Maajani, Khadije^b;Hokmabadi, Rajabali^{a, c};Golbabaee, Farideh (2022).The Global Prevalence of Anxiety, Depression, and Insomnia among Healthcare Workers during the Covid-19 Pandemic: A Systematic Review and Meta-Analysis.*Journal of Occupational Health and Epidemiology*Volume 11, Issue 1, Pages 48 – 66.

There is a serious challenge in healthcare system present pandemic situation where health care providers suffer from mental health. A vivid search was conducted through different databases as well as print media in 2020. It is shown that high impact of COVID 19 pandemic brings anxiety, depression and insomnia among medical professionals involved with the crisis.

41) Case, Kathleen R.; Wang, Chen-Pin^c; Hosek, Meredith G.^{d, e}; Lill, Sarah F.^a; Howell, Alexandra B.^{d, e}; Taylor, Barbara S.^f; Bridges, James^{a, b}; MacCarthy, Daniel J.^c; Winkler, Paula^{a, g, h}; Tsevat, Joel (2022).) Health-related quality of life and social determinants of health following COVID-19 infection in a predominantly Latino population. *Journal of Patient-Reported Outcomes*, Volume 6, Issue 1 December 2022.

The main aim of the study to find out health related quality of life and social determinants of health in Latino population of COVID 19 survivors. Multivariable analysis reveals that financial concern interpersonal conflict and Latino ethnicity were associated with worse health utility.

42) Benzakour, Lamyae^a, Benzakour L.; Kakoraiti, Emmanouela^a; Perrin, Alexandre^a; Cereghetti, Sara^b; Assal, Frédéric (2022). Psychiatric reaction of an intensive care unit survivor in the context of coronavirus disease 2019: a case report. *Journal of Medical Case Reports*, Volume 16, Issue 1 December 2022.

This study shows how 2019 pandemic had a serious impact on global mental health specially on intensive care unit survivors. This study focus on psychotherapeutic approach to increase the feeling of security and to cope with the reality of his traumatic experience.

43) Sehlo, Mohammad Gamal^a, Sehlo M.G.; Mohamed, Wafaa Samir; Youssef, Usama Mahmoud^a, Youssef U.M.; Lotfi, Shrouk Esam; El-deen, Ghada Mohamed Salah (2022). Prevalence and determinants of anxiety in patients with epilepsy during COVID-19 pandemic. *Egyptian Journal of Neurology, Psychiatry and Neurosurgery*, Volume 58, Issue 1 December 2022.

This paper mainly focuses on the nature of disorder and predictability of seizures which usually put patients in a state of apprehension and anticipation which in return creates a continuous condition of anxiety. Epilepsy is a serious brain disorder and in this pandemic has created generalized anxiety all over the world.

44) Deimel, Daniel; Köhler, Thorsten^a; Dyba, Janina^a; Graf, Niels^d; Firk, Christine (2022). Mental health of Covid-19 risk groups during the first Covid-19 lockdown in Germany: a cross-sectional study. *BMC Public Health*, Volume 22, Issue 1 December 2022.

COVID-19 pandemic not only threatens physical health but also effect mental health of people but the consequences are not same for all the members of the society. The mental health of

individuals who are at increased risk of severe illness from COVID-19 as compared to the individuals who are at low risk of severe illness during March 20 20 lockdown in Germany has been focused in this study. There is a relation between mental health, anxiety and loneliness in a cause effect chain.

45) Beaudry, Gabrielle^a;Drouin, Olivier^{b, c, d, e};Gravel, Jocelyn^{b, c, f};Smyrnova, Anna^b;Bender, Andreas^g;Orri, Massimiliano^h;Geoffroy, Marie-Claude^{h, i};Chadi, Nicholas (2022). A comparative analysis of pediatric mental health-related emergency department utilization in Montréal, Canada, before and during the COVID-19 pandemic.*Annals of General Psychiatry, Volume 21, Issue 1*December 2022.

This paper evaluate COVID-19 changes in mental health related emergency department among youth overall by age, socio economic status and sex. This is a cross sectional study which analyse mental health related emergency department to utilize before add during the pandemic at an urban pediatric hospital in Montreal Canada.

46) Zhao, Yixuan^a, Zhao Y.;Leach, Liana S.^a;Walsh, Erin^a;Batterham, Philip J.^a;Calear, Alison L.^a;Phillips, Christine^b;Olsen, Anna^b;Doan, Tinh^a;LaBond, Christine^a;Banwell, Cathy (2022).COVID-19 and mental health in Australia – a scoping review.*BMC Public Health, Volume 22, Issue 1*December 2022.

The pandemic hospital most all the countries around the world and cost millions of death. There is an enormous disruption in peoples daily lives globally. Same has been the case in Australia. This review aims to provide a basic summary of the research activity on mental health in the pandemic of Australia.

47) Ayhan-Balik, CemileHurrem^a, Ayhan-Balik C.H.;Karakaya, Seda^b;Kutlu, Fatma Yasemin (2022).Factors affecting anxiety and depression during the first wave of the COVID-19 pandemic: a cross-sectional study of three different populations.*Egyptian Journal of Neurology, Psychiatry and Neurosurgery*Volume 58, Issue 1December 2022.

This paper mainly focuses on comparing levels of anxiety and depression as well as assessing the affecting factors of general population, frontline health care workers and Covid 19 patience in Turkey in the first wave of pandemic. There is always a fear off affecting family members and

relatives as lack of personal protective equipment's providing care increases anxiety and depression in healthcare workers. They always need support continuous monitor of psychological health during the pandemic

48) Steen, Olivier D.^a;Ori, Anil P. S.^{a, b};Wardenaar, KlaasJ.^a;van Loo, Hanna M. (2022).Loneliness associates strongly with anxiety and depression during the COVID pandemic, especially in men and younger adults.*Scientific Reports, Volume 12*, Issue 1December 2022.

It is said that loneliness is very much related to major depressive disorder, also with generalized anxiety disorder. It is still not clear if these associations are connected by age sex, genetic susceptibility for major depressive disorder. It is found that after the research was done that there is a strong association of loneliness with major depressive disorder and generalized anxiety disorder. They are stronger in men, young individuals, and which are increased across time.

49)Sabbaghi, Mohammadreza^{a, b};Miri, Kheizaran^{b, c};Kahi, Reza^{b, c};Nia, Mohammad Namazi (2022)Investigation of stress, anxiety, and depression levels of Pre-Hospital Emergency Medicine personnel in eastern Iran during the Covid-19 pandemic.*BMC Emergency Medicine, Volume 22*, Issue 1December 2022.

This research shows investigation on depression, anxiety and stress level of the Iranian pre hospital emergency medicine during the COVID 19. This is a cross sectional study performed on various places in eastern Iran from August to September 20 21. Is recommended that the work schedule and services provided to the common people should have more time for rest and communication with family members.

50) ShobhanaS.S.^a, Shobhana S.S.;Raviraj K.G.(2022). Global trends of suicidal thought, suicidal ideation, and self-harm during COVID-19 pandemic: a systematic review.*Egyptian Journal of Forensic Sciences, Volume 12*, Issue 1December 2022.

Background: Suicide is one of the leading causes of death. The current systematic review is done to know the trend of suicidal thoughts, suicidal ideation, and self-harm during COVID-19 pandemic. Main text: The search was done by using PubMed, ScienceDirect, and Google Scholar databases. With the help of Mendeley portal, articles were retrieved on the basis of inclusion criteria like to know the risk factors, vulnerable group, complete article PDFs, prevention strategies, aims, results, and limitations. The shortlisted data from search was tabulated, and the

PRISMA chart was framed based on the inclusion and exclusion criteria. Result: Sixteen studies that satisfied the inclusion criteria were organized and selected. The variables and global scenario were considered in databases. It has been noticed that trends of suicidal thoughts, suicidal ideation, and self-harm remains the same in some countries like Japan, whereas in some countries like Bangladesh and France, trends of suicides had increased during the pandemic period. The probable cause could be lockdown, social isolation, and stoppage of recreational activities. Conclusions: The trends of suicidal ideation, suicidal thoughts, and self-harm are more in vulnerable categories like health care professionals, university students, elderly individuals, and psychiatrically ill patients. In health care professional, it is due to the increased risk of contagion and watching deaths closely. In university students, it is due to the lack of recreational activities and social isolation. Among elderly, it is due to thinking themselves as overburden. The increase in suicidality in psychiatric ill patient admitted during COVID-19 pandemic is due to unknown cause. © 2022, The

51) Jones, Elizabeth A.K; Mitra, Amal K. and Bhuiyan, Azad R.(2021). Impact of COVID-19 on mental health in adolescences: A systematic review. *International Journal of Environmental Research and Public Health*. 18(5):2470.

This paper by Jones, Mitra and Bhuiyan aims to analyse systematically the impact of the pandemic on adolescent mental health. There is lack of sufficient data on the psychological toll of COVID-19 pandemic on adolescent mental health, so this study follows the PRISMA guidelines for systematic reviews of 16 quantitative studies conducted in 2019 – 2021 with 40,076 participants.

52) Lindert, Jutta; Jakabauskiene, Marija and Bilsen, Johan (2021). The COVID-19 disaster and mental health – assessing, responding and recovering. *European Journal of Public Health*. 31(supplement 4): iv31-iv35.

COVID-19 pandemic is a disaster that has impacted lives globally. This paper by Lindert, Jakabauskiene and Bilsen has reviewed COVID-19 literature and found that COVID-19 as an unexpected, large scale event that disrupted communities and caused death, destruction and trauma which upended normal existence. Mental health problems vary depending on the stage of the pandemic, country, population and type of conditions.

53) Sharma, Pallavi; Sharma, Shalini and Singh, Nilanchali (2020). COVID-19: Endangering women's mental and reproductive health. *Indian Journal of Public Health*. Vol.-64, Issue-6, p.251-252.

During the COVID-19 pandemic there has been a rise in the case of violence against women and children in many countries. This paper by Sharma, Sharma and Singh shows reports have come of social exploitation and physical abuse, loss of income for unknown period, already existing debts and meeting the demands and expectation and workload of the home bound family members further escalates this issue.

54) Riedel, Brittney; Horen, Sydney R.; Reynolds, Allie; Johromi, Alireza Hamidian(2021). Mental health disorders in nurses during the COVID-19 pandemic: Implications and coping strategies. *Front Public Health*. 9:707358.

Nurses played a vital role in treating patients during COVID-19 pandemic. This paper by Riedel, Horen Reynolds and Jahromi tells how nurses suffered a lot of mental trauma due to increased workload, negative patients outcome and less social support system access. Early information should be provided to the nurses regarding mental health disorder that can cause disfunction, inter suffering and even lead to death if not cured properly.

55) Lucas, D.N and Bamber, J H(2021). Pandemics and maternal health: The indirect defects of COVID- 19. *Anaesthesia*. 76(supplement 4) ,p. 69-75.

In the COVID-19 pandemic there has been changes in the healthcare delivery. This paper tells how to protect the vulnerable to the virus, these may lead to indirect , potentially harmful consequences , with a lack of in-person clinics impacting the ability to screen for physical, psychological and social issues such as mental health issues, blood pressure and sex based violence.

ANNOTATED BIBLIOGRAPHY

Mental health and stress management

56) Agarwal, M., Ravi, P., Ramesh, C., and Neslin, J. (2021). Impact of the Covid-19 Pandemic on the Mental Health and Lifestyle of Health Care Workers in Southern India. *National Journal of Community Medicine*, 12 (1), 1-7. doi: 10.5455/njcm.20201213064554.

Introduction: The Covid-19, just like any other Pandemic has been an extremely difficult time for people all over the world; however it has been the most challenging time for the frontline staff such as health care workers. It has not just led to changes in their work environment, but has also affected their lifestyle and mental health. Objective: We conducted this survey to analyse the impact of the covid-19 pandemic on the lifestyle and mental health of health care workers. Methodology: A cross-sectional study was conducted with the help of a questionnaire. A questionnaire was created and circulated via social media to various health care professionals. Response from participants was analysed using SPSS 16 version software and MS excel sheet. Result: The survey reported the impact on physical and mental health. It was studied that most health care Professionals, especially the ones working in a covid environment, experienced sleep disturbances, diet and weight change, change in the level of physical activity, bowel disturbances, smoking and alcohol habit changes, mood swings, anxiety, fear, inability to concentrate, fatigue/burnout from work. Conclusion: These changes affecting the lives of health care workers should be addressed as they can have permanent effects. Mental and physical health of medical professionals is essential, and attention should be extended to help them cope with their difficulties.

57) Ahmed, G. K., Khedr, E. M., Hamad, D. A., Meshref, T. S., Hashem, M. M., and Aly, M. M. (2021). Long term impact of Covid-19 infection on sleep and mental health: A cross-sectional study. *Psychiatry Research*, 305, 1-8. Retrieved from [http:// www.elsevier.com/locate/psychres](http://www.elsevier.com/locate/psychres).

The long-term impact of the COVID-19 infection on mental health in people and its relation to the severity is unclear. We aimed to study the long-term effect of post-COVID-19 disease on sleep and mental health and to detect possible relationship between severity of COVID-19 at onset and sleep and mental illness. We enrolled 182 participants 6 months post COVID-19 infection and grouped into non-severe(101),severe(60) and critical(20) according to according to WHO guidance. All participants were assessed using Pittsburgh Sleep Quality Index ", Post traumatic stress disorder (PTSD) Checklist for DSM-5, and Symptom Checklist90

test. Only 8.8% had no psychiatric symptoms while 91.2% had psychiatric symptoms as follow (poor sleep (64.8%), PTSD (28.6%), somatization (41.8%), obsessive-compulsive (OCD) (19.8%), depression (11.5%), anxiety (28%), phobic-anxiety (24.2%), psychoticism (17.6%)). Diabetes, oxygen support or mechanically ventilated were a risk for sleep impairment, while high Neutrophil/lymphocyte ratio (NLR) was the only risk factor for PTSD. Other psychiatric illnesses had several risk factors: being female, diabetes, oxygen support or mechanically ventilated. Abnormal sleep, somatization and anxiety are the most common mental illnesses in Post-Covid19. The critical group is common associated with PTSD, anxiety, and psychosis. Being female, diabetic, having oxygen support or mechanically ventilated, and high NLR level are more vulnerable for mental illness in post COVID19.

58) Akay, A. (2022). The local and global mental health effects of the Covid-19 pandemic. *Economics and Human Biology*, 45, 1-14. Retrieved from [http:// www.elsevier.com/locate/ehb](http://www.elsevier.com/locate/ehb).

This paper investigates the mental health effects of the local and global level Covid-19 pandemic among the UK population. To identify the effect, we use a high-quality dataset and an original strategy where we match the previous day's confirmed pandemic cases to a four-month panel of individual mental health information observed during the interview next day. The approach suggested in this paper aims to identify the average mental health effect on the overall population for the first and second waves of the pandemic. Using a linear fixed-effects model specification, we report robust findings that the average mental health in the UK is substantially reduced by the local and global pandemic. The total reduction in the average mental health of the UK population during our sampling period (April - June, 2020) is about 1.5% for the local and 2.4% for the global cases, which sum up to a 3.9% reduction. Extrapolating the total reduction in average mental health during the first wave of the pandemic (February - September, 2020) sums up to 2.8% while the effect is as large as 9.6% for the first and second waves together, which covers roughly a year since the start. An extensive robustness check suggests that the findings are stable with respect to alternative pandemic datasets, measures, estimators, functional forms, and time functions. The characteristics of the most vulnerable individuals (e.g., elderly, chronic illness, and job security concerns) and their household conditions (e.g., living alone and no private space) are explored. The paper discusses on the implications of the results.

59) Alabdulla, M., Reagu, S., and Elhusein, B. (2021). Impact of the COVID-19 Pandemic on Mental Health Law in the State of Qatar. *International Journal of Law and Psychiatry*, 79, 1-5. Retrieved from [http:// www.elsevier.com/locate/ijlawpsy](http://www.elsevier.com/locate/ijlawpsy).

Accumulating evidence exploring the impact of the pandemic on mental health has been published as the Covid-19 pandemic has evolved and reflect how shock, anxiety, and fear of the early periods of the pandemic are giving way to depression and PTSD symptoms as the pandemic and its restrictions persist. The general findings have been those of increased psychiatric morbidity in general populations, psychiatric populations, and special groups like quarantined and isolated populations. Social distancing among general populations and isolation/quarantine for infected cases has been the mainstay of containment in the absence of treatment. However, this has been challenging and variable across the globe and has been affected by economic needs, political ideologies, and sometimes the nature of the populations like patients in mental health units.

60) Alam, M. A., Uddin, A. I., Uddin, M. A., Begum, S., Nahar, H., Raihan, T., and Khan, A. G. (2022). Mental health of students amidst the COVID-19 pandemic: An empirical study. *Heliyon*, 8 (3), 1-8. Retrieved from [http:// www.cell.com/heliyon](http://www.cell.com/heliyon).

Purpose: Considering the severity of the global outbreak of coronavirus (COVID-19) on the whole of humanity, particularly in this case on the physical and mental health of students, this study strives to explore the role of financial worries, employment anxiety and COVID-19 knowledge on depression and mental health among students in Bangladesh. Design/methodology/approach: In the study, a deductive reasoning approach was employed, together with a self administered questionnaire survey. Questionnaires were sent to the respondents via different social media and by email by creating a Google form link. We finally received 387 responses students aged over 18 years who had internet access in order to complete the survey. To analyze the data, structural equation modeling via AMOS was used. Findings: The results showed that employment anxiety, financial worry, and knowledge on COVID-19 positively influence depression, and finally depression negatively influences the mental health of the students. Thus, our findings supported all of the proposed hypotheses. Originality/value: The research enriches the existing literature pool by contributing empirical substantiation on the role of employment anxiety, financial

worries and knowledge of COVID-19 in depression, and the impact of depression on mental health.

61) Alshammari, M. A., and Alshammari, T. K. (2021). COVID-19: A new challenge for mental health and policymaking recommendations. *Journal of Infection and Public Health*, 14(8), 1065-1068. Retrieved from <http://www.elsevier.com/locate/jiph>.

The coronavirus disease 2019 (COVID-19) infection has emerged lately, leading to a serious public health threat. The clinical features associated with COVID-19 are yet to be conclusively documented. Caution is needed when interpreting the severity of the symptoms as most of the diagnosed patients are those attending clinical assessments. Features of COVID-19 are far from understood. There is a suggested increased risk of COVID-19 infection among people with mental health disorders, which is primarily attributable to the challenges associated with limited resources. There are a variety of reasons why individuals with mental health disorders are more susceptible to infectious diseases. There is currently no specific recommended antiviral treatment. The interventions now used are supportive treatments to alleviate the symptoms and invasive mechanical ventilation. In this review, we discuss the adverse events associated with COVID-19 vaccinations. We further highlight the need to develop guidelines and recommendations for managing patients with mental health. It is evident from this review, there is a need to provide training programs with interprofessional, multidisciplinary communication channels.

62) Arendt, F., Markiewitz, A., Mestas, M., and Scherr, S. (2020). COVID-19 pandemic, government responses, and public mental health: Investigating consequences through crisis hotline calls in two countries. *Social Science & Medicine*, 265, 1-5. Retrieved from <http://www.elsevier.com/locate/socscimed>.

Rationale: The coronavirus disease (COVID-19) pandemic is an immense global health threat that has invoked unheard-of containment measures in numerous countries to reduce the number of new infections. Objective: The sequential introduction of severe measures, intentionally aiming at reducing the number of new infections, also imposes sharp restrictions on populations with potentially unintended, detrimental effects on public mental health. Method: We used observational data reflecting the number of phone calls made to national crisis hotlines in Austria and Germany during the COVID-19 pandemic (January 2020–April 2020) to investigate the impact of

government restrictions as well as their later revocations on public mental health. Importantly, both countries have comparable health care systems, are similar in their political and socio-economic idiosyncrasies, and took similar restrictive government measures in order to contain COVID-19—but implemented them at different points in time. Results: Analysis indicated that the number of crisis hotline calls increased in both countries. This increase seemed to occur at around the same time as the implementation of restrictive governmental responses. Importantly, the revocation of these governmental restrictions (i.e., re-opening the economy, allowing more social contact) seemed to occur at around the same time as the decrease in the number of calls. Conclusions: The present study supports the notion that the implementation of severe measures affects public mental health. However, the negative mental health effects of COVID-19 may be reduced if severe governmental restrictions are kept in place as briefly as possible.

63) Bartek, N., Peck, J. L., Garzon, D., and VanCleve, S. (2021). Addressing the Clinical Impact of COVID-19 on Pediatric Mental Health. *Journal of Pediatric Health Care*, 35(4), 377-386. doi: 10.1016/j.pedhc.2021.03.006.

The COVID-19 pandemic impacts daily lives of families globally. Sequelae are not limited to physical consequences of medical complications but extend into social, emotional, spiritual, and psychological health. Interventions including mask-wearing and physical distancing are intended to prevent viral spread, but have unintended negative effects on mental health and child development. Although it is too early to know the full impact, practicing pediatric clinicians are well-positioned to help young people recover and thrive despite challenges presented. This article will review the impact of COVID-19 on child mental health and give practical interventions to foster resilience in youth and their families.

64) Bloch, Y., Shemesh, S., Giron, A. G., Maoz, H., Cohenmehr, E., Hertzberg, L.,... Bitan, D. T. (2022). Buffering effect of in-patient psychiatric care on the link between fear of covid-19 and mental health consequences. *Psychiatry Research Communications*, 2 (1), 1-7. Retrieved from <http://www.sciencedirect.com/journal/Psychiatry-Research-Communications>

Background & aims: Psychiatric admissions during the covid-19 pandemic were limited, overlooking their possible benefit. This study focused on assessing the effect of the fear of covid on the mental health and well-being of inpatients as opposed to outpatients. Methods: During the

first lockdown, forty-four inpatients and day care patients (inpatient group) and 74 outpatients (outpatient group) were recruited after an informed consent procedure. Fear of the infection was assessed using the Fear of COVID-19 (FCV-19S); severity of mental health symptomatology was evaluated with the outcome questionnaire-45 (OQ-45); wellbeing was assessed with the Psychological well-being scale (PWB). Outcomes: There was no difference between the inpatient group and outpatient group in their fear of COVID-19 levels. FCV-19 predicted changes in the outpatient OQ total score ($B = 2.21, p < 0.001$), OQ interpersonal relation subscale ($B = 0.34, p < 0.01$), PWB total score ($B = 0.05, p < 0.001$), PWB environmental mastery subscale ($B = 0.07, p < 0.001$) and PWB positive relation subscale ($B = 0.05, p < 0.001$), but not in the inpatient group. Conclusions: Mental health and wellbeing of the outpatient group, which had less therapeutic contact than the inpatient group, correlated with the fear of covid, supporting the hypothesis that intensive psychiatric therapy had a protective effect on the mental health consequences of “fear of covid”.

65) Bortoletto, R., Gennaro, G.D., Antolini, G., Mondini, F., Passarella, L., Rizzo, V.,...Colizzi, M. (2022). Sociodemographic and clinical changes in pediatric in-patient admissions for mental health emergencies during the COVID-19 pandemic: March 2020 to June 2021. *Psychiatry Research Communications*, 2(1), 1-4. Retrieved from <http://www.sciencedirect.com/journal/Psychiatry-Research-Communications>. COVID-19 pandemic may affect children's mental health. Children <18 years in-patiently admitted for mental health emergencies between March 2020 and June 2021 were compared to those admitted in the same period of 2018–2019 in terms of sociodemographic and clinical characteristics. There were 49 admissions in the pre-pandemic period and 60 in the pandemic period (IRR: 1.22; 95% CI: 0.84–1.79), with the latter more likely to have a family history of psychiatric disorders, a personal history of physical disturbances, present with suicidal risk, and being diagnosed with an externalizing disorder. This study underscores the increased need for pediatric mental health services.

66) Bouabdallaoui, A., Taouihar, S., Aidouni, G. E., Aabdi, M., Alkouh, R., Merbouh, M.,... Housni, B. (2021). The impact of mental health on COVID 19 disease progression: Case report. *Annals of Medicine and Surgery*, 68, 1-4. Retrieved from <http://www.elsevier.com/locate/amsu>. It has been observed that mental disorder is associated with an aggravation of COVID 19

disease. A 44-year-old male patient, with no medical history, admitted to the emergency room for dyspnea, the exploration revealed SARS-COV-2 pneumonia. The patient was stable until he was aware of the death of his sister by COVID 19, he was admitted into the intensive care unit 24hours later in a serious condition after worsening of the inflammatory balance and pulmonary lesions. COVID 19 requires appropriate mental health management to help improve the prognosis of this disease.

67) Bourmistrova, N. W., Solomon, T., Braude, P., Strawbridge, R., and Carter, B. (2022). Long-term effects of COVID-19 on mental health: A systematic review. *Journal of Affective Disorders*, 299, 118-125. Retrieved from <https://doi.org/10.1016/j.jad.2021.11.031>.

Background: Acute effects of COVID-19 can be life-threatening. Alterations in mental health during the active infection have been documented, but the long-term consequences are less clear. Method: A systematic review was undertaken to investigate the effect of COVID-19 infection on long-term mental health outcomes. Three databases [PubMed, Medline (Ovid) and Cochrane library] were searched between 1st October 2019 and 29th August 2021 with additional hand searching to identify all published studies reporting symptoms of generalised anxiety, depression, post-traumatic stress disorder (PTSD), or sleep disturbance in participants at least one month after COVID-19 infection. The prevalence and mean symptom score of each were assessed. Results: Eight hundred and eighty five studies were found, of which 33 were included in the review involving a total of 6743 participants. The studies' risk of bias were typically fair quality. The median study age of participants was 57.8 years (IQR 49.3–60.7), with 63.0% male (IQR 57.0%–73.0%). Participants typically experienced no or mild symptoms of long-term anxiety (GAD-7, STAI-S, HADS) and depression (PHQ-9, BDI, PHQ-2, HADS). Prevalence varied depending on the measurement tool. Sleep disturbances (primarily insomnia) were most commonly reported as mild. PTSD prevalence was similar to anxiety and depression. Conclusion: The overall effect of the pandemic has been linked with worsening psychiatric symptoms. However, the long-term effect from direct COVID-19 infection has been associated with no or mild symptoms. Studies exhibited the long-term prevalence of anxiety, depression, PTSD, and sleep disturbances to be comparable to general population levels.

72) Brillon, P., Philippe, F. L., Paradis, A., Geoffroy, M.C., Orri, M., and Morin, I. O. (2021). Psychological distress of mental health workers during the COVID-19 pandemic: A comparison with the general population in high- and low-incidence regions. *Journal of Clinical Psychology*, 78 (4), 602-621. Retrieved from <https://doi.org/10.1002/jclp.23238>.

Objective: Despite their essential role during this health crisis, little is known about the psychological distress of mental health workers (MHW). Method: A total of 616 MHW and 658 workers from the general population (GP) completed an online survey including depressive, anxiety, irritability, loneliness, and re-silience measures. Results: Overall, MHW had fewer cases with above cut-off clinically significant depression (19% MHW vs. 27%) or anxiety (16% MHW vs. 29%) than the GP. MHW in high- incidence regions of COVID-19 cases displayed the same levels of depressive and anxiety symptoms than the GP and higher levels compared to MHW from low-incidence regions. MHW in high-incidence regions presented higher levels of irritability and lower levels of resilience than the MHW in low-incidence regions. Moreover, MHW in high- incidence regions reported more feelings of loneliness than all other groups. Conclusion: Implications for social and organizational preventive strategies to minimize the distress of MHW in times of crisis are discussed.

73) Champion, J., Javed, A., Lund, C., Sartorius, N., Saxena, S., Marmot, M.,... Udomratn, P. (2022). Public mental health: required actions to address implementation failure in the context of COVID-19. *The Lancet Psychiatry*, 9 (2), 169-182. Retrieved from [https://doi.org/10.1016/S2215-0366\(21\)00199-1](https://doi.org/10.1016/S2215-0366(21)00199-1).

Mental disorders account for at least 18% of global disease burden, and the associated annual global costs are projected to be US\$6 trillion by 2030. Evidence-based, cost-effective public mental health (PMH) interventions exist to prevent mental disorders from arising, prevent associated impacts of mental disorders (including through treatment), and promote mental wellbeing and resilience. However, only a small proportion of people with mental disorders receive minimally adequate treatment. Compared with treatment, there is even less coverage of interventions to prevent the associated impacts of mental disorders, prevent mental disorders from arising, or promote mental wellbeing and resilience. This implementation failure breaches the right to health, has increased during the COVID-19 pandemic, and results in preventable

suffering, broad impacts, and associated economic costs. In this Health Policy paper, we outline specific actions to improve the coverage of PMH interventions, including PMH needs assessments, collaborative advocacy and leadership, PMH practice to inform policy and implementation, training and improvement of population literacy, settings-based and integrated approaches, use of digital technology, maximising existing resources, focus on high-return interventions, human rights approaches, legislation, and implementation research. Increased interest in PMH in populations and governments since the onset of the COVID-19 pandemic supports these actions. Improved implementation of PMH interventions can result in broad health, social, and economic impacts, even in the short-term, which support the achievement of a range of policy objectives, sustainable economic development, and recovery.

74) Carey, L. B., Koenig, H. G., Cohen, J., Hill, T., Gabbay, E., Aiken, C., and Carey, J. R. (2022). Mental Health, Clinical Practice and COVID-19. *Journal of Religion and Health*, 61(1), 1-5. Retrieved from <https://doi.org/10.1007/s10943-022-01501-z>

Three topics are explored in this first issue of the Journal of Religion and Health for 2022, namely: (1) mental health and religion, (2) clinical practice issues and the relevance of religion/spirituality, and finally (3) the continuing and expanding public health crisis of COVID-19 and the associated religious/spiritual impact and response.

75) Charbonnier, E., Tremoliere, B., Baussard, L., Goncalves, A., Lespiau, F., Philippe, A. G., and Vigouroux, S. L. (2022). Effects of an online self-help intervention on university students' mental health during COVID-19: A non-randomized controlled pilot study. *Computers in Human Behavior Reports*, 5, 1-8. Retrieved from [http:// www.sciencedirect.com/journal/computers-in-human-behavior-reports](http://www.sciencedirect.com/journal/computers-in-human-behavior-reports).

The COVID-19 pandemic has had a major impact on university students, particularly on their mental health. However, little is yet known about how to prevent and/or reduce this impact. Prior to COVID-19, some studies have shown that online stress management programs were successful enough to improve students' mental health and stress adjustment strategies, suggesting that these interventions should be further developed during the pandemic. Our study

explored the effects on mental health of an online program that targeted stress management and learning. A total of 347 university students were initially recruited to take part in a non-randomized controlled study. After dropout, our final sample consisted of 114 participants, divided into two groups: an intervention group (participants who took part in the program) and the control group (participants who did not participate in the program). The variables measured were: anxiety and depressive symptoms, academic burnout, learned helplessness, and coping strategies. Means comparisons between baseline (T0) and an assessment at 8 weeks (T1) revealed reductions in anxiety symptoms and learned helplessness in the intervention group, but not in the control group. Our pilot study reports promising effects of an online program on students' psychological state.

76) Chatterjee, S. S., Bhattacharyya, R., Bhattacharyya, S., Gupta, S., Das, S., and Banerjee B. B. (2020). Attitude, practice, behavior, and mental health impact of COVID-19 on doctors. *Indian Journal of Psychiatry*, 62(3), 257-265. Retrieved from <http://www.indianjpsychiatry.org>

Background: COVID-19, like every other pandemic, has imposed an unprecedented threat to doctors' physical and mental health. Literature in this area is sparse. The present study has been done to explore the knowledge, attitude, and behavior of doctors regarding this pandemic and how it influences their depression, anxiety, and stress level. Materials and Methods: This online survey has been done for 10 days. Data were collected on background characteristics, knowledge, attitude, and behavior of the respondents in a semi-structured pro forma, and psychiatric morbidity was measured by the Depression, Anxiety, and Stress Scale-21. A total of 152 complete responses have been received. The data were assessed using SPSS software. Results: Out of 152 study participants, 34.9% were depressed and 39.5% and 32.9% were having anxiety and stress, respectively. Significant predictors for psychiatric morbidities were experience in health sector, duty hours, use of protective measures, and altruistic coping. Multivariable logistic regression showed most of the factors to be significantly associated with depression, anxiety, and stress level. Discussion: Doctors who were working during COVID pandemic have a high prevalence of psychiatric morbidity. Age and having multiple comorbidities are significant predictive factors. Adequate protective measures should be warranted. Altruistic coping and a sense of greater goal are significant among the doctor community, in this pressing time. The doctors are pushing themselves to the best of their

capacity and also protecting their patients' best interest. A large-scale, multicentric study will probably give a larger picture and will guide us for better service planning and delivery.

77) Chekole, Y. A., and Abate, S., M. (2021). Global prevalence and determinants of mental health disorders during the COVID-19 pandemic: A systematic review and meta-analysis. *Annals of Medicine and Surgery*, 68, 1-9. Retrieved from www.elsevier.com/locate/amsu.
Background: Coronavirus Disease 2019 (COVID-19) has infected more than 5 million and lost the lives of more than 300 thousand people globally. It is the first-ever deadly pandemic with a significant degree of fear, worry and concern in the population at large. Therefore, this Meta-Analysis aims to assess the global prevalence and determinants of mental health disorders. Methods: A three-stage search strategy was conducted on PubMed/Medline, Science direct LILACS and PsycINFO databases. The Heterogeneity among the included studies was checked with forest plot, χ^2 test, I² test, and the pvalues. Publication bias was checked with a funnel plot and the objective diagnostic test was conducted with Egger's correlation, Begg's regression tests, and Trim and fill method. Results: The Meta-Analysis revealed that the pooled prevalence of anxiety and depression 33.59% (95% confidence interval (CI): 27.21 to 39.97, 30 studies, 88,543 participants) and 29.98% (95% confidence interval (CI): 25.32 to 34.64, 25 studies, 78,191 participants) respectively. Conclusion: The review revealed that more than thirty percent of patients developed anxiety and depression during COVID-19 Pandemic. This presages the health care stakeholders to prevent and intervene in mental health disorders.

78) Chen, P. J., Pusica, Y., Sohaei, D., Prassas, I., and Diamandis, E. P.(2021). An overview of mental health during the COVID-19 pandemic. *Diagnosis*, 8(4), 403–412. Retrieved from <https://doi.org/10.1515/dx-2021-0046>.

Since its initial outbreak in late 2019, the COVID-19 pandemic has profoundly affected the global community. In addition to the negative health consequences of contracting COVID-19, the implementation of strict quarantine and lockdown measures has also disrupted social networks and devastated the global economy. As a result, there is rising concern that the pandemic has taken a toll on the mental health of the general population. To better understand its impact, an increasing number of studies examined the effects of the pandemic on mental health and psychosocial implications of enforced quarantine and lockdown. In this article, we aim to

review and summarize the findings from a variety of studies that have explored the psychosociological effects of the pandemic and its impact on the mental well-being of the general population. We will also examine how various demographic groups, such as the elderly and youth, can be more susceptible or resilient to the pandemic's mental health effects. We hope to provide a broader understanding.

81) Cheshmehzangi, A., Zou, T., and Su, Z. (2022). The digital divide impacts on mental health during the COVID-19 pandemic. *Brain Behavior and Immunity*, 101, 211-213. Retrieved from [http:// www.elsevier.com/locate/ybrbi](http://www.elsevier.com/locate/ybrbi).

One of the most daunting unintended consequences of the digital revolution is the digital divide (DD), a pervasive social and information inequality. It negatively affects all sectors of society, and exerts compounding influences on other social inequities. To further complicate the situation, the COVID-19 pandemic has been intensifying the scale of DD and deepening the scope of DD barriers with the increasing but imbalanced applications of digital technologies. For instance, while digital technologies can provide support to fulfill people's mental health needs, recurring evidence shows that DD-prone people are more likely to be excluded from critical services, activities, and resources to support their health concerns and challenges. So far, studies about the mental health consequences of DD amid COVID-19 are limited. Available evidence suggests that the general mental health impacts of COVID-19 include anxiety, depression, and suicidal behaviors, while the mental health consequences of DD due to COVID-19 are mainly stress, distress, and anxiety. To shed light on the research gap, based on the social inequality roots of DD and the nexus between DD barriers and factors of social inequalities, this study highlights the alarming overlap between DD-prone communities and vulnerable populations. Furthermore, we underscore the future research directions that could help society better serve both underserved communities.

82) Choi, K. W., Kim, H. H., Basu, A., Kwong, A. S. F., Diaz, S. H., Wyszynski, D. F., and Koenen, K. C. (2022). COVID-19 perceived impacts on sleep, fitness, and diet and associations with mental health during pregnancy: A cross-national study. *Journal of Affective Disorders Reports*, 7, 1-7. Retrieved from www.sciencedirect.com/journal/journal-of-affective-disorders-reports.

The Coronavirus-2019 (COVID-19) global pandemic has disrupted many facets of life. Among the most obvious disruptions, quarantine and physical distancing measures for COVID-19 have produced notable impacts on physical activity, sleep, and eating behaviors in the general population. Notably, these health behaviors are known to be associated with mental health and wellbeing, with data generally linking low or inconsistent levels of physical activity, sleep, and eating to worse mental health and functioning, both in general and recently during the pandemic. Less well understood, however, is how COVID-19 disruptions in these key health behavior domains of physical activity, sleep, and diet may have affected one particular group—pregnant women—whose mental health is particularly critical given the potential short- and long-term impacts of psychiatric distress on both mother and child. Numerous reports have now documented substantial mental health morbidity among pregnant women during the COVID-19 pandemic, raising the need to better understand potential modifiable targets for reducing the burden of distress in this vulnerable population.

83) Choudhari, R. (2020). COVID 19 pandemic: Mental health challenges of internal migrant workers of India. *Asian Journal of Psychiatry*, 54, 1-4. Retrieved from www.elsevier.com/locate/ajp.

COVID- 19, a biomedical disease has serious physical and tremendous mental health implications as the rapidly spreading pandemic. One of the most vulnerable, but neglected, an occupational community of internal migrant workers is prone for development of psychological ill-effects due to double whammy impact of COVID-19 crisis and concomitant adverse occupational scenario. Permutations and combinations of the factors viz susceptibility for new viral infections, potential to act as vectors of transmission of infection, high prevalence of pre-existing physical health morbidities such as occupational pneumoconiosis, tuberculosis, HIV infections, pre-existing psychological morbidities, adverse psychosocial factors like absence of family support and caretaker during the crisis, their limitations to follow the rules and regulations of personal safety during the COVID 19 crisis, social exclusion, and inability to timely access the psychiatric services; all give rise to the peri-traumatic psychological distress to internal migrant workers. Superadded, is the blow of financial constraints due to loss of work, absence or suspension of occupational safety and health-related basic laws with associated occupational hazards, which make this occupational group highly vulnerable for the development of

psychological illnesses. We attempt to draw the attention of mental health professionals, general medical practitioners and occupational health policymakers to the various, interrelated and interdependent predisposing and causative factors for the development of psychological ill-effects amongst internal migrant workers with the interventions needed to address it, from an occupational health perspective angle.

84) Chrisinger, B. W., Rich, T., Lounsbury, D., Peng, K., Zhang, J., Heaney, C. A.,... Hsing, A. W. (2021). Coping with the COVID-19 pandemic: Contemplative practice behaviors are associated with better mental health outcomes and compliance with shelter-in-place orders in a prospective cohort study. *Preventive Medicine Reports*, 23, 1-8. Retrieved from www.elsevier.com/locate/pmedr.

Psychosocial health can influence the development and experience of several chronic diseases, and has been negatively affected for many individuals amid the COVID-19 global pandemic. To understand the impact of contemplative practices on emotional and mental health during COVID-19, the Stanford WELL for Life Study (US component), incorporated a series of additional surveys into its ongoing study. A total of 1,097 participants residing in California who responded to at least one of three COVID-19 surveys were included in this analysis. Linear and generalized mixed-effects regression models were used to investigate relationships between individual contemplative practice behaviors (CPB) (embodied observing meditation, non-reactive mindfulness meditation, self-compassion cultivation, cultivation of compassion for others) and four psychosocial outcomes measured in the original WELL questionnaire (resilience, dealing with stress, positive emotions, and negative emotions). In addition, the associations between CPB and depression, distress, and compliance with local ShelterIn-Place orders were also investigated. Participants who engaged in any contemplative practice reported significantly more resilience and positive emotions, dealing better with stress, lower distress, and were less likely to report an experience with depression in the last week. Similar findings held when CPB was modeled as a continuous variable. Significant interactions between the duration of the SIP and CPB were also observed for resilience and SIP compliance outcomes, indicating that steeper declines were observed among participants with little or no CPB across the study period. Further investigation into the potential protective benefits of CPB during times of major disruption and uncertainty is warranted.

85) Cruwys, T., Haslam, C., Rathbone, J. A., Williams, E., and Haslam, S. A. (2021). GROUPS 4 HEALTH protects against unanticipated threats to mental health: Evaluating two interventions during COVID-19 lockdown among young people with a history of depression and loneliness. *Journal of Affective Disorders*, 295, 316-322. Retrieved from www.elsevier.com/locate/jad.
Background: Decades of research indicate that when social connectedness is threatened, mental health is at risk. However, extant interventions to tackle loneliness have had only modest success, and none have been trialled under conditions of such threat. Method: 174 young people with depression and loneliness were randomised to one of two evidence-based treatments: cognitive behaviour therapy (CBT) or GROUPS 4 HEALTH (G4H), an intervention designed to increase social group belonging. Depression, loneliness, and well-being outcomes were evaluated at one-year follow-up; COVID-19 lockdown restrictions were imposed partway through follow-up assessments. This provided a quasi experimental test of the utility of each intervention in the presence (lockdown group) and absence (control group) of a threat to social connectedness. Results: At one-year follow-up, participants in lockdown reported significantly poorer wellbeing than controls who completed follow-up before lockdown, $t(152)=2.41$, $p=.017$. Although both CBT and G4H led to symptom improvement, the benefits of G4H were more robust following an unanticipated threat to social connectedness for depression ($\chi^2(16)=31.35$, $p=.001$), loneliness ($\chi^2(8)=21.622$, $p=.006$), and wellbeing ($\chi^2(8)=22.938$, $p=.003$). Limitations: Because the COVID-19 lockdown was unanticipated, this analysis represents an opportunistic use of available data. As a result, we could not measure the specific impact of restrictions on participants, such as reduced income, degree of isolation, or health-related anxieties. Conclusions: G4H delivered one year prior to COVID-19 lockdown offered greater protection than CBT against relapse of loneliness and depression symptoms. Implications are discussed with a focus on how these benefits might be extended to other life stressors and transitions.

86) Cui, J., Lu, J., Weng, Y., Yi, G. Y., and He, W. (2022). COVID-19 impact on mental health. *BMC Medical Research Methodology*, 22 (1), 1-11. Retrieved from <https://doi.org/10.1186/s12874-021-01411-w>

Background: The coronavirus disease 2019 (COVID-19) pandemic has posed a significant influence on public mental health. Current efforts focus on alleviating the impacts of the disease on public health and the economy, with the psychological effects due to COVID-19 relatively

ignored. In this research, we are interested in exploring the quantitative characterization of the pandemic impact on public mental health by studying an online survey dataset of the United States. Methods: The analyses are conducted based on a large scale of online mental health-related survey study in the United States, conducted over 12 consecutive weeks from April 23, 2020 to July 21, 2020. We are interested in examining the risk factors that have a significant impact on mental health as well as in their estimated effects over time. We employ the multiple imputation by chained equations (MICE) method to deal with missing values and take logistic regression with the least absolute shrinkage and selection operator (Lasso) method to identify risk factors for mental health. Results: Our analysis shows that risk predictors for an individual to experience mental health issues include the pandemic situation of the State where the individual resides, age, gender, race, marital status, health conditions, the number of household members, employment status, the level of confidence of the future food affordability, availability of health insurance, mortgage status, and the information of kids enrolling in school. The effects of most of the predictors seem to change over time though the degree varies for different risk factors. The effects of risk factors, such as States and gender show noticeable change over time, whereas the factor age exhibits seemingly unchanged effects over time. Conclusions: The analysis results unveil evidence-based findings to identify the groups who are psychologically vulnerable to the COVID-19 pandemic. This study provides helpful evidence for assisting healthcare providers and policymakers to take steps for mitigating the pandemic effects on public mental health, especially in boosting public health care, improving public confidence in future food conditions,

87) Donnell, J. O., Cardenas, D., Orazani, N., Evans, A., and Reynolds, K. J. (2022). The longitudinal effect of COVID-19 infections and lockdown on mental health and the protective effect of neighbourhood social relations. *Social Science & Medicine*, 297, 1-9. Retrieved from [http:// www.elsevier.com/locate/socscimed](http://www.elsevier.com/locate/socscimed).

Rationale: The effect of COVID-19 lockdowns on mental health is a major concern worldwide. Measuring the impacts, however, is difficult because of a lack of data that tracks and compares outcomes and potential protective social factors before and during lockdowns. Objective: We aim to quantify the impact of a second lockdown in 2020 in the Australian city of Melbourne on levels of depression, anxiety, and loneliness, and analyse whether social relations in the neighbourhood may buffer against the worst effects of lockdown. Methods: We draw on quasi-

experimental data from a nationally-representative longitudinal survey conducted in Australia. We use a difference-in-difference approach with a number of control variables to estimate changes in mental health among respondents in Melbourne following the imposition of the lockdown. A measure of perceived neighbourhood social relations is included as an explanatory variable to analyse potential protective effects. Results: Lockdown is estimated to have increased depressive symptoms by approximately 23% and feelings of loneliness by 4%. No effect on anxiety was detected. Levels of neighbourhood social relations were strongly negatively associated with mental health symptoms. A significant interaction between lockdown and neighbourhood social relations suggests that lockdown increased depressive symptoms by 21% for people with average perceived neighbourhood relations, compared with a 9.7% increase for people whose perceived relations is one standard deviation greater than average. Conclusion: The results add to evidence of the harsh impacts of the COVID-19 pandemic and associated lockdowns on mental health. Importantly, neighbourhood social relations and social cohesion more broadly may be an important source of social support in response to lockdowns. These findings provide important insights for researchers and policy-makers in how to understand and respond to the mental health impacts of COVID-19.

88)Dutta, A., Sharma, A., Castro, R. T., Pachori, H., Mishra, S.D. (2021). Mental health outcomes among health-care workers dealing with COVID-19/severe acute respiratory syndrome coronavirus 2 pandemic: A systematic review and meta-analysis. *Indian Journal of Psychiatry*, 63(4), 335-347. Retrieved from <http://www.indianjpsychiatry.org>

Introduction: The psychological impact of COVID-19 on health-care workers (HCWs) has received attention from researchers to understand the extent of the effects of the ongoing pandemic on this population. The aim of this systematic review and meta-analysis was to synthesize the currently available literature on the topic to determine the prevalence of mental health problems in HCWs. Materials and Methods: We conducted a systematic review and meta-analysis, searching PubMed, PsycINFO, Scopus, and Cochrane Library databases for articles published from December 2019 to August 15, 2020. We identified studies reporting the prevalence of any mental health condition in HCWs involved directly or indirectly in providing services during the COVID-19 pandemic. The prevalence proportion for individual outcome was extracted as an estimate of interest. We performed random-effects meta-analyses evaluated using

Q statistic, I² statistic, subgroup analyses, and sensitivity analyses and assessed study quality. This review was done in adherence to the Reporting Items for Systematic Reviews and Meta-Analysis and Meta-analysis of Observational Studies in Epidemiology guidelines. The study protocol was registered prospectively at PROSPERO (CRD42020182005). Results: We identified 1958 studies, of which 33 studies including 39703 participants (with a median = 393; range = 88– 14825) were finally included for analysis. The estimated overall prevalence were as follows: depression 32.4% (95% confidence interval [CI]: 25.9–39.3, I² = 99%), anxiety 32.5% (95% CI: 26.4–39.0, I² = 99%), insomnia or sleep disturbance 36.6% (95% CI: 36.6–48.3, I² = 99%), and stress 37.7% (95% CI: 24.0–52.3, I² = 100%). Conclusion: HCWs who are dealing with the COVID-19 pandemic have a significant prevalence of depression, anxiety, insomnia and poor sleep quality, and stress. The health-care workforce needs to practice self-care now more than ever, while health-care managers and policymakers need to factor in the mental health consequences of COVID-19 on their workforce.

89) Espino, D. J., Moscardo', V., Rodríguez, A.V., and Lazaro, E. (2022). Spatial statistical analysis of the relationship between self-reported mental health during the COVID-19 lockdown and closeness to green infrastructure. *Urban Forestry & Urban Greening*, 68, 1-12. Retrieved from www.elsevier.com/locate/ufug.

The COVID-19 pandemic has produced alterations in the behaviour and psychological health of people, who have had to learn living under uncertain circumstances escaping their control. This situation has been aggravated in those countries applying strict home confinement rules to try bending their epidemic curve. This is the case of Spain, where the stringent lockdown period was extended over three months. This study aimed at proving a research hypothesis whereby living close to Green Infrastructure (GI) during the confinement period was beneficial for mental health. To this end, La Palma (Canary Islands) and Zaragoza (Peninsular Spain) were taken as case studies, since both locations distributed a questionnaire to address citizenry's self-reported mental health under strict lockdown conditions. A spatial statistical analysis of the responses collected by these questionnaires revealed that variables such as stress, anger, medication use, alcohol consumption or visits to the doctor significantly decreased if citizens were close to GI, whereas people having very high expectations of enjoying the city after the confinement were

positively correlated to proximity of green areas. Although these outcomes are limited by the inferential capacity of correlation analysis, they point out to a sense of relief derived from having visual contact with vegetated landscapes and feeling stimulated about using them for recreation, aesthetical or sporting purposes. The joint consideration of these psychological gains with the social and environmental benefits provided by GI emphasizes the importance of approaching urban regeneration through the design and implementation of interconnected green spaces.

90) Farkhad, B. F., and Albarracín, D. (2021). Insights on the implications of COVID-19 mitigation measures for mental health. *Economics and Human Biology*, 40, 1-13. Retrieved from www.elsevier.com/locate/ehb.

Given the unprecedented level and duration of mitigation policies during the 2020 COVID-19 pandemic, it is not surprising that the public and the media have raised important questions about the potential for negative mental health consequences of the measures. To answer them, natural variability in policy implementation across US states and over time was analyzed to determine if mitigation policies correlated with Google searches for terms associated with symptoms of depression and anxiety. Findings indicated that restaurant/bar limits and stay-at-home orders correlated with immediate increases in searches for isolation and worry but the effects tapered off two to four weeks after their respective peaks. Moreover, the policies correlated with a reduction in searches for antidepressants and suicide, thus revealing no evidence of increases in severe symptomatology. The policy implications of these findings are discussed.

91) Gale, T. M., and Boland, B. (2021). COVID-19 deaths in a secondary mental health service. *Comprehensive Psychiatry*, 111, 1-4. Retrieved from <http://www.elsevier.com/locate/comppsy>.

We present data on outcomes associated with COVID-19 in a time-limited sample of 1181 patients who were receiving treatment within secondary care services from a mental health and learning disabilities service provider. Unfortunately, 101 (9%) died after contracting COVID-19, though the real death rate is probably lower due to mild, unreported cases. Those who died were more likely to be male, of older age (75.7 vs. 42.7 yrs) and have a diagnosis of dementia (57% vs. 3.4%). We examined Health of the Nation Outcome Scale (HoNOS) scores as possible

predictors for COVID-19 outcomes. Although the deceased group had higher HoNOS scores (17.7 vs. 13.2), the differences disappeared when examining only cases of dementia in 65+ age-group, suggesting that diagnosis is key. There has been little information published about people with severe mental health problems within secondary care. Although our sample is small, it does highlight some important inequalities that would benefit from further research.

92) Gallagher S., Sumner, R., Creaven, A.M., O'Suilleabain, P.S., and Howard, S. (2021). Allostatic load and mental health during COVID-19: The moderating role of neuroticism. *Brain, Behavior, & Immunity – Health*, 16, 1-5. Retrieved from <http://www.editorialmanager.com/bbih/default.aspx>.

Background: During the COVID-19 pandemic increased risk of poor mental health has been evident across different cultures and contexts. This study aims to examine whether allostatic load (AL) prior to the pandemic was predictive of poor mental health during the pandemic, and if any associations were moderated by neuroticism. Methods: Data were extracted from Waves 2 (2011, allostatic load), 3 (2012, neuroticism), and the COVID-19 study (April 2020) of the Understanding Society database in the UK; data were available for 956 participants. Results: Mental health increased from 2012- to during the pandemic. Neuroticism and AL were positively associated with poorer mental health during COVID-19, such that those who had scored higher on neuroticism and had higher AL prior to the pandemic reported poorer mental health during the pandemic. Neuroticism was also a significant moderator; the effect of AL on mental health during the pandemic was exacerbated in those with high and moderate levels of neuroticism but not lower. Moreover, this was driven by the immune-related indices of AL. This withstood adjustment for age, gender, employment status and prior mental health. These findings are discussed in relation to the pathophysiological mechanisms of mental health.

93) Glynn, L.M., Davis, E. P., Luby, J. L., Baram, T. Z., and Sandman, C.A. (2021). A predictable home environment may protect child mental health during the COVID-19 pandemic. *Neurobiology of Stress*, 14, 1-7. Retrieved from www.elsevier.com/locate/ynstr.

Objective: Information about the adverse effects of the COVID-19 pandemic on adolescent and adult mental health is growing, yet the impacts on preschool children are only emerging.

Importantly, environmental factors that augment or protect from the multidimensional and stressful influences of the pandemic on emotional development of young children are poorly understood. Methods: Depressive symptoms in 169 preschool children (mean age 4.1 years) were assessed with the Preschool Feelings Checklist during a state-wide stay-at-home order in Southern California. Mothers (46% Latinx) also reported on externalizing behaviors with the Strengths & Difficulties Questionnaire. To assess the role of environmental factors in child mental health we examined household income, food insecurity, parental essential worker status and loss of parental job, as well as preservation of the structure of children's daily experiences with the Family Routines Inventory. Results: Sixty-one percent of families' incomes were below the living wage and 50% had at least one parent who was an essential worker. Overall, preschoolers' depressive and externalizing symptoms were elevated compared to pre-COVID norms. Practice of family routines robustly predicted better child mental health, and this protective effect persisted after covarying income, dual-parent status and food insecurity as well as maternal depression and stress. Conclusion: The stress of the COVID-19 pandemic is exacting a significant toll on the mental health of preschool children. Importantly, maintaining a structured, predictable home environment by adherence to family routines appears to mitigate these adverse effects, providing empiric basis for public health recommendations.

94) Golding, M. A., Salisbury, M. R., Reynolds, K., Roos, L. E., and Protudjer, J. L. P. (2021). COVID-19-Related Media Consumption and Parental Mental Health. *Canadian Journal of Behavioural Science -Revue canadienne des sciences du comportement*, 53(3), 371-376. Retrieved from <https://doi.org/10.1037/cbs0000280>.

Currently, little is known about the relationship between COVID-19-related media consumption and mental health among Canadian parents. Consequently, the current study aimed to investigate the associations between the consumption of COVID-19-related news and mental health in a large sample of Canadian families. We recruited 924 Canadian parents, between April 14th and August 9th 2020, to participate in an online survey, which assessed their demographics, media consumption patterns, and their levels of anxiety, and depression. Relationships between COVID-19-related media consumption and parental mental health were analyzed using a series

of multiple regression analyses. Multiple regression was also used to examine whether pediatric health status (i.e., chronic disease vs. no chronic disease), parent health status, and the prevalence of COVID-19 in the participant's province of residence moderated the relationship between news consumption and parental mental health. Greater consumption of news related to COVID-19 was associated with higher levels of depression, and anxiety after controlling for a number of covariates. Contrary to predictions, neither the prevalence of COVID-19, parent health status, nor child health status significantly moderated the relationship between media consumption and parental mental health.

95) Gopalan, M., Carmichael, A. L., and Lanza, S. (2022). College Students' Sense of Belonging and Mental Health Amidst the COVID-19 Pandemic. *Journal of Adolescent Health, 70* (2), 228-233. Retrieved from <https://doi.org/10.1016/j.jadohealth.2021.10.010>. Purpose: Social isolation, anxiety, and depression have significantly increased during the COVID19 pandemic among college students. We examine a key protective factor- students' sense of belonging with their college- to understand (1) how belongingness varies overall and for key sociodemographic groups (first-generation, underrepresented racial/ethnic minority students, first-year students) amidst COVID-19 and (2) if feelings of belonging buffer students from adverse mental health in college. Methods: Longitudinal models and regression analysis was assessed using data from a longitudinal study of college students (N = 1,004) spanning (T1; Fall 2019) and amidst COVID-19 (T2; Spring 2020). Results: Despite reporting high levels of belonging pre- and post-COVID, consistent with past research, underrepresented racial/ethnic minority/first-generation students reported relatively lower sense of belonging compared to peers. Feelings of belonging buffered depressive symptoms and to a lesser extent anxiety amidst COVID among all students. Conclusions: College students' sense of belonging continues to be an important predictor of mental health even amidst the pandemic, conveying the importance of an inclusive climate.

96) Gray, M., Monti, K., Katz, C., Klipstein, K., and Lim, S. (2021). A "Mental Health PPE" model of proactive mental health support for frontline health care workers during the COVID-19 pandemic. *Psychiatry Research, 299*, 1-6. Retrieved from www.elsevier.com/locate/psychres. We summarize in this article the development, roll out, and preliminary outcomes of a large-scale proactive mental health support model for frontline healthcare workers during the early stages of the COVID-19 pandemic, specifically during New York City's initial case surge in

March through June of 2020. This paper summarizes the program design and output for two types of dedicated teams of behavioral health clinicians: 1) Mental Health Liaisons, who provided preventative support to COVID-19 hospital units and Emergency Departments, and 2) Mental Health Crisis Response Teams, who staffed 24/7 crisis response lines to support and mitigate staff crises as needed. In addition to the specifics of this model, we discuss the strategies, rewards, and difficulties of rapidly staging and evaluating such a model in the context of an ongoing disaster situation. We also offer recommendations for how this multi-dimensional model may be replicated in other settings.

97) Grover, S., Dua, D., Sahoo, S., Mehra, A., Nehra, R., and Chakrabarti, S. (2020). Why all COVID-19 hospitals should have mental health professionals: The importance of mental health in a worldwide crisis!. *Asian Journal of Psychiatry*, 51, 1-7. Retrieved from www.elsevier.com/locate/ajp.

COVID-19 pandemic has led to a worldwide crisis. At present, everyone is focusing on the prevention of COVID19 infection, preparing and discussing issues related to physical health consequences. However, it is important to understand that the life-threatening negative physical health consequences are going to be faced by a few, but everyone is going to face the negative mental health consequences of the pandemic. At various places COVID-19 hospitals are being established, to address the physical health consequences of the pandemic. However, mental health professionals have not been very actively involved in the management of people going through this pandemic. This viewpoint discusses the mental health consequences of the pandemic for the health care workers, people who are undergoing quarantine, people who are admitted to the COVID-19 hospitals, and those who have recovered from the infection. The article also highlights the mental health needs of people at different levels and the kind of interventions, which may be carried out.

98) Grover, S., Mehra, A., Sahoo, S., Avasthi, A., Tripathi, A., D'Souza, A.,... Kumar, P. (2020). Impact of COVID-19 pandemic and lockdown on the state of mental health services in the private sector in India. *Indian Journal of Psychiatry*, 62(5), 488-493. Retrieved from <http://www.indianjpsychiatry.org>

Background: No information is available about the impact of lockdown and COVID-19 pandemic on the mental health services in the private practice in India. Aim: The current study is aimed to assess the impact of the COVID-19 pandemic and lockdown on the state of Mental Health Services in the Private Sector in India. Materials and Methods: An online survey was carried out using the Survey Monkey platform during the period of 1st to 15th May 2020 among the members of the Indian Psychiatric Society. Results: Three hundred and ninety six responses were analysed. There was a reduction in revenue generation by about 70%. All kinds of services, including outpatient services, inpatient services, psychotherapy services, consultation-liaison, and electroconvulsive therapy (ECT) services, were severely affected. One-third of the participants were using the teleservices during the pandemic. The most common problem faced in running the services included modifying the psychological treatment to maintain social distancing, and managing the staff. Besides providing clinical care to the patients, the majority of the mental health professionals reported that they were involved in increasing awareness about the mental health consequences of pandemic and the lockdown and addressing myths related to the spread of infection. Conclusion: The pandemic and the lockdown have markedly impacted mental health services in the private sector. ECT services, inpatient services, psychotherapy services and outpatient services are the most affected. However, the COVID-19 pandemic and lockdown have led to the expansion of teleconsultation services.

99) Grover, S., Mehra, A., Sahoo, S., Avasthi, A., Tripathi, A., D'Souza, A.,... Kumar, P. (2020). State of mental health services in various training centers in India during the lockdown and COVID-19 pandemic. *Indian Journal of Psychiatry*, 62(4), 363-369. Retrieved from <http://www.indianjpsychiatry.org>

Background: There is some information from different developed countries that mental health services have been badly affected by the COVID-19 pandemic. Little information is available from India. Aim: The aim of this study was to evaluate the impact of lockdown and COVID-19 pandemic on mental health services in India's various training centers. Materials and Methods: In an online survey, information was collected from various training centers of India through E-mail or WhatsApp. Results: Responses were received from 109 institutes. The majority of the responses were received from state-funded government medical colleges and private medical colleges. Since the lockdown and COVID-19 pandemic, brain stimulation treatments have

completed stopped. Other, most affected services included electroconvulsive therapy, inpatient services, outpatient services, and psychotherapy services. However, there was an expansion of teleconsultations services because of the lockdown and the COVID-19 pandemic. In three-fourth of the centers mental health services were being provided to the patients with COVID-19 infection. In most of the institutes, mental health professionals were involved at different levels in the COVID-19 responsibilities. These included providing helpline services to the general public, screening people in quarantine for mental health issues, providing clinical care to COVID-19 patients, screening health care workers (HCWs) for mental health issues, and training the HCWs. Conclusion: COVID-19 pandemic and lockdown have led to the collapse of regular mental health services. The present study also shows that mental health professionals are playing a significant role in addressing the prevailing psychiatric morbidity, specifically related to the COVID-19 related issues, and taking care of the HCWs.

100) Hagerty, S. L., Williams, L. M. (2020). The impact of COVID-19 on mental health: The interactive roles of brain biotypes and human connection. *Brain, Behavior, & Immunity – Health*, 5, 1-4. Retrieved from www.editorialmanager.com/bbih/default.aspx. COVID-19 along with the mitigation strategies being used to address the virus pose significant threats to our individual and collective mental health. As the crisis evolves and persists, it will be increasingly important for the research community to conduct investigations that address the mental health consequences of COVID-19. The causes of mental health effects in the context of COVID-19 are multifactorial and likely include biological, behavioral, and environmental determinants. We argue that the COVID-19 crisis significantly threatens our basic human need for human connection, which might serve as a crucial environmental factor that could underlie the overall insult to our mental health. Furthermore, “brain styles,” which we have previously conceptualized as “biotypes” that are informed by a neural taxonomy, might interact with the universal threat to our need for human connection to explain the mental health consequences of COVID-19 from a precision psychiatry perspective. The goal of this viewpoint is to inspire research on the mental health consequences of COVID-19 from an individualized, brain-based perspective that honors the profound threat that the virus poses to our basic human motivations.

101) Han, Q., Zheng, B., Agostini, M., B'elanger, J. J., Gützkow, B., Kreienkamp, J.,...Leander, N. P. (2021). Associations of risk perception of COVID-19 with emotion and mental health during the pandemic. *Journal of Affective Disorders*, 284, 247-255. Retrieved from <http://www.elsevier.com/locate/jad>

Background: Although there are increasing concerns on mental health consequences of the COVID-19 pandemic, no large-scale population-based studies have examined the associations of risk perception of COVID-19 with emotion and subsequent mental health. Methods: This study analysed cross-sectional and longitudinal data from the PsyCorona Survey that included 54,845 participants from 112 countries, of which 23,278 participants are representative samples of 24 countries in terms of gender and age. Specification curve analysis (SCA) was used to examine associations of risk perception of COVID-19 with emotion and self-rated mental health. This robust method considers all reasonable model specifications to avoid subjective analytical decisions while accounting for multiple testing. Results: All 162 multilevel linear regressions in the SCA indicated that higher risk perception of COVID-19 was significantly associated with less positive or more negative emotions (median standardised $\beta=-0.171$, median SE=0.004, P0.05). Limitations: Reliance on self-reported data. Conclusions: Risk perception of COVID-19 was associated with emotion and ultimately mental health. Interventions on reducing excessive risk perception and managing emotional distress could promote mental health.

102) Hawke, L. D., Monga, S., Korczak, D., Hayes, E., Relihan, J., Darnay, K., Henderson, J. (2021). Impacts of the COVID-19 pandemic on youth mental health among youth with physical health challenges. *Early Intervention in Psychiatry*, 15(5), 1-8. doi: 10.1111/eip.13052.

Aim: To examine mental health in conjunction with physical health during the COVID-19 pandemic among youth with physical health conditions compared to those without. Methods: A cross-sectional survey of 622 youth aged 14 to 28 was conducted. Analyses were conducted to understand the changes in mental and physical health among youth in four groups: (a) participants with a friend or family member diagnosed with COVID-19, (b) participants with symptoms associated with COVID-19, (c) participants with atopic conditions (asthma and allergies), and (d) participants with other preexisting physical health conditions. Results: Many participants with physical health concerns met screening criteria for an internalizing disorder,

which was significantly higher than the rate found among participants without physical health conditions. Significantly greater declines in self reported mental health were observed during the COVID-19 period compared to 3 months earlier among youth reporting physical health concerns compared to those without physical health concerns. Substance use does not appear to have been affected. Conclusions: Mental health concerns are highly prevalent among youth with physical health concerns, and also appear to be exacerbated by the COVID-19 pandemic. Physical health concerns appear to constitute risk factors for heightened mental health responses to the pandemic situation. System planners striving to adapt mental health services to meet social/physical distancing recommendations are urged to consider youth with physical health conditions and ensure that adequate integrated mental health and physical health supports are available to them.

103) Hedima, E. W., Okoro, R. N., Yelmis, G. A., and Adam, H. (2022). Assessment of the impact of COVID-19 pandemic on the mental health and wellbeing of pharmacists: A nationwide survey. *Exploratory Research in Clinical and Social Pharmacy*, 5, 1-10. Retrieved from www.elsevier.com/locate/rcsop.

Objectives: To explore the impact of the COVID-19 pandemic and work on the mental health and wellbeing of pharmacists in Nigeria and investigate the risk of exhaustion, disengagement, burnout, and their associated factors. Methods: This was an online cross-sectional study among pharmacists that involved the use of mental health and wellbeing questionnaire including a 16-item OLBI questionnaire. Descriptive statistical analyses were performed to determine the study distribution. Chi-square test was used to compare categorical variables, while independent sample t-test and one-way ANOVA were used to compare the mean values of two and three groups, respectively. Tukey posthoc test was used to compare various practice settings based on significant factors, while a two-sided Dunnett t-test was used to compare between groups for other significant factors. A p-value less than 0.05 was considered statistically significant. Results: Of the 612 pharmacists invited to participate in the survey, 426 completed and submitted the questionnaire giving a response rate of 69.6%. The Cronbach's alpha for wellness and mental health survey instrument in our study population is 0.74, while the average Cronbach's alpha for a 16-item OLBI questionnaire is 0.62 in our study population. The high risk of exhaustion and disengagement were met by 75.6% and 77.2% of the respondents, respectively. Eighty-three respondents (19.5%) met thresholds for either high risk of exhaustion

or disengagement, while 66.2% had both a high risk of exhaustion and disengagement (burnout). Significant proportions of respondents with undergraduate pharmacy degree as the highest qualification obtained (70.6%, $p < 0.001$), in the hospital practice setting (62.8%, $p < 0.001$), and in full-time employment type (68.1%, $p = 0.004$) had the higher risk of burnout compared to their counterparts. Conclusion: The COVID-19 pandemic and work significantly impacted the mental health and wellbeing of a considerable proportion of the respondents. Burnout affects the majority of pharmacists in Nigeria and is linked to undergraduate pharmacy degrees as the highest qualification obtained, hospital practice settings, and full-time employment. Thus, mitigating strategies from employees, government, and organizations are recommended to help improve working conditions and promote the well-being of pharmacists in Nigeria.

104) Heyman, A., Garvey, S., Escobar, J. P. H., Orlas, C., Lamarre, T., Salim, A.,...Sanchez, S.E. (n.d.). The impact of the COVID-19 pandemic on functional and mental health outcomes after trauma. *The American Journal of Surgery*, 1-6. Retrieved from <http://www.elsevier.com/locate/amjsurg>.

Background: The COVID-19 pandemic has led to decreased access to care and social isolation, which have the potential for negative psychophysical effects. We examine the impact of the pandemic on physical and mental health outcomes after trauma. Methods: Patients in a prospective study were included. The cohort injured during the pandemic was compared to a cohort injured before the pandemic. We performed regression analyses to evaluate the association between the COVID-19 pandemic and physical and mental health outcomes. Results: 1,398 patients were included. In adjusted analysis, patients injured during the pandemic scored significantly worse on the SF-12 physical composite score (OR 2.21; [95% CI 0.69–3.72]; $P = 0.004$) and were more likely to screen positive for depression (OR 1.46; [1.02–2.09]; $P = 0.03$) and anxiety (OR 1.56; [1.08–2.26]; $P = 0.02$). There was no significant difference in functional outcomes. Conclusions: Patients injured during the COVID-19 pandemic had worse mental health outcomes but not physical health outcomes.

105) Holmes, E. A., O'Connor, R. C., Perry, V. H., Tracey, I., Wessely, S., Arseneault, L., Bullmore, E. (2020). Multidisciplinary research priorities for the COVID-19 pandemic: a call for

action for mental health science. *The Lancet Psychiatry*, 7 (6), 547-560. Retrieved from [https://doi.org/10.1016/S2215-0366\(20\)30168-1](https://doi.org/10.1016/S2215-0366(20)30168-1).

The coronavirus disease 2019 (COVID-19) pandemic is having a profound effect on all aspects of society, including mental health and physical health. We explore the psychological, social, and neuroscientific effects of COVID-19 and set out the immediate priorities and longer-term strategies for mental health science research. These priorities were informed by surveys of the public and an expert panel convened by the UK Academy of Medical Sciences and the mental health research charity, MQ: Transforming Mental Health, in the first weeks of the pandemic in the UK in March, 2020. We urge UK research funding agencies to work with researchers, people with lived experience, and others to establish a high level coordination group to ensure that these research priorities are addressed, and to allow new ones to be identified over time. The need to maintain high-quality research standards is imperative. International collaboration and a global perspective will be beneficial. An immediate priority is collecting high-quality data on the mental health effects of the COVID-19 pandemic across the whole population and vulnerable groups, and on brain function, cognition, and mental health of patients with COVID-19. There is an urgent need for research to address how mental health consequences for vulnerable groups can be mitigated under pandemic conditions, and on the impact of repeated media consumption and health messaging around COVID-19. Discovery, evaluation, and refinement of mechanistically driven interventions to address the psychological, social, and neuroscientific aspects of the pandemic are required. Rising to this challenge will require integration across disciplines and sectors, and should be done together with people with lived experience. New funding will be required to meet these priorities, and it can be efficiently leveraged by the UK's world-leading infrastructure. This Position Paper provides a strategy that may be both adapted for, and integrated with, research efforts in other countries.

106) Hossain, M. (2021). COVID-19 and gender differences in mental health in low- and middle-income countries: Young working women are more vulnerable. *SSM - Mental Health*, 1, 1-11. Retrieved from www.journals.elsevier.com/ssm-mental-health.

This study examines gender differences in the relationship between COVID-19-triggered economic hardship and mental health complaints, defined by self-reported anxiety/depression, of

young people (17–29) in four low- and middle-income countries (LMICs). To do this, we use two waves of the Young Lives (YL) phone survey. Logistic regression results show that young women, on average, were more likely to report anxiety than men in Peru and Vietnam in the first survey wave (June–July 2020). However, this disparity continued to persist in all four countries in the second wave (August–October 2020) as the pandemic prolonged. Notably, we find that young women that faced economic hardship by losing job or income were more likely to report anxiety than their male counterparts. As COVID-19 cases remain consistently high in many LMICs, which limit economic activities, the vulnerability of young women may likely increase. This issue requires urgent policy attention by awareness raising campaigns, more hotline services for emergency help, social security programs for women, and available women's sexual and reproductive health services at a specific section in hospitals.

107) Htay, M. N. N., Marzo, R. R., Bahari, R., AlRifai, A., Kamberi, F., Abasiri, R. A. E.,... Su, T. T. (2021). How healthcare workers are coping with mental health challenges during COVID-19 pandemic? - A cross-sectional multi-countries study. *Clinical Epidemiology and Global Health*, 11, 1-8. Retrieved from www.elsevier.com/locate/cegh.

Background: The coronavirus pandemic (COVID-19) has a social and psychological impact among healthcare workers worldwide and appropriate coping strategies are essential to avoid the negative mental health effects. This study aimed to investigate the coping strategies among the healthcare workers from different countries and their attitude towards teamwork during the COVID-19 pandemic. Methods: A cross-sectional study was conducted by using an online, web-based questionnaire, which was distributed to healthcare workers from 32 countries during April and May 2020. The respondents were recruited by the non-random convenience sampling method. Results: A total of 2166 respondents responded to the survey and the majority were working in low- and middle-income countries. Among them, 36% were doctors, 24% were nurses and 40% worked in other healthcare sectors. More than 70% of the respondents answered that “getting family support” and “positive thinking” were coping methods for them during the COVID-19 pandemic. Approximately half of the respondents worshiped according to their belief and conducted prayers (58.4%) and had adequate sleep and food intake (48.2%). The significant associations were observed between attitude score towards interprofessional teamwork and gender ($p = 0.009$), age (31–45 years) ($p < 0.001$), marital status ($p < 0.001$), occupation ($p <$

0.001), working experience (2–5 years) ($p = 0.005$), current workplace (clinics) ($p = 0.002$). Conclusion: The local healthcare authorities should promote coping methods and develop an innovative way to encourage practicing among healthcare workers. Digital mental health support interventions or workplace mental health support teams should be accessible to protect mental wellbeing among healthcare workers.

108) Hu, J., Zhang, Y., Xue, Q., Song, Y., Li, F., Lei, R., Qian, J. (2021). Early Mental Health and Quality of Life in Discharged Patients With COVID-19. *Frontiers in Public Health*, 9, 1-8. Retrieved from www.frontiersin.org

Aim: This study aimed to analyze the early mental health (MH) and quality of life (QoL) of discharged patients with coronavirus disease 2019 (COVID-19), which can provide a scientific basis for the further development of intervention programs. Methods: In total, 108 subjects participated in this study, including an experimental group (90 patients diagnosed with COVID-19 from March to April 2020 and hospitalized in Wuhan China Resources & WISCO General Hospital, Wuhan, China, 83.3%) and a control group (18 healthy participants, 16.7%). Their MH and QoL were measured through the 12-item Short Form Health Survey version 2 (SF-12v2), the Self-rating anxiety scale (SAS), the Self-rating depression scale (SDS), and the International Physical Activity Questionnaire (IPAQ). The results of questionnaires were compared between these two groups. Results: (1) Comparison of anxiety status: among 90 discharged patients with COVID-19, 30 patients (33.3%) had a state of anxiety. Compared with healthy participants and the general population, patients with COVID-19 in the early stages of discharge had a higher incidence of anxiety and more severe anxiety symptoms ($P < 0.05$). (2) Comparison of depression status: among 90 discharged patients with COVID-19, 29 patients (32.2%) had a state of depression. Compared with healthy participants and the general population, patients with COVID-19 in the early stages of discharge had a higher incidence of depression and more severe depression symptoms ($P < 0.05$). (3) Comparison of QoL: 78 patients (86.7%) presented a decrease in physical health-related quality of life (HRQoL) and 73 patients (81.1%) presented a decrease in psychology-related QoL. The SF-12v2 physical component summary (PCS) and the SF-12v2 mental component summary (MCS) of patients were significantly lower than those of healthy people, especially in physical function (PF), vitality (VT), social function (SF), and mental health (MH) (all $P < 0.05$). (4) Gender differences in mental health and the QoL among

patients with COVID-19: women had more severe anxiety/depression symptoms than men ($P < 0.05$). The scores of women in all dimensions of SF-12V2 were lower than those of men, and there were statistically significant differences between the two groups in PCS, PF, general health (GH), VT, and role-emotional (RE) ($P < 0.05$). Hu et al. Early Mental Health and QoL Conclusion: During the early phase after being discharged, patients with COVID19 might experience negative emotions, such as anxiety or depression, and also problems with reduced QoL, especially among female patients. Therefore, an intervention plan should focus on strengthening psychological condition and improving physical function, and gender-specific rehabilitation programmes should be adapted to improve psychological status and QoL.

109) Hussong, A. M., Midgette, A. J., Thomas, T. E., Coffman, J. L., and Cho, S. (2021). Coping and Mental Health in Early Adolescence during COVID-19. *Research on Child and Adolescent Psychopathology*, 49(9), 1113-1123. Retrieved from <https://doi.org/10.1007/s10802-021-00821-0>

The current longitudinal study examines changes in overall mental health symptomatology from before to after the COVID-19 outbreak in youth from the southeastern United States as well as the potential mitigating effects of self-efficacy, optimism, and coping. A sample of 105 parent–child dyads participated in the study (49% boys; 81% European American, 1% Alaska Native/American Indian, 9% Asian/Asian American; 4% Black/African American; 4% Latinx; and 4% other; 87% mothers; 25% high school graduate without college education; 30% degree from 4-year college; 45% graduate or professional school). Parents completed surveys when children were aged 6–9, 8–12, 9–13, and 12–16, with the last assessments occurring between May 13, 2020 and July 1, 2020 during the COVID-19 outbreak. Children also completed online surveys at ages 11–16 assessing self-efficacy, optimism, and coping. Multi-level modeling analyses showed a within-person increase in mental health symptoms from before to after the outbreak after controlling for changes associated with maturation. Symptom increases were mitigated in youth with greater self-efficacy and (to some extent) problem-focused engaged coping, and exacerbated in youth with greater emotion-focused engaged and disengaged coping. Implications of this work include the importance of reinforcing self-efficacy in youth during times of crisis, such as the pandemic, and the potential downsides of emotion focused coping as an early response to the crisis for youth.

110) Hutchison, S. M., Watts, A., Gadermann, A., Oberle, E., Oberlander, T. F., Lavoie, P. M., and Masse, L. C. (2022). School staff and teachers during the second year of COVID-19: Higher anxiety symptoms, higher psychological distress, and poorer mental health compared to the general population. *Journal of Affective Disorders Reports*, 8, 1-5. Retrieved from www.sciencedirect.com/journal/journal-of-affective-disorders-reports.

Background: The aim of this study was to: 1) assess mental health symptoms in Canadian school staff during the second year of the pandemic (Spring 2021) and compare these same outcomes to national representative samples, and 2: examine whether the number of hours of direct contact with students was a significant predictor of anxiety symptoms. Methods: Online data on anxiety symptoms, psychological distress, overall mental health, and demographic information was collected from 2,305 school staff in the greater Vancouver area between February 3 and June 18, 2021, as part of a seroprevalence study. Results: School staff reported significantly higher anxiety symptoms than a national representative survey in Spring 2021 and higher exposure contact time with students was significantly associated with anxiety symptoms, in addition to sex and age, but not level of education and ethnicity. School staff also reported poorer mental health and higher levels of psychological distress compared to pre-pandemic population measures. Limitations: Cross-sectional design, self-report measures. Conclusions: These results show that priorities to reduce mental health challenges are critical during a public health crisis, not only at the beginning, but also one year later. Ongoing proactive prevention and intervention strategies for school staff are warranted.

111)Jafri, M. R., Zaheer, A., Fatima, S., Saleem, T., and Sohail, A. (2022). Mental health status of COVID-19 survivors: a cross sectional study. *Virology Journal*, 19 (1), 1-5. Retrieved from <https://doi.org/10.1186/s12985-021-01729-3>.

Background: Coronavirus disease-19 (COVID-19) is a communicable disease caused by a virus named severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) Pandemics are associated with the high level of mental stress. In many countries, general people reported the high level of depression, anxiety, psychological distress, post-traumatic stress disorder during recent a pandemic. This study aims to investigate the mental health status of people who survived through this alarming situation of COVID-19. Methods: In this study, seventy

individuals (either gender) between the age of 18–60 years, who contracted COVID19 previously and then recovered as indicated by negative PCR results, were included. Data was collected by using three tools: impact of event scale (IES-R), patient health questionnaire-9(PHQ-9) and corona anxiety scale (CAS). People with other systemic/mental disorders, ongoing malignancies, upper/lower motor disorders and inability to give consent were excluded from the study. Results: Mean age of participants was 26.29+11.79. All the 70 responders suffered from COVID-19. Among these 23 (32.9%) were asymptomatic and 47(67.1%) had common symptoms related to COVID-19 53 (75.7%) responders also had symptoms post-recovery. Most of the people who suffered COVID-19 had mild depression. Twenty-nine participants (41.4%) reported the highest impact of this traumatic event on their mental health. After suffering from COVID19, 74.3% reported no anxiety as measured through corona anxiety scale (CAS). Conclusion: High level of post-traumatic stress was seen among participants who recovered from COVID-19, especially those patients who were symptomatic. Mild depression and anxiety were also noted among them.

112) Jakhar, J., Biswas, P. S., Kapoor, M., Panghal, A., Meena, A., Fani, H., and Kharya, P. (2021). Comparative study of the mental health impact of the COVID-19 pandemic on health care professionals in India. *Future Microbiology*, 16 (16), 1267–1276. doi: 10.2217/fmb-2021-0084.

Aims: This study aimed to investigate how the psychological health of health care professionals (HCP) on COVID duty was different from those who were not directly in contact. Methodology: Of 473 (76%) randomly selected respondents (doctors and nurses) to a WhatsApp request message, 450 subjects' data were finally analyzed. Result: The prevalence of stress, anxiety and depression among HCP was 33.8, 38.9 and 43.6%, respectively. Compared with non-exposed professionals, COVID-19-exposed professionals had roughly double the score of these morbidities ($t = 6.3, p < 0.001$; $t = 6.9, p < 0.001$; $t = 6.0, p < 0.001$). Most worry (71.11%) was about the health of their family, followed by themselves (35.55%). Conclusion: The level of exposure, feelings of uncertainty and fear of infection emerged in our study as possible risk factors for psychological morbidities among HCP.

113) Joaquina, R. M., Pintoa, A. L.C.B., Guatimosimd, R. F., Paulaa, J. J. d., Costaa, D. S., Diaz, A. P.,... Diniz, L. F. M. (2021). Bereavement and psychological distress during COVID-19 pandemics: The impact of death experience on mental health. *Current Research in Behavioral Sciences*, 2, 1-7. Retrieved from www.elsevier.com/locate/crbeha.

The COVID-19 pandemic has been a disturbing experience of proximity to death. As the pandemic goes on, the mixed experience of loss of a close family or friends added to the unpredictability of economic changes and the social isolation can elicit negative manifestations of affection, and psychological distress. The whole experience negatively affects individuals with or without previous mental health disorders. Objective: The present study is a cohort aimed to analyze the effect of the salience of mortality during the covid-19 pandemic on the mental health of a sample of the Brazilian population. Method: 9,024 Brazilians were evaluated based on the data collection performed through the online Brief Symptom Inventory (BSI), during the social isolation period. Participants were divided into four groups, G1 (2,256) without previous history of mental disorders (MD), G2 (2,256) with a previous history of MD and both no loss of family or friends due to direct effect of SARS-COV2 infection, G3 (2256) with a previous history of MD and without a loss and G4 (2256), with a prior MD and reported a loss of family or friend due to direct effect of SARS-COV2 infection. The group data was analyzed using the covariance analysis - ANCOVA. Results: The loss of a family member or friend due to direct effect of SARS-COV2 infection amplifies psychological distress. This effect seems to be dramatically increased in individuals with a previous history of mental disorders. The population with loss should be target of mitigation actions to minimize the pandemic effects.

114) Joensen, A., Danielsen, S., Andersen, P.K., Groot, J., and Larsen, K. S. (2022). The impact of the initial and second national COVID-19 lockdowns on mental health in young people with and without pre-existing depressive symptoms. *Journal of Psychiatric Research*, 149, 233-242. Retrieved from:// www.elsevier.com/locate/jpsychires.

Background: The evidence on mental health during COVID-19 evolved fast, but still little is known about the longlasting impact of the sequential lockdowns. We examine changes in young people's mental health from before to during the initial and second more prolonged lockdown, and whether women and those with pre-existing depressive symptoms were disproportionately

impacted. Methods: Participants reported on mental health indicators in an ongoing 18-year data collection in the Danish National Birth Cohort and in a COVID-19 survey, including 8 data points: 7 in the initial lockdown, and 1 year post. Changes in quality of life (QoL), mental well-being, and loneliness were estimated with random effect linear regressions on longitudinal data (N = 32,985), and linear regressions on repeated cross-sections (N = 28,579). Findings: Interim deterioration in mental well-being and loneliness was observed during the initial lockdown, and only in those without pre-existing depressive symptoms. During the second lockdown, a modest deterioration was again observed for mental well-being and loneliness. QoL likewise only declined among those without preexisting symptoms, where women showed a greater decline than men. QoL did not normalise during the initial lockdown and remained at lower levels during the second lockdown. These findings were not replicated in the repeated cross-sections. Interpretation: Except for an interim decrease in mental health, and only in those without pre-existing depressive symptoms, this study's findings do not suggest a substantial detrimental impact of the lockdowns.

115) Joshi, U., Khan, A., Muke, S., Choubey, S., Tugnawat, D., Naslund, J. A., and Bhan, A. (2021). Development and implementation of COVID-19 safety protocols for conducting a randomized trial in global mental health: Field report from Central India. *Asian Journal of Psychiatry*, 63, 1-5. Retrieved from www.elsevier.com/locate/ajp.

The COVID-19 pandemic impacted ongoing clinical trials globally resulting in the suspension, cancellation or transition to entirely remote implementation of studies. In India, the first countrywide lockdown was imposed in phases starting from March 2020 to June 2020, followed by a continued restriction on in-person activities including study procedures, which halted the ESSENCE (Enabling translation of science to Service to ENhance Depression CarE) trial activities such as recruitment, consenting, baseline assessment, digital training orientation, face to face training and end-line assessment evaluation. This situation made it imperative to amend procedures in order to mitigate the risk and address safety requirements for participants and the research team. This paper summarizes the need, development and implementation of the protocols focused on risk reduction and safety enhancement with an objective to resume and continue the research activities while ensuring the safety of study participants and research staff. These protocols are comprised of guidelines and recommendations based on existing literature

tailored according to different components in each arm of the trial such as guidelines for supervisors, travellers, training/recruitment venue safety procedures, individual safety procedures; and procedures to implement the study activities. These protocols can be adapted by researchers in other settings to conduct research trials during pandemics such as COVID-19.

116) Kelly, B. D., Drogin, E., McSherry, B., Donnelly, M. (2020). Mental health, mental capacity, ethics, and the law in the context of COVID-19 (coronavirus). *International Journal of Law and Psychiatry*, 73, 1-2. Retrieved from www.elsevier.com/locate/ijlawpsy.

The emergence of the COVID-19 (coronavirus) pandemic in late 2019 and early 2020 presented new and urgent challenges to mental health services and legislators around the world. This special issue of the *International Journal of Law and Psychiatry* explores mental health law, mental capacity law, and medical and legal ethics in the context of COVID-19. Papers are drawn from India, Australia, the United Kingdom, Ireland, Germany, Portugal, and the United States. Together, these articles demonstrate the complexity of psychiatric and legal issues prompted by COVID-19 in terms of providing mental health care, protecting rights, exercising decisionmaking capacity, and a range of other topics. While further work is needed in many of these areas, these papers provide a strong framework for addressing key issues and meeting the challenges that COVID-19 and, possibly, other outbreaks are likely to present in the future.

117) Kok, A. A. L., Pan, K.Y., Ottenheim, N. R., Jorg, F., Eikelenboom, M., Horsfall, M.,... Penninx, B.W.J.H. (2022). Mental health and perceived impact during the first Covid-19 pandemic year: A longitudinal study in Dutch case-control cohorts of persons with and without depressive, anxiety, and obsessive-compulsive disorders. *Journal of Affective Disorders*, 395, 85-93. Retrieved from [http:// www.elsevier.com/locate/jad](http://www.elsevier.com/locate/jad) .

Background: Little is known about the longer-term impact of the Covid-19 pandemic beyond the first months of 2020, particularly for people with pre-existing mental health disorders. Studies including pre-pandemic data from large psychiatric cohorts are scarce. Methods: Between April 2020 and February 2021, twelve successive online questionnaires were distributed among participants of the Netherlands Study of Depression and Anxiety, Netherlands Study of Depression in Older Persons, and Netherlands Obsessive Compulsive Disorder Association

Study (N = 1714, response rate 62%). Outcomes were depressive symptoms, anxiety, worry, loneliness, perceived mental health impact of the pandemic, fear of Covid-19, positive coping, and happiness. Using linear mixed models, we compared trajectories between subgroups with different pre-pandemic chronicity of disorders and healthy controls. Results: Depressive, anxiety and worry symptoms were stable since April–May 2020 whereas happiness slightly decreased. Furthermore, positive coping steadily decreased and loneliness increased - exceeding pre-Covid and April–May 2020 levels. Perceived mental health impact and fear of Covid-19 fluctuated in accordance with national Covid-19 mortality rate changes. Absolute levels of all outcomes were poorer with higher chronicity of disorders, yet trajectories did not differ among subgroups. Limitations: The most vulnerable psychiatric groups may have been underrepresented and results may not be generalizable to lower income countries. Conclusions: After a year, levels of depressive and worry symptoms remained higher than before the pandemic in healthy control groups, yet not in psychiatric groups. Nevertheless, persistent high symptoms in psychiatric groups and increasing loneliness in all groups are specific points of concern for mental health care professionals.

118) Kola, L., Kohrt, B. A., Hanlon, C., Naslund, J. A., Sikander, S., Balaji, M., Patel, V. (2021). COVID-19 mental health impact and responses in low-income and middle-income countries: reimagining global mental health. *The Lancet Psychiatry*, 8 (6), 535-550. Retrieved from [https://doi.org/10.1016/S2215-0366\(21\)00025-0](https://doi.org/10.1016/S2215-0366(21)00025-0).

Most of the global population live in low-income and middle-income countries (LMICs), which have historically received a small fraction of global resources for mental health. The COVID-19 pandemic has spread rapidly in many of these countries. This Review examines the mental health implications of the COVID-19 pandemic in LMICs in four parts. First, we review the emerging literature on the impact of the pandemic on mental health, which shows high rates of psychological distress and early warning signs of an increase in mental health disorders. Second, we assess the responses in different countries, noting the swift and diverse responses to address mental health in some countries, particularly through the development of national COVID-19 response plans for mental health services, implementation of WHO guidance, and deployment of digital platforms, signifying a welcome recognition of the salience of mental health. Third, we consider the opportunity that the pandemic presents to reimagine global mental health, especially

through shifting the balance of power from high-income countries to LMICs and from narrow biomedical approaches to community-oriented psychosocial perspectives, in setting priorities for interventions and research. Finally, we present a vision for the concept of building back better the mental health systems in LMICs with a focus on key strategies; notably, fully integrating mental health in plans for universal health coverage, enhancing access to psychosocial interventions through task sharing, leveraging digital technologies for various mental health tasks, eliminating coercion in mental health care, and addressing the needs of neglected populations, such as children and people with substance use disorders. Our recommendations are relevant for the mental health of populations and functioning of health systems in not only LMICs but also high-income countries impacted by the COVID-19 pandemic, with wide disparities in quality of and access to mental health care.

119) Lange, K. W. (2021). Coronavirus disease 2019 (COVID-19) and global mental health. *Global Health Journal*, 5 (1), 31-36. Retrieved from <https://www.keaipublishing.com/en/journals/global-health-journal/>.

The mental health effects of the coronavirus disease 2019 (COVID-19) pandemic may shape population health for many years to come. Failure to address the mental health issues stemming from the pandemic is likely to prolong its impact. The COVID-19 pandemic has created a significant global challenge and, in lower-income countries, even a disruption of mental health services. Given our experience with previous pandemics, the present COVID19 crisis can be expected to cause psychological trauma, and steps are needed to address this issue proactively. Policies focusing on the long-term mental health consequences of COVID-19 may equal the importance of those currently seeking to mitigate its physical effects. The implications of the COVID-19 pandemic for mental health call for a greater focus on the needs of those with mental disorders and on mental health issues affecting health care workers and the general public. Timely preventive and therapeutic mental health care is essential in addressing the psychosocial needs of populations exposed to the pandemic. In addition to specialist care, “task-shifting” and digital technologies may provide cost-effective means of providing mental health care in lower-income countries worldwide as well as in higher-income countries with mental health services overwhelmed by the effects of the COVID-19 pandemic. In view of the ever-increasing pressure on global health systems resulting from the COVID-19 pandemic, adopting and adapting “task-

shifting”, i.e., the delegation of psychotherapeutic interventions to trained non-specialists, as an element of the provision of mental health services, is overdue. Digital technologies can be used to enhance social support and facilitate resilience to the detrimental mental health effects of the pandemic; they may also offer an efficient and cost-effective way to provide easy access to mental health care.

120) Langhammer, T., Hilbert, K., Praxl, B., Kirschbaum, C., Ertle, A., Asbrand, J., and Lueken, U. (2021). Mental health trajectories of individuals and families following the COVID-19 pandemic: Study protocol of a longitudinal investigation and prevention program. *Mental Health & Prevention*, 24, 1-10. Retrieved from www.elsevier.com/locate/mhp.

Introduction: Many adults, adolescents and children are suffering from persistent stress symptoms in the face of the COVID-19 pandemic. This study aims to characterize long-term trajectories of mental health and to reduce the transition to manifest mental disorders by means of a stepped care program for indicated prevention. Methods and analysis: Using a prospective-longitudinal design, we will assess the mental strain of the pandemic using the Patient Health Questionnaire, Strength and Difficulties Questionnaire and Spence Child Anxiety Scale. Hair samples will be collected to assess cortisol as a biological stress marker of the previous months. Additionally, we will implement a stepped-care program with online- and face-to-face-interventions for adults, adolescents, and children. After that we will assess long-term trajectories of mental health at 6-, 12-, and 24-months follow-up. The primary outcome will be psychological distress (depression, anxiety and somatoform symptoms). Data will be analyzed with general linear model and machine learning. This study will contribute to the understanding of the impact of the COVID-19 pandemic on mental health. The evaluation of the stepped-care program and longitudinal investigation will inform clinicians and mental health stakeholders on populations at risk, disease trajectories and the sufficiency of indicated prevention to ameliorate the mental strain of the pandemic.

121) Lee, J.O., Kapteyn, A., Clomax, A., Jin, H. (2021). Estimating influences of unemployment and underemployment on mental health during the COVID-19 pandemic: who suffers the most?. *Public Health*, 201, 48-54. Retrieved from www.elsevier.com/locate/puhe.

Objectives: The aim of the study was to evaluate whether unemployment and underemployment are associated with mental distress and whether employment insecurity and its mental health consequences are disproportionately concentrated among specific social groups in the United States during the COVID19 pandemic. Study design: This is a population-based longitudinal study. Methods: Data came from the Understanding America Study, a population-based panel in the United States. Between April and May 2020, 3548 adults who were not out of the labor force were surveyed. Analyses using targeted maximum likelihood estimation examined the association of employment insecurity with depression, assessed using the 2-item Patient Health Questionnaire, and anxiety, measured with the 2-item Generalized Anxiety Disorder scale. Stratified models were evaluated to examine whether employment insecurity and its mental health consequences are disproportionately concentrated among specific social groups. Results: Being unemployed or underemployed was associated with increased odds of having depression (adjusted odds ratio [AOR] ¼ 1.66, 95% confidence interval [CI] ¼ 1.36e2.02) and anxiety (AOR ¼ 1.50, 95% CI ¼ 1.26, 1.79), relative to having a full-time job. Employment insecurity was disproportionately concentrated among Hispanics (54.3%), Blacks (60.6%), women (55.9%), young adults (aged 18e29 years; 57.0%), and those without a college degree (62.7%). Furthermore, Hispanic workers, subsequent to employment insecurity, experienced worse effects on depression (AOR ¼ 2.08, 95% CI ¼ 1.28, 3.40) and anxiety (AOR ¼ 1.95, 95% CI ¼ 1.24, 3.09). Those who completed high school or less reported worse depression subsequent to employment insecurity (AOR ¼ 2.44, 95% CI ¼ 1.55, 3.85). Conclusions: Both unemployment and underemployment threaten mental health during the pandemic, and the mental health repercussions are not felt equally across the population. Employment insecurity during the pandemic should be considered an important public health concern that may exacerbate preexisting mental health disparities during and after the pandemic.

122) Liu, Q., Liu, Z., Lin, S., Zhao, P. (2022). Perceived accessibility and mental health consequences of COVID-19 containment policies. *Journal of Transport & Health*, 25, 1-12. Retrieved from [http:// www.elsevier.com/locate/jth](http://www.elsevier.com/locate/jth).

Background: Individuals have experienced various degrees of accessibility loss during the COVID19 pandemic, which may consequently have influenced their mental health. Although efforts have been made to understand the mental health consequences of the pandemic and

corresponding containment measures, the impacts of accessibility loss remain underexplored. Methods: Based on 186 family interviews, a 569-respondent panel survey was designed and distributed monthly from February to October 2020 in Kunming, China. A 3-wave cross-lagged panel model was developed to understand the causal relationship between mental health and perceived accessibility of daily necessities, key services, and social activities. Results: Goodness-of-fit indicators imply that the hypothesised model fits the observed data well: $\chi^2 / df = 2.221$, AGFI = 0.910, NFI = 0.907, CFI = 0.933, RMSEA = 0.052. The results indicate that perceived accessibility of daily necessities and social activities had lagged effects on mental health status. The within-wave effects show that perceived accessibility of daily necessities (0.619, $p < 0.01$) and social activities (0.545, $p < 0.01$) significantly influenced respondents' mental health during the peak of the pandemic whilst perceived accessibility of social activities dominantly influenced their mental health after restrictions were lifted (0.779, $p < 0.01$). Perceived accessibility of public services such as healthcare did not significantly influence respondents' mental health in any wave. COVID-19 containment policies had different mental outcomes across population groups. Disadvantaged people experienced mental health issues due to accessibility loss for daily necessities and social activities until the lifting of compulsory QRcode-for-buses, whilst better-off populations had better mental health during the early phase of the outbreak and rapidly recovered their mental health after mobility restrictions eased. Conclusion: Reduced perceived accessibility of daily necessities and social activities may be an underlying cause of mental health problems. Relative accessibility deprivation exacerbated mental health inequities during the COVID-19 pandemic.

123) Liu, X., Zhu, M., Zhang, R., Zhang, J., Zhang, C., Liu, P., and Chen, Z. (2021). Public mental health problems during COVID-19 pandemic: a large-scale meta-analysis of the evidence. *Translational Psychiatry*, 11 (1), 1-10. Retrieved from <https://doi.org/10.1038/s41398-021-01501-9>.

The coronavirus disease 2019 (COVID-19) pandemic has exposed humans to the highest physical and mental risks. Thus, it is becoming a priority to probe the mental health problems experienced during the pandemic in different populations. We performed a meta-analysis to clarify the prevalence of post pandemic mental health problems. Seventy-one published papers ($n = 146,139$) from China, the United States, Japan, India, and Turkey were eligible to be

included in the data pool. These papers reported results for Chinese, Japanese, Italian, American, Turkish, Indian, Spanish, Greek, and Singaporean populations. The results demonstrated a total prevalence of anxiety symptoms of 32.60% (95% confidence interval (CI): 29.10–36.30) during the COVID-19 pandemic. For depression, a prevalence of 27.60% (95% CI: 24.00–31.60) was found. Further, insomnia was found to have a prevalence of 30.30% (95% CI: 24.60–36.60). Of the total study population, 16.70% (95% CI: 8.90–29.20) experienced post-traumatic stress disorder (PTSD) symptoms during the COVID-19 pandemic. Subgroup analysis revealed the highest prevalence of anxiety (63.90%) and depression (55.40%) in confirmed and suspected patients compared with other cohorts. Notably, the prevalence of each symptom in other countries was higher than that in China. Finally, the prevalence of each mental problem differed depending on the measurement tools used. In conclusion, this study revealed the prevalence of mental problems during the COVID-19 pandemic by using a fairly large-scale sample and further clarified that the heterogeneous results for these mental health problems may be due to the non-standardized use of psychometric tools.

124) Magnúsdóttir, I., Lovik, A., Unnarsdóttir, A. B., McCartney, D., Ask H., Kõiv, K., Valdimarsdóttir, U. A. (2022). Acute COVID-19 severity and mental health morbidity trajectories in patient populations of six nations: an observational study. *The Lancet Public Health*, 7 (5), e406-e416. Retrieved from [https://doi.org/10.1016/S2468-2667\(22\)00042-1](https://doi.org/10.1016/S2468-2667(22)00042-1).

Background Long-term mental and physical health consequences of COVID-19 (long COVID) are a persistent public health concern. Little is still known about the long-term mental health of non-hospitalised patients with COVID-19 with varying illness severities. Our aim was to assess the prevalence of adverse mental health symptoms among individuals diagnosed with COVID-19 in the general population by acute infection severity up to 16 months after diagnosis. Methods This observational follow-up study included seven prospectively planned cohorts across six countries (Denmark, Estonia, Iceland, Norway, Sweden, and the UK). Participants were recruited from March 27, 2020, to Aug 13, 2021. Individuals aged 18 years or older were eligible to participate. In a cross-sectional analysis, we contrasted symptom prevalence of depression, anxiety, COVID-19-related distress, and poor sleep quality (screened with validated mental health instruments) among individuals with and without a diagnosis of COVID-19 at entry, 0–16 months from diagnosis. In a cohort analysis, we further used repeated measures to estimate the

change in mental health symptoms before and after COVID-19 diagnosis. Findings The analytical cohort consisted of 247249 individuals, 9979 (4.0%) of whom were diagnosed with COVID-19 during the study period. Mean follow-up was 5.65 months (SD 4.26). Participants diagnosed with COVID-19 presented overall with a higher prevalence of symptoms of depression (prevalence ratio [PR] 1.18 [95% CI 1.03–1.36]) and poorer sleep quality (1.13 [1.03–1.24]) but not symptoms of anxiety (0.97 [0.91–1.03]) or COVID-19-related distress (1.05 [0.93–1.20]) compared with individuals without a COVID-19 diagnosis. Although the prevalence of depression and COVID-19-related distress attenuated with time, individuals diagnosed with COVID-19 but never bedridden due to their illness were consistently at lower risk of depression (PR 0.83 [95% CI 0.75–0.91]) and anxiety (0.77 [0.63–0.94]) than those not diagnosed with COVID-19, whereas patients who were bedridden for more than 7 days were persistently at higher risk of symptoms of depression (PR 1.61 [95% CI 1.27–2.05]) and anxiety (1.43 [1.26–1.63]) than those not diagnosed throughout the study period. Interpretation Severe acute COVID-19 illness—indicated by extended time bedridden—is associated with long-term mental morbidity among recovering individuals in the general population. These findings call for increased vigilance of adverse mental health development among patients with a severe acute disease phase of COVID-19.

125) Manchia, M., Gathier, A. W., Esere, H. Y., Schmidt, M. V., Quervain, D. D., Amelsvoort, T.V.,... Vinkers, C. H. (2022). The impact of the prolonged COVID-19 pandemic on stress resilience and mental health: A critical review across waves. *European Neuropsychopharmacology*, 55, 22-83. Retrieved from <http://www.elsevier.com/locate/euroneuro>.

The global public health crisis caused by COVID-19 has lasted longer than many of us would have hoped and expected. With its high uncertainty and limited control, the COVID-19 pandemic has undoubtedly asked a lot from all of us. One important central question is: how resilient have we proved in face of the unprecedented and prolonged coronavirus pandemic? There is a vast and rapidly growing literature that has examined the impact of the pandemic on mental health both on the shorter (2020) and longer (2021) term. This not only concerns pandemic-related effects on resilience in the general population, but also how the pandemic has challenged stress resilience and mental health outcomes across more specific vulnerable

population groups: patients with a psychiatric disorder, COVID-19 diagnosed patients, health care workers, children and adolescents, pregnant women, and elderly people. It is challenging to keep up to date with, and interpret, this rapidly increasing scientific literature. In this review, we provide a critical overview on how the COVID-19 pandemic has impacted mental health and how human stress resilience has been shaped by the pandemic on the shorter and longer term. The vast literature is dominated by a wealth of data which are, however, not always of the highest quality and heavily depend on online and self-report surveys. Nevertheless, it appears that we have proven surprisingly resilient over time, with fast recovery from COVID-19 measures. Still, vulnerable groups such as adolescents and health care personnel that have been severely impacted by the COVID-19 pandemic do exist. Large interindividual differences exist, and for future pandemics there is a clear need to comprehensively and integratively assess resilience from the start to provide personalized help and interventions tailored to the specific needs for vulnerable groups.

126) Marazziti, D., Cianconi, P., Mucci, F., Foresi, L., Chiarantini, I., and Vecchia, A. D. (2021). Climate change, environment pollution, COVID-19 pandemic and mental health. *Science of the Total Environment*, 773, 1-15. Retrieved from [http:// www.elsevier.com/locate/scitotenv](http://www.elsevier.com/locate/scitotenv)

Converging data would indicate the existence of possible relationships between climate change, environmental pollution and epidemics/pandemics, such as the current one due to SARS-CoV-2 virus. Each of these phenomena has been supposed to provoke detrimental effects on mental health. Therefore, the purpose of this paper was to review the available scientific literature on these variables in order to suggest and comment on their eventual synergistic effects on mental health. The available literature report that climate change, air pollution and COVID-19 pandemic might influence mental health, with disturbances ranging from mild negative emotional responses to full-blown psychiatric conditions, specifically, anxiety and depression, stress/trauma-related disorders, and substance abuse. The most vulnerable groups include elderly, children, women, people with pre-existing health problems especially mental illnesses, subjects taking some types of medication including psychotropic drugs, individuals with low socio-economic status, and immigrants. It is evident that COVID-19 pandemic uncovers all the fragility and weakness of our ecosystem, and inability to protect ourselves from pollutants. Again, it underlines our faults and neglect towards disasters deriving from climate change or

pollution, or the consequences of human activities irrespective of natural habitats and constantly increasing the probability of spillover of viruses from animals to humans.

127) Marroquín, B., Vine, V., Morgan, R. (2020). Mental health during the COVID-19 pandemic: Effects of stay-at-home policies, social distancing behavior, and social resources. *Psychiatry Research*, 293, 1-9. Retrieved from www.elsevier.com/locate/psychres.

Social distancing is the most visible public health response to the COVID-19 pandemic, but its implications for mental health are unknown. In a nationwide online sample of 435 U.S. adults, conducted in March 2020 as the pandemic accelerated and states implemented stay-at-home orders, we examined whether stay-at-home orders and individuals' personal distancing behavior were associated with symptoms of depression, generalized anxiety disorder (GAD), intrusive thoughts, insomnia, and acute stress. Stay-at-home order status and personal distancing were independently associated with higher symptoms, beyond protective effects of available social resources (social support and social network size). A subsample of 118 participants who had completed symptom measures earlier in the outbreak (February 2020) showed increases in depression and GAD between February and March, and personal distancing behavior was associated with these increases. Findings suggest that there are negative mental health correlates of social distancing, which should be addressed in research, policy, and clinical approaches to the COVID-19 pandemic.

128) Martin, M., Saltzman, L. Y., Henry, V., Broussard, C., and Hansel, T.C. (2021). Mental health and well-being for aging adults during the COVID-19 pandemic. *Aging & Mental Health*, 1-11. Retrieved from <https://doi.org/10.1080/13607863.2021.1963950>.

Introduction: The COVID-19 pandemic remains a significant mental health crisis. Although empirical research works to better understand the impact of COVID-19 on the mental health of the general population, some groups remain at greater risk for adverse mental health consequences. The purpose of this study is to better understand how COVID-19 experiences, food insecurities, and social support are associated with mental health and well-being for aging populations. Methods: Data collection began April 1, 2020 and continued through May 22, 2020. Study participants were recruited via website and media promotion and completed an anonymous survey. A sample of adults age 50years and older (N=136) were selected for the current analysis.

Measures included scales of anxiety, depression, resilience, quality of life, COVID-19 experiences, interdependence, and insecurities. Three stepwise linear regression models were conducted using forward selection were estimated. Results: The first model found food insecurity, community closeness, and COVID-19 experiences predicted 23% of the variance in mental health. The second model found having enough money to meet needs, COVID-19 interdependence, and age predicted 20% of the variance in resilience. The final model found having enough money to meet needs, COVID-19 experiences, community closeness, and information access predicted 45% of the variance in quality of life. Discussion: Our discussion highlights the role of COVID-19 experiences, tangible resource losses, and community connection in mental health outcomes for aging populations during COVID-19. We suggest areas of future research and highlight the important role of technology in both scholarship and practice.

129) Martínez, J. C., Carbonell, B.A., Mota, J.C., Bascaran', T. B., Facorro, B. C., Esteban, C.,... Martínez, V. B. (2021). Lifestyle changes and mental health during the COVID-19 pandemic: A repeated, cross-sectional web survey. *Journal of Affective Disorders*, 295, 173-182. Retrieved from www.elsevier.com/locate/jad.

Background: This study aimed to compare self-reported changes on lifestyle behaviors during two phases of the COVID-19 pandemic in Spain, and to evaluate clinical and sociodemographic factors associated with lifestyles. Methods: Two cross-sectional web surveys were conducted during lockdown (April 15-May 15, 2020) and seven months later (November 16-December 16, 2020). Lifestyle behaviors were self-reported by a multidimensional scale (SMILE-C). Two separate samples of respondents were analyzed. A multivariate regression model was performed to evaluate the association of SMILE-C scores with demographic and clinical variables. Results: The sample comprised, 3412 participants from the first survey (S1) and in the S1 and 3635 from the second (S2). SMILE-C score decreased across surveys ($p < 0.001$). The rates of positive screenings for depression and anxiety were similar between the surveys, whereas those for alcohol abuse decreased ($p < 0.001$). Most participants in S2 reported that their lifestyle had not changed compared to those before the pandemic. Variables independently associated with an unhealthier lifestyle were working as an essential worker, lower educational level, previous mental disease, worse self-rated health, totally/moderate changes on diet, sleep or social support,

as well as positive screenings for alcohol abuse, anxiety and depression. Limitations: The cross-sectional design and recruitment by non-probabilistic methods limit inferring causality and the external validity of the results.

130) Masand, P., Patkar A., Tew, C., Hoerner, A., Szabo, S. T., and Gupta, S. (2021). Mental Health and COVID-19: Challenges and Multimodal Clinical Solutions. *Journal of Psychiatric Practice*, 27(4), 254-264. Doi: 10.1097/PRA.0000000000000560.

The Coronavirus Disease 2019 (COVID-19) pandemic has led to an exponential rise in mental health issues. Studies have shown that, in times of increased unemployment rates and economic downturn, rates of mental health issues, suicide, substance use, and domestic violence tend to increase. Barriers to care, including stigma and decreased access to providers, contribute to morbidity and mortality. Telehealth services are being utilized to help increase access to care, and economic stimulus packages have been created to help with the financial burden that is often associated with increased mental health stressors. Efforts to prevent burnout and other policy recommendations can help decrease mental health issues in first responders and health care professionals, who are at an increased risk for these problems. Increasing the ability to provide wellness screenings to the general population, to educate the public about preventive measures and practices, and to provide mental health and substance use treatment, such as medication management and therapy services, are among top priorities to further reduce the socioeconomic impact of COVID-19 on mental illness.

131) Masters, G. A., Asipenko, E., Bergman, A. L., Person, S. D., Brenckle, L., Simas, T. A. M., Byatt, N. (2021). Impact of the COVID-19 pandemic on mental health, access to care, and health disparities in the perinatal period. *Journal of Psychiatric Research*, 137, 126-130. Retrieved from www.elsevier.com/locate/jpsychires.

Background: The COVID-19 pandemic has affected mental health and created barriers to healthcare. In this study, we sought to elucidate the pandemic's effects on mental health and access to care for perinatal individuals. Methods: This cross-sectional study of individuals in Massachusetts who were pregnant or up to three months postpartum with a history of depressive symptoms examined associations between demographics and psychiatric symptoms (via validated mental health screening instruments) and the COVID-19 pandemic's effects on mental

health and access to care. Chi-square associations and multivariate regression models were used. Results: Of 163 participants, 80.8% perceived increased symptoms of depression and 88.8% of anxiety due to the pandemic. Positive screens for depression, anxiety, and/or PTSD at time of interview, higher education, and income were associated with increased symptoms of depression and anxiety due to the pandemic. Positive screens for depression, anxiety, and/or PTSD were also associated with perceived changes in access to mental healthcare. Compared to non-Hispanic White participants, participants of color (Black, Asian, Multiracial, and/or Hispanic/Latinx) were more likely to report that the pandemic changed their mental healthcare access (aOR:3.25, 95%CI:1.23, 8.59). Limitations: Limitations included study generalizability, given that participants have a history of depressive symptoms, and cross-sectional design. Conclusions: The pandemic has increased symptoms of perinatal depression and anxiety and impacted perceived access to care. Self-reported increases in depression and anxiety and changes to healthcare access varied by education, race/ethnicity, income, and positive screens. Understanding these differences is important to address perinatal mental health and provide equitable care.

132) Mazza, M. G., Palladini, M., Lorenzo, R. D., Bravi, B., Poletti, S., Furlan, R., Benedetti, F. (2022). One-year mental health outcomes in a cohort of COVID-19 survivors. *Journal of Psychiatric Research*, 145, 118-124. Retrieved from www.elsevier.com/locate/jpsychires.

COVID-19 survivors are at increased risk of persistent psychopathology after the infection. Despite long-term sequelae are an increasing concern, long-term neuropsychiatric consequences remain largely unclear. This cohort study aimed at investigating the psychopathological impact of COVID-19 in Italy one year after infection, outlining the trajectory of symptomatology at one, six-, and twelve-months follow-up. We evaluated 402, 216, and 192 COVID-19 survivors respectively at one, six, and 12 months. A subgroup of 95 patients was evaluated longitudinally both at one, six, and 12 months. Validated self-report questionnaires were administered to assess depression, fatigue, anxiety, and post-traumatic distress. Socio-demographics and setting of care information were gathered for each participant. At six and twelve months, respectively 94 (44%) and 86 (45%) patients self-rated in the clinical range in at least one psychopathological dimension. Pathological fatigue at twelve months was detected in 63 patients (33%). Considering the longitudinal cohort an interaction effect of sex and time was observed for depression ($F =$

8.63, $p < 0.001$) and anxiety ($F = 5.42$, $p = 0.005$) with males showing a significant increasing trend of symptoms, whereas an opposite course was observed in females. High prevalence of psychiatric sequelae six and 12 months after COVID-19 was reported for the first time. These findings confirm the need to provide integrated multidisciplinary services to properly address long-lasting mental health sequelae of COVID-19 and to treat them with the aim of reducing the disease burden and related years of life lived with disability.

133) Middleton, R., Loveday, C., Hobbs, C., Almasi, E., Moxham, L., Green H., Fernandez, R. (2021). The COVID-19 pandemic – A focus on nurse managers' mental health, coping behaviours and organisational commitment. *Collegian*, 28, 703-708. Retrieved from <http://www.elsevier.com/locate/colegn>.

Background: The emergence of COVID-19 has substantially impacted frontline health care workers, including nurse managers. To date, no studies have been conducted to examine the impact COVID-19 has had on Nurse Managers' mental health, coping strategies and organisational commitment. Aim: To investigate the mental health, coping behaviours, and organisational commitment among Nurse Managers during the COVID-19 pandemic. Methods: Cross-sectional study involving 59 Nursing Managers from one Local Health District in Sydney Australia during the first wave of the COVID-19 pandemic. Data were collected relating to demographics, anxiety, coping strategies and organisational commitment. Results: Overall, approximately three quarters of the Nurse Managers had high anxiety scores. Managers who had worked longer as a nurse had higher scores for adaptive coping strategies and 41% of Nurse Managers considered leaving their jobs. Conclusions: Strategies to minimise anxiety and enable coping as part of organisational disaster, emergency or crisis planning for Nurse Managers may result in decreased anxiety and stress levels, increased use of adaptive coping strategies and lower intent to leave the organisation and the nursing profession.

134) Miller, A. E., Mehak, A., Trolio, V., and Racine, S. E. (2021). Impact of the COVID-19 pandemic on the psychological health of individuals with mental health conditions: A mixed methods study. *Journal of Clinical Psychology*, 78 (4), 710-728. Retrieved from <https://doi.org/10.1002/jclp.23250>.

Objectives: This study explored how the coronavirus disease 2019 (COVID-19) pandemic has affected individuals with mental health conditions. Methods: Participants were 477 adults (82% female) who reported a past-year mental health condition. They completed an online survey that included an open-ended question. Mixed methods analysis was conducted. Results: While all mental health conditions were moderately impacted by the COVID-19 pandemic, self-reported impact on anxiety disorder and obsessive-compulsive disorder symptoms was greater than for all other mental health symptoms. Thematic analysis revealed five themes: (1) the contribution of the pandemic to worsening mental health; (2) life interruptions due to the pandemic; (3) increased loneliness/isolation; (4) upsides of the pandemic; and (5) normalization of the anxieties previously experienced by those with mental health conditions. Conclusion: Individuals with pre-existing mental health conditions reported a worsening of symptoms during the COVID-19 pandemic. Governments and organizations must focus on supporting and increasing access to treatment for this population.

135) Moreno, C., Wykes, T., Galderisi, S., Nordentoft, M., Crossley, N., Jones, N., Arango, C. (2020). How mental health care should change as a consequence of the COVID-19 pandemic. *The Lancet Psychiatry*, 7 (9), 813-824. Retrieved from [https://doi.org/10.1016/S2215-0366\(20\)30307-2](https://doi.org/10.1016/S2215-0366(20)30307-2).

The unpredictability and uncertainty of the COVID-19 pandemic; the associated lockdowns, physical distancing, and other containment strategies; and the resulting economic breakdown could increase the risk of mental health problems and exacerbate health inequalities. Preliminary findings suggest adverse mental health effects in previously healthy people and especially in people with pre-existing mental health disorders. Despite the heterogeneity of worldwide health systems, efforts have been made to adapt the delivery of mental health care to the demands of COVID-19. Mental health concerns have been addressed via the public mental health response and by adapting mental health services, mostly focusing on infection control, modifying access to diagnosis and treatment, ensuring continuity of care for mental health service users, and paying attention to new cases of mental ill health and populations at high risk of mental health problems. Sustainable adaptations of delivery systems for mental health care should be developed by experts, clinicians, and service users, and should be specifically designed to mitigate disparities in health-care provision. Thorough and continuous assessment of health and

service-use outcomes in mental health clinical practice will be crucial for defining which practices should be further developed and which discontinued. For this Position Paper, an international group of clinicians, mental health experts, and users of mental health services has come together to reflect on the challenges for mental health that COVID-19 poses. The interconnectedness of the world made society vulnerable to this infection, but it also provides the infrastructure to address previous system failings by disseminating good practices that can result in sustained, efficient, and equitable delivery of mental health-care delivery. Thus, the COVID-19 pandemic could be an opportunity to improve mental health services.

136) Morganstein, J. C. (2022). Preparing for the Next Pandemic to Protect Public Mental Health: What Have We Learned from COVID-19?. *Psychiatric Clinics of North America*, 45 (1), 191-210. Retrieved from <https://doi.org/10.1016/j.psc.2021.11.012>.

The COVID-19 pandemic is an unprecedented global disaster that has killed 5,203,000 people to date, having an impact on nearly all sectors of society. The public's experience of the pandemic has been altered by the collision of multiple disasters: civil unrest, racial inequity, economic crises, political strife, and other events, such as hurricanes, floods, and mass violence. These events pull at the fault lines of communities and amplify distress, mistrust, and uncertainty, altering how these events are experienced. Addressing public mental health needs involves an understanding of where risk is concentrated and how it changes over time to allow for more timely and tailored interventions that are altered to meet current and evolving needs. In disasters, certain populations bear a disproportionate burden of risk. For instance, in COVID-19, health care workers have experienced prolonged threats to health and safety for themselves and their families as well as exposure to death and dying. People of color became sicker and died with greater frequency, with black and Hispanic citizens experiencing a 3-fold greater reduction in life expectancy than whites, directly resulting from the COVID-19 pandemic.

137) Mukherjee, A., Bandopadhyay, G., and Chatterjee, S.S. (2021). COVID-19 pandemic: mental health and beyond – the Indian perspective. *Irish Journal of Psychological Medicine*, 38(2), 140-144. doi: 10.1017/ipm.2020.63.

India is a de facto continent in the garb of a country. COVID-19 is an unprecedented global pandemic spanning continents. Being the second most populous country in the world, experts regard how India deals with the outbreak will have enormous impact on the world's ability to deal with it. The country has been in lockdown since March 25, 2020 until the current time of early May 2020, and despite several challenges, there has been early success. The major conflict now is the health benefits weighed up against the deleterious social and economic consequences of prolonged lockdown, that is, life versus livelihood. This unprecedented calamity could potentially cause or exacerbate various psychiatric disorders. It is recognized that lifestyle changes and limited screen time may help reduce mental health difficulties. Considering the physical barriers to consultation, development of telemedicine services is needed. This pandemic, like other previous pandemics, will pass, and until this happens, we must remain extremely vigilant.

138) Mukherjee, M., Maity, C., and Chatterjee, S. (2021). Media use pattern as an indicator of mental health in the COVID-19 pandemic: Dataset from India. *Data in Brief*, 34, 1-8. Retrieved from www.elsevier.com/locate/dib.

This article presents data on the media use pattern of respondents with different degrees of mental well-being and mental anxiety in the context of the COVID-19 pandemic. We collected data on demographic variables, patterns of media engagement, and levels of mental well-being and mental anxiety among the Indian adult population in the COVID-19 era. A web-based cross-sectional online survey was conducted to obtain data on two main aspects in the context of COVID-19: mental well-being and mental anxiety and engagement with the media, both television and other social media channels. Using respondent-driven convenient sampling method, 426 Indian adults (age ≥ 18 years) residing in the country responded to the survey. The survey was conducted 3 weeks after the nationwide lockdown was enforced between April 16 and 22, 2020. Besides providing the risk messages about the disease outbreak, the media channels provided sensational coverage of it that might have amplified the risk perception of the public; thus, media use pattern may be a strong indicator of the impact of COVID-19 on the mental health of an individual. Therefore, this dataset could serve as a reference base for in-depth studies on the association between media amplification of a pandemic and the mental health status of the common public in the context of social disaster.

139) Muller, A. E., Hafstad, E. V., Himmels, J. P. W., Smedslund, G., Flottorp, S., Stensland, S.Ø.,... Vista, G. E. (2020). The mental health impact of the covid-19 pandemic on healthcare workers, and interventions to help them: A rapid systematic review. *Psychiatry Research*, 293, 1-11. Retrieved from www.elsevier.com/locate/psychres.

The covid-19 pandemic has heavily burdened healthcare systems throughout the world. We performed a rapid systematic review to identify, assess and summarize research on the mental health impact of the covid-19 pandemic on HCWs (healthcare workers). We utilized the Norwegian Institute of Public Health's Live map of covid-19 evidence on 11 May and included 59 studies. Six reported on implementing interventions, but none reported on effects of the interventions. HCWs reported low interest in professional help, and greater reliance on social support and contact. Exposure to covid-19 was the most commonly reported correlate of mental health problems, followed by female gender, and worry about infection or about infecting others. Social support correlated with less mental health problems. HCWs reported anxiety, depression, sleep problems, and distress during the covid-19 pandemic. We assessed the certainty of the estimates of prevalence of these symptoms as very low using GRADE. Most studies did not report comparative data on mental health symptoms before the pandemic or in the general population. There seems to be a mismatch between risk factors for adverse mental health outcomes among HCWs in the current pandemic, their needs and preferences, and the individual psychopathology focus of current interventions.

140) Mulyadi, M., Tonapa, S. I., Luneto, S., Lin, W.T., and Lee, B.O. (2021). Prevalence of mental health problems and sleep disturbances in nursing students during the COVID-19 pandemic: A systematic review and meta-analysis. *Nurse Education in Practice*, 57, 1-11. Retrieved from www.elsevier.com/locate/issn/14715953.

Aim: To identify the prevalence of mental health problems and sleep disturbances among nursing students during the COVID-19 pandemic. Background: As a future professional workforce, nursing students are expected to play a role in controlling the COVID-19 pandemic; however, physical and mental health problems may hinder their willingness to stay in the nursing profession. Evidence of the prevalence of the health problems among nursing students related to COVID19 may allow educators to manage their students' health problems and make them feel

more positive about their future careers. Design: Systematic review and meta-analysis. This study was prospectively registered with PROSPERO. Data sources: Databases, including CINAHL, Embase, PubMed and Web of Science, were searched for all related journal articles, from database inception to June 29, 2021, published between 2020 and 2021. Methods: This review was conducted following Preferred Reporting Items for Systematic Reviews and MetaAnalyses (PRISMA) guidelines using a PICOS search strategy. A DerSimonian–Laird random-effects model was used to estimate the prevalence and potential heterogeneity among the selected studies using the Cochran Q statistic and I-square test. Publication bias was assessed using the Egger intercept test. Results: Seventeen studies were included in the meta-analysis, representing 13,247 nursing students. During the COVID-19 pandemic, the prevalence of four health problems and sleep disturbances were identified. The health problem with the highest prevalence in nursing students was depression (52%). Other COVID-19-related health problems were fear (41%), anxiety (32%) and stress (30%) and sleep disturbances (27%). Conclusions: The findings from this study showed that strategies are necessary to manage nursing students’ teaching and learning during the COVID-19 pandemic or similar future situations. Our results suggest that preparing modified distance learning might reduce the prevalence of health problems related to the educational process. In addition, providing regular mental health assessments or online mental health services to students may improve their mental health and increase their well-being. Nursing education policies regarding clinical practice remain to be formulated to ensure the achievement of competencies to support future careers while considering the mental readiness and safety of students.

141) Murphy, L., Markey, K., Donnell, C. O., Moloney, M., and Doody, O. (2021). The impact of the COVID-19 pandemic and its related restrictions on people with pre-existent mental health conditions: A scoping review. *Archives of Psychiatric Nursing*, 35 (4), 375-394. Retrieved from [http:// www.elsevier.com/locate/apnu](http://www.elsevier.com/locate/apnu).

Context: Globally, governments have introduced a variety of public health measures including restrictions and reducing face-to-face contact, to control the spread of COVID-19. This has implications for mental health services in terms of support and treatment for vulnerable groups such as people with pre-existent mental health conditions. However, there is limited evidence of the impact of COVID-19 and its related restrictions on people with pre-existent mental health

conditions. Objectives: To identify the impact of COVID-19 and its related restrictions on people with pre-existent mental health conditions. Methods: A scoping review of the literature was employed. Eight electronic databases (PsycINFO, Cochrane, Web of Science, MEDLINE, EMBASE, CINAHL, Scopus, Academic Search Complete) were searched and 2566 papers identified. 30 papers met the criteria for this review and findings were summarised under three key review questions. Results: COVID-19 and its related restrictions have had a notable effect on people with pre-existent mental health conditions. Public health restrictions have contributed to increased levels of social isolation, loneliness, and reduced opportunities for people to connect with others. Reduced access to health services and treatments has compounded matters for those seeking support. Exacerbation and deterioration of symptoms are commonly reported and can lead to greater susceptibility to COVID-19 infection. Implications: The importance of proactive planning, alternative accessible healthcare services and supports for vulnerable and at-risk groups is illuminated. Increased monitoring, early intervention and individually tailored care strategies are advocated. Recommendations revolve around the need for enhanced provision of remote support strategies facilitated using technology enhanced resources.

142) Nagarkar, R., Patil, R., Gadade, K., Paleja, N., and Ramesh, Y. V. (2022). Psychological and mental health burden on health care providers in a cancer centre during covid-19 pandemic outbreak in India. *Psychiatria Danubina*, 34 (1), 164-170. Retrieved from <https://doi.org/10.24869/psyd.2022.164>.

Background: The outbreak of novel coronavirus (COVID-19) is severely affecting the public health and posing a challenge to health care providers, especially working as front-line medical staff. This study was aimed to understand the psychological impact and mental burden of the present outbreak on Indian health care providers who are working at cancer care centre. Subjects and methods: A self-reporting online questionnaire was given to the multidisciplinary staff (n=344) and their mental health was assessed using various scales via GAD-7 scale for anxiety, PHQ-9 scale for depression, ISI for insomnia, K-10 for distress, and STAI for stress along with five self-made Pandemic specific questions. Results: Response rate was 91% (n=344) among 190 (55%) were male and 154 (45%) were female. The frontline and second line workers were 178 (52%) and 166 (48%), respectively. Symptoms of anxiety, depression, insomnia and distress was observed in 62 (18%), 75 (22%), 42 (12%), and 60 (17%) of the participants, respectively. They

were predominantly influenced by variables such as gender (female), education (\geq graduation), co-morbidities, and level of work (frontline). Followed by other less dominant variables such as contact with patients (frequent), and working in hospital (<3 years), respectively Conclusion: A mild to moderate level of psychological burden was observed in the health care providers. Overall, there is a need to address the mental health issues by providing, timely training, counselling, rotation in shifts, lowering workload and intensify the awareness programmes of the staff during this COVID-19 pandemic for better outcomes and promoting resilience in the staff.

143) Nair, S., Kannan, P., Mehta, K., Raju, A., Mathew, J., and Ramachandran, P. (2021). The COVID-19 pandemic and its impact on mental health services: the provider perspective. *Journal of Public Health*, 43, 51-56. Retrieved from <https://doi.org/10.1093/pubmed/fdab163>.

Background: The impact of coronavirus disease 2019 on mental health of populations is in focus recently but few studies focus on service adaptations to ensure care provision for the mentally ill. In India, where community-based mental healthcare is led by non-government organizations (NGOs), this is a crucial time to gather evidence on how these organizations adapted to the challenges. Methods: We explored provider perspectives in an NGO providing mental health services to communities using in-depth interviews and a focus group discussion to understand the impact on services and adaptations during the COVID 19 pandemic. Results: Three elements of service provision were highlighted: established relationships with communities, responsiveness to the patient needs, and resilience in ensuring continuity. Responding to the end-to-end care needs of the clients and continual adaptations were vital for ensuring continued services. Telemedicine enabled expansion of service and clientele as well as efficiency, but there were issues of casualization of therapy and poor privacy. Conclusions: The study provides an understanding of adaptations to ensure continuity of care to mentally ill during disruptions. Insights from strategies are crucial to help plan for resilient community-based mental health care services.

144)Nanath, K., Balasubramanian, S., Shukla V., Islam N., and Kaitheri, S. (2022). Developing a mental health index using a machine learning approach: Assessing the impact of mobility and lockdown during the COVID-19 pandemic. *Technological Forecasting & Social Change*, 178, 1-14. Retrieved from [http:// www.elsevier.com/locate/techfore](http://www.elsevier.com/locate/techfore).

Governments worldwide have implemented stringent restrictions to curtail the spread of the COVID-19 pandemic. Although beneficial to physical health, these preventive measures could have a profound detrimental effect on the mental health of the population. This study focuses on the impact of lockdowns and mobility restrictions on mental health during the COVID-19 pandemic. We first develop a novel mental health index based on the analysis of data from over three million global tweets using the Microsoft Azure machine learning approach. The computed mental health index scores are then regressed with the lockdown strictness index and Google mobility index using fixed-effects ordinary least squares (OLS) regression. The results reveal that the reduction in workplace mobility, reduction in retail and recreational mobility, and increase in residential mobility (confinement to the residence) have harmed mental health. However, restrictions on mobility to parks, grocery stores, and pharmacy outlets were found to have no significant impact. The proposed mental health index provides a path for theoretical and empirical mental health studies using social media.

145) Nejati, N., Crocker, C., Kolajova, M., Morrison, J., Simon, P., Sridharan, S., and Tibbo, P. (2021). Examination of the impact of COVID-19 public health quarantine measures on acute mental health care services: A retrospective observational study. *Psychiatry Research*, 302, 1-4. Retrieved from www.elsevier.com/locate/psychres.

This study assesses for the impact of Covid-19 public health quarantine measures on acute care psychiatric admissions, by comparing admission data from the quarantine period to a comparator period. A chart review was conducted for all admissions to an urban acute care psychiatric centre from Mar 22 – June 5 2020 (quarantine) and January 5 – Mar 21 2020 (comparator). Data was collected on the number of admissions, demographics, patients' psychiatric history, characteristics of admissions, discharge information, patients' substance use and social factors. Data was analyzed using a student's t-test for continuous variables and Chi squared analyses for categorical variables. Results demonstrated 185 admissions during quarantine and 190 during the comparator, with no significant differences in the distribution of admissions across time periods. There was a significantly greater frequency of admissions in the 35-44 age bracket and admissions involving substance use during quarantine. Additionally, admissions during quarantine were significantly shorter, with increased frequency of involuntary status and use of seclusion. The data suggests a vulnerability specific to individuals in their 30-40s during

quarantine and demonstrates a need to better understand factors impacting this group. It also suggests that quarantine is associated with changes to substance use, potentiating high acuity illness requiring admission.

146) Nieto, I., Navas, J. F., and Vazquez, C. (2020). The quality of research on mental health related to the COVID-19 pandemic: A note of caution after a systematic review. *Brain, Behavior, & Immunity – Health*, 7, 1-4. Retrieved from www.editorialmanager.com/bbih/default.aspx.

Background and aims: SARS-CoV-2 pandemic has spurred scientific production in diverse fields of knowledge, including mental health. Yet, the quality of current research may be challenged by the urgent need to provide immediate results to understand and alleviate the consequences of the pandemic. This study aims to examine compliance with basic methodological quality criteria and open scientific research practices on the mental health effects of the COVID-19 pandemic. Method and results: Twenty-eight studies were identified through a systematic search. Most of them met the requirements related to reporting key methodological and statistical information. However, the widespread use of convenience samples and the lack of a priori power analysis, coupled with low compliance with open science recommendations, such as pre-registration of studies and availability of databases, raise concerns about the validity, generalisability, and reproducibility of the findings. Conclusions: While the importance of offering rapid evidence-based responses to mitigate mental health problems stemming from the COVID-19 pandemic is undeniable, it should not be done at the expense of sacrificing scientific rigor. The results of this study may stimulate researchers and funding agencies to try to orchestrate efforts and resources and follow standard codes of good scientific practice.

147) Oztop, N., Demir, S., Beyaz, S., Ünal, D., Çolakoglu, B., Büyükoztürk, S., and Gelincik, A. (2022). Impact of mental health on disease activity in mastocytosis during COVID-19 pandemic. *Allergology International*, 71 (1), 109-116. Retrieved from <http://www.elsevier.com/locate/alit>.

Background: Mast cell-related symptoms might be influenced by mental health status in mastocytosis. In this study, we aimed to investigate the influence of mental health problems developed during the COVID-19 pandemic on the course of mastocytosis. Methods: Mental

health status in 60 adult patients with mastocytosis was prospectively evaluated with the total Depression-Anxiety-Stress Scale (tDASS-21) and Fear of COVID-19 Scale (FCVe19S) in the lockdown period (LP) and the return to normal period (RTNP) during the pandemic. The disease course was assessed from emergency and outpatient medical reports, including Scoring Mastocytosis (SCORMA) index and serum baseline tryptase levels, by telephone interviews and clinical visits. Results: The mean FCV-19S and median tDASS-21 scores were significantly higher in LP than RTNP ($p < 0.001$) and there was a positive correlation between FCV-19S and tDASS-21 in LP ($r = 0.820$, $p < 0.001$) and in RTNP ($r = 0.572$, $p < 0.001$). During the study period, four (6.7%) patients who experienced COVID-19 recovered without any requirement for hospitalization and had not experienced symptom exacerbation. Conclusions: Fear of COVID-19 can be a reason for mental health changes, including depression, anxiety and stress which may further increase mast cell-related symptoms. Therefore, psychological support is important to control the severity of mast cell-related symptoms in mastocytosis during a pandemic.

148) Pal, K., and Danda, S. (2021). Stress, Anxiety Triggers and Mental Health Care Needs Among General Public Under Lockdown During COVID-19 Pandemic: a Cross-Sectional Study in India. *International Journal of Mental Health and Addiction*. Retrieved from <https://doi.org/10.1007/s11469-021-00596-x>.

The outbreak of novel corona virus (COVID-19) pandemic possesses the potential to arise an unprecedented growth of mental health care needs among the general population. The present study aims to understand the knowledge of possible symptoms, stress and anxiety triggers and mental health care needs related to COVID-19 pandemic among the general population of India. A web-based cross-sectional survey was conducted across India. In order to conduct the survey, an online survey tool (semi-structured questionnaire) was prepared using google forms. Apart from having an informed consent, the survey tool comprised 42-item questions addressing the background characters of the participants and the pertinent issues related to the study. Snowball sampling technique was adopted in the study, and the questionnaire was sent to the contacts of the surveyors. All the participants were further requested to forward the tool in their respective contacts. A total 284 respondents were covered under the survey. More than 50% of participants reported having some professional loss in the current pandemic lockdown phase and 74% of the respondents reported having stress about their business or employment in the coming times.

Majority (77%) of respondents agreed on the importance of professional mental help but 40% reported not likely to take professional help if they experience extreme stress and anxiety due to COVID-19. The educated people realise the significance of mental health care needs but majority of them decline to take a professional help even after realising the extreme anxiety. It is imperative for the government to amplify the awareness programmes addressing the mental health care needs and its importance during the COVID-19 pandemic.

149) Pan, K.Y., Kok, A. A. L., Eikelenboom, M., Horsfall, M., Jörg, F., Luteijn, R. A.,... Penninx, B. W. J. H. (2021). The mental health impact of the COVID-19 pandemic on people with and without depressive, anxiety, or obsessive-compulsive disorders: a longitudinal study of three Dutch case-control cohorts. *The Lancet Psychiatry*, 8 (2), 121-129. Retrieved from [https://doi.org/10.1016/S2215-0366\(20\)30491-0](https://doi.org/10.1016/S2215-0366(20)30491-0).

Background: The impact of the COVID-19 pandemic on mental health in people with pre-existing mental health disorders is unclear. In three psychiatry case-control cohorts, we compared the perceived mental health impact and coping and changes in depressive symptoms, anxiety, worry, and loneliness before and during the COVID-19 pandemic between people with and without lifetime depressive, anxiety, or obsessive-compulsive disorders. Methods: Between April 1 and May 13, 2020, online questionnaires were distributed among the Netherlands Study of Depression and Anxiety, Netherlands Study of Depression in Older Persons, and Netherlands Obsessive Compulsive Disorder Association cohorts, including people with (n=1181) and without (n=336) depressive, anxiety, or obsessive-compulsive disorders. The questionnaire contained questions on perceived mental health impact, fear of COVID-19, coping, and four validated scales assessing depressive symptoms, anxiety, worry, and loneliness used in previous waves during 2006–16. Number and chronicity of disorders were based on diagnoses in previous waves. Linear regression and mixed models were done. Findings: The number and chronicity of disorders showed a positive graded dose–response relation, with greater perceived impact on mental health, fear, and poorer coping. Although people with depressive, anxiety, or obsessive-compulsive disorders scored higher on all four symptom scales than did individuals without these mental health disorders, both before and during the COVID-19 pandemic, they did not report a greater increase in symptoms during the pandemic. In fact, people without depressive, anxiety, or obsessive-compulsive disorders showed a greater increase in symptoms during the

COVID-19 pandemic, whereas individuals with the greatest burden on their mental health tended to show a slight symptom decrease. Interpretation: People with depressive, anxiety, or obsessive-compulsive disorders are experiencing a detrimental impact on their mental health from the COVID-19 pandemic, which requires close monitoring in clinical practice. Yet, the COVID-19 pandemic does not seem to have further increased symptom severity compared with their pre-pandemic levels.

150) Parthasarathy, R., TS, J., K, T., and Murthy P. (2021). Mental health issues among health care workers during the COVID-19 pandemic – A study from India. *Asian Journal of Psychiatry*, 58, 1-6. Retrieved from www.elsevier.com/locate/ajp.

Mental health issues among health care workers (HCWs) in treatment settings during COVID-19 remains understudied in India. This study examines its prevalence and correlates among HCWs in Karnataka State, India. HCWs who attended a workshop to improve mental health well-being during COVID-19 completed an anonymous online questionnaire. In addition to socio-demographics, domains assessed include occupational characteristics, COVID-19 related concerns, anxiety/depression, substance use, suicidality, lifestyle and family functioning. Of the 3083 HCWs who completed the survey (response rate-51.4 %), anxiety disorder and depression was highest among those with frontline COVID-19 responsibilities (anxiety disorder-26.6 %, depression-23.8 %). Prevalence was significantly higher among those with clinical responsibilities compared to those with supportive responsibilities (anxiety disorder: 23.9 % vs 15.5 %), (depression: 20.0 % vs 14.2 %). In the backward step-wise logistic regression analysis, HCWs with anxiety disorder were more likely to be doctors/ nurses/hospital assistants, older, female, unmarried, without a leisure activity, report increased alcohol use and suicidal thoughts after pandemic onset, and having a history of receiving mental health interventions. Participants with depression additionally had family distress and hardly ever exercised. To conclude, mental health issues are common among HCWs in India. Interventions need to ensure that HCWs are protected from mental health consequences of working in COVID-19 treatment settings.

151) Pauksztat, B., Andrei, D. M., Grech, M. R. (2022). Effects of the COVID-19 pandemic on the mental health of seafarers: A comparison using matched samples. *Safety Science*, 146, 1-11. Retrieved from [http:// www.elsevier.com/locate/safety](http://www.elsevier.com/locate/safety).

The COVID-19 pandemic and the measures implemented to curb its transmission have altered workplaces and challenged occupational health and safety in unprecedented ways, with high levels of mental distress reported across several industries. In the maritime industry, occupational health and safety risks, including psychosocial risks, were a concern already before the COVID-19 pandemic. However, knowledge about the prevalence of mental health problems and the factors associated with them is still limited. The purpose of this study was to investigate the impact of the COVID-19 pandemic as well as the effects of respondent and work-related characteristics on seafarers' self-reported symptoms of depression and anxiety. Data came from two cross-sectional convenience samples of seafarers on international commercial vessels, surveyed before ($N_{\text{pre-pandemic}} = 793$) and during the pandemic ($N_{\text{pandemic}} = 504$). Matching the two samples on respondent and work-related characteristics using propensity scores, we found that the pandemic contributed to significantly higher levels of depression and anxiety. Further analyses showed that seafarers with longer work periods, those who had been on board longer than expected, and those working on vessels registered with "Flags of Convenience" reported significantly higher levels of both depression and anxiety during the pandemic, but not prior to the pandemic. Taken together, these findings suggest that the impact of the COVID-19 pandemic led to a deterioration of working conditions and increased mental health risks for seafarers. Practical implications for safe-guarding occupational health and safety during this and future crises are discussed.

152) Penner, F., Rajesh, A., Kinney, K.L., Mabus, K.L., Barajas, K. G., McKenna, K. R., and Lim, C. S. (2022). Racial and demographic disparities in emergency department utilization for mental health concerns before and during the COVID-19 pandemic. *Psychiatry Research*, 310, 1-8. Retrieved from [http:// www.elsevier.com/locate/psychres](http://www.elsevier.com/locate/psychres).

This study investigated whether emergency department (ED) visits for mental health concerns increased during the COVID-19 pandemic, taking a health disparities lens. ED encounters from the only academic medical center in Mississippi were extracted from March-December 2019 and 2020, totaling 2,842 pediatric (ages 4–17) and 17,887 adult (ages 18–89) patients. Visits were coded based on primary ED diagnosis. For adults, there were fewer depression/anxiety ED visits during the pandemic, not moderated by any demographic factor, but no differences for serious mental illness or alcohol/substance use. For youth, there were significantly fewer ED visits for

behavior problems during the pandemic among children in the lower socioeconomic status (SES) category; there were no differences for depression/anxiety. Regardless of year, adults in the lower SES category were more likely to visit the ED for mental health, Black adults were less likely to visit the ED for depression/anxiety or alcohol/substance use, and Black children were less likely to visit the ED for behavioral concerns. Results suggest that access to outpatient and telehealth services remains critical for mental health care during the pandemic and underline the importance of race- and SES-related factors in use of the ED for mental health concerns beyond the pandemic.

153) Rahman, M. M., Saifuzzaman, M., Ahmed, A., Mahin, M. F., and Shetu, S. F. (2021). Impact of COVID-19 on mental health: A quantitative analysis of anxiety and depression based on regular life and internet use. *Current Research in Behavioral Sciences*, 2, 1-12. Retrieved from www.elsevier.com/locate/crbeha.

This paper describes the psychological state of human from different ages, genders, and professions with the impact of COVID – 19 in their regular life in Bangladesh with simulated and visualized infographic images containing statistical analysis from a collected survey on real regular life which is based on their activities of regular life and internet uses. Literature has been reviewed with various COVID – 19 based psychological work and our work on psychological state, anxiety reasons, and depression scale analysis. Secondly, a process of analysis and statistical format has been described through a specific methodology diagram, which contains the collected dataset’s overall data analysis process. Thirdly, a complete analysis report is given by the dataset analysis, including every specific data collected. Fourthly, a discussion based on analysis and statistical analysis with informative tables is described individually for different aspects. Finally, some unavoidable limitations are initialized with reasons though every dataset collected from real regular life and internet use impacts COVID – 19 in Bangladesh.

154) Rains, L. S., Johnson, S., Barnett, P., Steare, T., Needle, J. J., Carr, S.,... Simpson, A. (2021). Early impacts of the COVID-19 pandemic on mental health care and on people with mental health conditions: framework synthesis of international experiences and responses. *Social Psychiatry and Psychiatric Epidemiology*, 56(1), 13-24. Retrieved from <https://doi.org/10.1007/s00127-020-01924-7>

Purpose: The COVID-19 pandemic has many potential impacts on people with mental health conditions and on mental health care, including direct consequences of infection, effects of infection control measures and subsequent societal changes. We aimed to map early impacts of the pandemic on people with pre-existing mental health conditions and services they use, and to identify individual and service-level strategies adopted to manage these. Methods: We searched for relevant material in the public domain published before 30 April 2020, including papers in scientific and professional journals, published first person accounts, media articles, and publications by governments, charities and professional associations. Search languages were English, French, German, Italian, Spanish, and Mandarin Chinese. Relevant content was retrieved and summarised via a rapid qualitative framework synthesis approach. Results: We found 872 eligible sources from 28 countries. Most documented observations and experiences rather than reporting research data. We found many reports of deteriorations in symptoms, and of impacts of loneliness and social isolation and of lack of access to services and resources, but sometimes also of resilience, effective self-management and peer support. Immediate service challenges related to controlling infection, especially in inpatient and residential settings, and establishing remote working, especially in the community. We summarise reports of swiftly implemented adaptations and innovations, but also of pressing ethical challenges and concerns for the future. Conclusion our analysis captures the range of stakeholder perspectives and experiences publicly reported in the early stages of the COVID-19 pandemic in several countries. We identify potential foci for service planning and research.

155) Rajkumar, R. P. (2020). COVID-19 and mental health: A review of the existing literature. *Asian Journal of Psychiatry*, 52, 1-5. Retrieved from www.elsevier.com/locate/ajp.

The COVID-19 pandemic is a major health crisis affecting several nations, with over 720,000 cases and 33,000 confirmed deaths reported to date. Such widespread outbreaks are associated with adverse mental health consequences. Keeping this in mind, existing literature on the COVID-19 outbreak pertinent to mental health was retrieved via a literature search of the PubMed database. Published articles were classified according to their overall themes and summarized. Preliminary evidence suggests that symptoms of anxiety and depression (16–28%) and self-reported stress (8%) are common psychological reactions to the COVID-19 pandemic, and may be associated with disturbed sleep. A number of individual and structural variables

moderate this risk. In planning services for such populations, both the needs of the concerned people and the necessary preventive guidelines must be taken into account. The available literature has emerged from only a few of the affected countries, and may not reflect the experience of persons living in other parts of the world. In conclusion, sub-syndromal mental health problems are a common response to the COVID-19 pandemic. There is a need for more representative research from other affected countries, particularly in vulnerable populations.

156) Ransing, R., Adiukwu, F., Sanchez, V. P., Ramalho, R., Orsolini, L., Teixeira, A. L. S., Kundadaku, G. K. (2020). Mental Health Interventions during the COVID-19 Pandemic: A Conceptual Framework by Early Career Psychiatrists. *Asian Journal of Psychiatry*, (51), 1-8. Retrieved from www.elsevier.com/locate/ajp.

The emergence of mental health (MH) problems during a pandemic is extremely common, though difficult to address due to the complexities of pandemics and the scarcity of evidence about the epidemiology of pandemic-related MH problems and the potential interventions to tackle them. Little attention has been devoted so far to this topic from policymakers, stakeholders and researchers, resulting in a lack of replicable, scalable and applicable frameworks to help plan, develop and deliver MH care during pandemics. As a response, we have attempted to develop a conceptual framework (CF) that could guide the development, implementation, and evaluation of MH interventions during the ongoing COVID-19 pandemic. This CF was developed by early career psychiatrists from 16 countries that cover all the WHO regions. Their opinions were elicited via a semi-structured questionnaire. They were asked to provide their views about the current MH situation in their countries and to elaborate on existing 'myths' and misinformation. They were also asked to name the resources available and to propose solutions and approaches to provide accessible and affordable care. The CF was prepared based on the extant literature and the views discussed in this group; it illustrates the epidemiology of MH problems, preparedness plans, stage-specific plans or innovative solutions, opportunities to integrate those plans and possible outcomes at policy level. This CF can serve as a technical guide for future research regarding pandemics. It can be used to monitor trends and to optimize efforts, and to develop evidence-based MH interventions. Still, further research focusing on the individual components of this framework is needed.

157) Ren, F. F., and Guo, R. J. (2020). Public Mental Health in Post-Covid-19 Era. *Psychiatria Danubina*, 32(2), 251-255. Retrieved from <https://doi.org/10.24869/psyd.2020.251>.

Transmission of the 2019 novel coronavirus (COVID-19) has now rapidly spread around the world, which has alarming implications for individuals and communities, in particular for public mental health. Significant progress has been made in the prevention and control of the COVID-19 pandemic in China, but the psychological crisis caused by the epidemic is still not over and may continue to exist. The public mental health in the post-COVID-19 era should not be ignored. This article provides early warning for the public's mental health in the post-COVID-19 era by listing the characteristics and duration of the public mental health crisis following the SARS outbreak. In addition, based on the current situation, specific methods and measures are proposed in order to provide effective reference for the prevention and control of psychological crisis caused by the COVID-19 epidemic.

158) Roy, A., Singh, A. K., Mishra, S., Chinnadurai, A., Mitra, A., and Bakshi, O. (2021). Mental health implications of COVID-19 pandemic and its response in India. *International Journal of Social Psychiatry*, 67 (5), 587-600. doi: 10.1177/0020764020950769.

Introduction: Mental health concerns and treatment usually take a backseat when the limited resources are geared for pandemic containment. In this global humanitarian crisis of the COVID-19 pandemic, mental health issues have been reported from all over the world. Objectives: In this study, we attempt to review the prevailing mental health issues during the COVID-19 pandemic through global experiences, and reactive strategies established in mental health care with special reference to the Indian context. By performing a rapid synthesis of available evidence, we aim to propose a conceptual and recommendation framework for mental health issues during the COVID-19 pandemic. Methods: A search of the PubMed electronic database and google scholar were undertaken using the search terms 'novel coronavirus', 'COVID-19', 'nCoV', SARS-CoV-2, 'mental health', 'psychiatry', 'psychology', 'anxiety', 'depression' and 'stress' in various permutations and combinations. Published journals, magazines and newspaper articles, official webpages and independent websites of various institutions and non-government organizations, verified social media portals were compiled. Results: The major mental health issues reported were stress, anxiety, depression, insomnia, denial, anger and fear. Children and older people,

frontline workers, people with existing mental health illnesses were among the vulnerable in this context. COVID-19 related suicides have also been increasingly common. Globally, measures have been taken to address mental health issues through the use of guidelines and intervention strategies. The role of social media has also been immense in this context. State-specific intervention strategies, telepsychiatry consultations, toll free number specific for psychological and behavioral issues have been issued by the Government of India. Conclusion: Keeping a positive approach, developing vulnerable-group-specific need-based interventions with proper risk communication strategies and keeping at par with the evolving epidemiology of COVID-19 would be instrumental in guiding the planning and prioritization of mental health care resources to serve the most vulnerable.

159) Russell, B. S., Hutchison, M., Park, C. L., Fendrich, M., and Fox, L. F. (2021). Short-term impacts of COVID-19 on family caregivers: Emotion regulation, coping, and mental health. *Journal of Clinical Psychology*, 78 (2), 357-374. Retrieved from <https://doi.org/10.1002/jclp.23228>.

Background: The negative mental health impact of coronavirus disease 2019-related stressors may be heightened for those caring for children, who bear responsibility for their welfare during disasters. Aim: Based on the Transactional Model of Stress and Coping, we inquired whether caregivers' emotion regulation and coping behavior were associated with posttraumatic stress symptoms (PTSS). Materials & Methods: Data were collected through a national online survey in April 2020, and again 60 days later. Results: Of the 801 longitudinal cases, 176 (63.6% female; mean age = 33.5) reported caring for minors in their homes during the pandemic. Over 20% of caregivers experienced clinically concerning PTSS, rates higher than their noncaregiving counterparts. Regression analysis indicates caregivers' baseline mental health symptoms and emotion regulation predicted PTSS 60 days later. Discussion: Implications for needed parenting supports among families experiencing traumatic stress are provided. Conclusion: Anxiety symptoms at baseline were the most significant and consistent contributor to all models and were significantly higher among those with clinically concerning levels of PTSS suggesting a clear intervention target.

160) Saleem, S., Burns, S., Falenchuk, O., Varmuza, P., and Perlman, M. (2022). Heterogeneity in maternal and child mental health responses to the COVID-19 *pandemic*. *Early Childhood Research Quarterly*, 59, 203-214. Retrieved from [http:// www.elsevier.com/locate/ecresq](http://www.elsevier.com/locate/ecresq).

We used latent profile analysis on a longitudinal dataset to examine changes in maternal and child mental health during COVID-19 and factors that may protect against declines in mental health. Participants were 183 low-income mothers (M = 36 years) with young children (M = 5.31 years) in the City of Toronto with data collected prior to and during the pandemic in 2020. Mothers reported on their own stress, anxiety and depression and their children's emotional, conduct, hyperactivity, peer, and prosocial problems at both time points. We found heterogeneity in mental health changes, with 5 distinct patterns of change for mothers, and 4 distinct patterns of change for children during COVID-19. The majority (83%) of mothers experienced significant declines in at least one aspect of mental health. In contrast, the majority of children (65%) experienced either no change or improvements in mental health. Interestingly, patterns of change across these groups were not differentiated by demographic characteristics such as income, education, and family composition. However, for mothers, a higher degree of satisfaction with social support was associated with membership in a profile with better mental health both prior to, and during the pandemic. For children, having a stable history of early childhood education, and care was associated with membership in a profile that showed improvements in mental health during the pandemic. We discuss how our results support the need for proactive and global interventions for at-risk families with raised mental health concerns, and the benefits that stable early childhood education and care may provide for young children.

161) Saltzman, L. Y., Lesen, A. E., Henry, V., Hansel, T. C., and Bordnick, P. S. (2021). COVID-19 Mental Health Disparities. *Health Security*, 19, S5-S13. doi: 10.1089/hs.2021.0017.

Communities of color in the United States have been disproportionately impacted by the COVID-19 pandemic. Studies exploring the mental health implications of these disparities have only just begun to emerge. The purpose of this study is to better understand mental health concerns and test whether social determinants of health and COVID-19-related experiences influence these concerns. In April 2020, we launched a community-based survey for adults across the United States. A total of 341 respondents completed the survey, which included questions about demographics, depression, social isolation, work environment, and preexisting

mental health conditions. We generated matched controls by adding county data from the Robert Wood Johnson Foundation to our survey. Chi square, Pearson product-moment correlation, point biserial correlation, and logistic regression were estimated. Our analysis revealed that respondents who identified as Latinx, Latin@, or Hispanic were 10 times more likely to meet the threshold score for depression. Similarly, individuals with prior mental health conditions and those who expressed feelings of social isolation due to COVID-19 were 3 times more likely to meet the threshold score for depression. These results confirm our hypothesis that communities of color will likely experience disproportionate mental health impacts of COVID-19—specifically, the mental health sequela that emerge from exposure, cumulative burden, and social isolation. We discuss the implications for expanding access and quality of health and mental health services to address current inequities.

162) Samkariaa, A., Punjabia, K., Sharmaa, S., Joonaa, S., Sandala, K., Dasguptab, T.,... Mandala, P. K. (2021). Brain Stress Mapping in COVID-19 Survivors Using MR Spectroscopy: New Avenue of Mental Health Status Monitoring. *Journal of Alzheimer's Disease*, 83, 523-530. doi: 10.3233/JAD-210287.

Coronavirus (COVID-19) has emerged as a human catastrophe worldwide, and it has impacted human life more detrimentally than the combined effect of World Wars I and II. Various research studies reported that the disease is not confined to the respiratory system but also leads to neurological and neuropsychiatric disorders suggesting that the virus is potent to affect the central nervous system (CNS). Moreover, the damage to CNS may continue to rise even after the COVID-19 infection subsides which may further induce a long-term impact on the brain, resulting in cognitive impairment. Neuroimaging techniques is the ideal platform to detect and quantify pathological manifestations in the brain of COVID-19 survivors. In this context, a scheme based on structural, spectroscopic, and behavioral studies could be executed to monitor the gradual changes in the brain non-invasively due to COVID-19 which may further help in quantifying the impact of COVID19 on the mental health of the survivors. Extensive research is required in this direction for identifying the mechanism and implications of COVID-19 in the brain. Cohort studies are urgently required for monitoring the effects of this pandemic on individuals of various subtypes longitudinally.

163) Scott, J. M., Yun, S. W., and Qualls, S. H. (2021). Impact of COVID-19 on the Mental Health and Distress of Community-Dwelling Older Adults. *Geriatric Nursing*, 42(5), 998-1005. Retrieved from [http:// www.gnjournal.com](http://www.gnjournal.com).

The purpose of this study was to examine the mental health of community-dwelling older adults as they adapted their everyday health behaviors during the COVID-19 pandemic. In response to a telephone survey, 126 older adults described perceived changes in physical and mental health, and adaptations in their everyday health behaviors. Descriptive statistics, bivariate correlations, and multiple regressions revealed that participants experienced changes in mental and physical health, reduced health service access, lower social engagement, and increased coping behaviors. Greater negative social impact of the pandemic was associated with higher levels of COVID-19 distress. Reduced mental health was significantly related to reductions in health service access, health changes, and fewer adaptive coping behaviors. Adaptive coping behaviors were helpful, just as reduced health access and social contact added risk for mental health problems. Suggestions were provided for alleviating mental health needs by increasing social contact and engaging in adaptive coping behaviors.

164) Sharma, P., and Sharma, R. (2021). Impact of covid-19 on mental health and aging. *Saudi Journal of Biological Sciences*, 28 (12), 7046-7053. Retrieved from www.sciencedirect.com.

The potential ramifications of the COVID-19 pandemic on the population's mental health are a rising global concern. Both at the individual and community level, the erratic and uncertain COVID-19 outbreak has the prospective to exhibit a detrimental effect on psychological health and aging. At present, various measures are dedicated to the parameters like awareness of epidemiology, clinical aspects, mode of transmission, counteracting the spread of the infection, and public health problems, although this initiative has neglected critical mental health concerns. This study is to investigate the outbreak to study the level of harmful effects on mental health and its crosstalk with aging. Global execution of preventive, control measures and resilience establishment are challenging factors whereas reformed lifestyle such as lockdown, coping with self-isolation, quarantine, social distancing, and post-traumatic stress disorders are alarming. Hallmarks of aging which interact with each other, have been suggested to affect the healthspan in aged adults, possibly due to attenuated immunity. Among various hallmarks, we concentrated on those that show direct or indirect interaction with viral infections, comprising inflammation,

genomic instability, impaired mitochondrial function, epigenetic modification, telomere attrition, and damaged autophagy. These hallmarks possibly contribute to the elicited pathophysiological responses to SARS-CoV-2 and may add an additive risk of accelerated aging post-recovery among aged adults. Here, the role of antiaging drug candidates that require main consideration in COVID-19 research is discussed briefly. In the later future, it can emerge as a potential therapeutic approach in the treatment of patients with severe infection.

165) Silva, P., Barbosa, F., Andre, M., and Matos, A. D. (2022). Home confinement and mental health problems during the Covid-19 pandemic among the population aged 50 and older: A gender perspective. *SSM - Population Health*, 17, 1-8. Retrieved from <http://www.elsevier.com/locate/ssmph>.

Home confinement during the Covid-19 pandemic is usually associated with worsening mental health. In the case of older adults, although they have been identified as a vulnerable group in terms of mental health, the results of studies on the relationship between home confinement and mental health are not consistent and few studies have adopted a gender perspective. Using data from the SHARE Corona Survey (2020), we aimed to analyse the role of gender on the relationship between home confinement and increased depression in individuals aged 50 and over living in Europe and Israel. Our study shows that, although women reported increased depression/sadness during the Covid-19 pandemic more often than men, it was the latter who experienced the greatest increase.

166) Simon, F. A. J., Schenk, M., Palm, D., Faltraco, F., and Thome, J. (2021). The Collateral Damage of the COVID-19 Outbreak on Mental Health and Psychiatry. *International Journal of Environmental Research and Public Health*, 18 (9), 1-10. Retrieved from <https://www.mdpi.com/journal/ijerph>.

The potential consequences of the COVID-19 outbreak are multifarious and remain largely unknown. Deaths as a direct result of the condition are already in the millions, and the number of indirect deaths is likely to be even higher. Pre-existing historical inequalities are compounded by the virus, driving increased rates of infection and deaths amongst people who use drugs and alcohol, those belonging to racial-ethnic minority groups, poorer communities, LBGTQ+

populations, healthcare workers, and other members of the care economy; all of whom are already at increased risk of adverse mental health effects. In this paper we suggest that a central role of mental health practitioners is advocacy: both for people who use psychiatric services and for those who, due to the effects of the pandemic, are at an increased risk of needing to do so.

167) Singh, G. P. (2021). Psychosocial and Mental Health Issues of the Migrants Amidst COVID-19 Pandemic in India: A Narrative Review. *Indian Journal of Psychological Medicine*, 43 (6), 473-478. doi: 10.1177/02537176211044802.

Background: The objective of this review was to identify and synthesize the findings of the existing literature that highlighted the psychosocial and mental health issues of the migrants during the COVID-19 pandemic in India. Materials and Methods: An exploration of the PubMed, Google Scholar, Web of Science, ScienceDirect, Google search, and some other manual searches was undertaken so that no relevant study was missed. A search on Indian scientific literature and cross-references retrieved was also conducted to get further information. The period of the search has been one year from March 1, 2020, to March 31, 2021. The database was searched with the terms “migrants,” “migrant workers,” “COVID-19 pandemic,” “lockdown,” “migrant population,” “mental health issues,” “psychosocial issues” to retrieve the published literature. Results: Initially, 48 research articles were retrieved and 10 of them were excluded as they had no sufficient information about mental and psychosocial challenges faced by the migrants. In the remaining 38 articles, 9 articles were original research work (n = 9) published from India related to the impact of COVID-19 on migrants. The second category consisted of editorials or commentary or letters to the editor or policy paper on psychosocial and mental health aspects of migrants during the COVID-19 pandemic (n = 17). The third category was 11 articles on perspectives or opinions or viewpoints (n = 11) related to various psychosocial and mental health issues among migrants in India during the COVID-19 pandemic. Predominantly psychosocial issues found among migrants were living conditions, basic needs, family concerns, and joblessness. The mental health issues found among migrants during the COVID-19 pandemic included psychological distress, depressive disorders, anxiety disorders, substance use disorders. Conclusion: Existing literature from India has shown that the COVID-19 pandemic severely impacted the psychosocial and mental health status of the migrants in India. This review suggests the need for more research work from the affected states of India and

the development of psychosocial and mental health intervention strategies to minimize the impact of the COVID-19 pandemic on migrants.

168) Singh, S., Roy, D., Sinha, K., Parveen, S., Sharma, G., and Joshi, G. (2020). Impact of COVID-19 and lockdown on mental health of children and adolescents: A narrative review with recommendations. *Psychiatry Research*, 293, 1-10. Retrieved from www.elsevier.com/locate/psychres.

Background: COVID-19 pandemic and lockdown has brought about a sense of fear and anxiety around the globe. This phenomenon has led to short term as well as long term psychosocial and mental health implications for children and adolescents. The quality and magnitude of impact on minors is determined by many vulnerability factors like developmental age, educational status, pre-existing mental health condition, being economically underprivileged or being quarantined due to infection or fear of infection. Aims: This paper is aimed at narratively reviewing various articles related to mental-health aspects of children and adolescents impacted by COVID-19 pandemic and enforcement of nationwide or regional lockdowns to prevent further spread of infection. Methodology: We conducted a review and collected articles and advisories on mental health aspects of children and adolescents during the COVID-19 pandemic. We selected articles and thematically organized them. We put up their major findings under the thematic areas of impact on young children, school and college going students, children and adolescents with mental health challenges, economically underprivileged children, impact due to quarantine and separation from parents and the advisories of international organizations. We have also provided recommendations to the above. Conclusion: There is a pressing need for planning longitudinal and developmental studies, and implementing evidence based elaborative plan of action to cater to the psycho social and mental health needs of the vulnerable children and adolescents during pandemic as well as post pandemic. There is a need to ameliorate children and adolescents' access to mental health support services geared towards providing measures for developing healthy coping mechanisms during the current crisis. For this innovative child and adolescent mental health policies with direct and digital collaborative networks of psychiatrists, psychologists, paediatricians, and community volunteers are deemed necessary.

169) Sipeki, I., Vissi, T., and Túri, I. (2022). The effect of the Covid-19 pandemic on the mental health of students and teaching staff. *Heliyon*, 8(4), 1-27. Retrieved from <https://doi.org/10.1016/j.heliyon.2022.e09185>.

In the past decade, mental health is embedded in the concept of health and teachers' mental health has become the focus of surveys. In this study we examined the mental health of special educator-students compared to their lecturers and inspectors at the University Semmelweis Pető András Faculty. We used the validated Hungarian language Mental Health Test (MHT) to assess the mental health. The MHT is linked to the concept of physical and mental wellbeing, it is ability-based approach, and examines 5 areas: wellbeing, savoring, creative-executive efficiency self regulation resilience. Altogether 237 questionnaires had been returned that were suitable for evaluation (19 lecturers, 16 instructors and 202 students). Students' mean values are lower than the instructors' and lecturers' mean values, and students presented significant lower scores in three scales: self-regulation, creative-executive efficiency, and resilience subscales. In the wellbeing scale we found significant correlation with the existence of the separate room to learn/work during the home-office. These results point to the need for the university to pay attention to the mental health of students, who will be able to consciously monitor their mental health, and who are able to provide effective support to their students.

170) Smitha, B. A., Georgiopoulos, A. M., Mueller, A., Abbott, J., Lomas, P., Aliaj, E., and Quittner, A. L. (2021). Impact of COVID-19 on mental health: Effects on screening, care delivery, and people with cystic fibrosis. *Journal of Cystic Fibrosis*, 20, 31-38.

Background: Depression and anxiety are two to four times more prevalent in people with CF (pwCF) than the general population. COVID-19 may exacerbate mental health challenges, increasing demand for psychological services, while decreasing their availability. We assessed the impact of the pandemic on depression and anxiety in pwCF, including how COVID-19 affected the frequency of mental health screening and the types of services provided. Methods: A 38-item internet survey, completed in June 2020, assessed how COVID-19 affected: 1) the mental health clinician's role and screening processes; 2) barriers to screening and resource needs; 3) impact of COVID-19 on depression and anxiety, and 4) positive outcomes and confidence in sustaining mental health screening and treatment, including telehealth services,

after the pandemic. Results: Responses were obtained from 131 of the 289 US CF programs. Overall, 60% of programs (n=79) continued mental health screening and treatment, although less frequently; 50% provided individual tele-mental health interventions, and 9% provided telehealth group therapy. Clinically elevated depression symptoms (PHQ-9 \geq 10; moderate to severe), were found in 12% of 785 pwCF, with 3.1% endorsing suicidal ideation. Similarly, elevated anxiety (moderate to severe; GAD-7 \geq 10) was found in 13% of pwCF (n=779). Conclusions: The COVID-19 pandemic created an opportunity to implement innovative solutions to disruptions in mental health screening and treatment in CF programs. We found that pwCF had increased access to psychological interventions during the pandemic via telehealth, supporting the continued integration of tele-mental health screening and treatment into CF care.

171) Somé, N. H., Wells, S., Felsky, D., Hamilton, H. A., Ali, S., Elton-Marshall, T., and Rehm, J. (2022). Self-reported mental health during the COVID-19 pandemic and its association with alcohol and cannabis use: a latent class analysis. *BMC Psychiatry*, 22 (1), 1-13. . Retrieved from <https://doi.org/10.1186/s12888-022-03917-z>.

Background: Mental health problems and substance use co-morbidities during and after the COVID-19 pandemic are a public health priority. Identifying individuals at high-risk of developing mental health problems and potential sequela can inform mitigating strategies. We aimed to identify distinct groups of individuals (i.e., latent classes) based on patterns of self-reported mental health symptoms and investigate their associations with alcohol and cannabis use. Methods: We used data from six successive waves of a web-based cross-sectional survey of adults aged 18 years and older living in Canada (6,021 participants). We applied latent class analysis to three domains of self-reported mental health most likely linked to effects of the pandemic: anxiety, depression, and loneliness. Logistic regression was used to characterize latent class membership, estimate the association of class membership with alcohol and cannabis use, and perform sex-based analyses. Results: We identified two distinct classes: (1) individuals with low scores on all three mental health indicators (no/ low-symptoms) and (2) those reporting high scores across the three measures (high-symptoms). Between 73.9 and 77.1% of participants were in the no/low-symptoms class and 22.9–26.1% of participants were in the high-symp- tom class. We consistently found across all six waves that individuals at greater risk of being in the high-symptom class were more likely to report worrying about getting COVID-19 with adjusted odds

ratios (aORs) between 1.72 (95%CI:1.17–2.51) and 3.51 (95%CI:2.20–5.60). Those aged 60+ were less likely to be in this group with aORs (95%CI) between 0.26 (0.15–0.44) and 0.48 (0.29–0.77) across waves. We also found some factors associated with class membership varied at different time points. Individuals in the high-symptom class were more likely to use cannabis at least once a week (aOR=2.28, 95%CI:1.92–2.70), drink alcohol heavily (aOR=1.71, 95%CI:1.49–1.96); and increase the use of cannabis (aOR=3.50, 95%CI:2.80–4.37) and alcohol (aOR=2.37, 95%CI:2.06–2.74) during the pandemic. Women in the high-symptom class had lower odds of drinking more alcohol during the pandemic than men.

172) Spicuzza, L., Mancuso, S., Campisi, R., and Vancheri, C. (2022). Sleep quality and mental health during the COVID-19 pandemic in patients with severe obstructive sleep apnea. *Journal of Patient-Reported Outcomes*, 6 (1), 1-8. Retrieved from <https://doi.org/10.1186/s41687-022-00454-x>.

Background: The first wave of the COVID-19 pandemic has produced remarkable effects on the sleep quality and mental status of the general population and more dramatic effects on patients with chronic illness. Patients with obstructive sleep apnea (OSA), already suffering from disordered sleep, might be more susceptible to the effect of the pandemic on their sleep quality and mental health. We therefore performed a case–control study to compare sleep quality, depression and anxiety symptoms reported by patients with severe OSA and age-matched healthy subjects during the first wave of the COVID-19. In June–July 2020 we enrolled a total of 222 patients with severe OSA, all treated with continuous positive airway pressure, and 164 healthy controls. Self-reported sleep quality was assessed using the Pittsburg Sleep Quality Index (PSQI). Symptoms of depression were assessed using the Patient Health Questionnaire module 9 (PHQ-9), while the specific “Coronavirus Anxiety Scale” (CAS) evaluated the level of anxiety. Results: Patients with OSA (61% males, 65±9.6 years old, BMI 30.5±3.6) and healthy controls had similar characteristics except for BMI slightly lower in controls. The perceived quality of sleep, referred to the pre-pandemic period, was significantly worse in patients with OSA than in controls. During the pandemic the rate of reported sleep disturbance increased from 54 to 66% in patients with OSA and from 29 to 40% in controls. A high percentage of patients and controls reported symptoms of depression (61% OSA and 65% controls), whereas lower levels of anxiety, similar in the two groups, were observed. In patients with OSA the PSQI score significantly

positively correlated with the PHQ-9 score ($r^2=0.81$) and the CAS score ($r^2=0.65$). Conclusion: The rate of reported sleep disturbance in patients with OSA during the first wave of the COVID-19 pandemic is one of the highest evidenced in literature so far. As for the general population, in these patients there is a strict link between the perceived sleep quality and the psychological distress caused by the pandemic. A further deterioration of sleep quality is a fearsome event in the life of these patients who face life-long sleep problems.

173) Spoorthy, M. S., Pratapa, S. K., and Mahant, S. (2020). Mental health problems faced by healthcare workers due to the COVID-19 pandemic—A review. *Asian Journal of Psychiatry*, 51, 2-5.

Introduction: The spread of novel corona virus (COVID-19) across the globe and the associated morbidity and mortality challenged the nations by several means. One such under recognized and unaddressed area is the mental health issues medical staff develop during the pandemic. Materials and methods: This review aimed to review the literature about mental health problems faced by health care workers (HCW) during the COVID-19 pandemic. Literature search was conducted in the following databases: PubMed, Google Scholar, Cochrane Library, Embase. All types of articles published in the last 4 months (January 2020-April 2020) which were relevant to the subject of the review were searched. A total of 23 articles were selected by initial screening and 6 articles were included in the final review. Results: Review of all the 6 articles showed that current research focused on assessing several aspects of mental health affected in HCW due to COVID-19. Several sociodemographic variables like gender, profession, age, place of work, department of work and psychological variables like poor social support, self-efficacy were associated with increased stress, anxiety, depressive symptoms, insomnia in HCW. There is increasing evidence that suggests that COVID-19 can be an independent risk factor for stress in HCW. Conclusion: Regular screening of medical personnel involved in treating, diagnosing patients with COVID-19 should be done for evaluating stress, depression and anxiety by using multidisciplinary Psychiatry teams.

174) Staneva, A., Carmignani, F., and Rohde, N. (2022). Personality, gender, and age resilience to the mental health effects of COVID-19. *Social Science & Medicine*, 301, 1-11.

Rationale: Understanding the impact of COVID-19 on different population cohorts and which personality traits affected individual's coping responses can help identify strategies to promote self-directed behaviours, thereby enhancing and maintaining individual's mental well-being. Objective: Using longitudinal data for the UK, we examine the impact of the COVID-19 pandemic on individuals' mental well-being, focusing on age, gender, and personality traits as possible modifiers. Methods: We explore the longitudinal nature of the data using individual fixed effects models, which implicitly control for unobserved time-invariant individual-level characteristics. Our sample is an unbalanced panel consisting of 373,555 person-years observations, observed from 2009 until June 2020. Results: The negative impacts of the first months of the pandemic period are found to be larger for young adults (aged 16–25 years) and vary by personality traits. The increase in psychological distress symptoms is more pronounced for individuals who score higher in neuroticism, extroversion, and openness to experience. Indeed, for introverted young people, recent events may have actually brought a sense of calm. Other findings indicate that worsening in the psychological distress level occurs alongside with increased feelings of loneliness. Conclusions: Our findings support the theoretical knowledge that different people have different psychological and behaviour responses and personality concepts can be used when studying individual's adaptive behaviour in critical situations such as COVID-19. Our results indicate the necessity of public health programmes to assist distressed young individuals.

175) Stein, D. J., and Wessely, S. (2022). Mental disorders and COVID-19: Towards a precision public mental health approach. *European Neuropsychopharmacology*, 58, 42–43. Retrieved from [http:// www.elsevier.com/locate/euroneuro](http://www.elsevier.com/locate/euroneuro).

The Covid-19 pandemic, like previous global pandemics, has led to immense physical and mental suffering. Covid-19 has forced us to reflect on many aspects of our health services and social structures, and for psychiatry and neuropsychopharmacology a key question that the pandemic raises is how best to conceptualize the mental distress that emerges during a disaster. To what extent are models of mental disorder, such as posttraumatic stress disorder (PTSD), for example, useful when applied to Covid-19?

176) Suryavanshi, N., Kadam, A., Dhumal, G., Nimkar, S., Mave, V., Gupta, A., Gupte, N. (2020). Mental health and quality of life among healthcare professionals during the COVID-19 pandemic in India. *Brain and Behavior*, 10 (11), 1-12. doi: 10.1002/brb3.1837.

Background: The COVID-19 pandemic has placed healthcare professionals (HCP) in stressful circumstances with increased patient loads and a high risk of exposure. We sought to assess the mental health and quality of life (QoL) of Indian HCPs, the fourth highest-burden country for COVID-19. Method: Using snowball sampling, we conducted an online survey in May 2020 among HCPs. Data were collected on demographics, depression, and anxiety using validated tools, quality of life, and perceived stressors. Multivariable logistic regression and principal component analysis were performed to assess risk factors associated with mental health symptoms. Findings: Of 197 HCPs assessed, 157 (80%) were from Maharashtra, 130 (66%) from public hospitals, 47 (24%) nurses, 66 (34%) physicians, 101 (52%) females, and 81 (41%) ≤ 30 years. Eighty-seven percent provided direct COVID-19 care with 43% caring for >10 patients/day. A large proportion reported symptoms of depression (92, 47%), anxiety (98, 50%), and low QoL (89, 45%). Odds of combined depression and anxiety were 2.37 times higher among single HCPs compared to married (95% CI: 1.03–4.96). Work environment stressors were associated with 46% increased risk of combined depression and anxiety (95% CI: 1.15–1.85). Moderate to severe depression and anxiety were independently associated with increased risk of low QoL [OR: 3.19 (95% CI: 1.30–7.84), OR: 2.84 (95% CI: 1.29–6.29)]. Conclusion: Our study demonstrated a high prevalence of symptoms of depression and anxiety and low QoL among Indian HCPs during the COVID-19 pandemic. There is an urgent need to prevent and treat mental health symptoms among frontline HCPs.

177) Tang, S., Xiang, M., Cheung, T., and Xiang, Y.T. (2021). Mental health and its correlates among children and adolescents during COVID-19 school closure: The importance of parent-child discussion. *Journal of Affective Disorders*, 279, 353-360. Retrieved from www.elsevier.com/locate/jad.

Background: School closures due to the COVID-19 outbreak have affected 87% of the world's students physically, socially, and psychologically, yet rigorous investigation into their mental health during this period is still lacking. Methods: A cross-sectional online survey of 4-342

primary and secondary school students from Shanghai, China was conducted during March 13–23, 2020. Besides demographic information, psychological distress (including depression, anxiety, and stress), life satisfaction, perceived impact of home quarantine, and parent-child discussions on COVID-19 were assessed. Results: The three most prevalent symptoms were: anxiety (24.9%), depression (19.7%), and stress (15.2%). Participants were generally satisfied with life and 21.4% became more satisfied with life during school closures. Senior grades were positively correlated with psychopathological symptoms and negatively associated with life satisfaction, whereas the perceived benefit from home quarantine and parent-child discussions on COVID-19 were negatively correlated with psychopathological symptoms and positively correlated with life satisfaction. Among participants who perceived no benefit from home quarantine, those who had discussions with their parents about COVID-19 experienced less depression, anxiety, and stress. Limitations: Limitations included the inability to infer the casual relationship, no parental report for mental health of children aged 6 to 9, and the inadequate measurement of parent-child discussion. Conclusions: Mental health problems and resilience co-existed in children and adolescents during the COVID-19 outbreak. Given the important role of parent-child discussions, open communication between parents and children about the pandemic should be encouraged to help children and adolescents cope with mental health problems in public health crisis.

178) Tesson, S., Swinsburg D., and Kasparian, N. A (2021). Maintaining Momentum in Infant Mental Health Research During COVID-19: Adapting Observational Assessments. *Journal of Pediatric Psychology*, 46 (3), 254–263. doi: 10.1093/jpepsy/jsab020.

Understanding the potential effects of the COVID-19 pandemic on the developing parent-infant relationship is a priority, especially for medically-fragile infants and their caregivers who face distinct challenges and stressors. Observational assessments can provide important insights into parent child behaviors and relational risk; however, stay-at-home directives and physical distancing measures associated with COVID-19 have significantly limited opportunities for in-person observational parent-infant assessment. To maintain momentum in our research program during the pandemic, we rapidly pivoted to remote, technology-assisted parent-infant observational assessments. In this commentary, we offer a series of strategies and recommendations to assist researchers in adapting observational parent-infant paradigms. We

also discuss the benefits, challenges, and limitations of distance-delivered assessments, and offer considerations for clinical service provision and future research during and post the COVID-19 pandemic.

179) Trabucco A., Aguglia A., Amerio A., Corsini G., Cervetti, A., Escelsior, A., Amore, M. (2021). COVID-19 pandemic impact on the therapeutic setting in Mental Health Services. *Acta Biomed*, 92(S6), 1-8. doi: 10.23750/abm.v92iS6.12227

Background: The new 2019 coronavirus disease (COVID-19) outbreak forced mental health providers to overcome their general reluctance about telematic assistance, shifting from a face-to-face approach to online therapy to promote continuity of care for psychiatric patients. Methods: An ad-hoc web-based survey questionnaire assessing the impact of the COVID-19 pandemic on therapeutic setting in Mental Health Services was sent via email from March 15, 2021 to June 15, 2021 to mental health providers in Genova, Italy. The survey was anonymous and a free Google Forms® software was used. Results: Two hundred nineteen mental health providers completed the survey, and the overall response rate (ORR) was 65%. During the COVID-19 pandemic period, the continuity of care was mainly guaranteed using electronic devices. Psychologists reported a higher availability of video call assistance service to guarantee continuity of care for psychiatric patients compared to psychiatrists and psychotherapists ($p < 0,001$). Psychiatrists reported the lowest degree of satisfaction about this new telematic approach ($p < 0,01$), while psychologists and to a lesser extent psychotherapists speculated to use it even in non-pandemic times ($p = 0,02$). Conclusions: COVID-19 pandemic creates an opportunity to overcome normative, technological and cultural barriers to the use of online psychotherapy, showing the importance of adapting the therapeutic setting to both collective and individual needs. Despite initial concerns about its effectiveness and efficacy, a general degree of satisfaction was expressed by the majority of the mental health providers. Further efforts will be needed to enhance this new way of working and to train therapists with particular regard to those employed in the public health system.

180) Tso, W. W.Y., Chan, K. L., Lee, T.M.C., Rao, N., Lee, S.L., Jiang, F.,... Ip, P. (n.d.). Mental health & maltreatment risk of children with special educational needs during COVID-19. *Child Abuse & Neglect*, 1-9. Retrieved from [http:// www.elsevier.com/locate/chiabuneg](http://www.elsevier.com/locate/chiabuneg).

Background: Children with special educational needs (SEN) are more vulnerable during the COVID-19 pandemic with risk of poor mental wellbeing and child maltreatment. Objective: To examine the impact of COVID-19 on the mental health of children with SEN and their maltreatment risk. Participants and setting: 417 children with SEN studying at special schools and 25,427 children with typical development (TD) studying at mainstream schools completed an online survey in April 2020 in Hong Kong during school closures due to COVID-19. Method: Emotional/behavioural difficulties, quality of life and parental stress of children with SEN were compared with typically developed children using mixed effect model. Linear regression analyses were performed to explore factors associated with child emotional/behavioural difficulties and parental stress during the pandemic. Chi-square test was performed to detect the differences in maltreatment risk before and during COVID-19.

181) Uhr, L., Rice, D. R., and Mateen, F. J. (2021). Sociodemographic and clinical factors associated with depression, anxiety, and general mental health in people with multiple sclerosis during the COVID-19 pandemic. *Multiple Sclerosis and Related Disorders*, 56, 1-7. Retrieved from [http:// www.elsevier.com/locate/msard](http://www.elsevier.com/locate/msard).

Background: People with multiple sclerosis (PwMS) may be at increased risk for psychological distress during COVID-19. We study the self-reported mental health of U.S. PwMS during COVID-19, prior to vaccine rollout. Methods: A cross-sectional survey was distributed online to PwMS through iConquerMS (12/18/2020–02/10/ 2021). Depressive and anxiety symptom burdens and general mental health status were measured via the Patient Health Questionnaire-9, Generalized Anxiety Disorder-7, and PROMIS Global Mental Health scales. Linear regression models assessed associations between mental health variables and age, sex, disability status, comorbidities, and social determinants of health. Results Of 610 U.S. PwMS (mean age 56 years, standard deviation 11, range 20–85; female, 81%; relapsing remitting disease, 62%; previous depression diagnosis, 40%), the prevalences of moderate-to-severe depressive and anxiety symptom burden were 27.4% and 14.7%, respectively; 55.1% endorsed fair/poor general mental health. PwMS who tested positive for COVID-19 (n = 47, 7.7%) reported higher depressive and anxiety symptom burdens ($p < 0.05$). Increased disability status score and social determinants of health were each associated with more depressive symptoms and worse general mental health. Younger age was associated with increased depressive and anxiety symptom burdens and worse

general mental health. Female sex was associated with greater anxiety symptoms. Conclusion: There are specific associations for worse mental health among PwMS during COVID-19 that reflect a combination of clinical, demographic, and social determinants of health. Multidisciplinary care teams and vigilance are important to address the ongoing mental health impacts of COVID-19 in PwMS.

182) Velden, P. G. v. d., Bakel, H. J. A. v., and Das, M. (2022). Mental health problems among Dutch adolescents of the general population before and 9 months after the COVID-19 outbreak: A longitudinal cohort study. *Psychiatry Research*, 311, 1-6. Retrieved from <http://www.elsevier.com/locate/psychres>.

The aim of the present study is to examine whether the COVID-19 pandemic has increased the risk of mental health problems (MHP) in adolescents nine months post-outbreak. For this purpose, a longitudinal cohort study was conducted based on a probability sample of the Dutch population. We compared the prevalence and incidence of MHP in 16–20 year-old adolescents in November-December 2020 (N = 251) with the prevalence and incidence in adolescents in November-December 2012 (N = 346) and November-December 2016 (N = 253). Results showed a higher prevalence of moderate anxiety and depression symptoms in the 2020 than in the 2012 and 2016 cohorts, but differences in mean scores were absent or small. The prevalence of sleep problems, fatigue, use of medicines for symptoms did not differ between the three cohorts. The use of mental health services was more prevalent in the 2020 than in 2016 cohort, but there was already a statistical trend of higher use in the 2016 compared to the 2012 cohort. No differences in the incidence of any MHP, based on data of the previous year (2011, 2015, and 2019, respectively) were found. Results suggest a very limited negative effect of this pandemic on MHP among Dutch adolescents 9 months post-COVID-19 outbreak.

183) Venugopal, V. C., Mohan, A., and Chennabasappa, L. K. (2020). Status of mental health and its associated factors among the general populace of India during COVID-19 pandemic. *Asia Pacific Psychiatry*, 1-3. Retrieved from <https://doi.org/10.1111/appy.12412> .

The COVID-19 is an international public health emergency and threatens psychological resilience. Here we assess the general health status of the public in India during the COVID-19

outbreak. A population-based cross-sectional study conducted using a General Health Questionnaire and the relationship between mental health and sociodemographic factors were analyzed. The mean score for the general health of citizens was 24.18. About 40.63% of the elderly and 40.18% of the female population was under severe physiological distress. The prevalence of psychological stress among the general population was higher than expected. Hence, there is a need to intensify awareness about the pandemic and should provide mental health management programs.

184) Wang, X., Li, H., Sun, C., Zhang, X., Wang, T., Dong, C., and Guo, D. (2021). Prediction of Mental Health in Medical Workers During COVID-19 Based on Machine Learning. *Frontiers in Public Health*, 9, 1-13. doi: 10.3389/fpubh.2021.697850.

Mental health prediction is one of the most essential parts of reducing the probability of serious mental illness. Meanwhile, mental health prediction can provide a theoretical basis for public health department to work out psychological intervention plans for medical workers. The purpose of this paper is to predict mental health of medical workers based on machine learning by 32 factors. We collected the 32 factors of 5,108 Chinese medical workers through questionnaire survey, and the results of Self-reporting Inventory was applied to characterize mental health. In this study, we propose a novel prediction model based on optimization algorithm and neural network, which can select and rank the most important factors that affect mental health of medical workers. Besides, we use stepwise logistic regression, binary bat algorithm, hybrid improved dragonfly algorithm and the proposed prediction model to predict mental health of medical workers. The results show that the prediction accuracy of the proposed model is 92.55%, which is better than the existing algorithms. This method can be used to predict mental health of global medical worker. In addition, the method proposed in this paper can also play a role in the appropriate work plan for medical worker.

185) Willey, B., Mimmack, K., Gagliardi, G., Dossett, M. L., Wang, S., Udeogu, O. J.,... Vannini, P. (2022). Racial and socioeconomic status differences in stress, posttraumatic growth, and mental health in an older adult cohort during the COVID-19 pandemic. *eClinicalMedicine*, 45, 1-12. Retrieved from <https://doi.org/10.1016/j.eclinm.2022.101343>.

Background The COVID-19 pandemic has disproportionately impacted the most vulnerable and widened the health disparity gap in both physical and mental well-being. Consequentially, it is vital to understand how to best support elderly individuals, particularly Black Americans and people of low socioeconomic status, in navigating stressful situations during the COVID-19 pandemic and beyond. The aim of this study was to investigate perceived levels of stress, posttraumatic growth, coping strategies, socioeconomic status, and mental health between Black and nonHispanic, White older adults, the majority over the age of 70. Additionally, we investigated which variables, if any, were associated with posttraumatic growth in these populations. Methods One hundred seventy-six community dwelling older adults (mean age = 76.30 §8.94), part of two observational studies (The Harvard Aging Brain Study and Instrumental Activities of Daily Living Study) in Massachusetts, US, were included in this cross-sectional study. The survey, conducted from March 23, 2021 to May 13, 2021, measured perceived stress, behavioral coping strategies, posttraumatic growth, and mental health during the COVID-19 pandemic. We investigated associations with post-traumatic growth in a multiple linear regression model and examined their differences by race with t-tests, Wilcoxon rank-sum tests, and Fisher’s exact tests. A second multiple linear regression model was used to examine which coping strategies were associated with posttraumatic growth. Findings Our results indicated no significant difference between the groups in terms of mental health or stress. However, Black participants showed significantly greater posttraumatic growth compared to non-Hispanic, White participants. Additionally, the coping strategies of religion and positive reframing were found to be significantly associated with posttraumatic growth. Furthermore, even with the effects of stress and coping strategies controlled for, race remained significantly associated with posttraumatic growth. Interpretation The COVID-19 pandemic has differentially impacted Black and non-Hispanic White older adults. These results may help encourage further analysis on geriatric psychiatry as well as understanding how cultural values and adaptations impact posttraumatic growth and mental health in diverse populations.

186) Xionga, J., Lipsitzc, O., Nasric, F., Luic, L. M.W., Gillic, H., Phanc, L., McIntyre, R. S. (2020). Impact of COVID-19 pandemic on mental health in the general population: A systematic review. *Journal of Affective Disorders*, 277, 55-64. Retrieved from www.elsevier.com/locate/jad.

Background: As a major virus outbreak in the 21st century, the Coronavirus disease 2019 (COVID-19) pandemic has led to unprecedented hazards to mental health globally. While psychological support is being provided to patients and healthcare workers, the general public's mental health requires significant attention as well. This systematic review aims to synthesize extant literature that reports on the effects of COVID-19 on psychological outcomes of the general population and its associated risk factors. Methods: A systematic search was conducted on PubMed, Embase, Medline, Web of Science, and Scopus from inception to 17 May 2020 following the PRISMA guidelines. A manual search on Google Scholar was performed to identify additional relevant studies. Articles were selected based on the predetermined eligibility criteria. Results: Relatively high rates of symptoms of anxiety (6.33% to 50.9%), depression (14.6% to 48.3%), posttraumatic stress disorder (7% to 53.8%), psychological distress (34.43% to 38%), and stress (8.1% to 81.9%) are reported in the general population during the COVID-19 pandemic in China, Spain, Italy, Iran, the US, Turkey, Nepal, and Denmark. Risk factors associated with distress measures include female gender, younger age group (≤ 40 years), presence of chronic/psychiatric illnesses, unemployment, student status, and frequent exposure to social media/news concerning COVID-19. Limitations: A significant degree of heterogeneity was noted across studies. Conclusions: The COVID-19 pandemic is associated with highly significant levels of psychological distress that, in many cases, would meet the threshold for clinical relevance. Mitigating the hazardous effects of COVID-19 on mental health is an international public health priority.

187) Xu, J., Sun, R., Li, Y., Chen, X., Yiu, W. Y. V., Zhou, N., Liu, L. (2022). Subtypes of social withdrawal and mental health trajectories during COVID-19 pandemic. *Journal of Research in Personality*, 97, 1-7. Retrieved from www.elsevier.com/locate/jrp.

The outbreak of Coronavirus Disease 2019 (COVID-19) has pervasive implications for the well-being of people, especially for the social withdrawn individuals. The present study examined changes of well-being among people in distinct subgroups of social withdrawal – shyness, unsociability, and social avoidance –in different phases of the COVID-19 pandemic using six-wave longitudinal data in China (N = 222; 54.50% female). Results showed that, in general, well-being sharply decreased from the initial phase to the peak phase of the pandemic, but steadily recovered after the peak phase. People in different withdrawal groups displayed different

levels and trajectories of well-being during a period of six months. The current study has implications for developing targeted interventions for vulnerable people in public health crisis.

188) Yellowlees, P. (2022). Impact of COVID-19 on Mental Health Care Practitioners. *Psychiatric Clinics of North America*, 45(1), 109-121. Retrieved from <https://doi.org/10.1016/j.psc.2021.11.007>.

COVID-19 has been described as a forced experiment that has had a major impact on mental health practitioners, including psychiatrists, who even before the pandemic were struggling at best with workforce shortages across most of the mental health disciplines. In 2019 approximately half of all patients with significant mental health problems were either not receiving any form of care, or not being treated by a mental health professional of any description. In 2017 future shortages of psychiatrists by 2025 were estimated at between 14,000 and 31,000 following many years of reduced training activities and residency positions, in the setting of an expanding population and increasing needs.

189) Telehealth Resource Webliography for COVID-19 Pandemic// Compiled by Michael Edwards, PhD, Northeast Telehealth Resource Center, January 28, 2021 Look for updates at the NETRC website. Retrieved from <https://netrc.org/docs/COVID-19-Epidemic-Telehealth-Toolkit-NETRC-March-2020.pdf>

190) Pineda, V. S., & Corburn, J. (2020). Disability, urban health equity, and the coronavirus pandemic: promoting cities for all. *Journal of Urban Health*, 97(3), 336-341.

Web Resources

- <https://www.who.int/docs/default-source/coronaviruse/covid-strategy-update-14april2020.pdf>
- https://unstats.un.org/unsd/ccsa/documents/covid19-report-ccsa_vol2.pdf
- <https://www.un.org/sexualviolenceinconflict/wp-content/uploads/2020/06/report/policy-brief-the-impact-of-covid-19-on-women-en-1.pdf>
- www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/documents/briefingnote/wcms_738753.pdf

- <https://www.who.int/publications/i/item/WHO-WHE-2021.02/COVID-19> Strategic Preparedness and Response Plan (SPRP 2021)
- <https://apps.who.int/iris/bitstream/handle/10665/335940/WHO-EURO2020-1148-40894-55356-eng.pdf>

*_*_*

Webliography on Amphan Cyclone

Policy, Practice and Strategy Documents on Amphan Cyclone

1) Boyland, Michael and Adelina, Charlotte. Covid-19, Cyclone Amphan and building back better. Stockholm Environment Institute. June 2,2020.

Cyclone Amphan hitting India and Bangladesh during the Covid-19 pandemic has exposed people to complex and multiple risks. While the “build back better” narrative is popular, it has limitations. Lessons need to be learned from recent recoveries from major disasters. The “build back better” narrative is popular in debate on the Covid-19 recovery, but it has limitations, and there are lessons to learn from recent recoveries from major disasters. The disaster risk reduction (DRR) community should play a strong role in recovery efforts. As DRR moves towards a more holistic perspective on risk, the timing is right to do so. One only needs to look at Cyclone Amphan hitting India and Bangladesh during the pandemic to see the complex and systemic nature of risk. www.sei.org/perspectives/covid-19-cyclone-amphan-and-building-back-better/

2) Complex roads to recover: Covid – 19, Cyclone Amphan Flooded, Monsoon flooding Collide in Bangladesh and India.7 October,2020.

On the morning of May 20, 2020, Tropical Cyclone Amphan (“Amphan”) slammed into India and Bangladesh. It made landfall first in the eastern Indian states of West Bengal and Odisha, lashing them with wind speeds of up to 210 km/h. Nearly 60 million people across India felt Amphan’s effects—in which at least 95 people lost their lives, hundreds of thousands had to be evacuated to temporary shelters, and more than 2.9 million homes were damaged or destroyed. The storm washed away about 1.7 million hectares of productive cropland and aquaculture farms and killed 2.1 million animals. www.refugeesinternational.org/reports/2020/10/5/complex-road-to-recoverynbspcovid-19-cyclone-amphan-monsoon-flooding-collide-in-bangladesh-and-india

3) Danda, Anamitra Anurag, Ghosh, Nilanjan [et. al]. Cyclone Amphan and the delta: Initial observations and long-term policy imperatives. May 22, 2020.Observer Research Foundation.

This essay comes from Kolkata in midst of the ravages that super cyclonic storm Amphan has left us with. South West Bengal that entails the Ganges delta (where Kolkata is located) has borne the brunt of the rage of the monstrous catastrophe that is unprecedented in recent history. Till now, reportedly 76 lives are lost, and the property damages are immeasurable. The visibly massive damages to the urban infrastructure in Kolkata can make one realise the severity of the damages to the coastal regions and the Indian Sundarbans delta (ISD) that faced the direct initial impacts of the cyclone in its heightened intensity.

<https://www.orfonline.org/expert-speak/cyclone-amphan-and-the-delta-initial-observations-and-long-term-policy-imperatives-66566/>

4) Das, Goutam Kumar. Amphan - Maiden Super Cyclone of the Century. Frontier: An independent weekly since 1968.2020

Super Cyclonic Storm Amphan bears over North & South 24 Parganas districts and Kolkata on 20 May, 2020 barreling in from the Bay of Bengal with the wind speed of up to 185km/h where it claimed 80 lives in West Bengal and 16 killed as storm hits Bangladesh coast causing heavy rains and dal surges. Three deaths were reported including that of a 3 months old girl in Odisha as extremely severe cyclonic storm Amphan barreled on 20 May. In Kolkata metropolis, it is tall trees that are first assailed by the storm. Huge damage of proper es, houses and households, large trees, bamboo groves, communication and electric poles etc as reported due to the Super Cyclonic Storm Amphan leads to a severe natural disaster. In the morning of 21 May, Super Cyclonic Storm Amphan lies as a well-marked low over North Bangladesh and adjoining area. Weather office hopes that there will be no further threat for the Gangetic West Bengal including severely damaged and destroyed North & South 24 Parganas and Kolkata. https://www.researchgate.net/publication/341614913_Amphan_-_Maiden_Super_Cyclone_of_the_Century

5) Das, Sayantan; Das, Abhijit; Kar, Nabendu Sekhar; Bandyopadhyay, Sunando. Cyclone Amphan and its impact on the Lower Deltaic West Bengal: a preliminary assessment using remote sensing sources. Current Science.119(8):1246-1249

Amphan', the first Super Cyclone to form in the Bay of Bengal since the 1999 Odisha Super Cyclone, left a devastating impact on the Lower Deltaic West Bengal, coastal districts of Odisha, and parts of Bangladesh. Despite the evacuation and other safety measures taken by the administration, it caused massive damages in the aforementioned regions. Cyclogenesis of the Amphan resulted with the formation of a convective low-pressure system in the southeastern Bay of Bengal on 13 May 2020, which rapidly strengthened into a Super Cyclonic Storm on 18 May 2020 at 11:30 IST with a sustained wind speed of 222 km/h. The Amphan made its landfall between 15:30 and 17:30 IST on 20 May 2020, and then continued as a Very Severe Cyclonic Storm for the next 6 hours. Because the Amphan's passage through the seafront occurred during low tide, the storm surge elevations were not exceptional, and saved the region from further damages. https://www.researchgate.net/publication/344806941_Cyclone_Amphan_and_its_impact_on_the_Lower_Deltaic_West_Bengal_a_preliminary_assessment_using_remote_sensing_sources

The intersecting impacts of COVID-19 and climate change are compounding the vulnerabilities of coastal communities. This paper examines the disastrous effects of cyclone Amphan in the Bengal delta region of the Indian Sundarbans amidst a countrywide lockdown triggered by the pandemic, and their cascading consequences for a rural community inhabiting this climate hotspot. It highlights the livelihood crisis experienced by internal rural-urban migrant workers who returned to their villages in the Sundarbans from other Indian states under challenging conditions. Triangulating data from interviews with return migrants, literature, and policy documents, the paper argues for a move beyond the traditional short-term, relief-based responses. It proposes integrating a rural community's long-term economic recovery and self-reliance as a pillar of policy dialogues on climate change and mobility at national and regional scales.

6) DuttaGupta, Tanaya, Chakraborty, Amrita and Danda, Anamitra Anurag. Confronting Cascading Disasters, Building Resilience: Lessons from the Indian Sundarbans. Observer Research Foundation. Issue no. 297, JANUARY 2021.

The intersecting impacts of COVID-19 and climate change are compounding the vulnerabilities of coastal communities. This paper examines the disastrous effects of cyclone Amphan in the Bengal delta region of the Indian Sundarbans amidst a countrywide lockdown triggered by the pandemic, and their cascading consequences for a rural community inhabiting this climate hotspot. It highlights the livelihood crisis experienced by internal rural-urban migrant workers who returned to their villages in the Sundarbans from other Indian states under challenging conditions. Triangulating data from interviews with return migrants, literature, and policy documents, the paper argues for a move beyond the traditional short-term, relief-based responses. It proposes integrating a rural community's long-term economic recovery and self-reliance as a pillar of policy dialogues on climate change and mobility at national and regional scales.

https://www.orfonline.org/wp-content/uploads/2021/01/ORF_OccasionalPaper_297_Resilience-Sundarbans_NEW.pdf

7) Goswami, Avantika. Cyclone Amphan reinforces urgent need for climate adaptation planning. Columbia Climate School. May 26, 2020.

Super cyclone *Amphan* (alluding to the Thai word for “sky”) developed in the Bay of Bengal as the strongest cyclone ever to be recorded in the region, comparable to a Category 5 hurricane. On the evening of May 20th, Amphan made landfall in the Indian state of Bengal as a Category 2 cyclone, first ripping through the Sundarbans delta, and then proceeding north and east to rural Bengal and the capital city of Kolkata. For a region that is already strained by the impacts of COVID-19, the cyclone is an unprecedented environmental and social disaster, and provides a multi-faceted case study showing how urgently the world needs to begin adapting to the changing climate. By building resilience into our infrastructure and communities, we can reduce the damages from natural disasters and recover from shocks more easily.

<https://news.climate.columbia.edu/2020/05/26/cyclone-amphan-climate-adaptation/>

8) International Water Management Institute. Cyclone Amphan and Covid -19 the recipe for a cascading disaster. June 10,2020.

Amidst the ongoing global pandemic that is ravaging India, West Bengal has witnessed its deadliest cyclone in decades. In what is known as a cascading disaster, relief work and rehabilitation are made even more difficult. Cyclone Amphan made landfall on 20 May and caused unprecedented havoc. The city of Kolkata witnessed four non-stop hours of intense winds (90-130 kmph) that evening. Elderly residents said they had never witnessed anything like this in their living memories.

www.iwmi.cgiar.org/2020/06/cyclone-amphan-and-covid-19-the-recipe-for-a-cascading-disaster/

9) Joint Rapid Need Assessment Report on Cyclone Amphan, State Inter Agency Group West Bengal,2020

As per State Inter Agency Group West Bengal Standard Operating Procedures, adapted to address the COVID 19 pandemic scenario prevailing in West Bengal, Joint Rapid Needs Assessment (JRNA) were conducted across the super cyclone affected districts of the state through field visits, sample survey, focus group discussions. Also, some information was collected remotely using smart phones. The aim was to gather information on Humanitarian Response initiatives, disseminate the information to other State, National and International level agencies, collation & analysis of the findings as well as recovery needs. This was truly an experience of Multiple Disaster with COVID 19 as a pandemic and on the top of it some parts of the state faced the Super Cyclone AMPHAN – completely new for all. However, the Humanitarian Response activities need to be seen with a different lens than conventional approach of Disaster Management activities.

nidm.gov.in/covid19/PDF/covid19/state/West%20Bengal/223.pdf

10) Mitra, Partha Pratim. Lessons from Cyclone Amphan: Need to rethink development strategy. South Asia Monitor. May 25 ,2020.

Cyclone Amphan, pronounced as Um-pun in Thai, means the sky. The cyclone has literally shown us the sky and what is in store for us, if we do not care for it while we get back to our routine with the business-as-usual approach. The mangrove forests of the Sundarbans form a powerful natural barrier that protects Kolkata Metropolitan Region's roughly 14 million inhabitants and other human settlements from adverse natural events which otherwise would have hit the metropolis and its neighborhood in a more disastrous way. Amphan has left 82 dead and about 40 percent of the trees uprooted in southern districts of West Bengal. It also left its mark in the coastal districts in the adjoining state of Odisha.

www.southasiamonitor.org/spotlight/lessons-cyclone-amphan-need-rethink-development-strategy

11) Rahman, Yezdani. Cyclone Amphan: Building back with resilient infrastructure and community engagement. Down to Earth. March 5,2020.

Strengthening resilience to climate-related hazards is an urgent target of Goal 13 of the United Nations-mandated Sustainable Development Goals (SDG). Stocking emergency supplies or preparing a family evacuation plan can substantially minimise loss and damages from natural hazards. However, the level of preparedness among households is often low even in disaster-prone areas. Studies have shown that human suffering and other damage do not end with the event itself. Therefore, there is a need to focus on the complicated process of recovery and reconstruction in the months and years following a disaster.

<https://www.downtoearth.org.in/blog/environment/cyclone-amphan-building-back-with-resilient-infrastructure-and-community-engagement-75777>

12) Ray, Saon, Jain, Samridhi and Thakur, Vasundhara. India's disaster risk resilience strategy: lessons from cyclones in Odisha. ResearchGate. June2020.

This article assesses the different cyclones that have occurred over the years in Odisha and aims to collate the lessons learnt from each of them. Four major cyclones, the Super Cyclone, Phailin, Hudhud, and Fani have occurred in Odisha since 1999. In each of them, the preparedness of the state government has helped in limiting the number of deaths by adopting better evacuation techniques and early warning systems. The Disaster Risk Reduction (DRR) strategy of the country also evolved due to lessons learnt from each of these cyclones. This article explores some policy measures (DRR strategies) which can be considered to mitigate the destruction caused by disasters.

https://www.researchgate.net/publication/342009119_India's_disaster_risk_resilience_strategy_1_essons_from_cyclones_in_Odisha

13) Relief Web. HCTT Response Plan - Cyclone Amphan - United Nations Bangladesh Coordinated Appeal (June - September 2020). June 1, 2020.

On 20 May 2020, Cyclone Amphan made landfall near Jammu Island, West Bengal at 5.00 pm BST with 130-140 km/h wind speed. 26 people lost their lives and that 7 people were injured due to falling of trees, boat capsizes, wall collapses and drowning. The cyclone affected 10 million vulnerable people in 19 districts.

According to preliminary reports collected by the Ministry of Disaster Management and Relief (MoDMR), 330,667 houses were damaged including 55,667 totally destroyed in nine (9) most impacted districts: Khulna, Satkhira, Barguna, Bhola, Patuakhali, Pirojpur, Noakhali, Bagerhat and Jessore. The cyclone led to the internal displacement of 100,000 persons.

While national authorities are measuring the full scale of the damages, early reports inform that Cyclone Amphan created damages worth US\$ 130 million. It includes damage to the electricity network, schools (2,000), bridges and culverts (200), embankments (150 kilometers), roads (1,100 kilometers), sources of drinking water (220), local administration and community infrastructures.

<https://reliefweb.int/report/bangladesh/hctt-response-plan-cyclone-amphan-united-nations-bangladesh-coordinated-appeal>

14)Ahamed, K. K. B., and Pandey, A. C. (2021). Characterization and impact assessment of super cyclonic storm AMPHAN in the Indian subcontinent through space borne observations. *Ocean and Coastal Management*, 205, 1-12. Retrieved from <http://www.elsevier.com/locate/ocecoaman>.

Tropical cyclones can cause extensive damage in coastal regions as a result of high winds, storm tide, and intense rainfall. The West Bengal state in India was severely affected by a recent cyclonic storm 'Amphan' a 'super cyclone' with a high wind speed of above 220 km/h. The present study aimed to assess the impact of the cyclone Amphan in the potential impact zone covering the two states of India (Odisha and West Bengal) and the west coast of Bangladesh. The present study analyzed the land use land cover, rainfall variability, and potential storm surge along the cyclone track to assess the possible impact on the coastal landscape as well as community. The cyclone Amphan was formed in the Northern Indian Ocean near Equatorial Easterly wave over south Andaman Sea and adjoining southeast Bay of Bengal (BoB) at 10° N 87° E on 16 May 2020 as deep depression and moved toward the north direction and had land fall at the coast of West Bengal on 20 May 2020 as an extremely severe cyclonic storm with the wind speed 155 km/h and central pressure of 960hpa. The cyclone devastated the coastal districts

of West Bengal due to the high intensity of precipitation along with the extreme storm surge. About 100 people lost their lives and ~20 million people severely affected in West Bengal alone. Within the West Bengal state, around 7877 sq km area was observed under the potential storm surge zone. Cropland was observed as the most surge affected land cover with 5191 sq km area (65.9%), followed by wetlands (1635.2 sq km (20.75%) along with 38.34 sq km (0.48%)) of built-up land under the potential surge impact zone. The cyclone more severely affected the west Medinipur and South 24 Parganas, which were also the most affected by COVID-19 which resulted in slow evacuation, delay in medical support and concomitant increase in loss of life. The present study provided near real time cyclone hazard and risk assessment to help in prioritization of coastal mitigation and planning.

15) Ahmed, R., Mohapatra, M., Dwivedi, S., and Giri, R. K. (2021). Characteristic features of Super Cyclone 'AMPHAN'- observed through satellite images. *Tropical Cyclone Research and Review*, 10 (1), 16-31. Retrieved from <https://doi.org/10.1016/j.tcr.2021.03.003>.

Characteristic features of Super Cyclonic Storm (SuCS), AMPHAN which crossed West Bengal-Bangladesh Coast on May 20, 2020 have been analyzed based on INSAT-3D & passive microwave (PMW) images with special emphasis on eye characteristics and its relationship with intensity. These satellite images/products are analyzed to determine the centre of the cyclone, its intensity and the characteristics of the eye of the cyclone. It shows the characteristic variation of intensity of SuCS with geometric and thermal characteristics of the 'eye'. Precise changes in the eye features of the cyclone can be used for very short-range forecasting of the intensity of the cyclone.

16) Alam, M. S., and Chakraborty, T. (2021). Understanding the nexus between public risk perception of COVID-19 and evacuation behavior during cyclone Amphan in Bangladesh. *Heliyon*, 7 (7), 1-13. Retrieved from www.cell.com/heliyon. In May 2020, when Bangladesh was struggling with community transmission of COVID-19, the country had to face the strongest tropical storm- Cyclone Amphan -which puts the evacuation process in jeopardy. Thus, it is crucial to measure the public risk perception about COVID-19 and its influence on the evacuation decision. This study explores the nexus between COVID-19 risk perception and coastal peoples' evacuation decisions during cyclone Amphan. With an analysis of 378 sample households survey data of the Satkhira district, this study developed the COVID-19 risk perception index using Principal Component Analysis (PCA) and categorized the respondents based on the score. The result shows that 1.85 %, 21.43 %, 45.77 %, 25.13 %, and 5.82 % have very low, low, moderate, high, and very high-risk perceptions, respectively. The analysis also reveals that 96.6 % of the respondents received an evacuation order during Amphan, but only 42 % complied with the order. The t-test analysis and common language effect size test of the survey data reveal that the respondents with a high perception score are 65 % less likely to evacuate than the respondents with low perception scores. This study has important implications in guiding concerned authorities to combat natural disasters during COVID-19 and other similar public health emergencies in the future.

17) Bhowmick, S. A., Agarwal, N., Sharma, R., Sundar, R., Venkatesan, R., Prasad, C.A., and Navaneeth, K. N. (2020). Cyclone Amphan: oceanic conditions pre- and post-cyclone using in situ and satellite observations. *Current Science*, 119 (9), 1510-1516. doi: 10.18520/cs/v119/19/1510-1516.

Amphan, a category-5 tropical cyclone, originated over Bay of Bengal (BoB) and had a landfall in West Bengal, India on 20 May, causing havoc in the region. In this study, in-situ buoy and various satellite measurements are used to analyse the ocean condition before and after the storm, primarily from the air–sea interaction perspective. Widespread anomalous warming was observed in BoB before the event, due to high net surface insolation received by the ocean. The warm SST anomalies in the central BoB were coincident with anti-cyclonic warm core eddies, implying availability of higher oceanic heat content. Observations from BD13 buoy, close to the cyclone track showed heating of the overlying atmosphere due to this ocean warming. Strong surface cooling was observed after passage of the cyclone due to wind induced upper-ocean mixing that is stimulated by low stratification in BoB.

18) Chacko, N., and Jayaram, C. (2022). Response of the Bay of Bengal to super cyclone Amphan examined using synergistic satellite and in-situ observations. *Oceanologia*, 64 (1), 131-144. Retrieved from www.journals.elsevier.com/oceanologia.

Tropical cyclone Amphan is the first super cyclone that happened in the north Indian Ocean in the last 20 years. In this work, multi-platform datasets were used to investigate the responses of the upper ocean to cyclone Amphan. The most striking response was the cold wake left by the cyclone spanning the entire Bay of Bengal with an amplitude up to $\sim 4^{\circ}\text{C}$. Satellite salinity observations revealed that the maximum increase in surface salinity was ~ 1.5 PSU on the right side of the track of Amphan. Surface circulation was also observed to be modulated with the passage of a cyclone with a rightward bias in the change in its speed and direction. The currents observed from a moored buoy showed strong inertial oscillations. Argo observations showed that changes induced by the cyclone occurred up to 150 m depth of the cyclone and ocean heat content in the upper 150 m depth decreased due to the passage of the cyclone. There was an enhancement of surface chlorophyll concentration (~ 1.5 mg/m³) after the passage of the cyclone, which was centred along the track of the cyclone where the winds were the highest. Mixed layer heat and salinity budget analysis showed that the sea surface cooling and increase in salinity was primarily driven by vertical mixing processes, though horizontal advection contributed meagerly. This study also brings forward the fact that regional differences exist in the responses of the ocean to the forcing of cyclones.

19) Chakraborty, A., Srikanth, P., Murthy, C. S., Rao, P. V. N., and Chowdhury, S. (2021). Assessing lodging damage of jute crop due to super cyclone Amphan using multi-temporal Sentinel-1 and Sentinel-2 data over parts of West Bengal, India. *Environmental Monitoring and Assessment*, 193 (8), 1-18. Retrieved from <https://doi.org/10.1007/s10661-021-09220-w>. The present study is a maiden attempt to assess jute crop lodging due to super cyclone Amphan (20 May 2020) by synergistic use of Sentinel-2 (optical) and Sentinel-1 (SAR) data over part of West Bengal, India. Pre-event Sentinel-2 data (9 April, 14 May) along with the ground information were used to map the jute crop of the affected districts with accuracy of 85%. The cross-polarized backscatter (σ_0 VH) of Sentinel-1 was found to be sensitive to the sudden change in the canopy structure due to lodging and partial flooding. $\Delta \sigma_0$ VH (σ_0 VH_{22 May}– σ_0 VH_{16 May}) indicating post-event damage was >2.5 dB over the affected jute crop and σ_0 VH (σ_0 VH_{22 May}– σ_0 VH_{28 May}) representing post-event recovery showed >1.5 dB for recovered crop, depending on the crop vigor/height. Decision matrix was prepared combining $\Delta \sigma_0$ VH and σ_0 VH for NDVI-based crop vigor strata (low, medium, and high) to classify the area into affected, marginally affected and normal. Overall accuracy of the classified map was found to be 84.12% with kappa coefficient of 0.74. Nearly, 12.5% of the jute area, i.e.,

38,119 ha was found to be either affected or marginally affected due to Amphan and distributed in the southern part of Murshidabad, north-eastern Nadia, northern 24 Parganas (N), and middle region of Hooghly district. Geospatial map of block-wise affected jute area was prepared to facilitate informed decision making. The study demonstrated an operational methodology for assessing crop lodging due to natural calamities to support relief management and crop insurance.

and creating more job opportunities.

20) Devia, M., Patgiria, S., Medhi, A., Das, S., Barbara, A. K., and Saikia, M. (2021). Impact of amphan cyclone on environment modification. *Geomatics, Natural Hazards and Risk*, 12 (1), 3114-3139. Retrieved from <https://doi.org/10.1080/19475705.2021.1994023>.

The Amphan a Tropical super Cyclone (TC) had grown in the background of high Sea Surface Temperature of 320 C-340C, over the Bay of Bengal and in an artificially controlled pollution-free status of the Indian zone during the COVID-19 lockdown; thus, providing an opportunity in examining the cyclone effects on the atmospheric dynamics in this special background. The paper presents the contributions of the Amphan wind to the atmosphere/environment of the North Eastern (NE) part of India along its track-path, after its landfall at 24.650 N, 88.300 E on May 20, 2020. The analysis supported by the troposphere temperature, relative humidity, precipitation, and suspended particles along with respective temporal and spatial profiles, finally offered that the Amphan-wind had brought down the temperature for a weeklong period, reduced the pollution level by 20% to 30% for more than a week but produced short-lived changes in humidity and precipitation over the NE-zone. The contribution of pollution is brought in to ambit of discussion to the weeklong sustenance of low temperature and in reducing the precipitation intensity when the growth environment of the CCN was artificially curtailed. The data sources are ground-based sensors, AWS, model profiles, and satellite observations.

21) Hishan, S. S., Ramakrishnan, S., Mansor, N. N. b. A., Rahim, R., Chuan, L. T., Mahmood, A., and Beri, N. (2021). Understanding disaster risk and development of resilience as one of the fundamental drivers of sustainable development in India with special reference to super cyclone Amphan. *International Journal of Disaster Risk Reduction*, 62, 1-6. Retrieved from www.elsevier.com/locate/ijdrr.

Disaster like the super cyclone Amphan which devastated the states of West Bengal and Odisha in India caused severe disruption to the life, and led to widespread economic losses which surpassed the proficiency of the society to overcome with sustenance from its own assets. The main prospect for disaster risk reduction lies in decreasing susceptibility and exposure to such hazards. In our study, we targeted identification and lessening the factors driving the risk, to understand risks of hazards such as Amphan. Thereafter, we explained the pathways of understanding disaster risks and ways of building resilience involving every section of society, government, nongovernmental organizations including the private sector which may influence sustainable development. We summarized that disaster mitigation required a people-oriented multi-sector methodology which may help build resilience to manifold, surging and interrelating hazards and generating principles of deterrence and resilience through all societal sections. The developmental plan of actions discussed to ensure disaster resilience, needs to permeate through all societal levels including the financial structure, risk-sharing strategies and social safety device mechanisms. Significant prospects to achieve synergies between actions intended to strengthen resilience may help to achieve progress towards the achievement of disaster risk reduction.

Understanding the risk of a disaster like Amphan, developing resilience against it to create sustainable development had not been explored previously. The paper reported insight into the ways adapted by central & state government and the local bodies to reduce the risk and build resilience against a disaster like Amphan.

22) Kumar, R., Rani, S., and Maharana, P. (2021). Assessing the impacts of Amphan cyclone over West Bengal, India: a multi-sensor approach. *Environmental Monitoring and Assessment*, 193 (5), 1-21. Retrieved from <https://doi.org/10.1007/s10661-021-09071-5>.

Landfall of the Amphan (very severe cyclonic storm) occurred at 1730 hrs. Indian Standard Time (IST) on May 20, 2020, near the West Bengal (W.B.) coast of India. High wind speed, storm surge, and torrential rainfall-induced flooding caused devastation in W.B. The present study aims to analyse the impacts of Amphan cyclone on land use/land cover (LULC) such as built-up area, cropland, brickkiln industries and vegetation cover of nine districts of W.B. namely, Bardhaman, Nadia, North 24 Parganas, South 24 Parganas, Purba Medinipur, Paschim Medinipur, Haora, and Kolkata. Flood extent has been mapped using Sentinel-1A and B interferometric wide swath (IW) ground range detected (GRD) VV polarisation images dated May 22, 2020. The total actual flooded area covers 488 km² of the study area. For the pre-cyclone period, LULC classification and normalised difference vegetation index (NDVI) have been done using Sentinel-2B multispectral instrument (MSI) images dated May 14, 2020. Post-cyclone NDVI has been computed using Sentinel-2B MSI images dated June 3, 2020. Flood-affected cropland covers a large chunk (88.2%) of the total actual flooded area. Mean NDVI values of non-flooded and flooded cropland and vegetation cover have been reduced between May 14, 2020, and June 3, 2020. District, block and pixel-wise changes in pre- and post-cyclone NDVI values have also been analysed. This study helps planners and policy makers to understand the district-wise flooding behavior, severity of damage to cropland and vegetation cover and to plan restriction on high-value land use in flooded low-lying areas.

23) Mishra, A. K., and Vanganuru, N. (2020). Monitoring a tropical super cyclone Amphan over Bay of Bengal and nearby region in May 2020. *Remote Sensing Applications: Society and Environment*, 20, 1-5. Retrieved from <http://www.elsevier.com/locate/rsase>.

A tropical super cyclone Amphan was formed over Bay of Bengal during third week of May in 2020 and caused devastating impact in West Bengal. Present study focuses on exploring this super cyclone using high resolution accurate precipitation estimates from multi-frequency satellite observations from Meteosat 8. It is reported that low pressure system formed over Bay of Bengal developed into a cyclonic storm on May 16 due to favourable atmospheric conditions. On May 18, this cyclonic storm intensified into a super cyclone with rainfall amount exceeding 600 mm/day. We have examined the diurnal variation of heavy rainfall over severely affected districts of West Bengal after cyclone made a landfall. Purba Medinipur, North and South 24 Parganas, Kolkata, Hooghly and Howrah were most affected districts of the state. Heavy rainfall over few of these districts were in the range of 50–60 mm/h. Purba Medinipur recorded maximum rainfall of about 650 mm on May 20. Extreme rain events at multiple hours on May 20 resulted in heavy cumulative rainfall causing extreme flash flooding and landslides over these districts. Present study highlights the importance of usefulness of near real-time high-resolution satellite observations for exploring extreme events.

24) Mishra, M., Acharyya, T., Santos, C. A. G., da Silva, R. M., Kar D., Kamal, A. H. M., and Raulo, S. (2021). Geo-ecological impact assessment of severe cyclonic storm Amphan on

Sundarbans mangrove forest using geospatial technology. *Estuarine, Coastal and Shelf Science*, 260, 1-11. Retrieved from www.elsevier.com/locate/ecss.

We report the damage caused by Amphan, a category five tropical cyclonic storm, to the ecology and shoreline of the Sundarbans mangrove ecosystem, located in India and Bangladesh. In this study, net shoreline movement (NSM) combined with vegetation indices, such as normalized difference vegetation index (NDVI) and enhanced vegetation index (EVI), were used to analyze land use and land cover changes and the position of the shoreline in pre- and post-cyclone periods. The results show that the cyclone wreaked havoc in the Sundarbans mangrove ecosystem, causing dangerous impacts on vegetation and severe erosion along the shoreline. The impact on the Sundarbans mangrove forest, shown by NDVI and EVI values, indicates that the mangrove vegetation suffered degradation and fragmentation. Dense and moderately dense mangrove tree cover area shrank from 77% to 34%, less dense and sparse cover increased from 20% to 63%. More than 68% of shoreline transects registered signs of erosion, with mean shoreline change and erosion rate measurements of -31 m and -48 m, respectively. As a result, agricultural lands and aquaculture ponds suffered inundation, leading to crop damage. A single cyclone episode can damage mangrove cover by knocking down tall trees, killing more salt-sensitive mangrove species such as Sundari, and leads to increased man-animal encounter. We argue that post-cyclone biodiversity loss and ecosystem services loss should be analyzed in tandem and synchrony with human and livestock casualty and economic damage assessment.

25) Mishra, M., Kar, D., Debnath, M., Sahu, N., and Goswami, S. (2022). Rapid eco-physical impact assessment of tropical cyclones using geospatial technology: a case from severe cyclonic storms Amphan. *Natural Hazards*, 110 (3), 2381–2395. Retrieved from <https://doi.org/10.1007/s11069-021-05008-w>.

The tropical cyclones are very destructive during landfall, generating high wind speeds, heavy intensive rainfall, and severe storm surges with huge coastal inundations that have massive socioeconomic and ecological catastrophic effects on human beings and the economic well-being. The sizable ecological effects of cyclonic storms cannot be ignored because of the uncertainty of impact, intensity induced by a warming ocean, and sea level rise. The Super Cyclonic Storm Amphan which falls under the category five classifications under the scheme of the India Meteorological Department (IMD), on the basis the maximum sustained wind speeds gusting up to 168 km/h affected parts of West Bengal and Odisha in India, and south-west Bangladesh between May 16 and 20, 2020. In this work, we have focused on the coastal districts of Kendrapada, Bhadrak, Balasore in Odisha, Purba Medinipur, and South Twenty-Four Parganas in West Bengal, India and, Khulna, Barisal division of Bangladesh that have been seriously affected by the Super Cyclonic Storm Amphan. The objective of the study is to analyze the eco-physical assessment of tropical cyclone Amphan using geospatial technology. Therefore, shoreline change detection and enhance vegetation index have been used in this research work to systematically analyze the eco-physical impact parameters of Cyclonic Storm Amphan using ortho-rectified Landsat 8/OLI imagery and MODIS dataset of USGS with high spatial resolutions of 30–500 m. The result highlights that about 60.33% of the total transects of the study area was eroded, but only 24.99% of the total transects experienced accretion, and 14.68% of the total transects depicted stability. The scientific study will benefit coastal managers and policymakers in formulating action plans for coastal zone management, natural resilience, and sustainable future development.

26) Pramanik, M., Szabo, S., Pal, I., Udmale, P., Pongsiri, M., and Chilton, S. (2022). Population health risks in multi-hazard environments: action needed in the Cyclone Amphan and COVID-19 – hit Sundarbans region, India. *Climate and Development*, 14 (2), 99-104. Retrieved from <https://doi.org/10.1080/17565529.2021.1889948>.

The local population of Sundarbans, an environmentally vulnerable delta region in south-eastern India, is currently affected by combined negative impacts of cyclone Amphan and the COVID-19 pandemic. The lockdown measures have created an additional burden on the health care system, while flooding during Amphan increased the risk of spreading water-borne diseases. In this viewpoint, we provide a conceptual model of the complex interlinkages among the combined multi-hazard effects, human health and water availability, with possible mitigation measures. We then discuss the specific pathways through which these immediate and long-term impacts occur and highlight the risk of together slowing progress on SDG3 and SDG6 in the Sundarbans. Finally, we call for coordinated assessment, support and appropriate intervention measures to secure clean water availability and minimize the health impacts of the recent multiple disasters in this tropical delta region.

27) Priodarshini, R., Biswas, B., Higuera, A. M. S., and Mallick, B. (2021). Livelihood challenges of ‘double strike’ disasters: Evidence from rural communities of southwest coastal Bangladesh during the Covid-19 pandemic and cyclone Amphan. *Current Research in Environmental Sustainability*, 3, 1-11. Retrieved from www.sciencedirect.com/journal/current-research-in-environmental-sustainability.

The Covid-19 pandemic has adversely affected livelihoods in the Global South and exacerbated the effects of natural disaster. This study examines the ‘double strike’ of the Covid-19 lockdown and ‘super-cyclone’ Amphan on the 12 villages of Dakshin Bedkashi Union, southwest Bangladesh. It employs questionnaire surveys to assess the impact of the compound disaster on rural livelihoods over a period of five months, comparing pre-lockdown, post-lockdown, and post-Amphan phases. The results demonstrate the severe impact of the pandemic on income, occupation, and workdays, and consequently on livelihood resilience leading up to Amphan. Although effects vary moderately by livelihood category, village, and socio-spatial characteristics, overall rates of income reduction (58%) and occupation loss (77%) between the advent of the lockdown and the aftermath of Amphan are high. Thus, livelihood resilience to the double strike is generally poor. The study analyses the predictors of lost working days to illuminate the influences on livelihood resilience throughout the double strike. We conclude that the pandemic has presented novel challenges to this region, complicating vulnerability to more common cyclonic natural hazards. Finding that the degree of livelihood diversification is low in the sample, we recommend implementing diversification policies and strengthening local networks and community trust to better anticipate and combat the complex, varied impacts of double strike scenarios in future.

28) Vishwakarma, V., Pattnaik, S., Chakraborty, T., Joseph, S., and Mitra, A. K. (2022). Impacts of sea-surface temperatures on rapid intensification and mature phases of super cyclone Amphan (2020). *Journal of Earth System Science*, 131 (1), 1-21. Retrieved from <https://doi.org/10.1007/s12040-022-01816-1>.

Tropical cyclone rapid intensification (RI) is a major challenge to operational forecasters. Amphan was the deadliest cyclone over the north Indian Ocean basin as it caused 128 deaths in the region. This study aimed to understand the impacts of sea-surface temperatures (SSTs)

generated from two leading operational agencies (i.e., Indian National Centre for Ocean Information Services (INCOIS) and National Centre for Medium-Range Weather Forecasting (NCMRWF)) in India on the RI and mature super cyclonic (SuCS) phases of the Amphan (2020) using the weather research and forecasting (WRF4.0) model. Three experiments were carried out using SSTs from INCOIS (INC), NCMRWF (NCM) and control (CNT) with an identical configuration at 3 km resolution with a lead time of up to 96 h. The results suggest that INC offered the best forecast in terms of track, intensity, RI and structure during the three different phases of the SuCS, i.e., RI, mature and weakening stages. The CNT yielded forecasts with the highest errors. The results of the model are validated with in-situ buoy and radar observations establishing that INC robustly captured the intensification rate and the structure compared to NCM and CNT. It is also revealed that 30–120 km radii are the key eyewall region contributing to the RI and mature phase of the SuCS Amphan through diabatic heating and convective bursts. The diabatic heating has been placed between 600 and 400 hPa near the eyewall region, and it is well supported by the formation of frozen hydrometeors in the SuCS. INC simulation is able to bring out those features accurately, leading to better intensity prediction, whereas NCM and CNT overestimated those features resulting in unrealistic intensification in the simulations. This study has a direct consequence to the operational forecasting agencies and disaster managers for policy and preparedness.

Web Resources

- <https://www.orfonline.org/expert-speak/cyclone-amphan-and-the-delta-initial-observations-and-long-term-policy-imperatives-66566/>
- www.iwmi.cgiar.org/2020/06/cyclone-amphan-and-covid-19-the-recipe-for-a-cascading-disaster/
- www.refugeesinternational.org/reports/2020/10/5/complex-road-to-recoveryinbspacovid-19-cyclone-amphan-monsoon-flooding
- <https://www.downtoearth.org.in/blog/environment/cyclone-amphan-building-back-with-resilient-infrastructure-and-community-engagement-75777>
- <https://reliefweb.int/report/bangladesh/hctt-response-plan-cyclone-amphan-united-nations-bangladesh-coordinated-appeal>
- www.southasiamonitor.org/spotlight/lessons-cyclone-amphan-need-rethink-development-strategy
- <https://news.climate.columbia.edu/2020/05/26/cyclone-amphan-climate-adaptation/>
- www.sei.org/perspectives/covid-19-cyclone-amphan-and-building-back-better/
- https://www.researchgate.net/publication/342009119_India's_disaster_risk_resilience_strategy_lessons_from_cyclones_in_Odisha
- https://www.orfonline.org/wp-content/uploads/2021/01/ORF_OccasionalPaper_297_Resilience-Sundarbans_NEW.pdf
- nidm.gov.in/covid19/PDF/covid19/state/West%20Bengal/223.pdf