A CASE STUDY ON IMAPCT OF COVID-19 ON THE LIVELIHOOD OF FISHERMEN COMMUNITY IN LIONSTOWN AREA OF THOOTHUKUDI DISTRICT

Project Report Submitted to

ST.MARY'S COLLEGE (Autonomous) Thoothukudi

Affiliated to

Manonomaniam Sundaranar University-Tirunelveli

In partial fulfillment of the award of the Degree of

MASTER OF ARTS IN ECONOMICS

Submitted by

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CERTIFICATE

This is to certify that project work entitled "**A CASE STUDY ON IMAPCT OF COVID-19 ON THE LIVELIHOOD OF FISHERMEN COMMUNITY IN LIONSTOWN AREA OF THOOTHUKUDI DISTRICT**" Submitted to St Mary's College (Autonomous)Thoothukudi in partial fulfilment for the award of the Degree ofMaster of Arts in Economics an is a record of work done during the year 2020 - 2021 by **A.LAVANYA(19SPEC01)**

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I do by that the project entitled "**A CASE STUDY ON IMAPCT OF COVID-19 ON THE LIVELIHOOD OF FISHERMEN COMMUNITY IN LIONSTOWN AREA OF THOOTHUKUDI DISTRICT** " Submitted for the degree of Master of Arts in Economics Is my original work and that it has not previously formed the basis for award of Any degree.

Place: Thoothukudi

Date: 12.04.2021

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"IMPACT OF COVID-19 ON THE LIVELIHOODS OF FISHERMEN COMMUNITY IN LIONSTOWN AREA OF THOOTHUKUDI DISTRICT: AN ANALYSIS"

Abstract

The COVID-19 pandemic has rapidly spread around the world with extensive social and economic effects. Specifically, on the implications of the pandemic for small-scale fishers, including marketing and processing aspects of the sector, and coastal fishing communities, drawing from news and reports from around the world. Negative consequences to date have included complete shut-downs of some fisheries, knock-on economic effects from market disruptions, increased health risks for fishers, processors and communities, additional implications for marginalized groups, exacerbated vulnerabilities to other social and environmental stressors, and increased Illegal, Unreported and Unregulated fishing. Though much of the news is dire, there have been some positive outcomes such as food sharing, the revival of local food networks, increases in local sales through direct marketing and deliveries, collective actions to safeguard rights, collaborations between communities and governments, and reduced fishing pressure in some places. While the crisis is still unfolding, there is an urgent need to coordinate, plan and implement effective short- and long-term responses. Thus, we urge governments, development organizations, NGOs, donors, the private sector, and researchers to rapidly mobilize in support of small-scale fishers, coastal fishing communities, and associated civil society organizations, and suggest actions that can be taken by each to help these groups respond to the COVID-19 pandemic.

Keywords: COVID-19, coronavirus, small-scale fisheries, coastal communities, vulnerability , resilience

INTRODUCTION: The Spread and fallout of Covid-19

At the time of this writing (April 2020), it has only been a few months since the first alarm bells went off that COVID-19, a novel corona virus infection, was rapidly spreading and altering life in China. As its health risks and high mortality became more apparent, first Wuhan city and then Hubei province in China implemented lockdowns and travel restrictions. Because this occurred during the Chinese New Year, demand for luxury seafood declined and markets collapsed for Canadian and American lobsters, Australian crayfish, Vietnamese shrimp and many others. This was a harbinger of massive and life altering changes that were about to unfold in small-scale fisheries (SSF) and coastal fishing communities around the world.

Since then, the virus has spread to almost all countries, leading to millions of cases and thousands of deaths. Most countries have implemented social distancing measures, or more stringent lockdowns, in efforts to slow the spread of the virus and “flatten the curve” of hospitalizations and deaths. Places of work, worship, education and socialization have closed. International and domestic travel has been restricted. National economies have taken a major hit and unemployment numbers have soared – with dire predictions that the economic effects could be as bad as the Great Depression.

Some groups and sectors are highly susceptible and vulnerable to the rapid social and economic effects of the COVID-19 pandemic. In this editorial, we focus on the implications of the pandemic

for small-scale fisheries (SSF), including fishing, marketing and processing aspects of the sector, and coastal fishing communities. Globally, there are an estimated 32 million directly employed as small-scale fishers, an additional 76 million employed in post-harvest jobs, and 81% of catch is used for local human consumption. While SSF vary substantially by region and country, some defining characteristics include smaller vessels and engines, simpler or more traditional gears, proximity to the coast, smaller crews, family or local ownership, and importance for local livelihoods and subsistence. The short- and long-term effects of COVID-19 risk further marginalizing many SSF and coastal communities who are already vulnerable to a myriad of social and environmental changes. Further, we urge governments, development organizations, NGOs, donors, the private sector, and researchers to rapidly mobilize in support of small-scale fishers, coastal fishing communities, and associated civil society organizations, and suggest actions that can be taken by each to help these groups to respond to the COVID-19 pandemic.

Implications: The direct and indirect effects of the COVID-19 pandemic

Negative consequences

The drastic implications that COVID-19 is having for the SSF sector are becoming obvious. We use examples from journalism, policy organizations, and public sources to provide insights into the impacts that the SSF sector is experiencing around the world. Many fisheries faced complete shutdowns at the onset of social distancing restrictions if they were not considered vital to national food supply systems. Such indiscriminate lockdowns on fishing activities arguably reveal a preexisting tendency to underplay the role of fish in food systems

In India, for example, fisheries were entirely closed down initially (contrary to farming), and only after significant pressure from civil society pointing to their vital role in food provisioning was fishing allowed to continue operations within some bounds. Even in instances where fishing is deemed an essential service, social distancing measures have precluded many small-scale fishers from going fishing due to vessel size or trading in close quarters in local markets.

Knock-on economic effects from market disruptions have further impacted small-scale fishers‟ ability to pursue their livelihoods through „twin disasters‟ of reduced demand and attendant collapse of prices. Export-oriented SSF have faced a vast reduction in demand (particularly from Asia, United States, and Europe), port closures, loss of access to cold storage, and cessation of shipping and air freight. SSF geared at local markets are also affected. In the Philippines, slashed prices due to reduced demand from local restaurants and hotels have drastically reduced fishing activity, and factories are closed or operating at reduced capacity. Around Lake Victoria, access to cold storage is more important now than ever to reduce fish waste and loss and maintain local food security. In Fiji, the temporary closure of interisland ferry transport minimized the spread of the disease to rural areas, but has cut off access for some to urban and semi-urban markets.

Fishers, processors and sellers also face risks of COVID-19 spread and infection, and thus have to make difficult decisions feeding their families or risking exposure. Fishing communities and ports could potentially become “hotspots” for rapid infection due to the migratory nature of fishers and frequency of international visitors. Access to health services in rural fishing communities is difficult even under normal circumstances, and thus these locations likely have a harder

time accessing testing, treatments, and sanitation supplies needed to adequately address COVID-19 spread and infection.

Existing vulnerabilities of some groups or individuals, related to global structural, social and economic inequality, can exacerbate the health, economic, and other impacts of COVID-19. For example, migrant fishers face combined stress from lost income, inability to support families, shortage of basic necessities and exclusion from government relief schemes. Reports from India indicate many migrants are stranded on vessels or in harbors, unable to return home, living in cramped living conditions without adequate water or food. In SSF, women comprise 80–90% of the postharvest sector, and work in close proximity in processing facilities and retail, putting them at higher risk for COVID-19. In processing plants worldwide, women tend to occupy temporary and lower-paid positions, do not have access to social protections after losing their jobs, and are more likely to be laid off.

International Organization for Women in the Seafood Industry

Furthermore, in humanitarian crises like COVID-19, gender based violence increases. Children may be vulnerable to increases in child labor and abuse, as schools close, formal economies are restricted, and parents fall ill. Finally, rural and isolated Indigenous communities are particularly at risk as they may have reduced immunity and access to healthcare. More than a dozen Indigenous groups have confirmed COVID-19 cases across the Americas, and many have opted to close access to their reservations.

Political, economic, social, environmental and climatic conditions intersect to exacerbate effects of COVID-19, particularly for the most vulnerable. COVID-19 is a „crisis within a crisis“ in food

insecure countries. Some predict that the number of people worldwide affected by food insecurity will double as a direct result of the pandemic. Communities across West Africa now face the combined effects of COVID-19, chronic hunger, conflict, and climate change. Tropical Cyclone Harold (category 4–5) hitting the Solomon Islands, Vanuatu, Fiji, and Tonga in April 2020, has raised issues related to the opening of evacuation centers without adequate sanitation or social distancing capacity and access to international aid with closed borders.

There are also likely reverberating impacts on the marine environment. Decreased human observer coverage and lapses in monitoring and enforcement may be leading to increased occurrence of Illegal, Unreported and Unregulated (IUU) fishing and incursions into areas used by SSF. In both Argentina and Indonesia, for example, there are reports of heightened illegal fishing activity by foreign vessels, as government priorities have shifted toward pandemic control, which could have direct impacts on fish stocks and indirect impacts on SSF. Furthermore, in many places such as the Caribbean that are highly dependent on tourism, declines in global travel will have devastating impacts on local livelihoods and likely lead to increased pressure on local resources to meet food and livelihood needs.

Positive initiatives and outcomes

While most of the news is dire, there are some bright spots as the SSF sector and their allies have taken action to respond. There are numerous examples of food sharing, as SSF focus their resources and capacity to make food security contributions within their communities.

The local fishers are contributing their time and boats to provide 50–60 tons per week of free seafood for their communities. In

Indigenous communities on the British Columbia coast, people are turning to the sea and land for food for them and to share. In Hawaii, the local food movement has grown substantially, with fishers helping to supply vulnerable populations (elders) and food banks to bolster local food security. And strong existing social networks in the Pacific Islands have facilitated food sharing since the onset of COVID-19.

Worldwide, local food networks and community supported fisheries (CSFs) have emerged to fill some of the gaps left by COVID-19 related market disruptions. As demand for direct delivery to households is increasing, SSF have been able to adapt their distribution models to keep their production stable, creating and strengthening direct connections with local household consumers. ABALOBI, a South African social enterprise that seeks to help empower small-scale fishing communities through the fisher-driven development of technology, has adapted its traceability platform and marketplace, to facilitate product sales and delivery to households in cities and in the fishing communities. It is fast tracking further development of its platform for use in CSFs globally. In Maine, the CSF „Local Catch Network“ has seen an uptick in membership and sales, and consumers can consult a public registry of local fishers from whom they can buy seafood directly. Smart fish, Inc., a sustainable seafood marketing enterprise in Mexico, has seen an increase in sales in recent months due to its ability to pivot primarily from supplying restaurants to home delivery and online sales pers. comm. In addition, Smart fish currently provides the only market opportunity for some of their partner cooperatives and remarkably they are able to maintain important price premiums. Nascent local market initiatives are also emerging to weather the crisis. For example, home delivery systems

and

online fish selling platforms have emerged in Seattle, Ghana, and the UAE. Furthermore, in Sri Lanka fisher cooperatives sought and found international support to step-up efforts to use the lockdown to rebuild local supply chains as imports have fallen and private traders‟ mobility is curbed.

Strong collective action within and across small-scale fishing communities has manifested in several ways. Fishers have acted collectively to reassert their rights to food, livelihoods, or safe working conditions, pushing back against government response to COVID-19, and have leveraged relationships and collaborations with their government counterparts to continue fishing. For example, following a week of negotiations with the Department of Fisheries, the South African Small-scale Fisheries Collective successfully advocated for migratory small-scale fishing activity to resume amidst lockdown measures. The Fish, Food, and Allied Workers Union facilitated a blockade to divert outofprovince crab from entering the local processing plant, until safe working conditions were guaranteed and fair prices negotiated. And the Fijian Government has recognized the importance of SSF to local food security, allowing the sector to fish during curfew hours.

Finally, while in some places there is evidence of increasing IUU, in other places declines in fishing pressure, particularly by legal industrial fleets, may allow fish stocks with more resilient life histories to recover, with important indirect effects for the small scale sector. For example, the combination of decreased demand, lower prices, and lockdowns on fisheries in many places means that boats are staying in port and fishing

is reduced by as much as 80%. If this continues, COVID-19 could be a de facto moratorium on heavily fished stocks similar to what happened after World War II. For small-scale fishers, this could potentially allow for recovery of stocks they otherwise compete over with the industrial sector. For instance, the lockdown and labor shortages have caused a contraction of the Indian trawler and fishmeal industry, providing at least some relief to marine ecosystems and possibly benefits for SSF in the longer run.

These positive initiatives provide opportunities upon which to build. Yet, the COVID-19 pandemic is a long way from over and these anecdotes from around the world do not paint the full picture of what is currently happening or the longer-term effects in the months and years ahead.

Mobilizing in support of SSF and coastal communities

While our understanding of the implications of the pandemic is still incomplete, there is an urgent need to coordinate, plan and implement effective short and long-term responses to this unfolding crisis. The foundation for this is already present in existing and new efforts by multilateral and international organizations, such as the United Nations Food and Agriculture Organization‟s SSF Program, the International Labor Organization‟s provisions for protecting laborers under COVID-19 by civil society organizations (e.g. International Collective in Support of Fish workers World Forum of Fisher Peoples and research consortia.

Civil society groups (e.g. ICSF, WFFP, and Locally Managed Marine Area Network) and researchers are reaching out to their members and partners, identifying urgent issues and advocating for immediate actions by governments.

International NGOs are coordinating with coastal community partners and local organizations to aggregate stories and mobilize relief efforts. Some governments have identified measures that the SSF sector can take to stay safe and remain in operation, created financial programs to support the seafood sector, or extended unemployment programs for fishers. Yet, we remain concerned that the collective response thus far is insufficient to meet the scale of the impacts that are being experienced by the SSF sector.

Thus, we urge governments, development organizations, NGOs, donors, the private sector, and researchers to rapidly mobilize in support of small-scale fishers, coastal fishing communities, and associated civil society organizations. Below, we highlight examples of actions that can be taken by each group to help respond to the COVID-19 pandemic.

Actions those governments and development organizations, NGOs, donors, the private sector, and researchers can take to support the small-scale fisheries sector.

Fishing in the Time of COVID-19: Effects on Fishing Activities, Resources, and Marine Ecosystems

Spatial, temporal and capacity regulation of fishing effort are some of the main options applied in order to reach environmental and socioeconomic sustainability of marine fisheries from recreational to commercial. However, these tools are generally combined stepwise and their effect should be evaluated in the medium or long term, which makes it difficult to disentangle the role of different drivers, including changes in the environmental conditions.

The COVID-19 pandemic represents a global, unplanned and unregulated experiment, and a global shock, that affected also the fisheries sector with social, economic and ecological consequences to be assessed.

How COVID-19 impacted the activity of the fleets and, indirectly, the status of resources at sea, and how it reverberated on the fishing behavior are emerging questions for fisheries scientists, national governments and the fisheries sector.

In the meantime, the lowering of fishing effort due to the pandemic and its effects can be used as a source of information on the potential effects of short time management actions.

The dynamics of fisheries and resources as occurring in this exceptional situation represent a potential source of knowledge on fishermen's behavior, short term effects of fisheries ban and institutional adaptation for the set-up of more effective management strategies but also for a more in-depth understanding of the relationship between fishing effort and resource status.

Moreover, the analysis of how fleets adapt their strategies and what are the consequences of this shock on fishing performances are of great importance to foresee.

The objective of this Research Topic is to collect a series of works analyzing and quantifying the effects of the COVID-19 on:

• Fisheries movement and effort

• Fishermen behavior

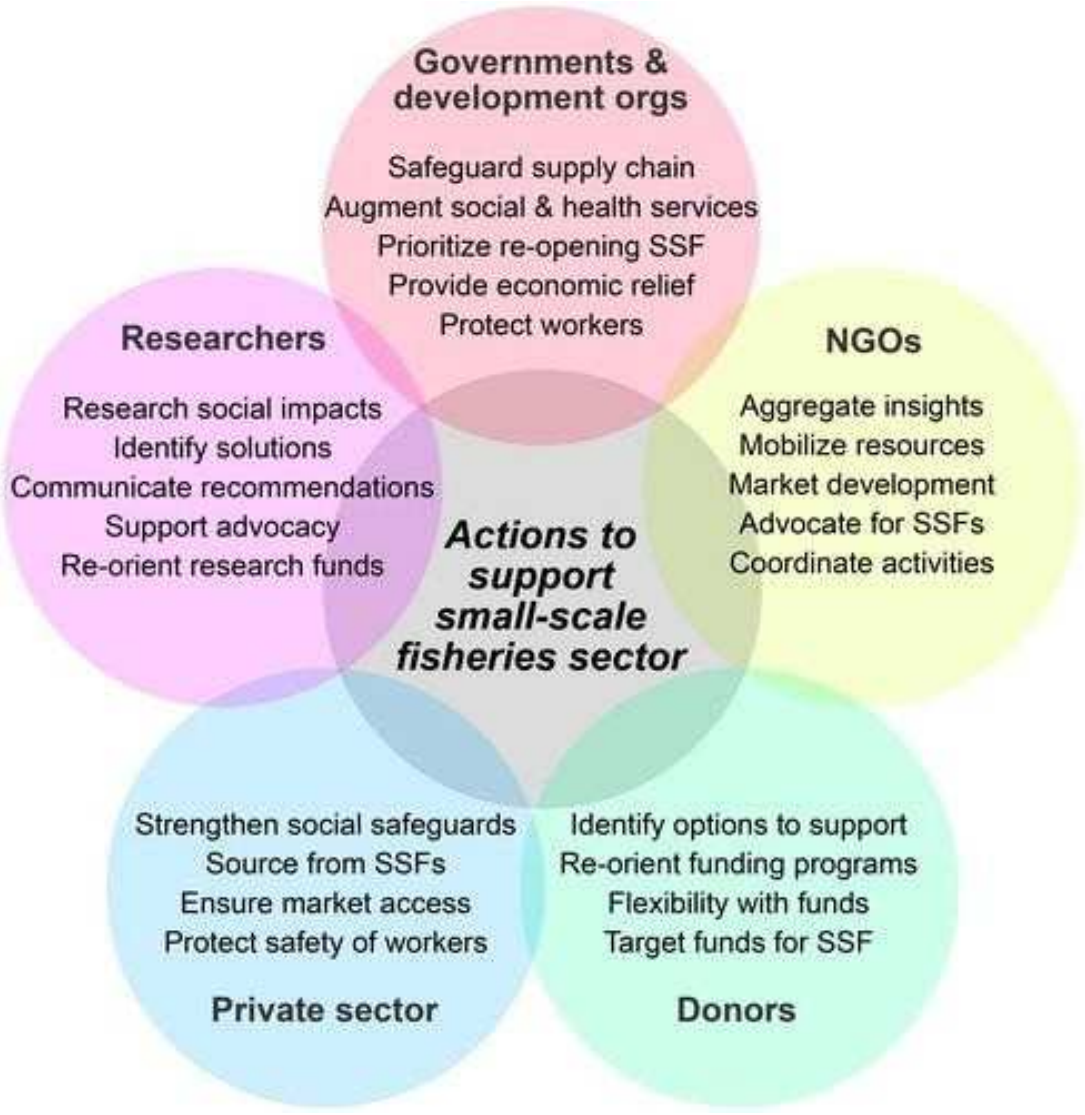
• Short terms effects on resources

• Adaptive strategies of the fishing industry and governments

• Partial recovery for marine ecosystems

• Progresses in the adaptive capacity of the sectors (e.g. more cooperation between the actors of the fishing industry)

• Interactions between COVID-19 effects and other drivers like climate change or marine biodiversity loss



Governments and development organizations have a substantial role to play in: creating targeted economic relief packages, aid and loan forgiveness for SSF and fish workers in the postharvest sector; providing support to local social organizations and bolstering local food networks; maintaining health services and augmenting supplies in rural areas; prioritizing the reopening of SSF and production facilities to provide food security and livelihoods to coastal populations (when deemed safe) protecting workers from COVID-19 and exploitation, and supporting efforts to safeguard supply chains, purchase seafood for institutional use (e.g. hospitals, prisons, schools), and increase local sales (e.g. direct marketing initiatives, door-to-door deliveries, community supported fisheries).

NGOs can aggregate insights from across field sites and country programs; engage and advocate for the needs of civil society organizations mobilize resources and funding to support coastal community partners; assist in monitoring impacts to SSF and support responsible market development for fishers and communities to provide economic and subsistence security. NGOs should coordinate activities and leverage collective platforms because current efforts are fragmented.

Donors (public and private) need to rapidly identify how they can support the sector during this time of change; allow flexibility with already allocated funds; re-orient future funding portfolios to mitigate the short-term impacts of the crisis and build long-term resilience to future shocks; decrease application requirements and turnaround times to release

funds; and ensure that funding is actually reaching the organizations and groups that need it.

The private sector can help support SSF and coastal communities. Seafood businesses have the responsibility to ensure the health and safety of workers along the supply chain, and should strengthen social safeguards in times of crises such as disease pandemics, particularly for those vulnerable to exploitation. Specifically, buyers should stay engaged with suppliers sourcing from SSFs, working to maintain existing relationships. Distributors should ensure trading patterns are maintained or transformed in a way to ensure SSF can have market access to move their products. And, as prices have collapsed for many seafood commodities due to loss of demand, producers should work to position themselves for relief funds and other aid programs.

Researchers working with SSF and in coastal communities, can use their expertise, resources and networks: to conduct research on the immediate economic, social and food security impacts of the pandemic (while following university and community research and social distancing protocols to respect community safety communicate about the issues and put forward recommendations via different avenues support the advocacy efforts of civil society and communitybased organizations; consider how research funding might be re-oriented to support the COVID-19 response; and, identify solutions and contribute insights to planning effective and appropriate policy, programmatic, and funding responses. There will be a need for longer-term and more reflexive research including topics such as: residual socio-economic impacts, implications for long-term food security, factors leading to resilience or vulnerability, effects on resource management and the environment, and lessons for future pandemics.

However, the immediate priority should be action-oriented research that meets needs identified by community partners. In the short term, this may need to occur remotely for example, via phone interviews, online surveys, or virtual focus groups unless deemed safe to do otherwise.

Key considerations for all organizations and individuals aiming to support appropriate and effective responses include: ensuring we are not placing additional burdens or risks on these groups engaging and prioritizing the voices of local SSF and communities in designing responses; providing specific support to vulnerable and often neglected groups ensuring that responses respect and do not undermine Indigenous and local people‟s rights to harvest, consume and sell fish from their waters , and ensuring reforms are not oversimplified solutions based on preexisting agendas or worldviews that do not align with local contexts. Lastly, it will be important to consider the medium and long-term impacts of short-term responses. In the long run, crosssectoral action will be needed to help rebuild capacity and resilience of SSF and coastal fishing communities.

Impacts of the Covid-19 Pandemic on the Blue Economy

Fish is the world‟s most widely traded food commodity, but market disruptions, as a result of the pandemic, have already begun to change that. Consumers have dramatically increased demand for frozen and processed seafood while turning away from fresh caught products. This is a result of both a run on foods that may be kept through periods of isolation and a reflection of the fact that in many developed markets, such as across the United States, most consumers eat fresh fish in restaurants and other public spaces that are no longer open.

Market closures in Europe have caused a crisis for fishers in the United Kingdom, which exports 70 percent of its catch. In the United States, 90 percent of seafood is imported or processed overseas. Some U.S. companies outsource a portion of their processing needs by sending U.Scaught seafood abroad to facilities in China before reimporting it for final packaging for the U.S. market. Covid-19 may drive these companies to re-shore processing operations to avoid trade disruptions caused by the pandemic and future crises.

Covid-19 will undoubtedly impact the seafood sector along multiple vectors. One useful approach for predicting long-term impacts of the current outbreak is to divide the industry into categories based on the duration of fishing trips within the sector

Vessels that return to shore each day are common in small-scale or near-shore industrial fisheries and in artisanal fisheries throughout the developing world. These vessels do not run a risk of developing an outbreak while far offshore. However, by necessity, they rely on tightly linked shore-side networks, whether through local markets, commercial buyers, processors, or families and communities who rely on the catch for food security. In all of these situations, social distancing may be impractical and outbreaks highly disruptive. Moreover, many artisanal communities are poorly served by health infrastructure and at high risk from a global pandemic. Still, artisanal fishers may benefit from reduced competition with industrial fleets limited by concerns about offshore epidemics.

Fishing vessels that transship catch and are at sea for months to years at a time are relatively few in number but catch enormous quantities of fish on an industrial scale. They are common in the Pacific and Indian Oceans among Taiwan, China, and Japan‟s distant-water fleets and in Russia‟s

far

eastern fleet. They catch species as diverse as tuna, squid, and Pollock. Transshipment the practice of transferring catch from one vessel to another at sea limits their risk of exposure to Covid-19, allowing boats that have been at sea since before the outbreak to continue operating relatively normally. However, any actual outbreak at sea would be catastrophic.

Vessels that fish offshore for weeks or months but do not transship catch are common in fisheries around the world, including in the U.S. domestic fleet. Seafood sectors that rely on vessels in this class may face the greatest challenges in effectively dealing with the risk of Covid-19. It is not tenable to leave port with fishers possibly incubating Covid-19, and then spend months at sea in cramped, crowded conditions away from medical help. Additionally, shore side visits are frequent enough that long voyages at sea do not necessarily serve as a de facto quarantine, so fishers risk acquiring Covid-19 while at port. These dynamics may increase pressure on these vessels to alter voyage times and pursue alternative ways for getting their catch to market, including possibly introducing or increasing the use of transshipment in novel sectors.

Moreover, many distant water fishing vessels rely on foreign ports for offloading catch. This is especially common in Africa, South America, and the Pacific Islands. Mauritania‟s closure to foreign fishing vessels, for example, has already disrupted access to the port of Nouadhibou, one of the top five harbors most frequented by distant water fleets. China‟s network of private overseas fishing bases, however, may allow the Chinese fleet the world‟s largest to sidestep controls.

How major fisheries fall into these categories highlight how impacts may vary across the seafood industry:

Global tuna fisheries are comprised mostly of logline and purse seine vessels that operate far offshore for weeks, months, or even years at a time. Pacific tuna purse seine fleets are required to transship in port often in island-states (e.g., Majuro, Marshall Islands; Suva, Fiji) before shipping catch to markets in Europe, Asia, and North America. Port closures would be devastating to this sector. Logline tuna vessels transship mostly at sea and have some of the longest trip durations of any sector, providing some level of insulation from the epidemic but also putting isolated crews at greater risk for human rights violations. Demand for logline-derived catch may also be decreasing over the short term.

The Peruvian Anchoret fishery the world‟s largest by catch volume relies on industrial purse seine vessels, which spend weeks to months at sea but largely do not transship catch.

Many U.S. fisheries serve the domestic fresh fish market and are already in significant danger of disruption and economic hardship. Vessels in the largest U.S. fisherythe Alaska Pollock Fishery spend weeks to months at sea and may have to shorten voyages or alter processing protocols, which often involve export and re-importation to and from China.

Beyond the fishing industry, ocean tourism will suffer as travel slows. Coral reef tourism generates $36 billion per year, a value that has been a key driver in marine conservation. Lost revenues may increase pressure for near-term exploitation. Small island states like the Maldives, where

ocean tourism accounts for over one-quarter of GDP, are especially vulnerable.

Impacts on Fishing and Public Health

Covid-19 outbreaks aboard fishing vessels represent a significant threat to public health. Fifty million people are employed in marine fisheries largely in developing countries with dismal records on safety, health, and human rights. Long haul fishing vessels are cramped, crowded, and can be exceptionally unhygienic. Crew is often malnourished and forced to work for up to 20 hours each day. A lack of medical supplies means cuts can stay infected for weeks. Moreover, many vessels rely on undocumented migrant workers who are not subject to public health controls.

Assuming a median incubation time of 5.1 days for Covid-19, a fishing vessel with 30 people aboard could see its entire crew infected in under a month. Operating a ship with mostly sick crew members would be next to impossible, forcing ships to return to port. But transit times make it likely that in many scenarios most on the ship would be infected by time they reached shore. Finally, because many distant-water fishing vessels use foreign ports in developing states with poor health controls and oversight, infected vessels could generate new Covid-19 outbreaks. Other types of vessels, in navies, coast guards, and the shipping industry, would be subject to some of the same factors but are generally less crowded and better regulated, and so they do not pose as great of a concern.

Impacts on Human Rights in the Seafood Supply Chain

Changes in the way the fishing industry operates caused by Covid-19 may in turn affect the human rights and working conditions of fishermen in a number of ways. First, those who return to shore each day will have to continue working and interacting with others, putting them at increased risk of the virus simply because they are poor like many others making subsistence livings.

Workers on larger vessels that stay at sea for weeks or months face additional risks, regardless of whether or not the vessel transships. Given credible past reports of fishermen in conditions of forced labor being beaten, placed in physical confinement, marooned on islands, and in rare instances killed, there is a significant risk that vulnerable migrant workers who show Covid-19 symptoms could face solitary confinement or be left at sea. If existing coast guard and navy oversight of these vessels diminishes due to Covid-19 concerns, these workers will be yet more vulnerable.

Workers on vessels that do make periodic port calls may face an increased risk of acquiring Covid-19 and may endure the illness under challenging health and safety conditions without access to adequate health care. Fishermen, especially those in forced labor, sometimes lack access to clean water and adequate food, rendering them more vulnerable to illness. Moreover, if a vessel‟s workers do become infected, the vessel may be turned away at ports. This could leave sick and vulnerable fishermen without access to medical care, food, or water stranded at sea.

If the rate of transshipment increases due to concerns about Covid-19 infection, more of these workers will have no access to land for months or years, leaving them vulnerable to a number of well documented abuses, since they cannot leave the boat to report them or escape at a port. Boat captains may also have incentives to make it harder for their existing crews to leave their jobs because of concerns that any new workers might be infected.

In sum, to protect both fishermen and the public, a proactive strategy is needed, coordinated across jurisdictions, to provide health services to fishermen and monitor their health and ensure they are not stranded at sea in vulnerable conditions. These services should be provided to those who are healthy and sick, regardless of their legal or immigration status. The situation also highlights the ongoing need to improve working conditions and communication channels at sea so that fishermen are less vulnerable, during the Covid-19 crisis and afterward.

"IMPACT OF COVID-19 ON THE LIVELIHOODS OF FISHERMEN COMMUNITY LIONS TOWN AREA OF THOOTHUKUDI DISTRICT ANALYSIS"

Objectives:

1. To study the significance of Fisheries sector in Lions town.

2. To study the impact of COVID-19 on the Fisheries sector Lions town.

3. To analyze the status of Fishermen and the Pandemic impact on Fishermen Community in Lions town area Thoothukudi District

4. To analyze the impact on the livelihood of the Fishermen in Lions town.

5. To overview the future prospects of Fishermen in Lions town.

METHODOLOGY

Consistent with the objectives of the study, different techniques have used for the analysis of the data. The data pertaining to the study has been analyzed and presented in tabular forms to make the findings meaningful and easily understandable with simple statistical tools of analysis like ratios, percentages etc. The present study was based on two sources of data viz., primary data and secondary data. Primary data is the first hand information collected from the Fishermen Community of Lionstown directly to know the impact of the pandemic on their lives in terms of decrease in the level of employment and incomes. The primary data was collected through direct interview method from sample respondents of 120 Fishermen. The secondary data related to present study was mainly collected through secondary sources which include various official reports, periodicals, magazines and websites etc.

CHAPTER II

REVIEW OF LITERATURE

Das P, De SP, Bhowmick RM, Nandy2004 . Diminishing trend of fish species diversity in West Bengal: field study. Fishing Chimes.

Singh AK, Ahmad SH.2006 present status and future plans of fisheries development in residual Bihar. Fishing Chimes.

Kumar D. 2010 Aquaculture Extension Review. FAO Fisheries circular

Kumar D, Mehta R, Dutta D.**2019** Effect of aeration on the suitability of secondary treated sewage by UASB reactor followed by algal pond for tertiary treatment with aquaculture. International Journal of Environment Technological Sciences.

Kumar D, Noori T, Kumar M.**2019** Studies on existing mechanization status for fodderand crop in Rajendra Agricultural University region, PUSA, Bihar, India.

Moore, K. 2020. Long liners partner with Hawaii food bank to deliver corona virus emergency aid. National Fisherman

April 23, 2020. https://www.nationalfisherman.com/west-coast-pacific/longliners-partner-with-hawaii-foodbank-to-deliver-coronavirus-emergency-aid/

North African Food Sovereignty Network. 2020. "A Call from North Africa: Sovereignty over Our Land, Food and Destiny."

Open Democracy, April 17, 2020. https://www.opendemocracy.net/en/north-africa-west-asia/call-north-africa-sovereignty-over-our-land-food-and-destiny/.

Ocampo, K. R. 2020. Fishing communities bear brunt of lockdown | inquirer business. Philippine Daily Inquirer,

April 15, 2020. https://business.inquirer.net/294753/fishing-communities-bear-brunt-of-lockdown.

Orlowski, A. 2020. Small-scale fishermen suffering significantly from COVID-19 pandemic. SeafoodSource,

April 27, 2020. https://www.seafoodsource.com/news/supply-trade/small-scale-fishermen-suffering-significantly-from-covid-19-pandemic.

Pander, S. 2020. Fishing industry suffers another blow as workers are stranded on boats, debt is piling up.

The Print, April 23, 2020, sec. India. https://theprint.in/india/fishing-industry-suffers-another-blow-as-workers-are-stranded-on-boats-debt-is-piling-up/406989

Ramirez, E. 2020. Generosity in time of COVID-19: Fishermen in MX donate tons of fresh fish to the community. Remezcla

April 23, 2020. https://remezcla.com/culture/giving-during-coronavirus-oaxaca-fisherman/

Shaba, A. 2020. Corona virus in UAE: Now, get fresh fish delivered at your doorstep in Fujairah.

Kaleen Times, March 29, 2020. https://www.khaleejtimes.com/uae/fujairah/coronavirus-in-uae-now-get-fresh-fish-delivered-at-your-doorstep-in-fujairah.

Smith, E. 2020. Lunenburg lobster captain sells directly to consumers to stay afloat during COVID-19.

CBC News, April 6, 2020. https://www.cbc.ca/news/canada/nova-scotia/gail-atkinson-lobster-fishery-covid-19-nova-scotia-1.5523635.

Smith, H., and X. Basotho. 2019. Defining small-scale fisheries and examining the role of science in shaping perceptions of whom and what counts: A systematic review. Frontiers in Marine Science 6:236. doe: 10.3389/fmars.2019.00236.

Taunton, E., and A. Crop. 2020. "Corona virus: Crayfish Not Exported to China to Be Freed." Stuff, February 5, 2020. https://www.stuff.co.nz/business/119285477/coronavirus-crayfish-not-exported-to-china-to-be-freed.

Test, H. 2020. Coronavirus impact: Florida fishing industry smacked hard by pandemic. CBS Miami, April 22, 2020. https://miami.cbslocal.com/2020/04/22/florida-fishing-industry-coronavirus/.

The World Bank. 2012. Hidden harvest: The global contribution of capture fisheries. 66469-GLB. Washington, D.C.: The World Bank.

Thomson, J. 2020. Fisheries and oceans Canada pulls at-sea observers from fishing boats due to coronavirus pandemic. The Narwhal, April 8, 2020. https://thenarwhal.ca/fisheries-oceans-canada-pulls-at-sea-observers-fishing-boats-coronavirus-covid-19/.

Turkewitz, J. 2020. Indigenous groups isolated by coronavirus face another threat: hunger.

United Nations (UN News). 2020. UN working to avert dual crises as COVID-19 hits hunger hotspots. United Nations, 2020. https://www.un.org/en/un-coronavirus-communications-team/un-working-avert-dual-crises-covid-19-hits-hunger-hotspots.

Wang, C., P. W. Horby, F. G. Hayden, and G. F. Gao. 2020. A novel coronavirus outbreak of global health concern.

Watts, J. 2020. Stealth plunder of Argentinian waters raises fears over marine monitoring.

Welsh, T. 2020. WFP Chief Warns of „hunger Pandemic" as COVID-19 threatens food security.

Devex (blog). April 22, 2020. https://www.devex.com/news/sponsored/wfp-chief-warns-of-hunger-pandemic-as-covid-19-threatens-food-security-97058.

Wood, S. 2020. Adapting to Coronavirus: How B.C. First nations balance food security and conservation.

CHAPTER III

CONCEPT AND METHODOLOGY

COVID

Corona virus disease (COVID-19) is an infectious disease caused by a newly discovered corona virus. Most people who fall sick with COVID-19 will experience mild to moderate symptoms and recover without special treatment. The virus that causes COVID-19 is mainly transmitted through droplets generated when an infected person coughs, sneezes, or exhales. These droplets are too heavy to hang in the air, and quickly fall on floors or surfaces.

SMALL SCALE FISHERIES

Artisanal, or small-scale fisheries, are traditional fisheries involving fishing households (as opposed to commercial companies), using relatively small amount of capital and energy, relatively small fishing vessels if any, making short fishing trips, close to shore, and mainly for local consumption

LOCK DOWN

A lockdown is a restriction policy for people or community to stay where they are, usually due to specific risks to themselves or to others if they can move and interact freely. The term "stay-at-home" or "shelter-in-place" is often used for lockdowns that affect an area, rather than specific locations.

COASTAL AREAS

Coastal areas are local administrative units that are bordering or classes to a coast line. A coast line is defined as the line where land water surfaces meet.

FISH SUPPLY CHAIN

Every wild sea food supply chain begins with a producer and terminates with an end buyer, who sells to a consumer end buyers include retail outlets owned fish markets to national super market restaurants, and foodservices, establishments, such as hotels, hospitals, and schools.

FISHING COMMUNITIES

A fishing community is a community that is sustainably dependent on or substainly engaged in the harvest or processing of fishery resources to meet social and economic needs, the fishing vessel owners, operators, grew and fish processors that are based in such a community.

FISHING HOTSPOTS

Odaku is a mobile gps bringing solutions to the fisher man community in India. Being a fisher man, we have created mobile gps to help the fishing industry in India. Here are various issues faced by fisher men and how we can give solutions that is embed into the gps. Gps is basic tool that is needed by every fisher men who goes to sea odaku comes with this basic tool along with many other features for the fishermen. Odaku is the fishery platform for fisherman with complete solutions for their daily activities. Having seen the above opportunities we here come up with solutions. That can help the fisher men. We have closely worked with the fishermen on their requirement and created this product for the fishermen

NOVEL CORONA VIRUSES

Corona viruses are a large family of viruses that cause illness ranging from the common cold to more severe diseases. A novel corona

virus is a new strain that has not been previously identified in humans. The new virus was subsequently named the covid 19 virus.

FISHER MAN

Most fishers are women and men involved in offshore and deep-sea fisheries. Women and men fish in some regions inshore from small boats or collect communities, women or men are responsible for making and repairing post-harvest and

AQUACULTURE

Aquaculture, also known as aqua farming, is the farming of fish, crustaceans, mollusks, aquatic plants, algae, and other organisms. Aquaculture involves cultivating freshwater and saltwater populations under controlled conditions, and can be contrasted with commercial fishing, which is the harvesting of wild fish.

MARINE ENVIRONMENT

The oceans, seas, bays, estuaries, and other major water bodies, including their surface interface and interaction, with the atmosphere and with the land seaward of the mean high water mark.

MARINE ECOSYSTEM

Marine ecosystems are aquatic environments with high levels of dissolved salt. These include the open ocean the deep sea ocean. And coastal marine ecosystems each of which have different physical and biological characteristics.

SEA FOOD

Sea food is any form of sea life. Regarded food by humans. seafood prominently includes. Fish and shelfish. Shelfish include various species of mollusks, crustaceans, and echinodermy. Historically, sea mammals such as whales and dolphin have been consumed as food, though happens to a lesser extent these days

PUBLIC HEALTH

Public health has been defined as "the science and art of preventing disease", prolonging life and improving quality of life through organized efforts and informed choices of society, organizations, communities and individuals.

FISHING VESSELS

A fishing vessel is a boat or ship used to catch fish in the sea, or on a lake or river. Many different kinds of vessels are used in commercial, artisanal and recreational fishing. The total number of fishing vessels in the world in 2016 was estimated to be about 4.6 million, unchanged from 2012

CHAPTER-IV

PROFILE OF THE STUDY AREA

The effectiveness of any research study can be fully valued only when the results are studied against the contextual evidence such as physical, social and economic conditions of the region. The current study was undertaken with the purpose of emphasizing the different characteristics of industries in Thoothukudi district.

Thoothukudi District - Historical and Cultural Background

Thoothukudi was ruled over by the Pandya kings before the British rule. During the freedom struggle, it was the birth place of several bold nationalists. The blackness of British slavery was dispersed by the selfless detriment of these enthusiastic nationalists. Kattapomman with his fearless fighting spirit, Bharathiar with his burning and exciting poems of nationalism and V.O. Chidambaranar who shipped the Swedishi ship against the British were among the many brave nationals who valiantly fought external rule. They make Thoothukudi proud and ironic in ethnic heritage.

District at a Glance

Thoothukudi „the pearl city of India is the newly formed district formed by bifurcate the first Tirunelveli district in Tirunelveli district (western portion) and Thoothukudi district (eastern portion). The District covers an extent of 4,621 sq.km in the South-Eastern portion of Tamilnadu and it is rectangular in shape. It is bounded by Virudhunagar and Ramanathapuram district in the North of Kanyakumari district in the South and Gulf of Mannar in the east and Tirunelveli district in the west.

The district lies between 8°-05‟ and 9° - 80° of the northern latitude and 77°-05‟ and 78°-25‟ of eastern longitude.

Physical geographies

There are no tall mountains in the district. Red Mounds or small hills are found in Tiruchendhur, Srivaikundam, Sattankulam and Vijayaramarpuram. The elasticity of land that slopes to the east in Srivaikundam is made lush by the Thamiraparani River. This river movements through Punnaikayal and joins the Bay of Bengal, Malattar, Mambiaru, Vaippar and Manimuthaar.

Mineral Resources

Gypsum, Ilammanide, Monazite, Hyrum, Limestone‟s, Corals from the Islands and Phosphate are some of its natural resources.

Agriculture

Agriculture is the primary occupation on which 70 percent of the people depend on it. The main food crop in this district is Paddy. Out of total area of 4, 70,724 hectares, 1, 90,780 hectares are took under the farming of different crops which is nearly 41percent of total area of the district. The essential food crops in the district are Paddy, Cholas, Cumbu, Ragi, Varagu, Samai and Commercial Crops like Cotton, Chilly, Sugarcane, and Groundnut.

Paddy is cultivated in Siruvaikundam, Sattankulam, and Tiruchendur Taluks. Cumbu, Cholam, Kuthiraivali and other pulses are raised in the dry tracks of Kovilpatti, Vilathikulam, Ottapidaram and Tuticorin Taluks. Cotton is cultivated in Kovilpatti, Ottapidaram and Tuticorin Taluks. Groundnut agriculture is commenced in Kovilpatti, Tiruchendur and Sattankulam Taluks. Groundnut bar is being used as

manure and Cattle feed. With 35 percent share, the district is the top producer of Cumbu in Tamil Nadu.

Irrigation

The climate of Tuticorin district is hot and dry. The district has a coastal line of 163.5 kms and territorial waters covering thousands of hectares. The different causes of irrigation are

Channels, Tanks, and Wells which cover 46,262 hectares in the district. Out of this, 18,584 hectares were covered by wells.

Fisheries

This district is an essential coastal district having a vast coastal line of 160 km and territorial water covering thousands of hectares. Fishing, next to agriculture, is an essential occupation of the district. Tuticorin is an important fishing centre. It is also measured to be the only pearl fishing centre in the whole of India. It is also noted for mass fishing. Nearly 35000 MT of marine fish is produced per annum.

Forest

The area under forestry is 12724 hectares which occupy 2.77 percent of the geographical area.

Shipping

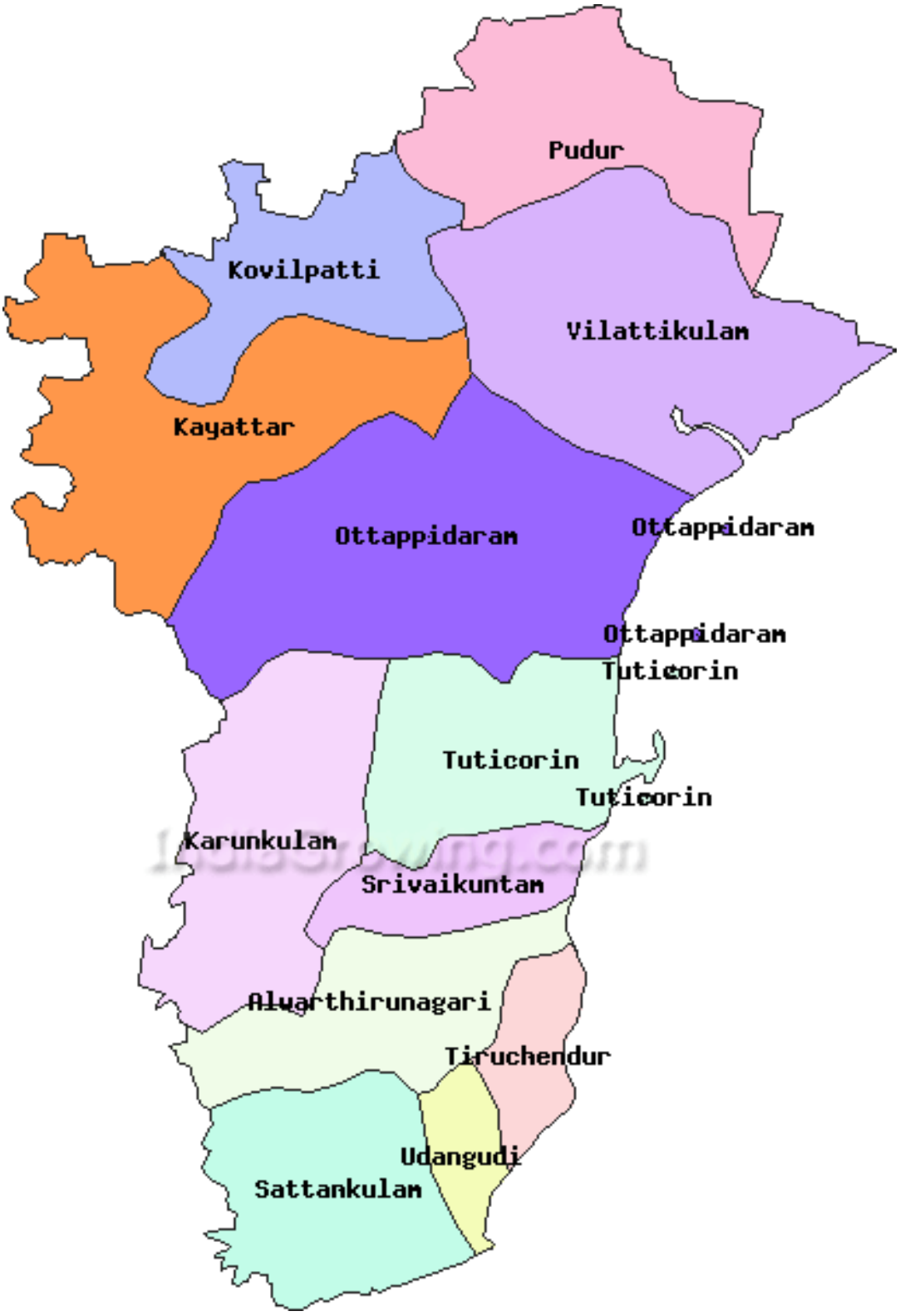
Tuticorin has been a Centre of maritime trade for more than a century. It‟s natural to the harbor with a rich hinterland, facilitated the growth of the port. Tuticorin was acknowledged as a minor anchorage port in 1868. In 1906, V.O. Chidambaram Pilli launched the first Swedish Ship, S.S. Gaelic in British India from Tuticorin Port. After

Independence, the minor part of Tuticorin witnessed a flourishing trade and handled a variety of Cargo.

Population

The population of the district 2011 Census was 17, 50,176 of which 8, 65,021 were males and 8, 85,155 females. The population thickness in the district is 369 per sq.kms in contradiction of the state average of 555 per sq.kms. The percentage of town population is 50.10, and that of the rural population is 49.90 of the total population. The literacy percentage of the male is 91.14 and female are 81.33. Total literacy percentage of this district is 86.16

THOOTHUKUDI DISTRICT MAP



CHAPTER-V

DATA ANAYSIS

Sex wise analysis of the respondents

Table: 5. 1

S.No	Sex	No. of Respondents	Percentage (%)
1.	Male	105	88
2.	Female	15	12
	Total	**120**	**100**

Source: Primary data

In this table shows the sex compositions of the respondents. Out of 120 respondents 12% of the respondents are female and 88% of the respondents are male respectively.

Figure 5.1

SEX WISE ANALYSIS

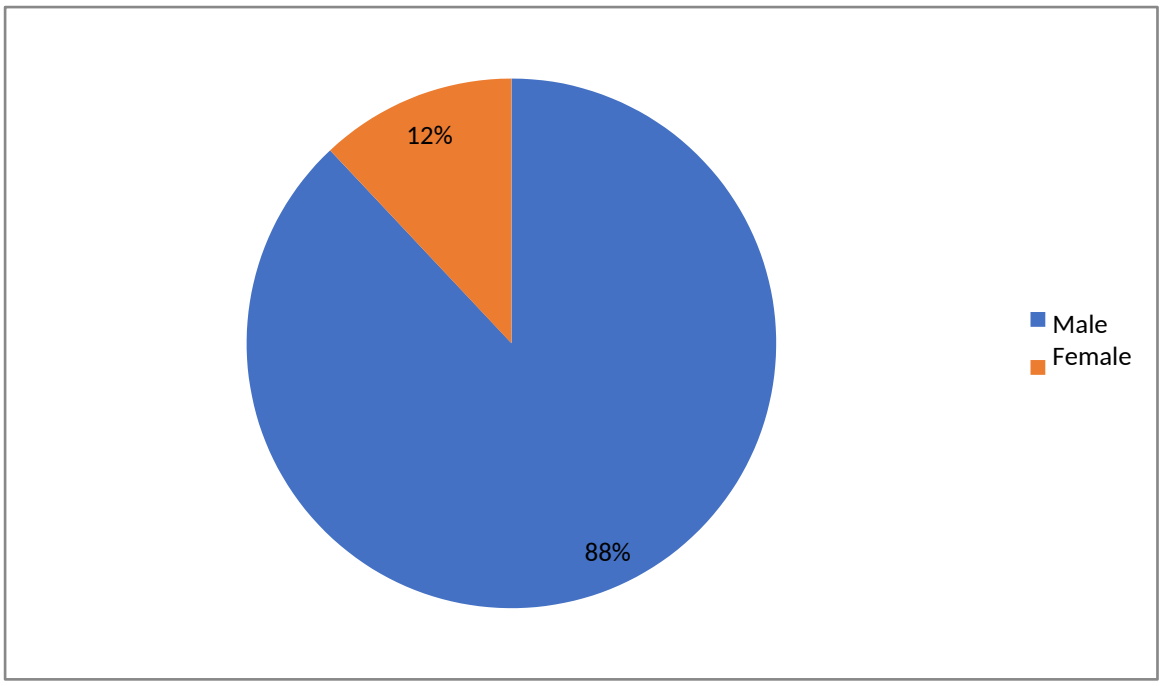


Table: 5.2

Educational Qualification of the respondents

S.No	Educational Level	No. Of the Respondents	Percentage (%)
1.		68	56%
2.	Primary School	30	25%
3.	High school	22	19%
	Total	**120**	**100**

Source: Primary data

It is clearly evident from the table respondents in educational level of the respondents 56% of the respondents are uneducated , 25% of the respondents are primary school level, 19% of the respondents are high school level respectively out of 120 sample respondents.

Figure 5.2

EDUCATION

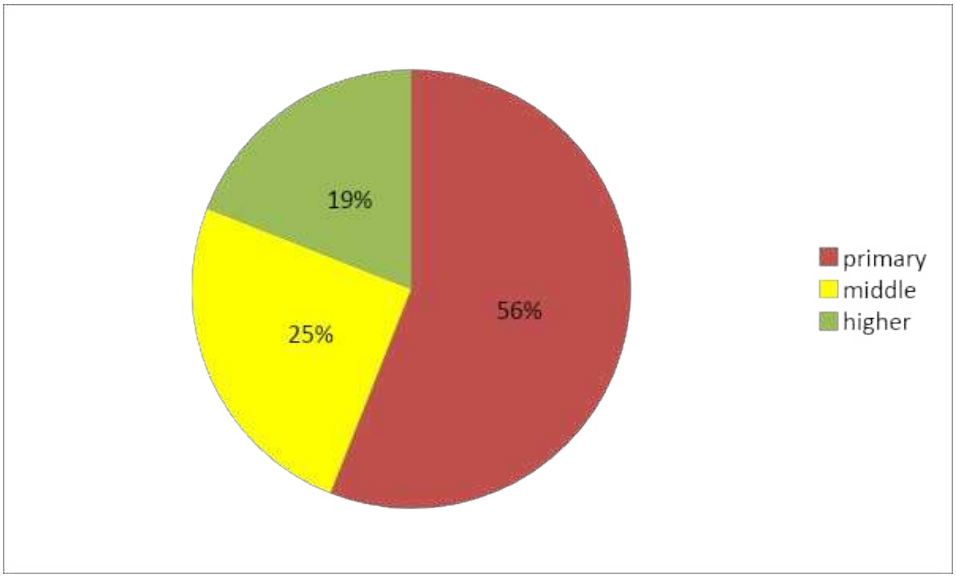


Table: 5.3

Religion wise of the Respondents

S.No	Religion	No. of Respondents	Percentage (%)
1.	Christian	96	80
2.	Hindu	24	20
	Total	**120**	**100**

Source: Primary data

The table shows that 80% of the respondents are Christians, and 20% of the respondents are Hindu respectively out of 120 sample respondents.

Figure5.3

RELIGION

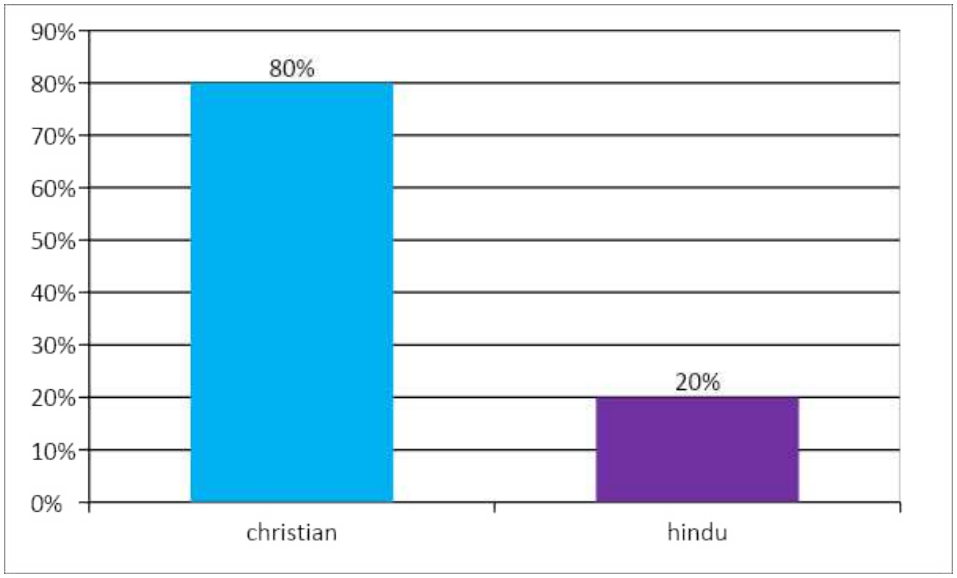


Table: 5.4

Marital Status of the Respondents

S.No	Marital status	No.of Respondents	Percentage(%)
1.	Un married	30	25
2.	Married	90	75
	Total	**120**	**100**

Source: Primary data

This table shows that 25% of the respondents unmarried and 75% of the respondents are married respectively.

Figure5.4

MARITAL STATUS

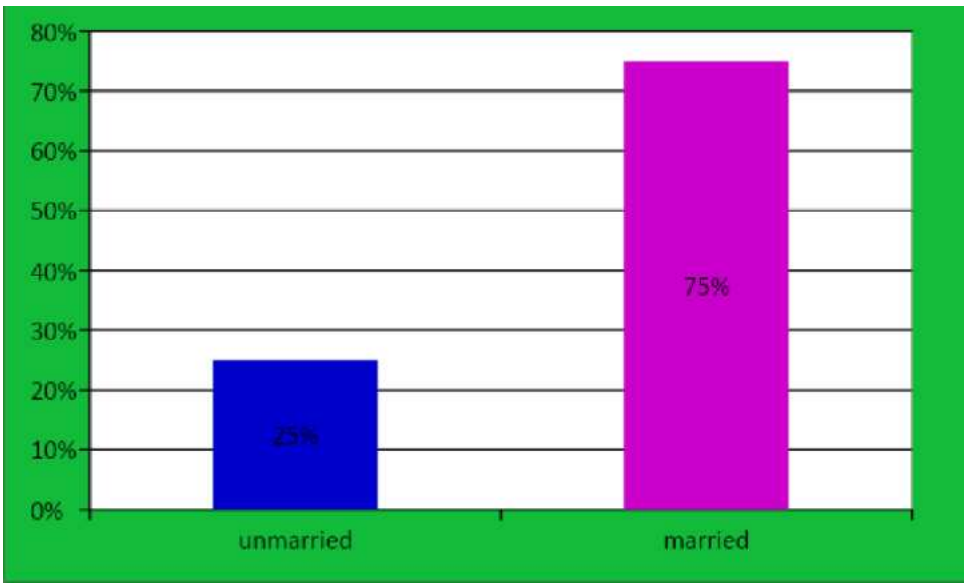


Table: 5. 5

Caste wise analysis of the Respondents

S.No	Caste	No of the Respondents	Percentage (%)
1	SC	10	8
2	BC	30	25
3	OBC	-	-
4	MBC	80	67
	Total	**120**	**100**

Source Primary data

This table shows the caste composition of the respondents. Up of 120 respondents 8% of the respondents are SC and 25%of the respondents are BC, and 67% of the respondents are MBC,

Figure 5.5

CASTE

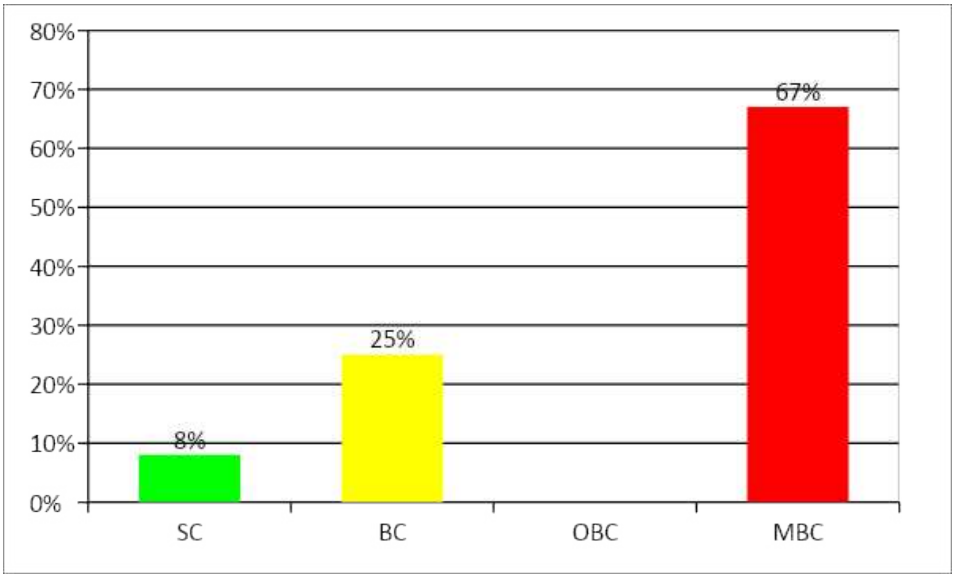


Table: 5. 6

Monthly income of the Respondents

S.NO	Income	No. of the Respondents	Percentage (%)
1	Upto-20,000	-	-
2	20,000-30,000	50	41
3	30,000-40,000	40	34
4	40,000-50,000	20	17
5	60,000-70,000	10	8
	Total	**120**	**100**

Source: Primary data

From the table shows that income started in Rs.20‟000. 41% of the respondents income between Rs.20, 000- Rs.30, 000. 34% of the respondent‟s income between Rs.30, 000 to Rs.40,000 .17% of the respondent‟s income between Rs.40,000-Rs.50,000, and finally 8% of the respondents income Rs. 60,000- Rs.70,000 above respectively.

Figure 5.6

MONTHLY INCOME

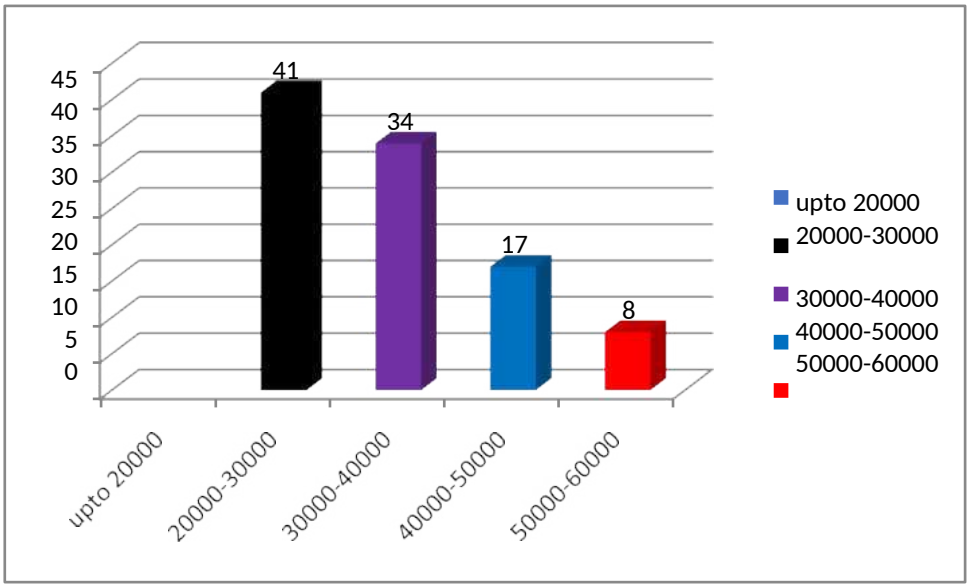


Table: 5. 7

Monthly expenditure of the Respondents

S.NO	Expenditure	No.of the Respodents	Percentage(%)
1	Upto-10,000	-	-
2	10,000-15,000	23	19
3	15,000-20,000	22	18
4	20,000-25,000	24	20
5	Above-25,000	51	43
	Total	**120**	**100**

Source: Primary data

This table explains according to their expenditure of the sample respondents 19% of the sample respondents to spend Rs.10, 000 to 15,000. 18% of the respondents to spend Rs.15, 000-Rs. 20,000. 20% of the sample respondents to spend Rs. 20,000-Rs. 25,000 and 43% of the respondents to spend above Rs.25, 000 respectively.

Figure 5.7

MONTHLY EXPENDITURE

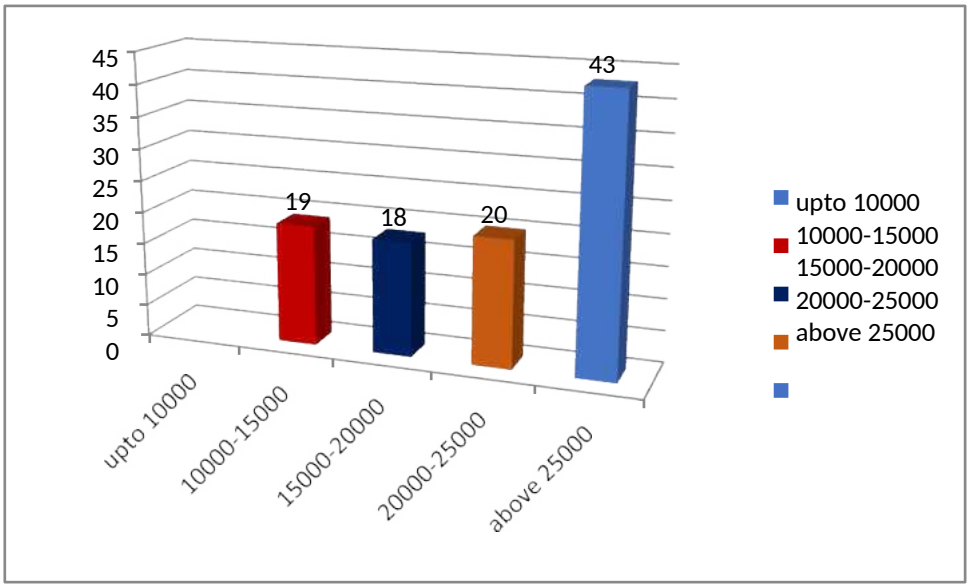


Table: 5. 8

Access to government support

S.No	Government support	No. of Respondents	Percentage (%)
1	Municipal corporation	66	55
2	Private sector	32	26
3	NGO‟S	22	19
	Total	**120**	**100**

Source: Primary data

This table shows that the respondents to get Government support from various sources according to 55% of the sample respondents to get the support from Municipal Corporation, 26% of the respondents to get the support from Private sector, and 19% of the respondents to get the access from NGO‟s(Non- Governmental Organization) respectively

Figure 5.8

GOVERNMENT SUPPORT

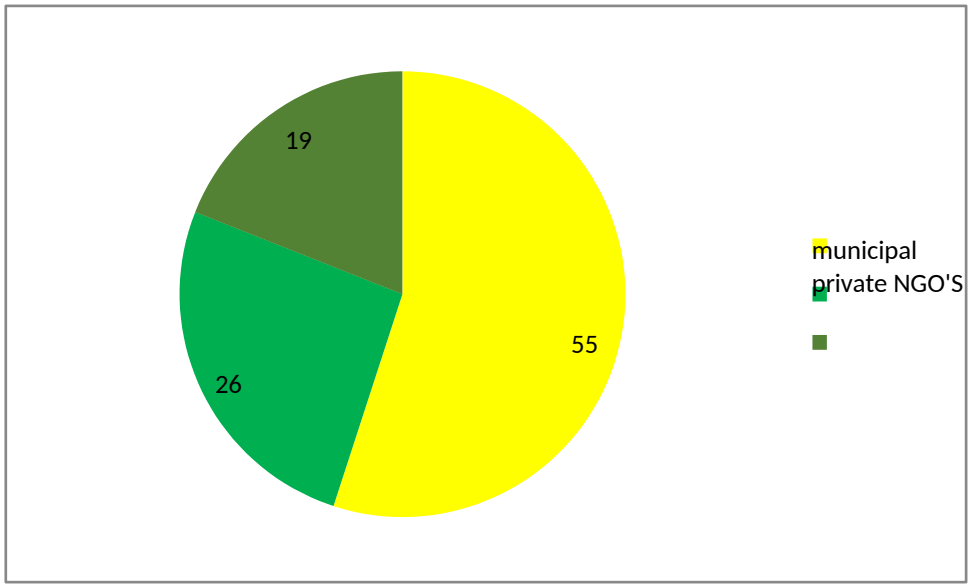


Table: 5. 9

Community support

S.NO	Community support	No. of Respondents	Percentage (%)
1.	Masks	62	52
2.	Sanitizer	41	34
3.	Viral sprays	11	9
4.	Awareness Programme	6	5
	Total	**120**	**100**

Source: Primary data

This table shows that community support 52% of the respondents are masks, 34%of the respondents are sanitizer, and 9%of the respondents in viral sparys, and 5% of the respondents in awareness programmer

Figure 5.9

COMMUNITY

SUPPORT

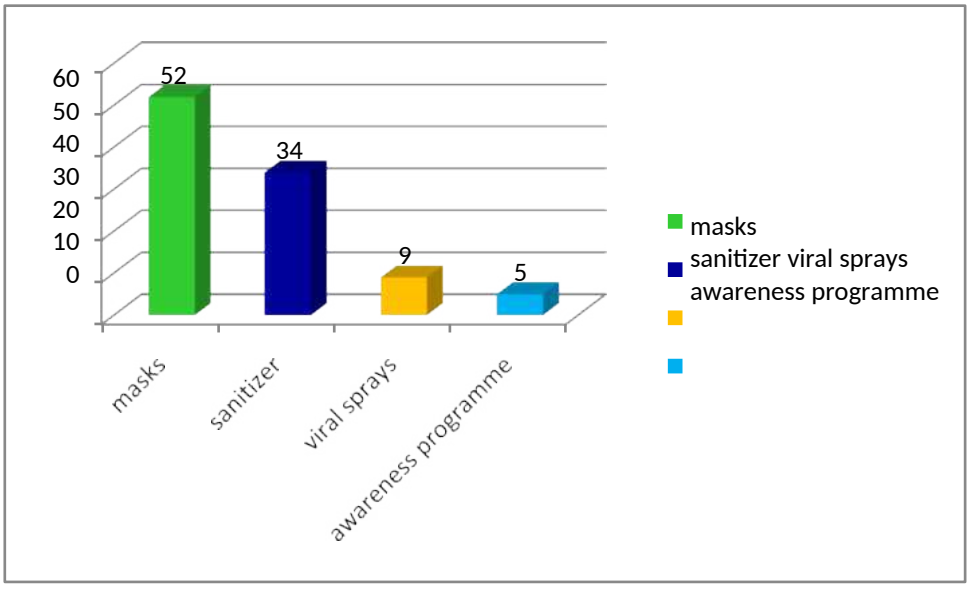


Table: 5. 10

Percentage of unemployment due to covid-19

S.NO	Employment	No. of Respondents	Percentage (%)
1.	Voluntary Unemployment	24	50
2.	Disguised Unemployment	24	50
	Total	**48**	**100**

Source: Primary data

This table shows that the Percentage of unemployment due to covid-19 50% of the respondents are voluntary unemployment, and another 50% of the respondents are disguised unemployment due to COVID – 19

Figure 5.10

PERCENTAGE OF UNEMPLOYMENT

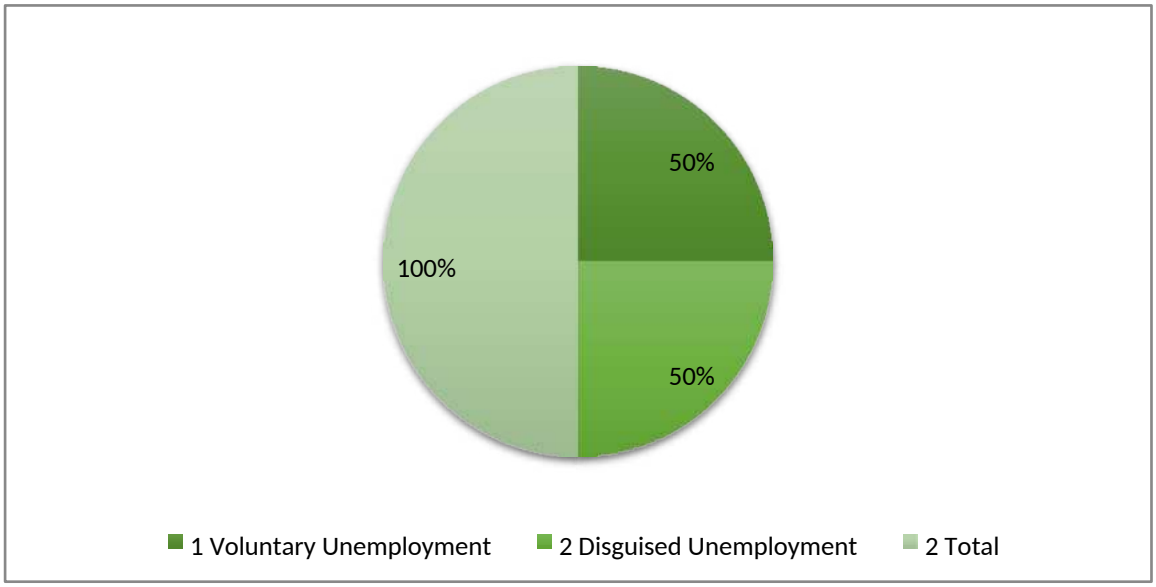


Table: 5. 11

Daily working hour of fisherman

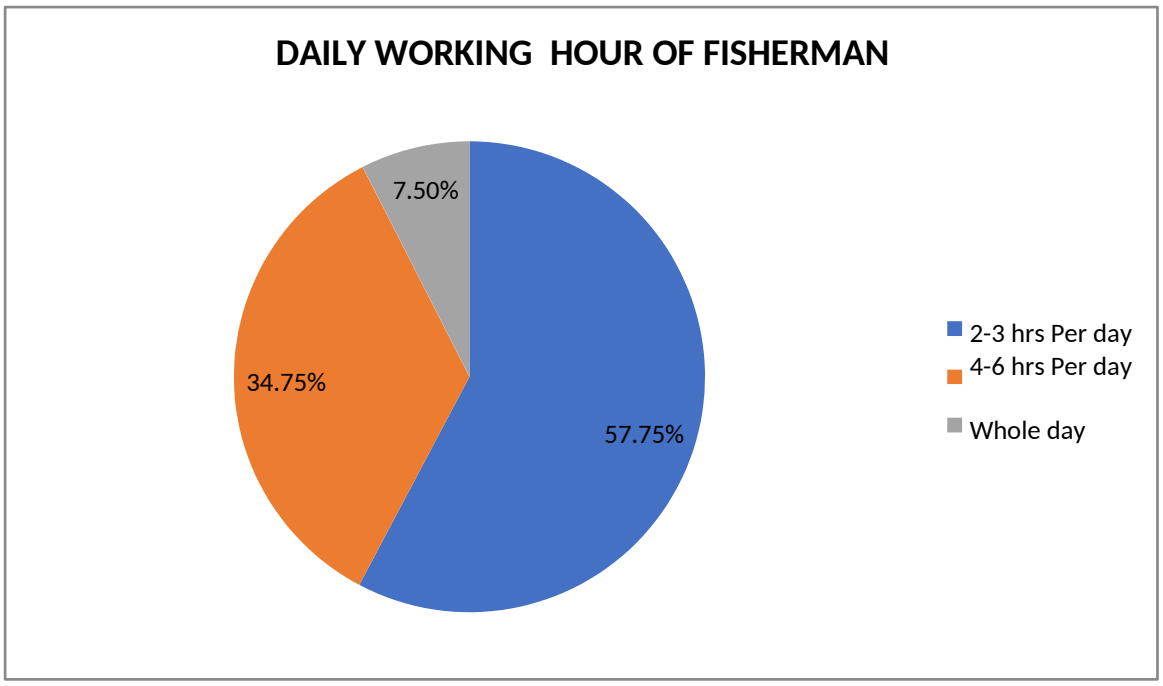
S.No		**Percentage**
1	2-3 hrs Per day	57.75%
2	4-6 hrs Per day	34.75%
3	Whole day	7.50%
	Total	**100**

Source: Primary Data

Daily working hour of fisherman was also collected through survey. The working hour of fisherman is divided in three different categories as 2-3 hr per day, 4-6 hr per day and almost whole day based on majority of people. Daily working hour percentage of fisherman Result obtained from data collected clearly shows the percentage of fisherman as 7.50%, 34.75% and 57.75% for 2- 3 hr per day, 4-6 hr per day and almost whole day respectively. The income of fisherman was calculated by averaging the whole month income through all sources.

Figure 5.11

DAILY WORKING HOUR OF FISHERMAN



CHAPTER-VI

Findings, Suggestions and Conclusion Findings

- 88% of the sample respondents are male and 12% of the respondents are female.
- 56% of the sample respondents are uneducated and 25% of the respondents are high school level.
- 80% of the respondents are Christians and 20% of the respondents are Hindu
- 75% of the respondents are married and 25% of the respondents are unmarried.
- 8% of the sample respondents are SC and 25% of the respondents BC, and 67% of the respondents are MBC.
- Above up-to 20,000 in income started in income between majority of 60,000 - 70,000 415 of the monthly income respondents.
- 19% of the respondents are earning below 15,000 per month, 18% of the respondents are earning below 20,000, 20% of the respondents are earning below 25,000 and 43% of the respondents are earning above 25,000
- 55% of the respondents are accesses to municipal corporation support. 26% of the respondents are accesses to the private sector support and the NGO‟S are given their support towards 19% of the respondents.
- 52% of the respondents are wearing the mask 34% of the respondents are using the sanitizer 9% respondents are using

the viral sprays, and 5% of the respondents in awareness programmers.

- 50% the respondents are voluntary unemployment and another 50% of disguised unemployment.
- Daily working hour percentage of fisherman Result obtained from data collected clearly shows the percentage of fisherman as 7.50%, 34.75% and 57.75% for 2- 3 hr per day, 4-6 hr per day and almost whole day respectively.

SUGGESTION

- The Special medical assistance may be given to the fishermen workers which may be useful to improve their healthy life style..
- The fishermen workers should be aware of legal production. For that they may be allowed to attend legal awareness.
- The fishing community was very poor, and always remained in deep financial stress.
- The government should provide loan with low rate of interest for meeting the family expanses which could be deducted from their salary because the private loans carry high rate of inertest.
- The government to give access to the fishing community People.
- Due to COVID – 19 the fishing community People to suffer from the Unemployment. So the Government must to protect the suffering People.
- Greater unemployment was noticed, which pinpointed emergent need for employment generation.
- Government must provide the for their children to get admitted in the educational institutions for the higher education.
- Government must be provide the technical equipment and mechanical devices to help and improve their life style.
- Globally, the SSF sector plays a vital role in food and livelihood security. Thus, we emphasize the need for rapid mobilization by all parties in support of the SSF sector

Conclusion

Our analysis suggests that the COVID-19 pandemic presents major challenges for the SSF sector globally. While there are some positive initiatives and outcomes, these are likely far outweighed by the negative consequences, especially for groups that are most vulnerable to these changes. Furthermore, the crisis is far from over. The short-term impacts that we have highlighted here are likely to be followed by long-term crises related to economic hardships and global food crises. Globally, the SSF sector plays a vital role in food and livelihood security. Thus, we emphasize the need for rapid mobilization by all parties in support of the SSF sector. Short-term responses must be swift and targeted to the most vulnerable. In the longer-term, there is a need to develop a coordinated response and support network to transform existing existing institutions, supply chains, and food systems in ways that improve conditions and resilience of the SSF sector.

REFERENCES

- Anonymouos. 1986. A census of Marine fisheries. Directorate of fisheries,Madras. Government of Tamil Nadu. 4 pp.

- Anonymous. 1991. Sociological survey of the fishing families of the narmada river. Central Inland Capture Fisheries Research Institute, Barrackpore 1-10.

- Sampathkumar, R. and Selvaraj, P.1987. An Economic analysis of employment, Income and consumption of fishing labour 92 SINGH ET AL. households in Tirunelveli district. . Fishing Chimes. 7 (7) : 49-56.

- Selvaraj, P. 1986. Profile of fishing villages in Triunelveli District, Mimeograph. Department of Fishery Economics, Tamil Nadu Agricultural University, Tuticorin. 17 pp.

- Senthilathiban, R. 1985. An Economic Analysis of Employment, Income andConsumption of Fishermen Households in Tirunelveli district. MFSc Thesis. Department of Fishery Economics, Fisheries College, Tamil Nadu Agricultural University, Tuticorin. 85 pp.

A STUDY ON SOCIO ECONOMIC CONDITION ON COVID -19

THOOTHUKUDI DISTRICT

QUESTIONNAIRE

1. Name of the Respondents :
2. Caste : BC/OBC/SC/ MBC /OTHERS
3. Sex : Male / Female
4. Education : Primary / High School / Higher Secondary
5. Religion :Christian/Hindu / Muslim
6. Marital status : Married / Single

7. **Family details of the respondents:**

NO	NAME	AGE	SEX	MARITAL STATUS	EDUCATIONAL QUALIFICATION	OCCUPATION	ANNUAL INCOME

8. Monthly income of the respondents.

SERIAL.NO	DAYS/WEEK

9. Has three been a reduction in level of

10. employment/salary due to covid19

11. Ability to buying food /medicine

12. Access to government support

Yes No Never

a) If yes means _____

Receiving Government Support

Receiving NGO Support

13. COVID-19 Awareness and Knowledge has your community been affected by covid-19.

Yes No N/A

14. Covid-19 Awareness and Knowledge

Yes No N/A

15.Has your community been affected (by Covid-19)?

Yes No N/A

16.Did your community receive any public health awareness about Covid-19?

Yes No N/A

17.Did your community impose any preventive measures associated with Covid-19?

Yes No N/A

18.Have there been any positive Covid-19 cases identified in your community?

Yes No N/A

19.Has there been any unemployment due to Covid-19?

Yes No N/A

20. Has a shortage of casual labour been observed due to Covid-19?

Yes No N/A

21. Does the community run business/fishing continue to be efficient with the shortage of casual labour?

Yes No N/A

22. What is the percentage of unemployment due to Covid-19?

0-20%	20-40%	40 – 70%	70 – 100%	Nil

23. What is the percentage of women who were in the workforce are unemployed due to Covid-19?

0-20%	20-40%	40 – 70%	70 – 100%	Nil

24. What is the percentage of men who were in the workforce are unemployed due to Covid-19?

0-20%	20-40%	40 – 70%	70 – 100%	Nil

25..Has the community been provided or benefited from any support, or programmes?

If yes, have the support or programmes been directed to small-scale producers?

If yes, have the support or programmes been directed to women working in the seafood sector?

If yes, have the support or programmes been directed to temporary workers / crew members in the seafood sector?

Breakdown of Support	Receiving Government Support	Receiving NGO Support	Private
Origin of grants, supports and programmes received			

26. Awareness, Education and Support

Yes No N/A

27. Has the community been provided precautionary services from the nearest Hospital or Government Department?

Yes No N/A

28. Is your community using masks, sanitizer, or viral sprays?

Yes No N/A

29. Do you have community management plans for fishing/fish farming for the coming season?

Yes No N/A

30. Have persons coming from abroad or travelling locally been confined for a quarantine period in the community?

Yes No N/A

A STUDY ON PSYCOLOGICAL EMOTIONS OF SCHOOL TEACHERS DURING COVID-19 PERIOD AT THOOTHUKUDI

A Project Submitted to

ST.MARYS COLLEGE (AUTONOMOUS) Thoothukudi

Affiliated to

Manonmaniam Sundaranar University, Tirunelveli

In Partial fulfilment of the award of the degree of

MASTER OF ARTS IN ECONOMICS

Submitted by

S.UBAHARA NIMMI

Reg .No. 19SPEC02

Under the supervision and Guidance of

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CERTIFICATE

This is to certify that project work entitled **"A STUDY ON PSYCHOLOGICAL EMOTIONS OF SCHOOL TEACHERS DURING COVID-19 PERIOD IN THERESPURAM AREA OF THOOTHUKUDI"** Submitted to St Mary`s College (Autonomous) Thoothukudi in partial fulfilment for the award of the Degree of Master of Arts in Economics and is a record of work done during the year 2020-2021 by **S.UBAHARA NIMMI** (19SPEC02)

P. Anuradha 12/04/2021
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A. Gudlas 12/04/21
Signature of the External Examiner

DECLARATION

I do by that the project entitled **"A STUDY ON PSYCHOLOGICAL EMOTIONS OF SCHOOL TEACHERS DURING COVID-19 PERIOD IN THERESPURAM AREA OF THOOTHUKUDI"** Submitted for the degree of Master of Arts in Economics is my original work and that it has not previously formed the basis for award of any degree.

Station: Thoothukudi

Date: 12.04.2021

S. Ubahara Nimmi

S. Ubhahara Nimmi

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Abstract

Aims

The objective of this study is to enumerate the Psychological emotions of the teachers during Covid - 19 with their mode of changes in their teaching skills to enhance the learning capacity of the students.

Method

In this study we have used the Chi-Squared test to analyse the Psychological emotions of the teachers during Covid – 19. The sample number of our study is 124 (46 male and 78 female Teachers) from the total population of the school teachers in Thoothukudi.

Results

The results showed that the perception of threat from COVID-19 was related positively to negative affect and emotional signs, that is, sadness-depression, anxiety and anger-hostility. There was a direct positive effect of perceived threat from COVID-19 on sadness-depression, anxiety and anger-hostility moods, while anxiety and anger-hostility had a direct positive effect on perception of threat from the virus. Thus, there was a circular relationship, in which perceived threat influenced the presence of negative mood, and negative mood, in turn, linked to emotions of irritation and agitation from a present situation, promoted the feeling of threat.

Conclusions

The results showed that the majority of respondents have a moderately positive perception of well-being. Teachers were satisfied with the education system before the pandemic. The pandemic has reduced the perception of well-being in the face of the profession, creating some concern among teachers about their professional future. Sex, length of service, well-being, perceptions of teaching difficulties and future perspectives proved to be predictors of professional well-being in times of pandemic.

Keywords: COVID-19, SARS-CoV-2, India, economy, safety measures

Chapter I

Introduction

The coronavirus disease (COVID-19) pandemic, which originated in the city of Wuhan, China, has quickly spread to various countries, with many cases having been reported worldwide. As of May 8th, 2020, in India, 56,342 positive cases have been reported. India, with a population of more than 1.34 billion—the second largest population in the world—will have difficulty in controlling the transmission of severe acute respiratory syndrome coronavirus 2 among its population. Multiple strategies would be highly necessary to handle the current

outbreak; these include computational modelling, statistical tools, and quantitative analyses to control the spread as well as the rapid development of a new treatment. The Ministry of Health and Family Welfare of India has raised awareness about the recent outbreak and has taken necessary actions to control the spread of COVID-19. The central and state governments are taking several measures and formulating several wartime protocols to achieve this goal. Moreover, the Indian government implemented a 55-days lockdown throughout the country that started on March 25th, 2020, to reduce the transmission of the virus. This outbreak is inextricably linked to the economy of the nation, as it has dramatically impeded industrial sectors because people worldwide are currently cautious about engaging in business in the affected regions.

Current Scenario in India

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), which causes coronavirus disease (COVID-19), was first identified in December 2019 in Wuhan city, China, and later spread to many provinces in China. As of May 8th, 2020, the World Health Organization (WHO) had documented 3,759,967 positive COVID-19 cases, and the death toll attributed to COVID-19 had reached 259,474 worldwide. So far, more than 212 countries and territories have confirmed cases of SARS-CoV-2 infection. On January 30th, 2020, the WHO declared COVID-19 a Public Health Emergency of International Concern. The first SARS-CoV-2 positive case in India was reported in the state of Kerala on January 30th, 2020. Subsequently, the number of cases drastically rose. According to the press release by the Indian Council of Medical Research (ICMR) on May 8th, 2020, a total of 14,37,788 suspected samples had been sent to the National Institute of Virology (NIV), Pune, and a related testing laboratory. Among them, 56,342 cases tested positive for SARS-CoV-2. A state-wise distribution of positive cases until May 8th, 2020, and the cases have been depicted on an Indian map. Nearly 197,192 Indians have recently been

repatriated from affected regions, and more than 1,393,301 passengers have been screened for SARS-CoV-2 at Indian airports , with 111 positive cases observed among foreign nationals. As of May 8th, 2020, Maharashtra, Delhi, and Gujarat states were reported to be hotspots for COVID-19 with 17,974, 5,980, and 7,012 confirmed cases, respectively. To date, 16,540 patients have recovered, and 1,886 deaths have been reported in India (5). To impose social distancing, the "Janata curfew" (14-h lockdown) was ordered on March 22nd, 2020. A further lockdown was initiated for 21 days, starting on March 25th, 2020, and the same was extended until May 3rd, 2020, but, owing to an increasing number of positive cases, the lockdown has been extended for the third time until May 17th, 2020. Currently, out of 32 states and eight union territories in India, 26 states and six union territories have reported COVID-19 cases. Additionally, the health ministry has identified 130 districts as hotspot zones or red zones, 284 as orange zones (with few SARS-CoV-2 infections), and 319 as green zones (no SARS-CoV-2 infection) as of May 4th, 2020. These hotspot districts have been identified to report more than 80% of the cases across the nation. Nineteen districts in Uttar Pradesh are identified as hotspot districts, and this was followed by 14 and 12 districts in Maharashtra and Tamil Nadu, respectively. The complete lockdown was implemented in these containment zones to stop/limit community transmission. As of May 8th, 2020, 310 government laboratories and 111 private laboratories across the country were involved in SARS-CoV-2 testing. As per ICMR report, 14,37,788 samples were tested till date, which is 1.04 per thousand people.

COVID-19 and Previous Coronavirus Outbreaks

The recent outbreak of COVID-19 in several countries is similar to the previous outbreaks of SARS and Middle East respiratory syndrome (MERS) that emerged in 2003 and 2012 in China and Saudi Arabia, respectively. Coronavirus is responsible for both SARS and COVID-19 diseases; they affect

the respiratory tract and cause major disease outbreaks worldwide. SARS is caused by SARS-CoV, whereas SARS-CoV-2 causes COVID-19. So far, there is no particular treatment available to treat SARS or COVID-19. In the current search for a COVID-19 cure, there is some evidence that point to SARS-CoV-2 being similar to human coronavirus HKU1 and 229E strains even though they are new coronavirus family members. These reports suggest that humans do not have immunity to this virus, allowing its easy and rapid spread among human populations through contact with an infected person. SARS-CoV-2 is more transmissible than SARS-CoV. The two possible reasons could be (i) the viral load (quantity of virus) tends to be relatively higher in COVID-19-positive patients, especially in the nose and throat immediately after they develop symptoms, and (ii) the binding affinity of SARS-CoV-2 to host cell receptors is higher than that of SARS-CoV.

Impact of COVID-19 in India and the Global Economy

As per the official government guidelines, India is making preparations against the COVID-19 outbreak, and avoiding specific crisis actions or not understating its importance will have extremely severe implications. All the neighbouring countries of India have reported positive COVID-19 cases. To protect against the deadly virus, the Indian government have taken necessary and strict measures, including establishing health check posts between the national borders to test whether people entering the country have the virus. Different countries have introduced rescue efforts and surveillance measures for citizens wishing to return from China. The lesson learned from the SARS outbreak was first that the lack of clarity and information about SARS weakened China's global standing and hampered its economic growth. The outbreak of SARS in China was catastrophic and has led to changes in health care and medical systems. Compared with China, the ability of India to counter a pandemic seems to be much lower. A recent study reported that affected family members had not

visit the Wuhan market in China, suggesting that SARS-CoV-2 may spread without manifesting symptoms. Researchers believe that this phenomenon is normal for many viruses. India, with a population of more than 1.34 billion—the second largest population in the world—will have difficulty treating severe COVID-19 cases because the country has only 49,000 ventilators, which is a minimal amount. If the number of COVID-19 cases increases in the nation, it would be a catastrophe for India. It would be difficult to identify sources of infection and those who come in contact with them. This would necessitate multiple strategies to handle the outbreak, including computational modelling as well as statistical and quantitative analyses, to rapidly develop new vaccines and drug treatments. With such a vast population, India's medical system is grossly inadequate. A study has shown that, owing to inadequate medical care systems, nearly 1 million people die every year in India. India is also engaged in trading with its nearby countries, such as Bangladesh, Bhutan, Pakistan, Myanmar, China, and Nepal. During the financial year 2017–18 (FY2017–18), Indian regional trade amounted to nearly $12 billion, accounting for only 1.56% of its total global trade value of $769 billion. The outbreak of such viruses and their transmission would significantly affect the Indian economy. The outbreak in China could profoundly affect the Indian economy, especially in the sectors of electronics, pharmaceuticals, and logistics operations, as trade ports with China are currently closed. This was further supported by the statement by Suyash Choudhary, Head—Fixed Income, IDFC AMC, stating that GDP might decrease owing to COVID-19.

Economists assume that the impact of COVID-19 on the economy will be high and negative when compared with the SARS impact during 2003. For instance, it has been estimated that the number of tourists arriving in China was much higher than that of tourists who traveled during the season when SARS emerged in 2003. This shows that COVID-19 has an effect on the tourism industry. It has

been estimated that, for SARS, there was a 57 and 45% decline in yearly rail passenger and road passenger traffic, respectively. Moreover, when compared with the world economy 15 years ago, world economies are currently much more inter-related. It has been estimated that COVID-19 will hurt emerging market currencies and also impact oil prices. From the retail industry's perspective, consumer savings seem to be high. This might have an adverse effect on consumption rates, as all supply chains are likely to be affected, which in turn would have its impact on supply when compared with the demand of various necessary product items. This clearly proves that, based on the estimated losses due to the effect of SARS on tourism (retail sales lost around USD 12–18 billion and USD 30–100 billion was lost at a global macroeconomic level), we cannot estimate the impact of COVID-19 at this point. This will be possible only when the spread of COVID-19 is fully controlled. Until that time, any estimates will be rather ambiguous and imprecise. The OECD Interim economic assessment has provided briefing reports highlighting the role of China in the global supply chain and commodity markets. Japan, South Korea, and Australia are the countries that are most susceptible to adverse effects, as they have close ties with China. It has been estimated that there has been a 20% decline in car sales, which was 10% of the monthly decline in China during January 2020. This shows that even industrial production has been affected by COVID-19. So far, several factors have thus been identified as having a major economic impact: labor mobility, lack of working hours, interruptions in the global supply chain, less consumption, and tourism, and less demand in the commodity market at a global level, which in turn need to be adequately analyzed by industry type. Corporate leaders need to prioritize the supply chain and product line economy trends via demand from the consumer end. Amidst several debates on sustainable economy before the COVID-19 impact, it has now been estimated that India's GDP by the International Monetary Fund has been cut down to 1.9% from 5.8% for the FY21. The financial crisis that has

emerged owing to the worldwide lockdown reflects its adverse effect on several industries and the global supply chain, which has resulted in the GDP dropping to 4.2% for FY20, which was previously estimated at 4.8%. Nevertheless, it has been roughly estimated that India and China will be experiencing considerable positive growth among other major economies.

Preparations and Preventive Measures in India

An easy way to decrease SARS-CoV-2 infection rates is to avoid virus exposure. People from India should avoid traveling to countries highly affected with the virus, practice proper hygiene, and avoid consuming food that is not home cooked. Necessary preventive measures, such as wearing a mask, regular hand washing, and avoiding direct contact with infected persons, should also be practiced. The Ministry of Health and Family Welfare (MOHFW), India, has raised awareness about the recent outbreak and taken necessary action to control COVID-19. Besides, the MOHFW has created a 24 h/7 days-a-week disease alert helpline (+91-11-23978046 and 1800-180-1104) and policy guidelines on surveillance, clinical management, infection prevention and control, sample collection, transportation, and discharging suspected or confirmed cases. Those who travelled from China, or other countries, and exhibited symptoms, including fever, difficulty in breathing, sore throat, cough, and breathlessness, were asked to visit the nearest hospital for a health check-up. Officials from seven different airports, including Chennai, Cochin, New Delhi, Kolkata, Hyderabad, and Bengaluru, have been ordered to screen and monitor Indian travellers from China and other affected countries. In addition, a travel advisory was released to request the cessation of travel to affected countries, and anyone with a travel history that has included China since January 15th, 2020, would be quarantined. A centralized control room has been set up by the Delhi government at the Directorate General of Health Services, and 11 other districts have done the same. India has implemented COVID-19 travel advisory for

intra- and inter-passenger aircraft restrictions. More information on additional travel advisory can be accessed with the provided link (https://www.mohfw.gov.in/pdf/Traveladvisory.pdf).

India is known for its traditional medicines in the form of AYUSH (Ayurvedic, Yoga and Naturopathy, Unani, Siddha, and Homeopathy). The polyherbal powder NilavembuKudineer showed promising effects against dengue and chikungunya fevers in the past. With the outbreak of COVID-19, the ministry of AYUSH has released a press note "Advisory for Coronavirus," mentioning useful medications to improve the immunity of the individuals. Currently, according to the ICMR guidelines, doctors prescribe a combination of Lopinavir and Ritonavir for severe COVID-19 cases and hydroxychloroquine for prophylaxis of SARS-CoV-2 infection. In collaboration with the WHO, ICMR will conduct a therapeutic trial for COVID-19 in India. The ICMR recommends using the US-FDA-approved closed real-time RT-PCR systems, such as GeneXpert and Roche COBAS-6800/8800, which are used to diagnose chronic myeloid leukemia and melanoma, respectively. In addition, the Truenat TM beta CoV test on the TruelabTM workstation validated by the ICMR is recommended as a screening test. All positive results obtained on this platform need to be confirmed by confirmatory assays for SARS-CoV-2. All negative results do not require further testing. Antibody-based rapid tests were validated at NIV, Pune, and found to be satisfactory; the rapid test kits are as follows: (i) SARS-CoV-2 Antibody test (Lateral flow method): Guangzhou Wondfo Biotech, Mylan Laboratories Limited (CE-IVD); (ii) COVID-19 IgM&IgG Rapid Test: BioMedomics (CE-IVD); (iii) COVID-19 IgM/IgG Antibody Rapid Test: Zhuhai Livzon Diagnostics (CEIVD); (iv) New coronavirus (COVID-19) IgG/IgM Rapid Test: Voxtur Bio Ltd, India; (v) COVID-19 IgM/IgG antibody detection card test: VANGUARD Diagnostics, India; (vi) MakesureCOVID-19 Rapid test: HLL Lifecare Limited, India; and (vii) YHLO SARS-CoV-2 IgM

and IgG detection kit (additional equipment required): CPC, Diagnostics. As a step further, on the technological aspect, the Union Health Ministry has launched a mobile application called “AarogyaSetu” that works both on android and iOS mobile phones. This application constructs a user database for establishing an awareness network that can alert people and governments about possible COVID-19 victims.

Future Perspectives

Infections caused by these viruses are an enormous global health threat. They are a major cause of death and have adverse socio-economic effects that are continually exacerbated. Therefore, potential treatment initiatives and approaches need to be developed. First, India is taking necessary preventive measures to reduce viral transmission. Second, ICMR and the Ministry of AYUSH provided guidelines to use conventional preventive and treatment strategies to increase immunity against COVID-19. These guidelines could help reduce the severity of the viral infection in elderly patients and increase life expectancy. The recent report from the director of ICMR mentioned that India would undergo randomized controlled trials using convalescent plasma of completely recovered COVID-19 patients. Convalescent plasma therapy is highly recommended, as it has provided moderate success with SARS and MERS; this has been rolled out in 20 health centers and will be increased this month (May 2020). India has expertise in specialized medical/pharmaceutical industries with production facilities, and the government has established fast-tracking research to develop rapid diagnostic test kits and vaccines at low cost. In addition, the Serum Institute of India started developing a vaccine against SARS-CoV-2 infection. Until we obtain an appropriate vaccine, it is highly recommended that we screen the red zoned areas to stop further transmission of the virus. Medical college doctors in Kerala, India, implemented the low-cost WISK (Walk-in Sample Kiosk) to collect samples without direct exposure or

contact. After Kerala, The Defense Research and Development Organization (DRDO) developed walk-in kiosks to collect COVID-19 samples and named these as COVID-19 Sample Collection Kiosk (COVSACK). After the swab collection, the testing of SARS-CoV-2 can be achieved with the existing diagnostic facility in India. This facility can be used for massive screening or at least in the red zoned areas without the need for personal protective equipment kits. India has attempted to broaden its research facilities and shift toward testing the mass population, as recommended by medical experts in India and worldwide.

Teacher's Physical Activity and Mental Health during Lockdown due to the COVID-2019 Pandemic

The COVID-19 pandemic has led teachers to an unpredictable scenario where the lockdown situation has accelerated the shift from traditional to online educational methods, and relationships have been altered by the avoidance of direct contact with the others, with implications for their mental health. Physical activity seemed to be a factor that could prevent mental disorders such as anxiety or depression in this peculiar situation. Therefore, the aims of this study were to explore how teachers have been affected by the lockdown with respect to their mental health and their relationships in three main fields: work, family, and social relationships, and to know which are the role of physical activity in the mentioned variables. For that purpose, an online survey was designed to collect quantitative and qualitative data.

Results showed that indoor physical activity acts as preventive in lockdown situations, whereas the level of activity does not affect mental health. Also, teachers have experienced higher levels of distress due to the workload generated during the lockdown. In conclusion, to prevent health problems among teacher’s in future similar situations, it would be important to facilitate

the practice of physical activity at home. Furthermore, teacher training in blended or online educational methods would be crucial for their favourable work development.

The global expansion of the COVID-19 pandemic disease has carried out many consequences that may affect people's general health. On the one hand, the virus itself creates personal situations in which, in addition to the disease's symptoms, human emotions such as fear, worry, panic, anxiety, or depression-related distress can appear more commonly among people. Indeed, in recent studies about the psychological impact of this pandemic disease on the general population, an increase in depression and stress levels between the first days and the third week of the lockdown has been found. Furthermore, anxiety has been related to impaired sleep in many studies. On the other hand, social situations have changed due to the disease and the subsequent quarantine, as well as due to attending to dependent or infected persons or those under other medical conditions at home or nearby. Also, it was due to the preventive measures applied by the government such as confinement or lockdown. In previous pandemics, individual differences seem to play an important role. In any case, broader and more specific research of the impact on mental health is still needed.

Moreover, people worldwide have found themselves coping with new professional scopes. Some of them have completely stopped their work, and in brief, they will have to face their future with uncertainty; others have found their work hours increased and have managed risky situations. This health crisis is also triggering an economic crisis at a global level and within a few weeks.

Another factor influencing adults' personal, social, and professional fields is that related to the lockdown of children at home because, many times, parents have been involved in many roles and tasks at a time. Meanwhile, educational administrations have not stopped the scholar year, so that teachers have found themselves coping with online education at any level. while

attending to other personal issues. Furthermore, it should be mentioned that Spanish teachers' working conditions before this pandemic situation were already tight due to the teacher/student ratio from 25 to 36 per teacher and the high amount of lessons (30–32 per week) they have to give. Also, all teachers should be prepared in all teaching roles for inclusive education and thus to work with all learners or students in individualized and close relationships, so that they must play a great role in a daily-based work and face-to-face with them. The work becomes even more difficult when this direct contact must be replaced by an online relationship, and many other factors should be considered. Teachers, in general, are not trained for e-learning programs and activities since this is not included in the curriculum of primary and secondary education. In addition, it should be emphasized that, in crisis situations, teachers may play an additional and crucial role. They can provide psychosocial support to learners. Firstly, teachers can create a safe and supportive interaction where students may express their emotions and experiences; secondly, they can include specific structured psychosocial activities in the teaching/learning process that can strongly help vulnerable students. Therefore, teachers' workload can be considered quite high, and consequently, the teaching profession can be characterized by high levels of stress and physical complaints.

In the current situation, national governments all around the world are implementing new precautionary and responsive measures on a daily basis to contain the spread of the COVID-19 pandemic and to address this crisis that they have established a lockdown situation, social distancing advice, and educational measures such as temporary educational institutions' closures.

These global school closures are impacting over 60% of the world's student population, and in several countries, the implemented localized closures could impact millions of additional learners. Moreover, school closures bring to people of many communities high social and economic costs, impacting mainly the most vulnerable and marginalized children and their families and

exacerbating the already existing disparities not only within the education system but also in other aspects of their lives. Teachers also experience an important impact. Firstly, their students are concerned because of the interrupted learning and other collateral effects (disadvantages, lack of opportunities, poor nutrition, social isolation, or lack of care), and this makes even more difficult the teaching–learning process, mainly when parents are not prepared for distance and home schooling or they are not available to attend to their children. Secondly, teachers experience confusion and stress because they are often unsure of their obligations and how to maintain connections with students to support learning.

Transitions to distance learning platforms tend to be messy and frustrating, even in the best circumstances. In many contexts, school closures lead to furloughs or separations for teachers. Thirdly, moving learning from classrooms to homes at scale and in a hurry presents enormous challenges, both human and technical (i.e., creating, maintaining, and improving distance learning, or measuring and validating learning). In sum, from 1 day to the next, teachers have found themselves creating and managing virtual classrooms, communicating with their students and their parents over social media platforms, and learning by doing as they provide distance education to over 1.5 billion students affected by school closures all over the world due to the COVID-19 pandemic. Despite governments' efforts to provide training and resources to support teachers in adapting to this new learning environment, turning from face-to-face to virtual classroom in such a short time has been a challenge as only a few teachers have strong digital and ICT skills. Therefore, in such unprecedented and uncertain times, it is normal for teachers to experience higher levels of stress and anxiety. Teachers need, indeed, socio-emotional support to face the extra pressure being put on them to deliver learning in a time of crisis. Moreover, providing support for teachers' own psychosocial well-being is an essential component of supporting students.

Nevertheless, the great changes in students', teachers', and parents' lives around the world caused by COVID-19 have brought to society an opportunity to test its capacity to adapt to sudden stressful situations in which people have been involved in new personal, social, educational, and professional environments and tasks. This health crisis will likely have long-term effects on education, so that it could become an opportunity to rethink the curriculum, teaching–learning assessment processes, and the development of students' competencies while strengthening their learning skills and sustaining their motivation. Moreover, the after-crisis period must be already previewed for the curriculum and learning continuity to be preserved.

Totally 90 million school teachers world over and 6 million in India have been at the frontlines of damage-control of Covid -19 pandemic by ensuring that learning reaches their learners seamlessly during the lockdown. When schools switched to online learning mode, it fell upon most teachers, stranded at home under lockdown conditions, to pick up technical skills without the benefit of any formal training. Pitted against all the odds such as lack of – technical knowhow, digital skills, virtual learning resources and cyber safety protocols, the teachers emerged victorious when they managed to proudly sit before a laptop to teach their remote learner in the online class.

Challenges Galore

The change has come with new challenges. Salman Khan the brain behind the popular educational website Khan Academy calls these not online but ‘Quarantine Classes’ that come with a host of psychological baggage of Covid-19 pandemic which normal online classes do not have. Teachers are in a completely unfamiliar zone with learners as remote spectators and parents as unwanted intruders. The stress of being under constant observation while teaching through an unfamiliar medium with totally new tools is least to say challenging and stressful; Several cases have also been reported in media about unwarranted comments by parents on the teacher’s appearance and

pronunciation which are shocking and disgraceful to say the least and interference which is unacceptable as teachers are trained professionals.

While transition to online classes has not been easy for teachers however, what has been more demanding for them is to address the issues of "quality learning". Struggling to engage learners gainfully, getting them to respond and collaborate during lessons, assessing the learning outcomes and keeping them all safe in cyber space has been a huge challenge which teachers have been striving hard to manage by learning continually to improve their digital competencies and skills.

Emotionally Turbulent

I can clearly recall the incidents of zoom bombing in a few classes I was observing and how the teacher was left totally shaken up and shattered by the emotional violence and indignity of experiencing a cyber-attack which is usually in the form of sexually explicit language and images. No one can really come to another's rescue in this situation and one needs a whole lot of courage and presence of mind to come out of a cyber-attack confidently with your learners watching and observing you keenly. Such incidents can be nerve-wrecking and take immense toll on one's mental health.

Additionally, teachers are also responsible of taking care of their learner's mental well-being who is struggling under the impact of social distancing, lack of routine, absence of friends during the lockdown. It's not easy to teach a classful of dejected, distracted and disinterested adolescents through a computer screen, who would prefer to connect with you socially and emotionally and share their feelings rather than learn from textbooks. Counselling learners and their parents too is emotionally demanding on teachers who are themselves struggling with similar issues. But they have been doing so irrespective of their own stresses and anxieties.

Teacher Self-Care

‘Self-care’ includes taking care of our mental, physical and emotional health and wellbeing for a harmonious balance in life. Self-care begins with self-awareness. Caring for the Teacher

The nation and the civil society always look at the teachers as implementors of social change. Teachers are expected to integrate all social messages in their teaching and model them too. Teacher’s role extends much beyond teaching- to nurture, prepare and guide the learners to usher in a better tomorrow. Now is the time for all stakeholders to stand by the teachers and openly and publicly acknowledge the contribution of teachers and take some tangible steps to ensure mental and physical wellbeing of teachers.

1. Schools must strive to pay teachers their full salary instead of deducting huge chunks to meet the deficit due to non-payment of fee by the parents during the Covid-19 pandemic.
2. Parents should thank teachers for keeping their children busy, focussed and creatively engaged during tough corona times and pay the school-fee of past few months with the

   understanding that it is going to be used to pay salaries to the teachers.
3. The screen time is a real concern for the health of learners as well as teachers in the online classes. There should be a limit of no more than three online classes to be taken daily by a teacher.
4. Schools must also proactively address the stress and anxieties of the teachers through panel discussions, counselling sessions and occasionally organise some recreational sessions too.
5. The multi-national companies manufacturing laptops should offer special Teacher’s discounts to acknowledge the contribution of teachers in giving massive boost to the sale of computers due to on-line classes.
6. The government should instruct banks to offer interest-free loan to teachers to purchase personal laptops which is now an essential tool for the teacher.

7. Students should gift their sincerity, hard work and respectful behaviour to their teachers, which will mean much more to them than anything else.

Teachers during the COVID-19 Pandemic

Throughout the COVID-19 pandemic, teachers, school counsellors, and school employees have remained acutely focused on supporting their students and continuing to do their jobs at this time. In some cases, this may mean teaching, care-taking (whether for children or other loved ones), and continuing to work through the same challenges that anyone else is. While resources related to mental health have been (rightfully) front and center for supporting students, parents, and others, less focus has been paid on maintaining the mental health of the educators who are also trying to find balance in our new way of living and remote teaching. That's why we put together some mental health tips for teachers that can help during COVID-19.

Some Mental Health Tips for Teachers Balancing Life and Remote Teaching:

Control the Controllable during COVID-19: There are certain things that you simply cannot control right now: who will be impacted by COVID-19, whether it will be you, how things will evolve. But there are some things that you can control: how you spend some of your time, what you choose to prioritize, what types of media you consume (and how frequently) and your mind set, to name a few. By focusing on the things that you can control and prioritizing the ones that are healthy, you can help to put your mental wellness front and center.

Carve out Time for Self-Care to Maintain Your Mental Health: Now, more than ever, we are acutely focused on remote teaching, physical health, and preventing illness– washing hands, social distancing, and engaging in healthy practices. But it is just as important, for maintaining mental health, to try to carve out some time to prioritize the other things that help us feel balanced: for some, it is exercise, for others, it is reading, journaling, meditation, or spending

time doing a hobby. And, if you are someone who isn't sure what you can do for your self-care, simply the act of doing something can help maintain your health care.

Get Your Body Moving to Help Your Mental Wellness: One of the biggest challenges for many educators during this time is how hard it is to be sedentary– you may be used to moving around, physical transitions from one room to another, or even your usual lunchtime walk with a colleague. As you work around your schedule, set a timer or create breaks for you specifically to move around– this might mean moving around your house, or taking a walk around your building or neighborhood– obeying physical distancing recommendations, of course.

Model Self-compassion: Now, more than ever, we need to be incredibly kind to ourselves to help maintain mental wellness. We teach students this all of the time– the basics of self-compassion, kind self-talk, and growth mindset. Now is the time to also turn it inwards. In doing so, you'll benefit your own mental wellness and also be able to model it for others in your life. Set Reasonable Expectations (for yourself and others): Collectively, we need to acknowledge that we are in the midst of a pandemic and distance learning– and that it is not business as usual. Things are going to be different, and that is okay. We can't expect to be as productive, or on top of it, or together as we once could. If you are one of those, like many, who is trying to balance educating with care-taking or educating your students on top of your own kids, there is no possible way that you can be all things to all people all of the time. By setting small, realistic goals and expectations around what you actually could be capable of, you will be setting yourself up to feel much more fulfilled and help maintain your mental health.

Communication is Vital for Maintaining Mental Health for Teachers: Let people know what is going on– especially colleagues and supervisors. By being transparent about what you are experiencing, and with what things may

be helpful, you can bring them in and potentially expand your own network of resources and support. You may also be modelling healthy communication for other colleagues to follow suit. Be unapologetic: We live in an “I’m sorry” culture. During this time, consider how often you apologize, and ways in which you can stop. Be unapologetic about taking time for yourself, setting realistic goals, setting boundaries, and being clear and transparent about what you are capable of (and what you need). This is one of the hardest things to do for many, but oh so important for maintaining mental health and wellness.

A Dedicated Work Space Can Improve Mental Wellness: This is a psychological trick that helps you to both be more productive, and to disconnect from work more easily. When working from home, we can quickly fall into an unhealthy balance between work and life, especially if you are working in the areas of your home in which you’re also living. By creating a dedicated workspace: even if it is just one corner of your home that you designate as “work only,” you can do two things: you can send an outward message to those in your life that when you are in that space you are working, and also an internal message to your own brain that signals when it is work mode and when it is time to disconnect.

Set Office Hours While Remote Teaching: By controlling and identifying specific times in which students or colleagues can reach, you will be able to both set boundaries while remote teaching, and will also provide a designated time in which students know that they can reach you during distance learning. Tools like class for zoom can make it easier for 1:1 conversation during class while other LMS platforms allow you to set office hours in the platform. Some districts have done this work for us, but for others remote teaching, it may need to be something that we do ourselves to help maintain our mental health while working from home.

Reach Out: If you feel like you are having a tough time, and are struggling in any way with enjoying things, balancing your mood, or finding

time to take care of yourself or if you have any thoughts of hurting yourself– please reach out to a counsellor. All of the resources that we shared for students can also be utilized by educators. Psychology today has a fantastic therapist directory, and your health insurance can also help you locate a counsellor, most of who have switched to offering Tele-health services. What we are experiencing right now is hard and trained professionals across the globe continue to mobilize to serve as front line responders for our minds in the same way's doctors have for our bodies during the COVID-19 pandemic.

How to Support Teachers' Emotional Needs Right Now

Schools can develop a plan to help teachers who are feeling anxious and overwhelmed. At the end of March, our team at the Yale center for Emotional Intelligence, along with our colleagues at the Collaborate for Academic, Social and Emotional (CASEL), launched a survey to unpack the emotional lives of teachers during the COVID-19 crisis.

In the span of just three days, over 5,000 U.S. teachers responded to the survey. We asked them to describe, in their own words, the three most frequent emotions they felt each day.

The five most-mentioned feelings among all teachers were anxious, fearful, worried, overwhelmed and sad. Anxiety by far, was the most frequently mentioned emotion.

The reasons educators gave for these stress-related feelings could be divided into two buckets. The first is mostly personal, including a general fear that they or someone in their family would contract COVID-19, the new coronavirus. The second pertains to their stress around managing their own and their families' needs while simultaneously working full-time from home and adapting to new technologies for teaching.

My vision of finally having someone else take care of my own kids' education, even virtually, was smashed to smithereens. This requires 100 per

cent parent involvement, actually 200 per cent because my kids are in two different grades.

Given the unexpected new demands our educators are facing, we might assume that how teachers are feeling now is entirely different from the emotions they were experiencing before the pandemic. But is it?

In 2017, our center conducted a similar survey on teachers' emotions. A national sample of over 5,000 educators answered the same questions about how they were feeling.

Back then, the top five emotions were frustrated, overwhelmed, stressed, tired, and happy. The primary source of their frustration and stress pertained to not feeling supported by their administration around challenges related to meeting all of their students' learning needs, high-stakes testing, an ever-changing curriculum, and work-life balance.

Our research findings are echoed across a growing body of research on teachers' stress and burnout.

In one study, 85 per cent of teachers reported that work-life imbalance was affecting their ability to teach. Other research has shown that at least 30 per cent of teachers leave the profession within their first five years of teaching. Like our research, these studies found that the general causes of teacher stress and burnout are related to a lack of strong leadership and a negative climate, as well as increased job demands, especially around testing, addressing challenging student behaviours, a lack of autonomy and decision-making power, and limited to no training in social and emotional learning (SEL) to support educators' and students' emotional needs.

So, before the pandemic, America's teachers were already burning out. Add in new expectations of becoming distance-learning experts to support uninterrupted learning for all their students and caring for the ever-evolving demands of their families, and it's no surprise that 95 per cent of the feelings

they reported recently are rooted in anxiety. We can't control what is happening to us and around us, but we can control how we respond to it.

Emotions matter

An anonymous teacher who filled out our most recent survey described the balancing act like this:

There is this huge dissonance right now between the messages such as "be well" and "take care of you" at the end of emails, and "in this time of uncertainty." Yet we have to partake in multiple seminars, read links related to online instruction, legal requirements in special, due process, timelines, etc. Everyone needs to be reminded again about how the brain works.

At the Yale Center for Emotional Intelligence, we study how emotions drive effective teaching and learning, the decisions educators make classroom and school climate, and educator well-being. We assert that educators' emotions matter for five primary reasons:

- **Emotions matter for attention, memory, and learning**

Positive emotions like joy and curiosity harness attention and promote greater engagement. Emotions like anxiety and fear, especially when prolonged, disrupt concentration and interfere with thinking. Chronic stress, especially when poorly managed, can result in the persistent activation of the sympathetic nervous system and the release of stress hormones like cortisol. Prolonged release of this and other neurochemicals impacts brain structures associated with executive functioning and memory, diminishing our ability to be effective educators and undermining student learning.

- **Emotions matter for decision making**

When we're overwhelmed and feeling scared and stressed, the areas of our brains responsible for wise decision making also can become "hijacked." In contrast, the experience of more positive states like joy and interest tend to help people evaluate individuals, places, and events more favorably compared to people experiencing more unpleasant emotions. Pleasant emotions also have

been shown to enhance mental flexibility and creativity, which are key to navigating the novel and evolving demands of living through a pandemic.

- **Emotions matter for relationships**

How we feel and how we interpret the feelings of others send signals for other people to either approach or avoid us. Teachers who express anxiety or frustration (for example, in their facial expressions, body language, vocal tone, or behavior) are likely to alienate students, which can impact students' sense of safety in the classroom—and likely at home in a virtual learning environment—thereby having a negative influence on learning. Further, dysregulated emotions can undermine healthy relationships between teachers and parents. For most students, a successful distance-learning experience will require a solid partnership between teachers and families.

- **Emotions matter for health and well-being**

How we feel influences our bodies, including physical and mental health. Stress is associated with increased levels of cortisol, which has been shown to lead to both physical and mental health challenges, including depression and weight gain. Both the ability to regulate unpleasant emotions and the experience of more pleasant emotions had been shown to have health benefits, including fostering greater resilience during and after traumatic events.

- **Emotions matter for performance**

Chronic stress among teachers is linked to decreases in teacher motivation and engagement, both of which lead to burnout. Teachers who are burned out have poorer relationships with students and are also less likely to be positive role models for healthy self-regulation—for their students and their families. It's no surprise that teachers who are burned out are more likely to leave the profession, which impacts student learning and puts a huge drain on schools. You get the picture: When educators answer the question about how they feel at

school—or, in our most recent study, as an at-home educator—we learn they spend a big part of their workday in a pretty dark place.

Research we and others have conducted has shown two possible protective factors for teachers' emotional well-being. First, teachers with more developed emotion skills tend to report less burnout and greater job satisfaction. These skills include the ability to recognize emotions accurately, understand their causes and consequences, label them precisely, express them comfortably, and regulate them effectively. But the challenge is that most teachers have not received a formal education in emotion skills.

Second, teachers who work in a school with an administrator with more developed emotion skills tend to experience fewer negative emotions and more positive emotions. These teachers also are likely to have better-quality relationships with their students. When students have stronger connections with their teachers, they, in turn, are more engaged and committed to learning; they're also more willing to take risks and persist in the face of difficulty.

We need a greater focus on teachers' health and well-being now, so they can thrive through this pandemic and be psychologically ready to return to school after this has passed.

Supporting educators' well-being:

We know how anxious teachers (and, really, everyone else) are feeling right now. But have we thought about how we *want* to feel?

Previously, we asked teachers how they want to feel at school, and they answered loud and clear. A few of the top hoped-for emotions were happy, inspired, valued, supported, effective, and respected.

The more sensitive we can be to our educators' emotional needs today, the better we'll be able to support them now and when schools reopen. The space between how we feel and how we want to feel presents an opportunity to work together to improve the emotional climate of our homes and schools. The emotional climate is the feelings and emotions a learning space evokes; that

space includes both the physical one and the learning climate that is evoked through the interactions between and among educators and students. This can be applied to traditional school settings and to virtual ones.

We need to understand how our teachers *want* to feel, again, and then support them with what they'll need to experience these feelings.

In the same survey we conducted at the end of March, we asked teachers to share some reflections about what they need to have greater emotional balance. Responses included time to adjust to the new normal of online learning and ways to make virtual learning fun and engaging. Teachers also expressed a strong need for honesty, respect, kindness, flexibility, and patience from their school administrators. Further, they requested more realistic expectations, including boundaries around working around the clock. Among the top requests were strategies to support their own and their students' wellness and resilience.

Building a charter:

Putting our emotional needs in writing has a way of making them real for everyone. It acts as a reminder for those times when we might feel anxious or frustrated or any other uncomfortable feeling. It also serves as a contract between us and our colleagues (and even students and families) to help during moments when we are anything but calm and considerate.

As part of RULER, our canter's approach to SEL, thousands of schools across the nation have gone through the process of creating an "Emotional Intelligence Charter" with their faculty and staff with positive results.

The process of building a charter or agreement requires us to be vulnerable, and that can be hard, especially in times like these. And some educators are somewhat self-conscious and apprehensive about the process of asking colleagues how they want to feel. It can be scary. Often, how we want to feel is an indicator of what hasn't been working at our schools. But we've found that when schools have the courage to ask, the benefits outweigh the risks.

Specifically, a charter reflects the agreed-upon feelings and behaviours of the members of a learning community. Here, we describe the process of building a faculty and staff charter. The same process can be applied to the classroom or home environment.

It starts with a deceptively simple question: How do we want to feel as a faculty/staff? A principal or group of teachers can pose the question to the faculty and staff at their school. Once everyone shares their top three or four hoped-for feelings, the goal is to narrow them all down to a "top five" list reflective of the entire faculty.

The second question is: What do we need to do for everyone to feel this way? Here, faculty and staff share specific ideas that would support them in experiencing each of the feelings. The goal is to come up with two or three observable behaviours that are realistic and attainable for each feeling.

Perhaps everyone can agree to respond to virtual inquiries in a timely manner.

Once the five feelings and related behaviours are compiled, the charter can be created and distributed to each member of the faculty and staff. In this virtual world of education, be creative about ways to disseminate it to everyone. If your school or district uses a learning management system, perhaps the charter can be "public" there.

Importantly, the charter should be a living document—it will evolve as your learning community does throughout the pandemic. Consider weekly reflections and opportunities for teachers to share ideas based on their hoped-for feelings. For example, if teachers want to feel more engaged, perhaps create opportunities for them to share their best virtual lesson of the week and why it worked so well. Even weekly quotations that remind everyone about the desired feelings can help to sustain a positive climate. And when we are all finally able to return to our schools, it will be important to revisit the charter. How we want to feel and what we need to support our health and well-being is fluid.

We are living through a pandemic that most of us could never have imagined. And, as we've shared, our educators are not in the best emotional shape. Today's teachers, counsellors, and school leaders are experiencing greater anxiety, stress, and burnout than ever before. If we just hope for the best, more and more educators will fall by the wayside. Fortunately, an increasing number of schools are seeing the benefits of SEL, not just for students, but for educators' own skill development.

The time has come for all schools to address the missing link in what will help educators thrive-a greater focus on all adults' health and well-being. If we want our educators to be successful-both personally and professionally-schools must be places that bring out the best in them.

Objectives of the Study:

1. To examine the psychological feelings of the school teachers.
2. To examine the working stability of school teachers at covid 19 period.
3. To find out the health issues of the school teachers during this time period.
4. To examine the effect of the teachers towards students while taking their classes.
5. To examine the relativity between positive and negative emotions of psychological feelings of the sample respondents.

Limitations:

This study had however some important limitations.

First, it is a micro level study covering the sample respondents of 123 teachers alone.

Second problem relates to the data. Quantitative information needed in this study was admittedly difficult to obtain and it was often impossible to determine the reliability of the secondary and even primary data.

Primary data could also be incorrect or biased as respondents were frequently found not very communicative about costs, income and prices. They

did not maintain records of transactions and data based on their memory would be subject to recall bias. Middlemen were even less communicative and were not much cooperative.

Finally, the sample was small to help policy decisions but it was large enough to indicate general trends and characteristics of the banana market. At best the study would reveal the travails of an academic effort in unraveling the vicissitudes of psychological problems and individual efforts to assemble and analyze information for deriving meaningful conclusions. With all the limitations for generalization, the results could be used as indicative to generalize with caution.

Scope for Further Study:

We need to know whether emotions affect just test/assessment performance, or extend to affect student knowledge and skill development. Current models of learning are based on the assumption of neutral emotion for learners, which is unrealistic. Research examining student emotion tends measure the consequences for subject achievement or test performance, rather than learning itself. Longitudinal studies with measures of procedural and conceptual understanding can be employed to examine learning of new concepts and procedures.

If emotional states are a result of classroom factors such as content difficulty, adapting learning contexts may be helpful to improve both learning and negative emotions

When external factors, such as a social interactions or parent separation, are affecting a child, they are at risk of falling behind. While schools are limited in their ability to change the students' emotional reaction in such circumstances, they may be able to minimise the educational impact.

Some schools and teachers support students' emotions and learning very well, but there is little in the way of research, education for teachers, or "best practice" to help inform decisions or policy.

Chapter Scheme

The present study **"A Study on Psychological Emotions of School Teachers during Covid-19 Period at Thoothukudi"** is divided into six chapters.

Chapter I

Introduces the subject and deals with the Psychological emotions of school teachers during Covid-19 period at Thoothukudi, statement of the problem, the objectives and limitations of the study, Scope for further research and the scheme of work.

Chapter II

The second chapter deals with the review of related literatures.

Chapter III

The third chapter deals with the Concepts and Methodology of this study.

Chapter IV

The fourth chapter deals with the profile of the study area chosen for the present study and period of study

Chapter V

The fifth chapter deals with analyses of the Psychological emotions of school teachers during Covid-19 period.

Chapter VI

The sixth chapter presents the summary of findings along with conclusions and suggestions based on the study.

Chapter II

Review of Literature

Al-Samarrai, S., Gangwar, M., & Gala, P. (2020). The Impact of the COVID-19 Pandemic on Education Financing. World Bank Other Operational Studies 33739, the World Bank

https://doi.org/10.1596/33739

Basilaia, G., & Kvavadze, D. (2020). Transition to Online Education in Schools during a SARS-CoV-2 Coronavirus (COVID-19) Pandemic in Georgia. Pedagogical Research, 5, Article No. em0060.

https://doi.org/10.29333/pr/7937

Chick, R. C. (2020). Using Technology to Maintain the Education of Residents during the COVID-19 Pandemic. Journal of Surgical Education, 77, 729-732.

Crawford, J., Butler-Henderson, K., Rudolph, J. et al. (2020). COVID-19: 20 Countries' Higher Education Intra-Period Digital Pedagogy Responses. Journal of Applied Teaching and Learning, 3, 1-21.

https://doi.org/10.37074/jalt.2020.3.1.7

Di Pietro, G. B., Biagi, F., Dinis Mota Da Costa, P., Karpinski, Z., & Mazza, J. (2020). The Likely Impact of COVID-19 on Education Reflections Based on the Existing Literature and Recent International Datasets. Luxembourg: Publications Office of the European Union.

Editors (2020). History. A&E Television Networks, LLC.

https://www.history.com/topics/middle-ages/pandemics-timeline

Evans, O. (2020). Socio-Economic Impacts of Novel Coronavirus: The Policy Solutions. BizEcons Quarterly, 7, 3-12.

Haleem, A., Javaid, M., & Vaishya, R. (2020). Effects of COVID-19 Pandemic in Daily Life. Current Medicine Research and Practice, 10, 78-79.

https://doi.org/10.1016/j.cmrp.2020.03.011

Healthline Media UK Ltd., B. U. (2020). What to Know about Coronaviruses (K. Center, Editor, & Medicalnewstoday). Medical News Today.

https://www.medicalnewstoday.com/articles/256521#mers

Mustafa, N. (2020). Impact of the 2019-20 Coronavirus Pandemic on Education. International Journal of Health Preferences Research, 1-12.

Ng, Y.-M., & Or, P. L. P. (2020). Coronavirus Disease (COVID-19) Prevention: Virtual Classroom Education for Hand Hygiene. Nurse Education in Practice, 45, Article ID: 102782.

https://doi.org/10.1016/j.nepr.2020.102782

Niranjan, P. S. (2020). Corona Virus Pandemic Impact on Global Education: A Blessing in Disguise. Sustainable Humanosphere, 16, 68-72.

O'Hagan, C. (2020). Startling Digital Divides in Distance Learning Emerge. UNESCO.

https://en.unesco.org/news/startling-digital-divides-distance-learning-emerge

Osman, M. E. (2020). Global Impact of COVID-19 on Education Systems: The Emergency Remote Teaching at Sultan Qaboos University. Journal of Education for Teaching, 1-10.

https://doi.org/10.1080/02607476.2020.1802583

Owusu-Fordjour, C., Koomson, C. K., & Hanson, D. (2015). The Impact of COVID-19 on Learning: The Perspective of the Ghanaian Student. European Journal of Education Studies, 7, 88-101.

Pujari, D. R. (2020). Impact of CORONA Virus on Indian Education Systems. UGC Care Journal, 31, 1-3.

Sahu, P. (2020). Closure of Universities Due to Coronavirus Disease 2019 (COVID-19): Impact on Education and Mental Health of Students and Academic Staff. Cureus, 12, e7541.

https://doi.org/10.7759/cureus.7541

Sun, L. T., Tang, Y. M., & Zuo, W. (2020). Coronavirus Pushes Education Online. Nature Materials, 19, 687.

https://doi.org/10.1038/s41563-020-0678-8

Thomas, C. J. (2020). Coronavirus and Challenging Times for Education in Developing Countries. Washington DC: The Brookings Institution.

Tiruneh, D. (2020). COVID-19 School Closures May Further Widen the Inequality Gaps between the Advantaged and the Disadvantaged in Ethiopia. The Education and Development Form.

https://www.ukfiet.org/2020/covid-19-school-closures-may-further-widen-the-inequality-gaps-between-the-advantaged-and-the-disadvantaged-in-ethiopia/

TUAC Secretariat Briefing (2020). Impact and Implications of the COVID 19-Crisis on Educational Systems and Households (pp. 1-9). The Trade Union Advisory Committee (TUAC) to the OECD.

Tzifopoulos, M. (2020). In the Shadow of Coronavirus: Distance Education and Digital Literacy Skills in Greece. International Journal of Social Science and Technology, 5, 1-14.

UNESCO (2020a). Distance Learning Solutions. UNESCO.

https://en.unesco.org/covid19/educationresponse/solutions

UNESCO (2020b). UNESCO Rallies International Organizations, Civil Society and Private Sector Partners in a Broad Coalition to Ensure #LearningNeverStops. UNESCO.

https://en.unesco.org/news/unesco-rallies-international-organizations-civil-society-and-private-sector-partners-broad

UNICEF (2020). Key Messages and Actions for COVID-19 Prevention and Control in Schools.

Varalakshmi, R., & Arunachalam, K. (2020). COVID 2019—Role of Faculty Members to Keep Mental Activeness of Students. Asian Journal of Psychiatry, 51, Article ID: 102091.

https://doi.org/10.1016/j.ajp.2020.102091

Vegas, E. (2020). School Closures, Government Responses, and Learning Inequality around the World during COVID-19. Washington DC: The Brookings Institution.

https://www.brookings.edu/research/school-closures-government-responses-and-learning-inequality-around-the-world-during-covid-19/

Viner, R. M. et al. (2020). School Closure and Management Practices during Coronavirus Outbreaks Including COVID-19: A Rapid Systematic Review. The Lancet Child & Adolescent Health, 4, 397-404.

https://doi.org/10.1016/S2352-4642(20)30095-X

Wajdi, M. B. N., Kuswandi, I., Al Faruq, U., Zulhijra, Z., Khairudin , K., & Khoiriyah, K. (2020). Education Policy Overcome Coronavirus, A Study of Indonesians. Journal of Education and Technology, 3, 96-106.

https://doi.org/10.29062/edu.v3i2.42

WHO (2020a). WHO Director-General's Opening Remarks at the Media Briefing on COVID-19 -11 March 2020.

https://www.who.int/dg/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---11-march-2020

WHO (2020b). Archived: WHO Timeline—COVID-19. World Health Organization

https://www.who.int/news-room/detail/27-04-2020-who-timeline---covid-19

Winthrop, R. (2020). COVID-19 and School Closures: What Can Countries Learn from Past Emergencies? Washington DC: The Brookings Institution.

Woday, A. et al. (2020). Psychological Impacts of COVID-19 among College Students in Dessie Town, Amhara Region, Ethiopia; Cross-Sectional Study (pp. 1-16). Women's Health during the COVID-19 Lockdown.

Zhang, X. (2020). Thoughts on Large-Scale Long-Distance Web-Based Teaching in Colleges and Universities Under Novel Coronavirus Pneumonia Epidemic: A Case of Chengdu University. In Proceedings of the 4th International Conference on Culture, Education and Economic Development of Modern Society (ICCESE 2020) (pp. 1222-1225) Amsterdam: Atlantis Press.

https://doi.org/10.2991/assehr.k.200316.266

Zhu, X. D., & Liu, J. (2020). Education in and after Covid-19: Immediate Responses and Long-Term Visions. Postdigital Science and Education, 1-5.

https://doi.org/10.1007/s42438-020-00126-3

CHAPTER III

Concepts used in the study:

- **Rejuvenate:**

Take good care of your mind and body by following a physical fitness routine. Cut down on calories and pile up proteins, fruits, salads and leafy vegetables in your diet. The entire meal-plan should be re-worked to be suitable for the current life-style.

- **Re-connect:**

With your far-flung family, cousins and old friends and enjoy catching up with them. Consciously steer away from unhappy and negative conversations. Instead talk of happy memories that give you peace and joy. Create a support-group for each other.

- **Renewal:**

Of self will need some me-time to do that one thing that makes you truly happy. To do this you will have to learn to 'priorities' and 'say no' which is less stressful than promising but not being able to deliver.

- **Recognize:**

Understand and believe that people need compassion, help, and generosity to survive Covid pandemic with minimum damage. Try not to be critical- it doesn't help them and only fills you with negativity. Give – kind words, share resources and empathize with everyone.

- **Resolve:**

To make ‘self-care’ a habit, Remember during turbulence you should first put on your ‘oxygen mask’, so that you are in a position to help others. When you find oxygen supply to your soul becoming low – take a break and re-join with your energies recharged.

❖ **Repurpose:**

By looking at your work form a totally new perspectives think of new ways to engage with learners who have so far not responded to your efforts. Read about inspirational experiences of teacher’s world over. Believe that you can make a difference and meet your learners with new optimism and energy.

❖ **Turbulence:**

The quality or state of being turbulent: such as a great commotion of agitation emotional turbulence.

❖ **Inspired:**

Extremely accurate or apt but based on intuition rather than knowledge or logical deduction an inspired guess

❖ **Enthusiastic:**

Enthusiasm is a state of mind that is considered as “exaltation” or fervor in the face of a fact or situation in life. When we talk about enthusiasm, we are implying about an emotion that takes over our general state for one or more minutes.

❖ **Determined:**

Determined means firmly set in one’s decision or course of action, especially with the aim of achieving a particular goal.

❖ **Upset:**

The act of disturbing the mind or body; "his carelessness could have caused an ecological upset"; "she was unprepared for this sudden overthrow of their normal way of living"

- **Afraid:**

  Afraid implies inner apprehensive disquiet: afraid of the dark. Alarmed implies that the feelings are aroused through realization of some imminent or unexpected danger to oneself or others: alarmed by (or about) someone's illness.

- **Frightened:**

  Frightened means shocked with sudden, but usually short-lived, fear, especially that arising from apprehension of physical harm: frightened by an accident

Methodology used in the study:

The methodology adopted for the present study including selection of the school teachers and objectives of the study together with source of data, sample selection, period of study, scope and significance of the study and statistical tools used for data analysis. The research worked depends, mainly on primary data collected through personal questionnaire. Primary data collected through questionnaire, observation and discussions. The sample consisted of school teachers selected systematically respondents from permanent workers area in thoothukudi. The data was collected by personal interview using structured questionnaire.

Period of Study

Taking into consideration the purpose and data requirements of the study, the period of study was restricted to the pandemic year 2020-2021 with normal rainfall, which is sufficient for undertaking an in-depth study of the research problem. The investigation was carried out during the period December 2020 to February 2021.

Tools used for the Study

The researcher prepared interview schedule consisting of various questions relating to the profile of the School Teachers and also consulted with subject experts to fulfill the objectives of the study. Interview method was used to supplement the information wherever necessary. The purpose behind interview is both to fill the gaps in the information provided by the respondents and also to get additional information which normally people do not give in writing. During personal interactions, it is easy to get required information from such banana cultivators. The interviews were conducted only with the School Teachers.

Statistical Techniques Used

After the fieldwork, the data were carefully scrutinized and edited in order to ensure accuracy, consistency, and completeness. Statistical techniques used are: percentage and Trend Analysis, other diagrams and graphs. The sample size of this study is 123 Teachers who were teaching at both Secondary and Higher Secondary Schools.

CHAPTER-IV

PROFILE OF THE STUDY AREA

The effectiveness of any research study can be fully valued only when the results are studied against the contextual evidence such as physical, social and economic conditions of the region. The current study was undertaken with the purpose of emphasizing the different characteristics of industries in Thoothukudi district.

Thoothukudi District - Historical and Cultural Background

Thoothukudi was ruled over by the Pandya kings before the British rule. During the freedom struggle, it was the birth place of several bold nationalists. The blackness of British slavery was dispersed by the selfless detriment of these enthusiastic nationalists. Kattapomman with his fearless fighting spirit, Bharathiar with his burning and exciting poems of nationalism and V.O. Chidambaranar who shipped the Swedishi ship against the British were among the many brave nationals who valiantly fought external rule. They make Thoothukudi proud and ironic in ethnic heritage.

District at a Glance

Thoothukudi 'the pearl city of India is the newly formed district formed by bifurcate the first Tirunelveli district in Tirunelveli district (western portion) and Thoothukudi district (eastern portion). The District covers an extent of 4,621 sq.km in the South-Eastern portion of Tamilnadu and it is rectangular in shape. It is bounded by Virudhunagar and Ramanathapuram district in the North of Kanyakumari district in the South and Gulf of Mannar in the east and Tirunelveli district in the west. The district lies between 8^{o}-05' and 9^{o} - 80^{o} of the northern latitude and 77^{o}-05' and 78^{o}-25' of eastern longitude.

Physical geographies

There are no tall mountains in the district. Red Mounds or small hills are found in Tiruchendhur, Srivaikundam, Sattankulam and Vijayaramarpuram. The elasticity of land that slopes to the east in Srivaikundam is made lush by the Thamiraparani River. This river movements through Punnaikayal and joins the Bay of Bengal, Malattar, Mambiaru, Vaippar and Manimuthaar.

Mineral Resources

Gypsum, Ilammanide, Monazite, Hyduim, Limestones, Corals from the Islands and Phosphate are some of its natural resources.

Agriculture

Agriculture is the primary occupation on which 70 percent of the people depend on it. The main food crop in this district is Paddy. Out of total area of 4,70,724 hectares, 1,90,780 hectares are took under the farming of different crops which is nearly 41percent of total area of the district[1]. The essential food crops in the district are Paddy, Cholam, Cumbu, Ragi, Varagu, Samai and Commercial Crops like Cotton, Chilly, Sugarcane, and Groundnut.

Paddy is cultivated in Siruvaikundam, Sattankulam, and Tiruchendur Taluks. Cumbu, Cholam, Kuthiraivali and other pulses are raised in the dry tracks of Kovilpatti, Vilathikulam, Ottapidaram and Tuticorin Taluks. Cotton is cultivated in Kovilpatti, Ottapidaram and Tuticorin Taluks. Groundnut agriculture is commenced in Kovilpatti, Tiruchendur and Sattankulam Taluks. Groundnut bar is being used as manure and Cattle feed. With 35 percent share, the district is the top producer of Cumbu in Tamil Nadu.

Irrigation

1

The climate of Tuticorin district is hot and dry. The district has a coastal line of 163.5 kms and territorial waters covering thousands of hectares. The different causes of irrigation are

Channels, Tanks, and Wells which cover 46,262 hectares in the district. Out of this, 18,584 hectares were covered by wells[2].

Fisheries

This district is an essential coastal district having a vast coastal line of 160 km and territorial water covering thousands of hectares. Fishing, next to agriculture, is an essential occupation of the district. Tuticorin is an important fishing centre. It is also measured to be the only pearl fishing centre in the whole of India. It is also noted for mass fishing. Nearly 35000 MT of marine fish is produced per annum.

Forest

The area under forestry is 12724 hectares which occupy 2.77 percent of the geographical area.

Shipping

Tuticorin has been a Centre of maritime trade for more than a century. It's natural to the harbor with a rich hinterland, facilitated the growth of the port. Tuticorin was acknowledged as a minor anchorage port in 1868. In 1906, V.O. Chidambaram Pillai launched the first Swadeshi Ship, S.S. Gaelio in British India from Tuticorin Port. After Independence, the minor part of Tuticorin witnessed a flourishing trade and handled a variety of Cargo.

Population

2

The population of the district 2011 Census was 17,50,176 of which 8,65,021 were males and 8,85,155 females. The population thickness in the district is 369 per sq.kms in contradiction of the state average of 555 per sq.kms. The percentage of town population is 50.10, and that of the rural population is 49.90 of the total population. The literacy percentage of the male is 91.14 and female are 81.33. Total literacy percentage of this district is 86.16.

TABLE 4.1

URBAN POPULATION IN 2011 CENSUS

Area	Females	Males	Total
India	18,13,87,871	19,57,17,889	37,71,05,760
Tamil Nadu	1,74,58,530	1,74,58,910	3,49,17,440
Thoothukudi District	4,42,142	4,34,660	8,76,802

Source: National Informatics Centre, Thoothukudi

From this Table 3.1, it is clear that the total urban population of India is 37,71,05,760 with the female population as 18,13,87,871. In Tamil Nadu woman population is 1,74,58,530. Out of the total population of Tamil Nadu, Thoothukudi district's urban population is 8,76,802 and female population 4,42,142. From the Table, we can about that female city population in Thoothukudi district be more than the man populace.

The given Table shows the literateness level in urban areas.

TABLE 4.2

LITERATES ACCORDING TO 2011 CENSUS

Area		Person	Male	Female
Tamil Nadu	**Total**	5,18,37,507	2,80,40,491	2,37,97,016
	Rural	2,45,02,195	1,36,65,839	1,08,36,356
	Urban	2,73,35,312	1,43,74,652	1,29,60,660
Thoothukudi	**Total**	13,49,697	7,03,106	6,46,591
	Rural	6,42,686	3,39,739	3,02,947
	Urban	7,07,011	3,63,367	3,43,644

Source: National Informatics Centre, Thoothukudi

From this Table 4.2, it is apparently clear that urban female literacy is 47.41 percent of the total population of the urban literates in Tamil Nadu. At the same time, the total urban literates in Thoothukudi district are 2.59 percent of the total population in Tamilnadu. Of this, the female literateness is 2.65 percent. From this Table, it is also evident that female literateness level in Thoothukudi is more than male literateness.

The following table shows the city working population

TABLE4.3

URBAN WORKERS TO TOTAL POPULATION - 2011 CENSUS

(in Percent)

Area	Female	Male	Persons
India	13.28	54.96	68.24
Tamil Nadu	19.45	59.42	78.87
Thoothukudi District	5.08	13.78	18.86

Source: National Informatics Centre, Thoothukudi

From the table, it is strong that the proportion of total urban workers to the total population in India is 68.24 percent. Of this, 13.28 percent is females. Out of 78.87 percent of the workers in Tamil Nadu, 19.45 percent are women. In Thoothukudi district out of the 18.86 percent urban workers, 5.08 percent are female town workers. From this Table, it is strong that the percentage of male urban workers in Thoothukudi district is more.

The workforce in Thoothukudi District

According to the 2011 Census, workers were classified into main workers, bordering workers, and non-workers. Out of the total main workers of 6,89,400 female main workers are 1,95,110 and male main workers are 4,94,290. Out of 96,738 marginal workers, female workers are 58,912, and male workers are 37,826. Out of 8,96,833 non-workers, females are 5, 48,112 and males are 3, 48,721. The specified Table shows the classification of workers in Thoothukudi district.

TABLE 4.4

TOTAL WORKERS AND NON-WORKERS IN THOOTHUKUDI DISTRICT – 2011 CENSUS

Sector		Population	Total workers (Main + Marginal)	Main Workers	Marginal Workers	Non-workers
Rural	Male	437599	248691	221286	27405	188908
	Female	466212	180192	136056	44136	286020
	Total	903811	428883	357342	71541	474928
Urban	Male	326488	181695	174224	7471	144793
	Female	335444	63104	53172	9932	272340
	Total	661932	244799	227396	17403	417133
Total	Male	764087	430386	395510	34876	333701
	Female	801656	243296	189228	54068	558360
	Total	1565743	673682	584738	88944	892061

Source: National Information Centre, Thoothukudi.

The table shows that the female marginal workers are more in number in both rural and urban sectors than males. But the female central workers are more in the rural sector than in urban sector.

Industrial Development in Thoothukudi District

The district constitutes 70 percent of the total salt production of the state and meets 30 percent obligation of our nation. In this district two Industrial Estates are avilable one at Kovilpatti with 11 parts and the other at Thoothukudi with 20 items. The prior is accomplished by SIDCO and the latter by SIPCOT.

There are 2,200 and above Small Scale Industries registered in the district and about 12 major industries. They are engaged in the production of cotton and staple yarn, caustic soda, PVC resin, fertilizers, soda-ash, carbon dioxide gas in liquid form etc., some of the major trades are SPIC, TAC, Dharangadhara Chemical Works, Loyal Textiles Ltd., Madura Coats Ltd., Sterlite Copper Industries, Kilburn Chemicals, Ramesh Flowers, Nilaseafoods, Deva and Co., and Transworld Granite Industries. Tata steel recently announced plans to set up a Titanium dioxide project in Thoothukudi. Four national brand products are made in Thoothukudi they are VVD Coconut Oil, Agsar Paints, BIO Food Ltd. Hip Tea and Genkii Tea (Herbal Tea) and Venus Water Heaters.

The essential public sector undertakings in this district are the Thoothukudi Thermal Power Station unit of the Tamil Nadu Electricity Board, Heavy Water Plant (HWP) and Port Trust. During this year 1,128 vessels entered this port and cargo to the tune of 12.13 lakhs tonnes was handled. Thoothukudi port has been issued the prestigious ISO-9002 certificate for the port action and services and has linked the select group of World ports by becoming the first Indian major port to get such certificate. The central government is considering the construction of Titanium and Zirconium Sponge Plant, which comes under the control of Department of Atomic Energy at Palayakayal village of Srivaikundam Taluk. The District Industries Centre and the Tamil Nadu Industrial Investment Corporation are catering to the needs of the small- and large-scale industries in this district.

Large and Medium Scale Industries in Thoothukudi District

Travancore Chemical and Manufacturing Co. Ltd produces Sulphate and alumina ferric, Alkali Chemicals and Fertilizers Ltd., produces Soda Ash (Heavy chemicals), ammonium chloride (Fertilizers) and Southern Petro Chemical Industries Corporation Ltd., (SPIC) produces Urea, DAP,

aluminium fluoride etc. which are situated in Thoothukudi block. Dharangadara Chemical Works Ltd., in Sahupuram, produces Caustic soda, liquid chlorine, tri-chloro-ethylene, upgraded illuminate and PV Resin, Shantha Marine Bio-Technologies Pvt. Ltd produces Pharmaceuticals (Beta Carotene) which are situated in Thiruchendur block. Lakshmi Mills Co. Ltd, Loyal Textile Mills Ltd and The Bharathi Co-op spinning mills Ltd., produces Yarn and cloth which is situated in Kovilpatti block. Cotton yarn and threads are produced in Tuticorin spinning mills and Madura Coats Ltd and Arasan Textile Mills Pvt Ltd which are situated on Thoothukudi block. Massive water plant and Thermal power station are situated in Thoothukudi block. Copper smelting/ Copper anodes are produced in Sterlite Industries Thoothukudi. Kilburn chemicals in Thoothukudi block produce Titanium Di-Oxide. Garnet Abrasives are produced in Tran's world Garnet India Pvt Ltd., in Thoothukudi block.

Non - Farm Sector

Non-farm sectors in Alwarthirunagari proposed to produce Bakery products, Leather goods, readymade garments, country bricks, etc. Wooden toys, stone grinder, wax candle readymade garments, bricks etc. are proposed to produce in Karungulam. Bakery, readymade garments, flour mills, masala powder, jewelry etc. are proposed to produce in Kayathar. The non-farm sector in Kovilpatti proposed to produce match industries, candles, power loom, bakery etc. Match Factory, readymade garments, Manufacture of Iron grills and gates, etc. are proposed to produce in Ottapidaram. Charcoal production, match factory Appalam and masala powder, etc. are proposed to be produced in Pudur. Plastic wire, leather goods, timber works, Country bricks, flour mills, limestone works, etc. are proposed to be produced in Sattankulam. In Thiruchendur, Saltpans, coir fibre, readymade garments Palmyra products are proposed to produce. Palmyra products, readymade garments, timber sawing, jewelry, etc. are proposed to produce in Udangudi. Salt panes, edible oil, leather goods, dry

flower, masala powder, etc. are proposed to produce in Thoothukudi. The non-farm sector in Vilathikulam produce matches, handloom/power loom, leather goods etc.

District Industrial Prospects

Banana powder, Banana based goods, fruits and vegetable dispensation industries are the proposed industrial sectors in Tiruchendur, Kovilpatti, Srivaikuntam, Vizathikulam. Dryness of drumsticks and oil from dry seeds of drumsticks is the proposed industrial sector in Sathankulam and Vilathikulam. Poultry and Cattle feed, Seafood Industry, Chemical Industries, Mechanical boats, Small ships, building units, are the proposed industrial sectors in Thoothukudi. Extraction, refining of edible oils in Kovilpatti and Karungulam, Oleoresin and spice oils, spice-based products in Vilathikulam, Kovilpatti, Thoothukudi are the proposed industrial sectors. Meat processing industry is the proposed industrial sector in Pudur, Vilathikulam. Textile based industry, Readymade Garments in Ottapidaram, Kovilpatti, and Thoothukudi block. Coconut-based products, Palmyrah based products, and Mini Cement Plant are the proposed industrial sectors in Udangudi and Sathankulam.

CHAPTER-V

ANALYSIS OF DATA

This chapter is devoted to the analysis of the data related to the present study.

Table-5.1

EDUCATIONAL QUALIFICATION AND DESIGNATION OF THE SAMPLES

Level of Education	Designation	No of Samples	Percentage
B.A., B.Ed	1st Grade	29	24

M.A, B.Ed.	2nd Grade	32	26
B.Sc., B.Ed.	1st Grade	20	16
M.Sc., B.Ed.	2nd Grade	25	20
MPhil., B.Ed.	1st Grade	17	14
Total		**123**	**100**

Source: Primary data

The above table reveals that 24% of the sample workers have attained B.A First-Grade level of education, 26% of the sample workers have attained M.A Second-Grade level of education, 16% of the sample workers have attained B.Sc. First Grade level of education, 20% of the sample workers have attained M.Sc. Second Grade level of education and only 14% of the sample workers have complete MPhil First Grade level of education.

Figure-5.1

EDUCATIONAL QUALIFICATION AND DESIGNATION OF THE SAMPLES

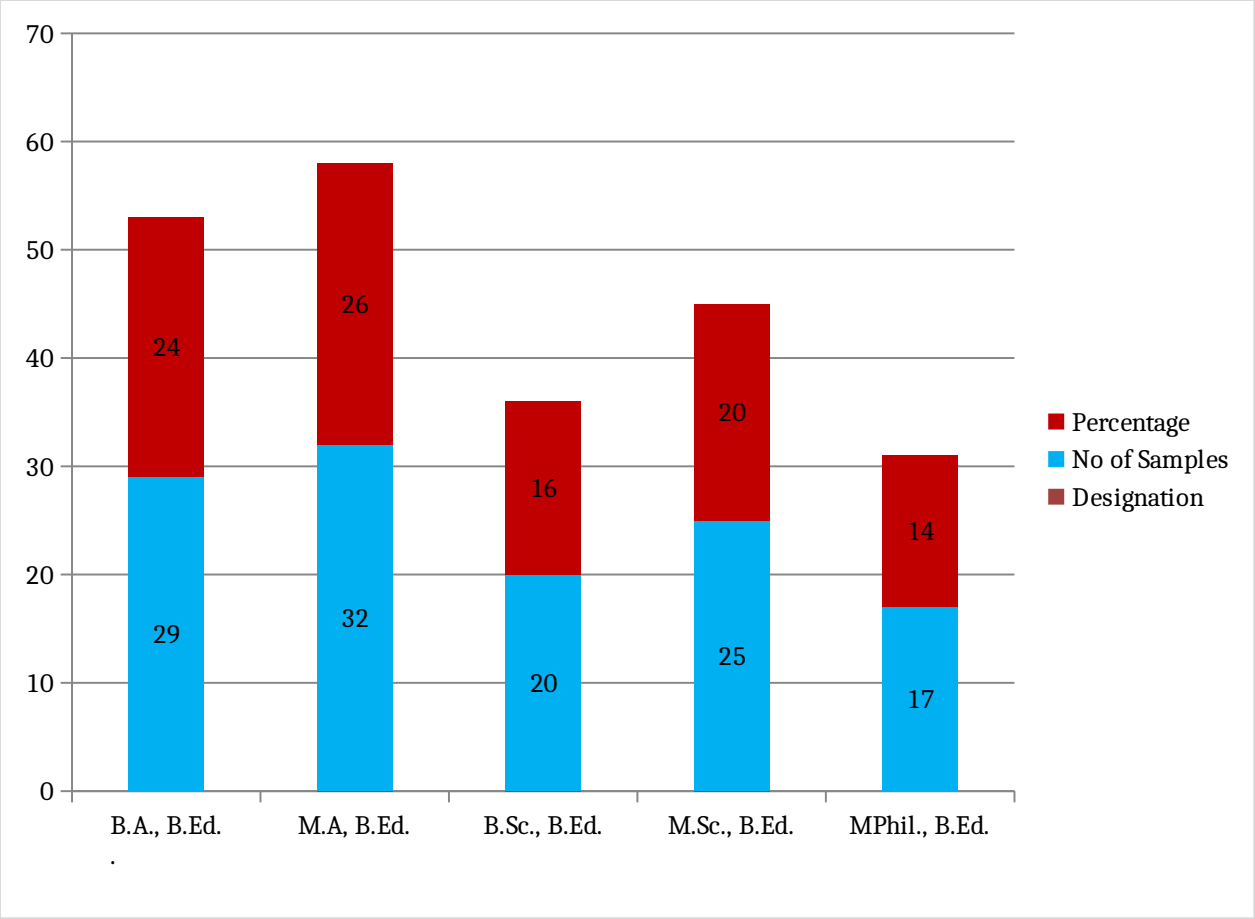


Table-5.2

MONTHLY INCOME OF THE RESPONDENTS

Income	No of Samples	Percentage
10000-20000	53	43
20000-30000	18	15
30000-40000	23	19

40000-50000	13	10
50000-60000	16	13
Total	**123**	**100**

Source: Primary data

The above table shows that 43% of the workers are earning income Rs.10000-20000, 15% are the workers are earning income Rs.20000-30000, 19% of the workers are earning income Rs.30000-40000, 10% of the workers are earning income Rs.40000-50000,and 13% are earning 50000-60000.

Figure -5.2

MONTHLY INCOME OF THE RESPONDENTS

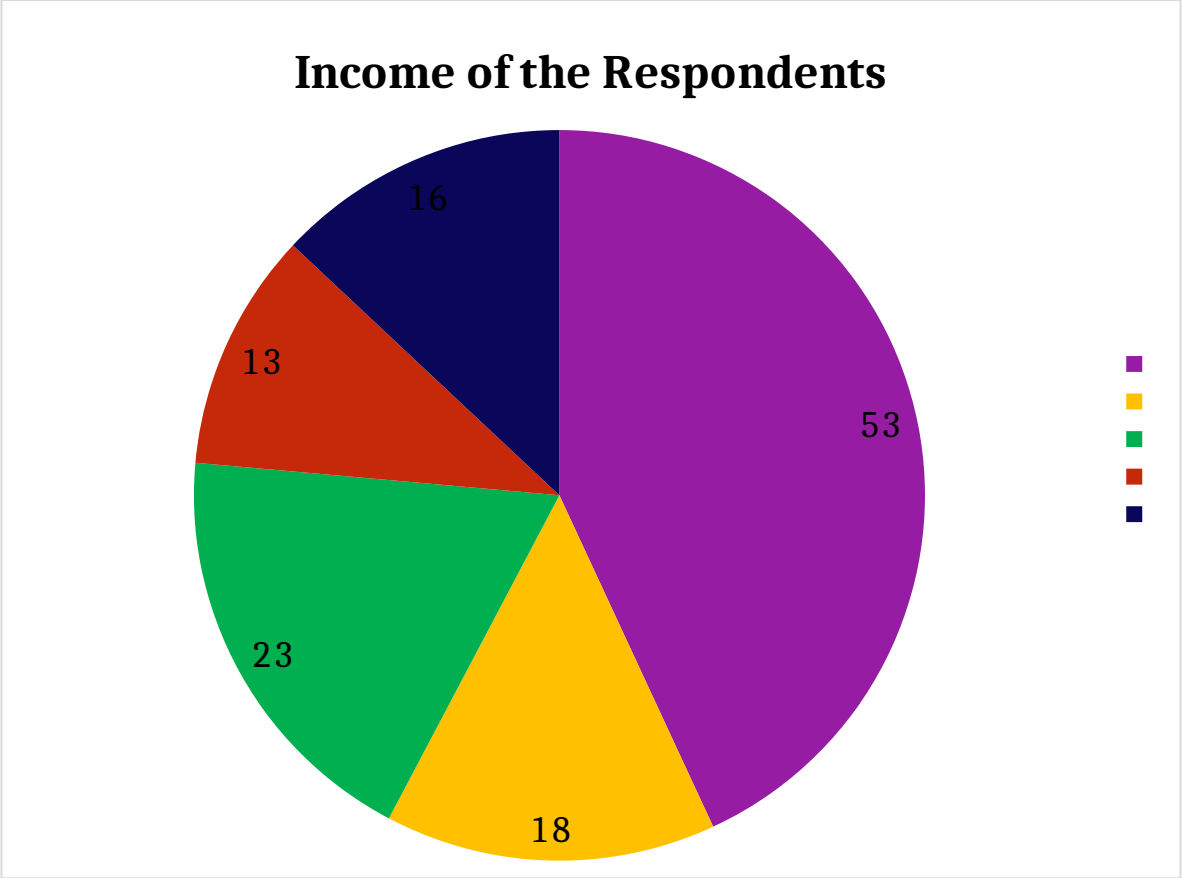


Table-5.3

MONTHLY EXPENDITURE'S OF THE RESPONDENTS

Expenditure	No of Samples	Percentage
5000-15000	17	14
15000-25000	32	26
25000-35000	25	20
35000-45000	29	24
45000-50000	20	16
Total	**123**	**100**

Source: Primary data

The above table indicates that 14% of samples spend Rs.5000-15000, 26% of the samples spend Rs.15000-25000, 20% of samples spend Rs.25000-35000,24% of samples spend Rs.35000-45000,and 16% of the samples expenditure is above 45000-50000.

Figure-5.3

MONTHLY EXPENDITURE'S OF THE RESPONDENTS

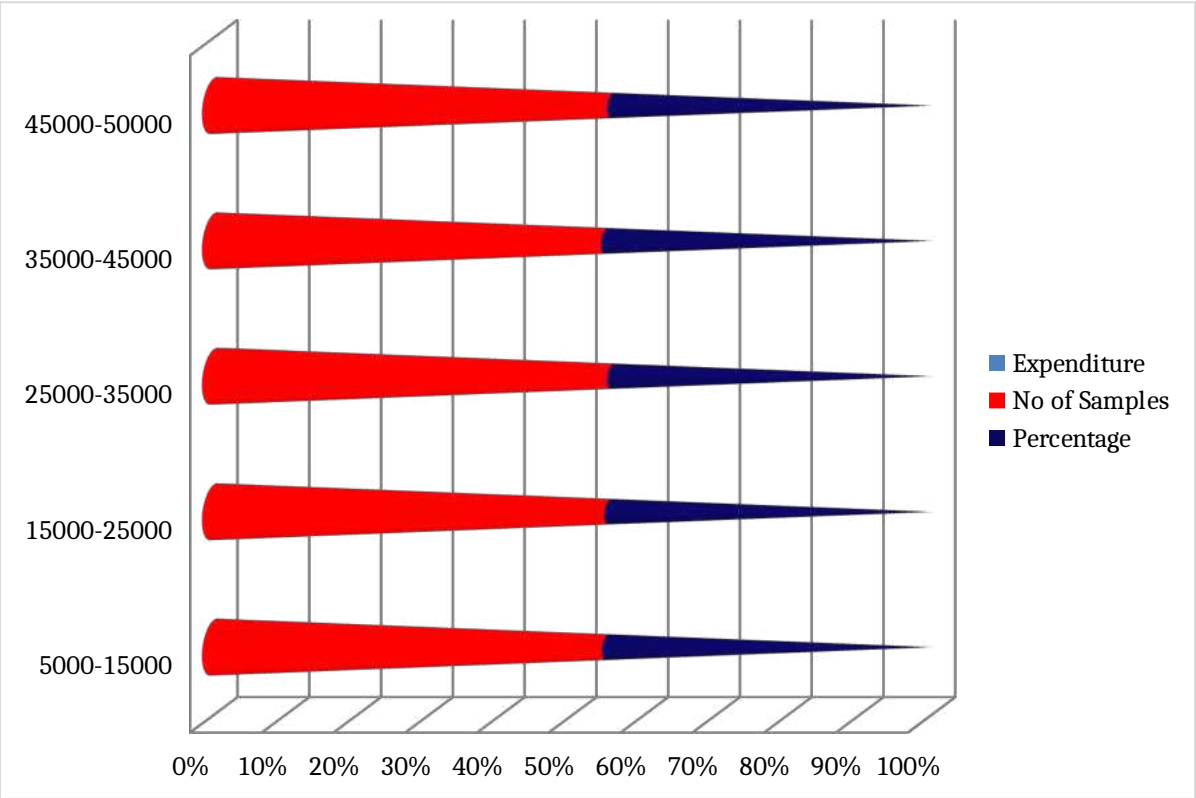


Table-5.4

WORKING HOURS OF THE RESPONDENTS

Hours of working	No of Samples	Percentage
Before Covid 19	41	33

After Covid 19	82	67
Total	**123**	**100**

Source: Primary data

The above table indicates the working hours. It shows that 33% the samples work for before covid19 and 67% of the samples work for after covid19.

Figure-5.4

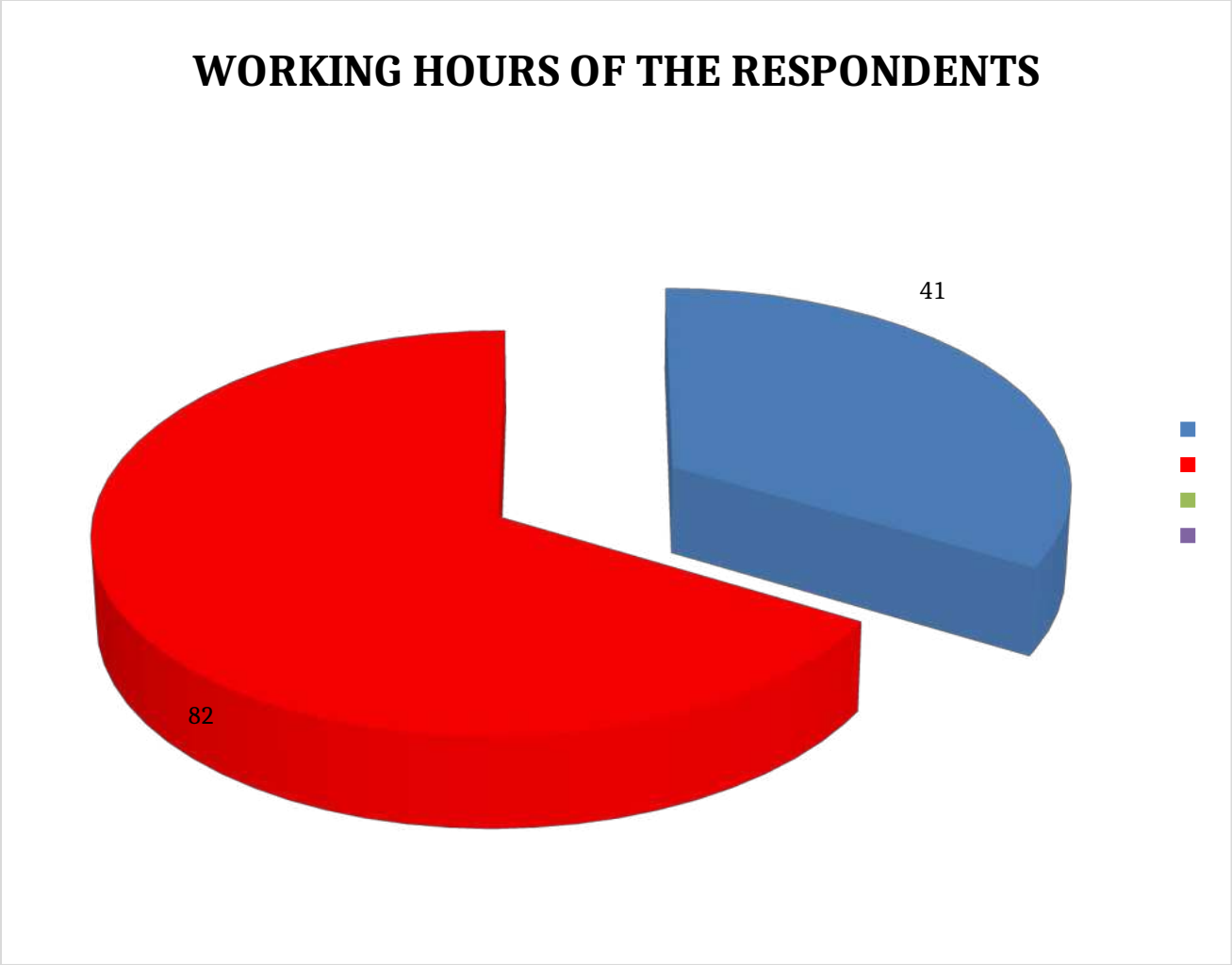


Table-5.5

Working Satisfaction of the Samples during Covid 19 Period

Opinion	No of Samples	Percentage
Highly Satisfied	17	14
Satisfied	38	31
Not-Satisfied	68	55
Total	**123**	**100**

Source: Primary data

The above table shows the job satisfaction level of the school teachers at covid19 period. 14% of samples are highly satisfied and 31% of samples are satisfied and 55% are not satisfied with covid 19 period.

Figure – 5.5

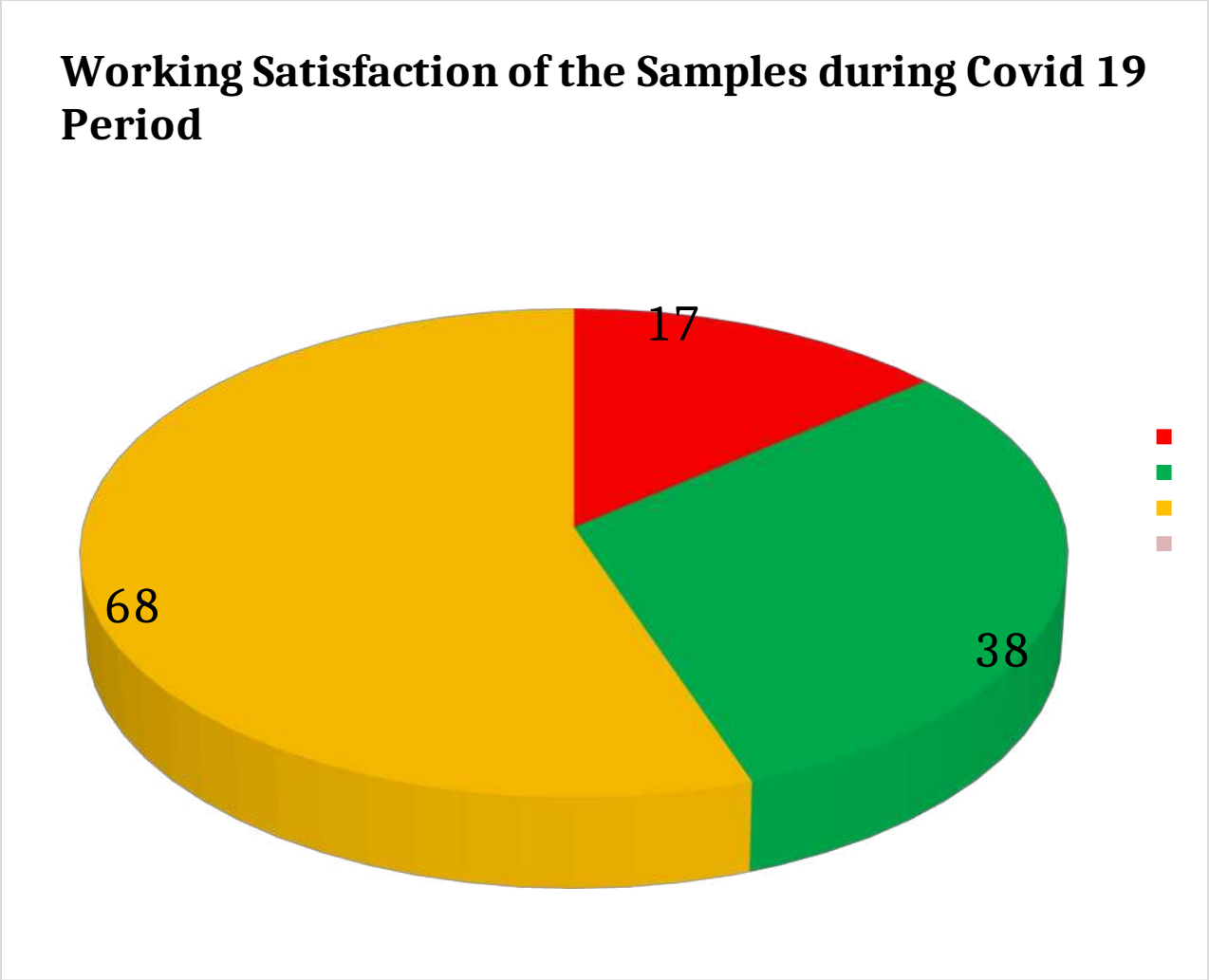

Working Satisfaction of the Samples during Covid 19 Period
17
38
68

Table-5.6

LACK OF HEALTH ISSUES FOR SCHOOL TEACHERS AFTER COVID

Sl. No	Types of Diseases	No. of Samples	Percentage
1	Fever	38	31
2	Cough & Cold	42	34
3	Headache	28	23
4	Body Pain	15	12
Total		**123**	**100**

Source: Primary data

The above table explains health problem affect the school teachers and covid19. 31% of the samples are affected in fever, 34% of the samples are affected in cough & cold, 23% of the samples are affected in headache, and also 12% of the respondents are affected in body pain respectively.

Figure – 5.6

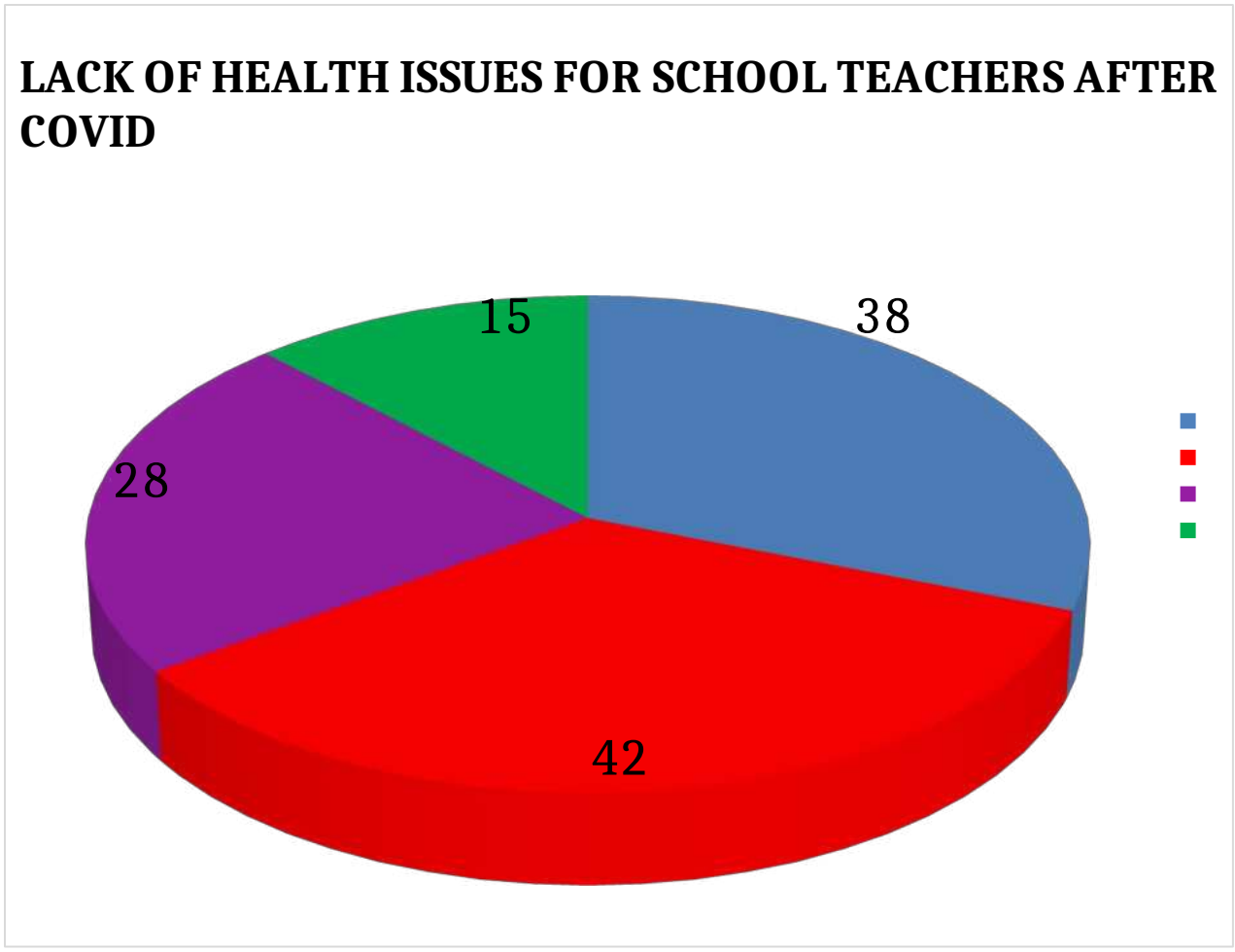


Table-5.7

SLEEPING LESS AND EATING MORE AT COVID 19

No of Series	Sleeping less and Eating more	No of samples	Percentage
1	Sleeping less	76	62
2	Eating more	47	38
Total		**123**	**100**

Source: Primary data

The above table shows the sleeping less and eating more level of covid19. 62% of samples sleeping less and 38% are eating more.

Figure – 5.7

SLEEPING LESS AND EATING MORE AT COVID 19

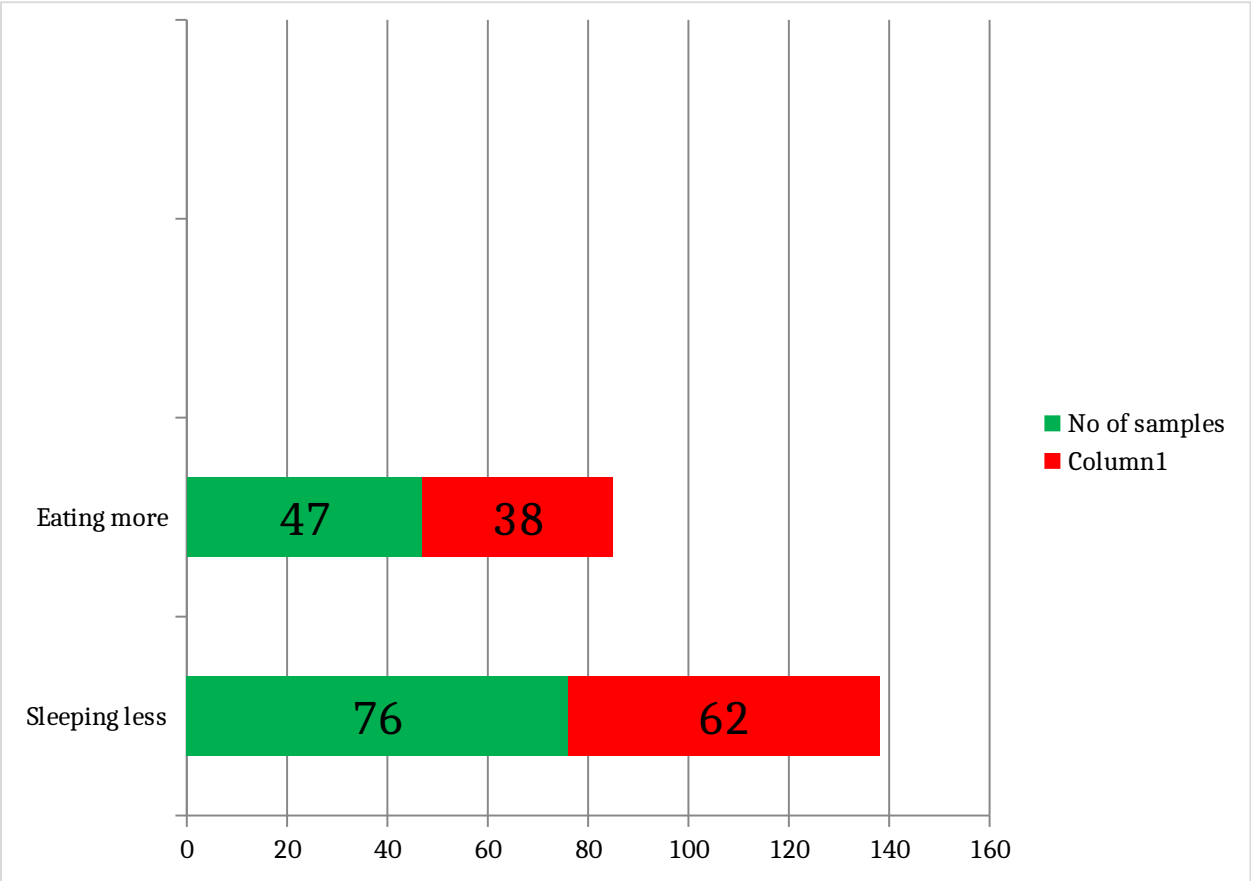


Table-5.8

REGULARLY EXPERIENCE NEW PAINS AND ACHES

No of series	New pains and aches	No of samples	Percentage
1	Before covid	37	30
2	After covid	86	70
Total		**123**	**100**

Source: Primary data

The above table shows the regularly experience of pains and aches. 30% of samples are before covid and 70% of samples are after covid 19 of new pains and aches.

Figure 5.8

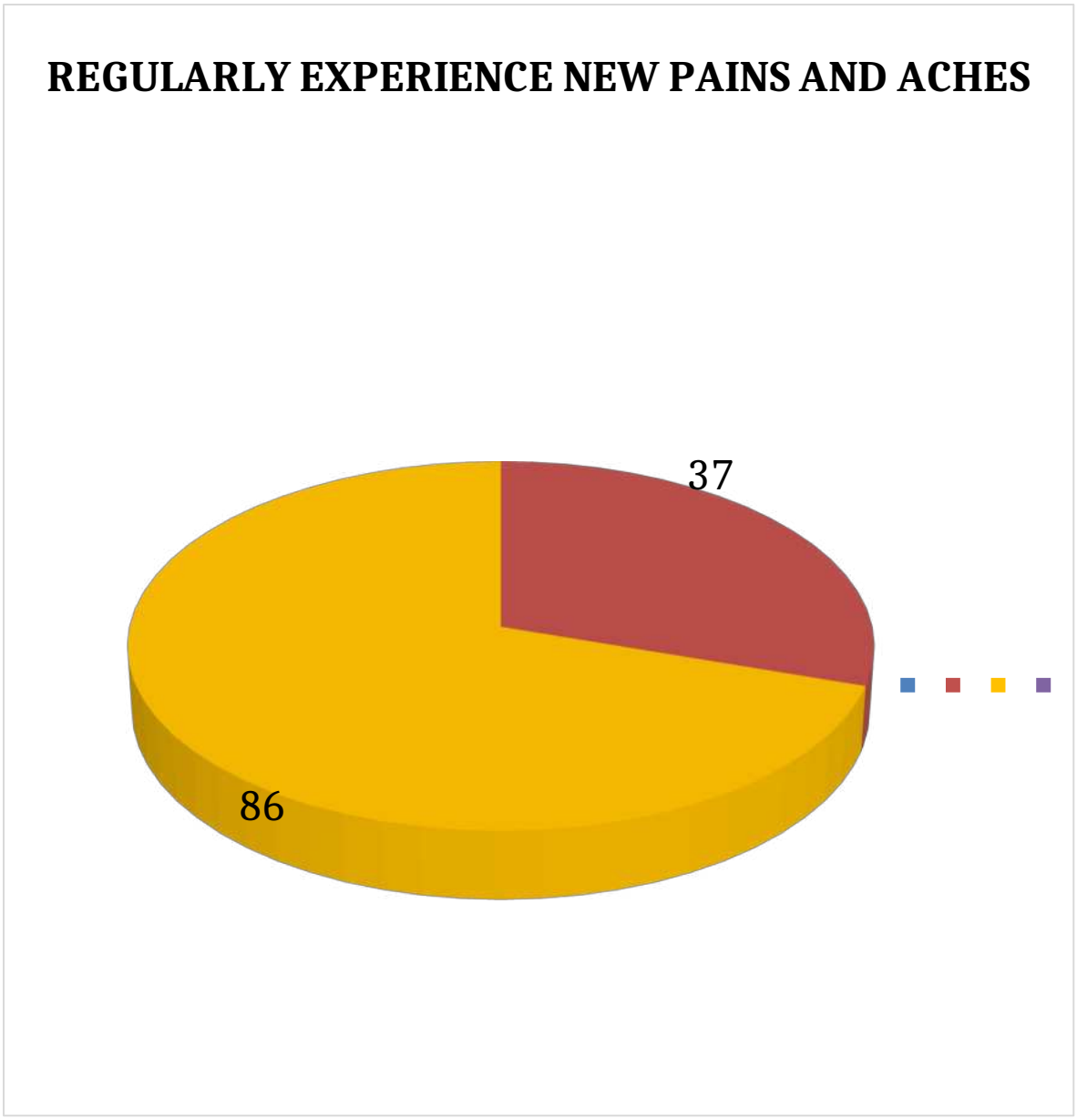


Table-5.9

EVERYONE FEELS SUPPORTED TO TEST COVID 19

No of series	Everyone feels supported	No of Samples	Percentage
1	Positive	39	32
2	Negative	84	68
Total		**123**	**100**

Source: Primary data

The above table shows that 32% of the sample respondents are positive test covid 19 and 68% of the sample respondents are negative test of covid 19.

Figure 5.9

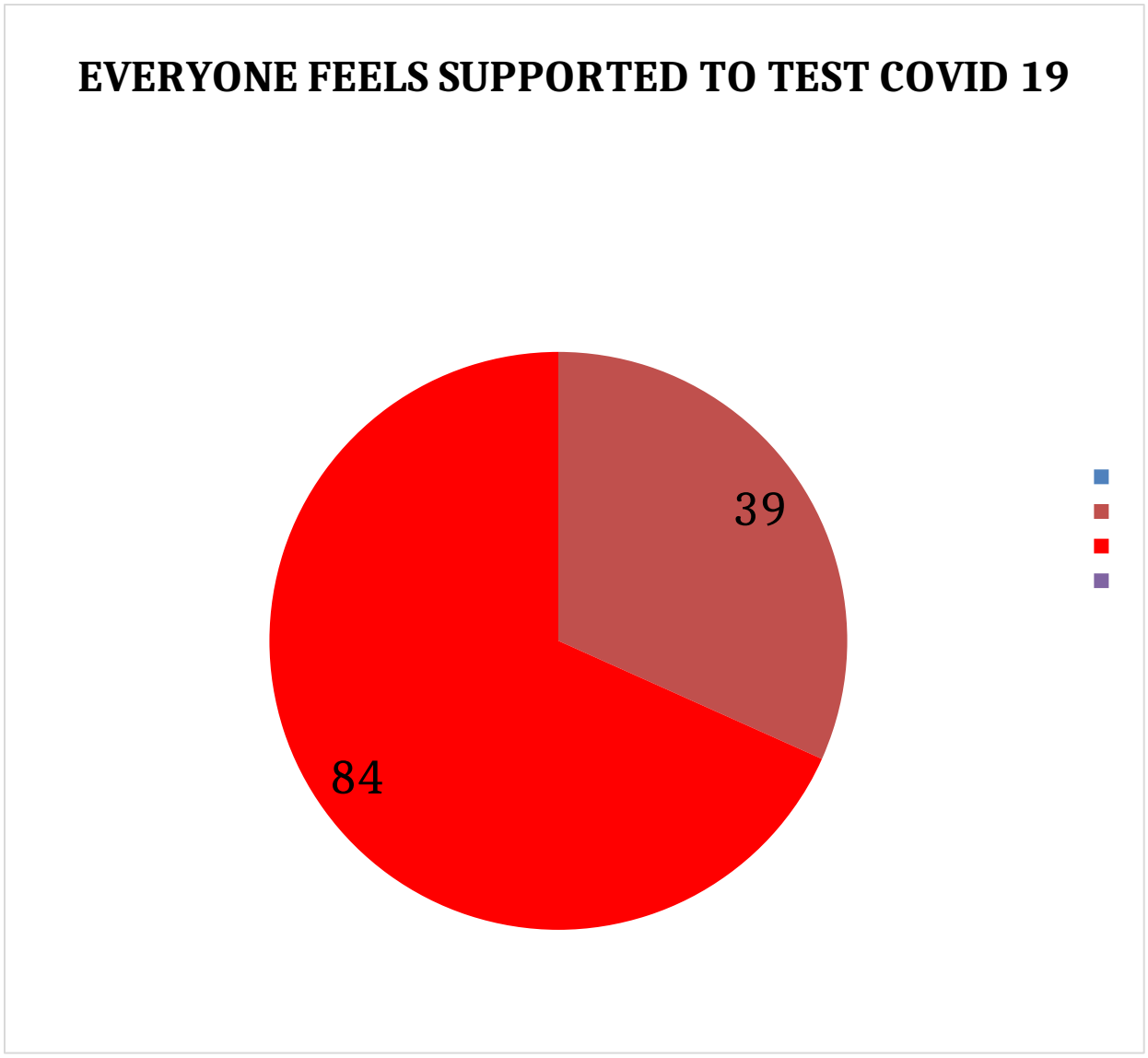


Table-5.10

MENTAL WELLBEING OF THE SAMPLES BEFORE AND AFTER COVID19

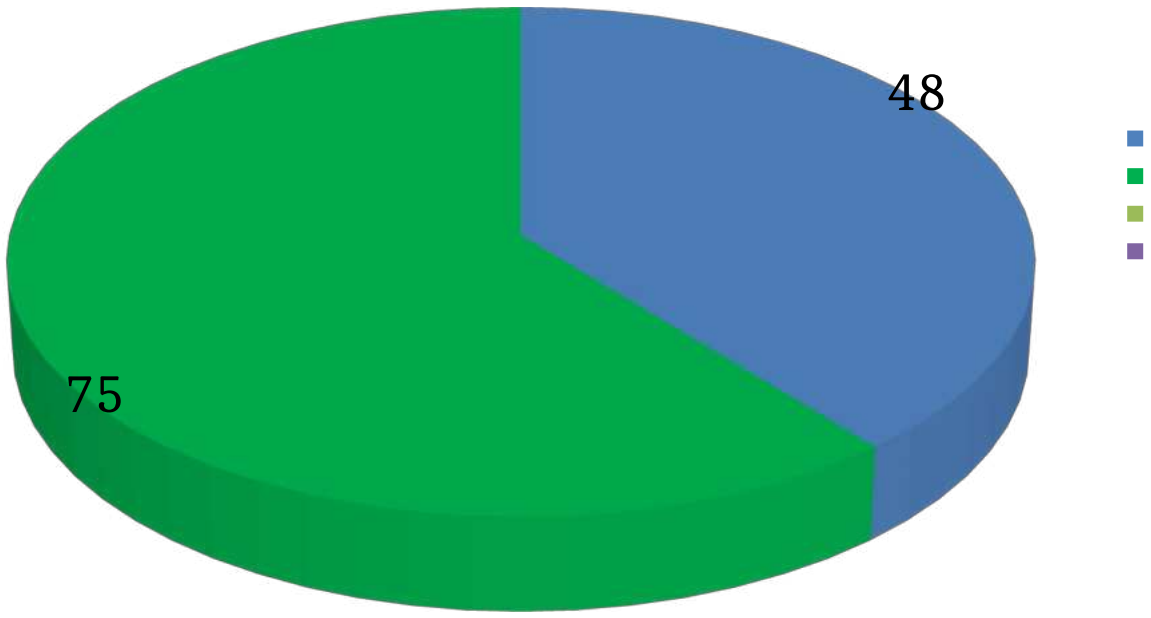
No of series	Opinion	No of samples	Percentage
1	Before	48	39
2	After	75	61
Total		**123**	**100**

Source: Primary data

The above shows that 39% of the sample workers mental wellbeing of before and 61% of the sample workers mental wellbeing of after covid 19.

Figure 5.10

MENTAL WELLBEING OF THE SAMPLES BEFORE AND AFTER COVID19



CHAPTER – VI

FINDINGS AND SUGGUESTIONS

- 24% of the sample workers have attained B.A First-Grade level of education, 26% of the sample workers have attained M.A Second-Grade level of education, 16% of the sample workers have attained B.Sc. First Grade level of education, 20% of the sample workers have attained M.Sc. Second Grade level of education and only 14% of the sample workers have complete MPhil First Grade level of education.
- 43% of the workers are earning income Rs.10000-20000, 15% are the workers are earning income Rs.20000-30000, 19% of the workers are earning income Rs.30000-40000, 10% of the workers are earning income Rs.40000-50000,and 13% are earning 50000-60000.
- 14% of samples spend Rs.5000-15000,26% of the samples spend Rs.15000-25000, 20% of samples spend Rs.25000-35000,24% of samples spend Rs.35000-45000,and 16% of the samples expenditure is above 45000-50000.
- 33% the samples work for before covid19 and 67% of the samples work for after covid19.
- 14% of samples are highly satisfied and 31% of samples are satisfied and 55% are not satisfied with covid 19 period.
- covid19. 31% of the samples are affected in fever, 34% of the samples are affected in cough & cold, 23% of the samples are affected in headache, and also 12% of the respondents are affected in body pain respectively.
- covid19. 62% of samples sleeping less and 38% are eating more.
- 30% of samples are before covid and 70% of samples are after covid 19 of new pains and aches.
- 32% of the sample respondents are positive test covid 19 and 68% of the sample respondents are negative test o covid 19.
- 39% of the sample workers mental wellbeing of before and 61% of the sample workers mental wellbeing of after covid 19.

SOLUTIONS:

- Medical check-up is very important for the samples.
- Counselling must be given to the samples according to their need
- Activities can be given in between the classes to encourage and change the mood of students by the samples.
- To relax the samples some physical and mental activities can be given to them
- The offline classes also can be encouraged in between the continuous classes.
- To make safe the samples by physically and mentally by giving them some smart gap in their routine life.

APPENDIX

BIBILIOGRAPHY

1. Situation report-109. *Coronavirus disease 2019 (COVID-19)*. WHO (2020). Available online at: https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation reports (accessed May 09, 2020).

2. Wee SL Jr, McNeil DG Jr, Hernández JC. *W.H.O. Declares Global Emergency as Wuhan Coronavirus Spreads*. The New York Times (2020). Available online at: https://www.nytimes.com/2020/01/30/health/coronavirus-world-health-organization.html (accessed February 03, 2020).

3. COVID-19 ICMR. *COVID-19*. Indian Council of Medical Research. Government of India. ICMR (2020). Available online at: https://main.icmr.nic.in/content/covid-19 (accessed May 09, 2020).

4. COVID-19 update. *COVID-19 INDIA*. Ministry of Health and Family Welfare. MOHFW (2020). Available online at: https://www.mohfw.gov.in/ (accessed May 09, 2020).

5. Novel coronavirus-MOHFW. *Home*. Ministry of Health and Family Welfare. GOI (2020). Available online at: http://www.mohfw.gov.in/ (accessed May 08, 2020).

6. Bureau O. *PM Modi calls for 'Janata curfew' on March 22 from 7 AM-9 PM*. @businessline (2020). Available online at: https://www.thehindubusinessline.com/news/pm-modi-calls-for-janta-curfew-on-march-22-from-7-am-9-pm/article31110155.ece (accessed April 05, 2020).

7. Sangeeta N. *Coronavirus Hotspots in India: Full List of 130 COVID-19 Hotspot Districts, All Metro Cities Marked Red Zones*. Jagranjosh.com (2020). Available online at: https://www.jagranjosh.com/current-affairs/coronavirus-hotspot-areas-in-india-what-are-hotspots-know-all-covid-hotspots-1586411869-1 (accessed May 03, 2020).

8. Smith RD. Responding to global infectious disease outbreaks: lessons from SARS on the role of risk perception, communication and management. *Soc Sci Med.* (2006) 63:3113–23. doi: 10.1016/j.socscimed.2006.08.004

PubMed Abstract | CrossRef Full Text | Google Scholar

9. Mackay IM, Arden KE. MERS coronavirus: diagnostics, epidemiology and transmission. *Virol J.* (2015) 12:222. doi: 10.1186/s12985-015-0439-5

PubMed Abstract | CrossRef Full Text | Google Scholar

10. Peeri NC, Shrestha N, Rahman MS, Zaki R, Tan Z, Bibi S, et al. The SARS, MERS and novel coronavirus (COVID-19) epidemics, the newest and biggest global health threats: what lessons have we learned? *Int J Epidemiol*. (2020). doi: 10.1093/ije/dyaa033. [Epub ahead of print].

PubMed Abstract | CrossRef Full Text | Google Scholar

11. Broor S, Dawood FS, Pandey BG, Saha S, Gupta V, Krishnan A, et al. Rates of respiratory virus-associated hospitalization in children aged <5 years in rural northern India. *J Infection.* (2014) 68:281–9. doi: 10.1016/j.jinf.2013.11.005

PubMed Abstract | CrossRef Full Text | Google Scholar

12. Sonawane AA, Shastri J, Bavdekar SB. Respiratory pathogens in infants diagnosed with acute lower respiratory tract infection in a Tertiary Care Hospital of Western India Using Multiplex Real Time PCR. *Indian J Pediatr.* (2019) 86:433–8. doi: 10.1007/s12098-018-2840-8

PubMed Abstract | CrossRef Full Text | Google Scholar

13. Tai W, He L, Zhang X, Pu J, Voronin D, Jiang S, et al. Characterization of the receptor-binding domain (RBD) of 2019 novel coronavirus: implication for development of RBD protein as a viral attachment inhibitor and vaccine. *Cell Mol Immunol.* (2020). doi: 10.1038/s41423-020-0400-4. [Epub ahead of print].

PubMed Abstract | CrossRef Full Text | Google Scholar

14. Zou L, Ruan F, Huang M, Liang L, Huang H, Hong Z, et al. SARS-CoV-2 viral load in upper respiratory specimens of infected patients. *N Engl J Med.* (2020) 382:1177–9. doi: 10.1056/NEJMc2001737

PubMed Abstract | CrossRef Full Text | Google Scholar

15. Emergencies preparedness, response. *WHO | Severe Acute Respiratory Syndrome (SARS)-multi-country outbreak - Update 55*. WHO (2003). Available online at: https://www.who.int/csr/don/2003_05_14a/en/ (accessed February 03, 2020).

Google Scholar

16. CDC. *Coronavirus Disease 2019 (COVID-19) – Symptoms*. Centers for Disease Control and Prevention (2020). Available online at: https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html (accessed April 07, 2020).

17. Qayam. *Coronavirus scare in east UP due to cases in Nepal*. The Siasat Daily (2020). Available online at: https://www.siasat.com/coronavirus-scare-east-due-cases-nepal-1805965/ (accessed February 03, 2020).

18. Huang Y. *The Sars Epidemic And Its Aftermath In China: A Political Perspective*. National Academies Press (US) (2004). Available online at: https://www.ncbi.nlm.nih.gov/books/NBK92479/ (accessed May 04, 2020).

Google Scholar

19. Qiu W, Chu C, Mao A, Wu J. The impacts on health, society, and economy of SARS and H7N9 outbreaks in China: a case comparison study. *J Environ Public Health.* (2018) 2018:e2710185. doi: 10.1155/2018/2710185

PubMed Abstract | CrossRef Full Text | Google Scholar

20. McCloskey B, Heymann DL. SARS to novel coronavirus–old lessons and new lessons. *Epidemiol Infect*. (2020) 148:e22. doi: 10.1017/S0950268820000254

PubMed Abstract | CrossRef Full Text | Google Scholar

21. Chan JF-W, Yuan S, Kok K-H, To KK-W, Chu H, Yang J, et al. A familial cluster of pneumonia associated with the 2019 novel coronavirus indicating person-to-person transmission: a study of a family cluster. *Lancet.* (2020) 395:514–23. doi: 10.1016/S0140-6736(20)30154-9

PubMed Abstract | CrossRef Full Text | Google Scholar

22. PIB Mubmai. *Press Information Bureau*. Press Information Bureau (2020). Available online at: https://pib.gov.in/indexd.aspx (accessed May 05, 2020).

23. Dandona L, Dandona R, Kumar GA, Shukla DK, Paul VK, Balakrishnan K, et al. Nations within a nation: variations in epidemiological transition across the states of India, 1990–2016 in the Global Burden of Disease Study. *Lancet.* (2017) 390:2437–60. doi: 10.1016/S0140-6736(17)32804-0

PubMed Abstract | CrossRef Full Text | Google Scholar

24. Samrat S. *Coronavirus may hit Sitharaman's 10% growth target; second case surfaces in India*. The Financial Express (2020). Available online at: https://www.financialexpress.com/economy/coronavirus-may-hit-sitharamans-10-gdp-growth-target-second-case-surfaces-in-india/1852146/ (accessed February 03, 2020).

Google Scholar

25. Cheng E, Tan W. *Coronavirus cases in China overtake SARS — and the economic impact could be "more severe."* CNBC (2020). Available online at: https://www.cnbc.com/2020/01/29/coronavirus-cases-in-china-overtake-sars-and-impact-could-be-more-severe.html (accessed March 11, 2020).

26. Atsmon Y, Child P, Dobbs R, Narasimhan L. *Winning the $30 Trillion Decathlon: Going for Gold in Emerging Markets*. McKinsey (2012). Available online at: https://www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/winning-the-30-trillion-decathlon-going-for-gold-in-emerging-markets (accessed May 04, 2020).

Google Scholar

27. Sudhir K, Priester J, Shum M, Atkin D, Foster A, Iyer G, et al. Research opportunities in emerging markets: an inter-disciplinary perspective from marketing, economics, and psychology. *Cust Need Solut.* (2015) 2:264–76. doi: 10.1007/s40547-015-0044-1

CrossRef Full Text | Google Scholar

28. Albulescu C. Coronavirus and oil price crash. *SSRN J.* (2020) 1–13. doi: 10.2139/ssrn.3553452

CrossRef Full Text | Google Scholar

29. Carlsson-Szlezak P, Reeves M, Swartz P. *What Coronavirus Could Mean for the Global Economy*. Harvard Business Review (2020). Available online at: https://hbr.org/2020/03/what-coronavirus-could-mean-for-the-global-economy (accessed March 11, 2020).

Google Scholar

30. Coronavirus: The world economy at risk. (2020). *OECD Economic Outlook*. Available online at: http://www.oecd.org/economic-outlook/ (accessed March 11, 2020).

31. International Monetary Fund. (2020). "Chapter 1-policies to support people during the COVID-19 pandemic," in *FISCAL MONITOR* (International Monetary Fund). Available online at: https://www.imf.org/en/Publications (accessed May 07, 2020).

32. Jain J, Kumar A, Narayanan V, Ramaswamy RS, Sathiyarajeswaran P, Shree Devi MS, et al. Antiviral activity of ethanolic extract of Nilavembu Kudineer against dengue and chikungunya virus through *in vitro* evaluation. *J Ayurveda Integr Med*. (2019). doi: 10.1016/j.jaim.2018.05.006. [Epub ahead of print].

PubMed Abstract | CrossRef Full Text | Google Scholar

33. Advisory for Corona virus, Homoeopathy for Prevention of Corona virus Infections, Unani Medicines useful in symptomatic management of Corona Virus infection. *Press Information Bureau*. Available online at: pib.gov.in/Pressreleaseshare.aspx?PRID=1600895 (accessed February 03, 2020).

34. Bhatnagar T, Murhekar MV, Soneja M, Gupta N, Giri S, Wig N, et al. Lopinavir/ritonavir combination therapy amongst symptomatic coronavirus disease 2019 patients in India: protocol for restricted public health emergency use. *Indian J Med Res*. (2020) 151:184–9. doi: 10.4103/ijmr.IJMR_502_20

PubMed Abstract | CrossRef Full Text | Google Scholar

35. Rathi S, Ish P, Kalantri A, Kalantri S. Hydroxychloroquine prophylaxis for COVID-19 contacts in India. *Lancet Infectious Dis*. (2020). doi: 10.1016/S1473-3099(20)30313-3. [Epub ahead of print].

PubMed Abstract | CrossRef Full Text | Google Scholar

36. Health C. for D. and R. *Nucleic Acid Based Tests*. FDA (2020). Available online at: https://www.fda.gov/medical-devices/vitro-diagnostics/nucleic-acid-based-tests (accessed May 05, 2020).

37. Aarogya Setu Mobile App. *MyGov.in*. (2020). Available online at: https://mygov.in/aarogya-setu-app/ (accessed May 04, 2020).

PubMed Abstract

38. Vasudha V. *Coronavirus Outbreak: Ayush Pushes "Traditional Cure," Med Council Backs Modern Drugs*. The Economic Times (2020). Available online at: https://economictimes.indiatimes.com/news/politics-and-nation/ayush-pushes-traditional-cure-med-council-backs-modern-drugs/articleshow/74680699.cms (accessed May 02, 2020).

39. Elfiky AA. Anti-HCV, nucleotide inhibitors, repurposing against COVID-19. *Life Sci.* (2020) 248:117477. doi: 10.1016/j.lfs.2020.117477

PubMed Abstract | CrossRef Full Text | Google Scholar

40. Teixeira da Silva JA. Convalescent plasma: a possible treatment of COVID-19 in India. *Med J Armed Forces India*. (2020). doi: 10.1016/j.mjafi.2020.04.006. [Epub ahead of print].

PubMed Abstract | CrossRef Full Text | Google Scholar

41. Sinha DK. *COVID-19: Vaccine Development and Therapeutic Strategies*. IndiaBioscience (2020). Available online at: https://indiabioscience.org/columns/general-science/covid-19-vaccine-development-and-therapeutic-strategies (accessed May 06, 2020).

42. Varghese MG, Rijal S. *How India Must Prepare for a Second Wave of COVID-19*. Nature India (2020). Available online at: https://www.natureasia.com/en/nindia/article/10.1038/nindia.2020.80 (accessed May 06, 2020).

43. Koshy SM. *Inspired By South Korea, Walk-In COVID-19 Test Kiosks Built In Kerala*. NDTV.com (2020). Available online at: https://www.ndtv.com/india-news/coronavirus-inspired-by-south-korea-walk-in-test-kiosks-built-in-keralas-ernakulam-2207119 (accessed May 06, 2020).

44. MK N. *Covid-19: Kerala Hospital Installs South Korea-Like Kiosks to Collect Samples*. Livemint (2020). Available online

at: https://www.livemint.com/news/india/covid-19-kerala-hospital-installs-south-korea-like-kiosks-to-collect-samples-11586234679849.html (accessed May 09, 2020).

45. DRDO. *Covid-19 Sample Collection Kiosk (COVSACK)*. Defence Research and Development Organisation - DRDO|GoI (2020). Available online at: https://drdo.gov.in/covid-19-sample-collection-kiosk-covsack (accessed May 09, 2020).

46. Vaidyanathan G. People power: how India is attempting to slow the coronavirus. *Nature.* (2020) 580:442. doi: 10.1038/d41586-020-01058-5

PubMed Abstract | CrossRef Full Text | Google Scholar

QUESTIONNAIRE

1. Name:

2. Gender: Male/Female

3. Education Qualification:

4. Designation:

5. Annual Income:

6. Expenditure:

7. Take a few minutes to observe yourself- Do you feel low on energy, listless and disinterested in all that's happening around you?

8. Are you sleeping less and eating more?

9. Is it difficult to get yourself out of the bed in the morning?

10. Do you drag through the daily routine?

11. Are you fed up of navigating through everyday challenges?

12. Do you regularly experience new pains and aches?

13. Are you attracted to the idea of going away to a far-off place?

14. What exactly will everyone agree to do differently so everyone feels supported?

15. If teachers want to feel more valued, what are the specific things schools can do?

16. How important is a teacher's mental health and wellness for quality learning in the classroom?

17. How do stress and anxiety impact her teaching?

18. Do the stakeholders recognise that teachers have been put under inordinate amounts of stress lately?

19. What can school and others do to ensure mental wellbeing of the teacher community?