

Covid-19: Prevalence, Prevention, and Vaccination in Nintavur MOH Area, Sri Lanka

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Abstract: Covid-19 is a global pandemic which affected almost 224 countries across the globe. Sri Lanka is also one of the countries which experienced the impacts of Coronavirus rampant on people, social system, education, livelihood, religious and cultural elements, and trade and finance of the country. Out of 354 MOH entities, Nintavur MOH area also struggles with Coronavirus pandemic from 2020 to till date. Almost 677 people were confirmed as infected cases and 17 people died due to this catastrophe. And altogether 2,518 persons from 991 families were victimized in terms of isolation or quarantine in the hospital, health care centers and homes. The health protocol and Covid-19 guidelines have strictly been adhered by Nintavur MOH, and monitored the prevalent situation, collecting samples for confirming infected cases, observing the quarantine persons and households, random testing of both PCR and RAT were carried out significantly in whole areas under its purview. And also the vaccination activities were undertaken by the Nintavur MOH to control the widespread of Covid-19. Yet, the study revealed that Health Staff from MOH have faced several difficulties in the initial stage of this Covid-19 epidemic and public support and awareness also were observed very poorly in the beginning. However, people are corporate and demanding vaccines and participation in the vaccination program in an effective manner in the new normal situation in the study area.

Keywords: Challenges, Covid-19, Nintavur MOH, Prevalence, Prevention, Vaccination.

1. Introduction

The SARS-Cov-2 Coronavirus (Covid-19) was found in Wuhan City, China in the year 2019 (Cennimo, 2020). The World Health Organization (WHO) called it Coronavirus Disease (Covid-19) in February 2020, declared Coronavirus as a global outbreak and health emergency in March 2020 (Zhu, Zhang, Wang et.al. 2020). The Coronavirus has been identified as a transmissible disease initiated by the newly invented coronavirus family (Riswan, 2021). This disease is caused by members of the coronavirus family that has never been encountered before (Kumar, 2021). Coronavirus disease directly and indirectly exaggerated all spheres of life throughout the world. Till date (as of December 20, 2021), the pandemic affected 274,587,287 people all over the world with the death rate of 5,368,222 throughout all regions in the globe (Coronavirus Statistic, 2021). According to WHO, the most

common symptoms of Covid-19 are fever, dry cough and tiredness, and someone may also have a runny nose, sore throat, nasal congestion and aches and pains or diarrhea. Some people report losing their sense of taste and or smell. The WHO reports that one in six people become seriously ill, mostly elderly and people with medical problems such as high blood pressure, diabetic, cardiovascular diseases and chronic respiratory conditions, they need special treatment for Covid-19 (Kumar, 2021).

This Covid-19 pandemic is still continuing for nearly two years globally, and it severely hits human life and loss of livelihood of millions of people around the world. This health emergency has created numerous issues on public health, social and economic stability, food systems and supply chain which are very vital and critical for reestablishing. A study estimates that 10 million people are under the extreme poverty line, and about 690 million people are falling into undernourished which may increase by up to 132 million at the end of this year (WHO, 2020). Due to Covid-19, many systems were regulated by the governments and health authorities, such as, closure of schools, closing the borders, curfew and travel restrictions, lack accessibility for local and international food supply, this actions have led to increase loss of employment for migrant workers and poor and marginalized people with daily wages. Further, women and children face many challenges on food, nutrition, mental, social, educational progress, and most often women and girls struggle with different forms of violence at home due to lockdown and other restrictions.

The Covid-19 first infected case was reported in Sri Lanka on January 27, 2020. The first confirmed patient was a Chinese tourist who arrived in Sri Lanka. Then a tourist guide was infected and confirmed as the second patient in the country on March 11, 2020 (Epidemiology Unit, 2021). Suddenly, the Covid-19 cases were reported 122 with 2 deaths in Sri Lanka on March 31, 2020. And the confirmed cases were dramatically intensified to 2,814 including 951 were returnees from foreign countries and 1,833 were local people. Another major outbreak occurred among the Sri Lanka Navy and their close contacts (Epidemiology Unit, 2021). Till date (as of December 20, 2021), around 579,685 cases have been confirmed and a total

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death toll 14,752 have been reported in Sri Lanka (WHO, 2021).

The pandemic has created many problems in small and medium scale industries, and the informal sectors particularly daily wage labors were severely affected in Sri Lanka (Amaratunga *et al.* 2020). Another crucial issue to be noted is social impacts in terms of destruction of education activities. Lockdown, travel restriction along with demand for social distancing caused the closure of educational institutions including schools, universities and other educational establishments. However, the government of Sri Lanka continuously promoted the provision for conducting educational services via an online platform (Amaratunga *et al.* 2020) using Zoom technology. This similar issue has been observed in Nintavur MOH region in the Ampara district of Sri Lanka. Almost 677 people were infected by Coronavirus, 14 died, 991 families were victimized and more than 2,518 people were isolated or quarantined in different categories. The people also suffered and destructed with financial, psychological, and educational challenges in Nintavur due to the impact of the coronavirus outbreak. Therefore, this study aimed to highlight the endemic of Covid-19, preventive measures, vaccination in the new normal and the key challenges faced by the public health workers during the time of crisis in the study area, the Nintavur MOH region.

2. Literature Review

World Bank (2021) reports that the coronavirus crisis has destroyed the Sri Lankan economy, particularly it created poverty, hunger and inequality and people have lost their jobs and earnings. The report further highlights that poverty ratio of Sri Lanka was comparatively low prior to Covid-19 outbreak, however, at present people do not have accessibility to get employment due to this coronavirus calamity. Similarly, Kumar (2021) presents the trend of Covid-19 as a global health catastrophe, and touches on different experiences and difficulties faced by countries. The background of the disease, symptoms and other features of virus, the outbreak patterns in different regions, the challenges faced by the Indian community due this health emergency. The book highlights the overall issues, and broadly analyzes the trend and practical challenges and prevention strategies followed by the State governments in India.

Ekanayake & Amirthalingam (2021) assess the financial impacts of Covid-19 on Sri Lankan migrants who are working in Qatar. This study focused on three different groups of Sri Lankan namely; skilled, semi-skilled and highly skilled migrant's workers in Qatar, and evaluated economic situation and financial implication among them. Moreover, Amaratunga, Fernando, Haigh & Jayasinghe (2020) presents the trend and impact of Covid-19 during the time of its first wave in Sri Lanka in 2020. This study examines how the Sri Lanka government is combating the Coronavirus crisis and fighting the economic crisis using foreign remittance from migrant workers. Besides, a case study was undertaken by UNICEF, Education-2030 and UNESCO (2021) to present the implications of Covid-19 on the educational sector in Asia in general and Sri Lanka in particular.

This case study provides various effects of pandemic on the educational sector, students, and their families. Further, it examines the economic impacts on educational progress toward achieving sustainable development goals – SDG 4 (Better Education in 2030) (UNICEF, 2021).

Arambepola, Wickramasinghe, Jayakody *et al.* (2021) emphasize how the Sri Lanka government responsively approached and controlled the early stage of Covid-19 epidemic. This effort and systematic public health system were supported to prevent severe impacts of this virus. Nevertheless, Walpola (2021) stresses that Sri Lanka was extremely affected by novel coronavirus because of its tourism industry, and the government has managed the prevalence of 1st and 2nd waves of Covid-19 successfully, but struggled to manage the 3rd wave that started in April 2021. Likewise, Erandi, Mahasinghe, Perera & Jayasinghe (2020) discuss that the government of Sri Lanka used a set of approaches and strategies like lockdown, quarantine, social distancing, travel restriction and isolation of villages to control coronavirus outbreak in the country. Also, Wickramaarachchi, Perera, Jayasinghe *et al.* (2020) underlines how the Sri Lanka government introduced sequential strategies to implement preventive measures to control coronavirus in the country. Besides, Hayashi, Garcia, Jayasundara *et al.* (2021) examines how Covid-19 impacts on the technical and vocational education system in Sri Lanka.

Adikari, Pathirathna, Kumarawansa & Koggalage (2020) assess the role of MOHs in combating Coronavirus as a grassroots public health institutions in Sri Lanka. Their study exposed that MHO units in Sri Lanka functioned well in preventing Covid-19 endemic with human and technical support in a deep-rooted level within the community. This study further emphasized that preventive measures, health guidelines were extensively facilitated in the responsible geographical area of each MHO in the country. The above literatures have illustrated the impacts of Covid-19 on migrant workers, students, families and society as whole. Adikari *et al.* (2020) has focused on the responsive role of MOHs in preventing Covid-19 pandemic from grassroots level in Sri Lanka, so, this research would be more useful to carry out the existing study, as the focus area of the study has close association with one of the MOH areas in the country.

3. Methodology

The data for this study have been obtained mostly from up-to-date secondary sources. The research articles, reports of governments and international organizations, news websites and other electronic and printed sources were used in this paper. The Covid-19 infection and vaccination data of the study area have been gathered from MOH office, Nintavur, Sri Lanka. An in-depth interviews were also employed in this study to obtain qualitative information from different informants to validate the result and findings. However, the discussions have been reviewed and presented in an interpretative way with qualitative manner in this paper, as it is purely a qualitative work.

1) Study Area

There are 26 Regional Director of Health Service (RDHS) offices in Sri Lanka. Each RDHS has several MOH areas to

manage public health. Kalmunai is one of the RDHS units and it is one of the largest RDHSs in the Eastern Province of Sri Lanka (RDHS, Kalmunai, 2021). It has Thirteen (13) Medical Officer of Health (MOH) areas which are equal to 13 Divisional Secretariats. The MOH area has several Public Health Inspector (PHI) areas and each PHI area has several Public Health Midwife (PHM) units. In Kalmunai RDHS region, there are 13 MOH areas such as, Kalmunai North, Kalmunai South, Sainthamaruthu, Karaitivu, Nintavur, Addalaichenai, Akkaraiyapattu, Alayadivambu, Thirukovil, Pottuvil, Sammanthurai, Navithanveli and Irakkamam MOHs administered.

Nintavur MOH is one of the service units for managing public health (under purview of Kalmunai RDHS) in Nintavur Divisional Secretariat Division (DSD). The figure 1 shows the geographical setting of the study area.

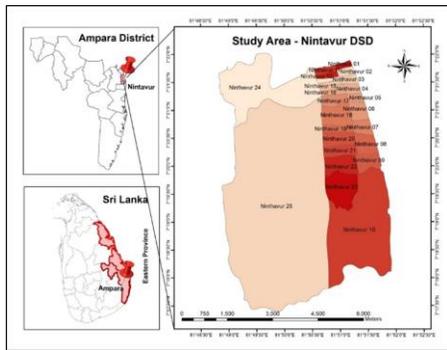


Fig. 1. Study Area - Nintavur

Source: GIS Assisted Map, Retrieved by Researcher using ArcGIS 10.4

The Nintavur DSD has 25 Grama Niladhari Divisions (GNDs). And, there are three PHI areas managed by the MOH office. Each PHI area is covered with several GNDs to carry out public health services throughout the MOH region. It is very important to understand the population details of the study area to quantify the infection level of coronavirus, vaccination ratio and so on. The following table details the age-wise population in the study community.

Table 1

Population in Nintavur MOH

Age	Population
Below 6 year	3,465
Age 6-29	12,427
Age 30-59	13,023
Above 60 year	4,225
Total	33,140

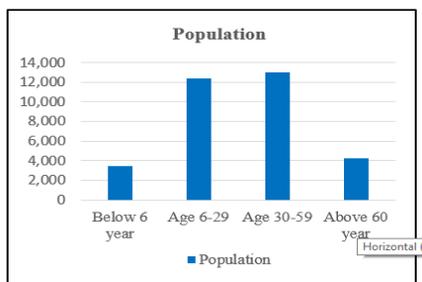


Fig. 2. Population

The majority group of population indicates the age between 30 and 59, and similarly age between 6 and 29. The Coronavirus infection also confirmed with the aforementioned age groups compared to children and elderly. Though, the virus infected ratio was very higher amongst males rather than females in the study area while more vulnerabilities were observed among women and girls during lockdown, travel restriction and curfew.

4. Covid-19: Prevalence, Prevention and Vaccination

The first COVID-19 case was reported through a returnee from Colombo Port Authority on 27.10.2020 in Nintavur MOH division. Till now (as of December 15, 2021) 677 infected cases were reported and proper action was taken for them to cure from this disease. They were admitted in the quarantine centers and probably they recovered and returned home. Till date, 991 families were advised to go for quarantine and or precautionary measures. Around 2,518 individuals were quarantined for 14 days in their own residences in order to prevent the spread of this virus. Due to COVID-19, a total 17 (male 10 and female 7) people were reported dead in Nintavur MOH division. Around 16 pregnant mothers also got positive of Coronavirus, and also children age 1 - 18 have reported 65 corona affected in the study area. Further, total 2,248 PCR (Polymerase Chain Reaction) and 3,832 RAT (Rapid Antigen Testing) performed by the health staff and field workers in Nintavur MOH area (MOH, 2021).

The public health system in Sri Lanka (also known as the Medical Officer of Health - MOH) managed by a medical doctor with special training on public health and with the team of grassroots field staff who are well trained and well aware of community and supported by a network of infrastructures (Adikari *et al.*, 2020). As a responsible health institution, the Nintavur MOH office played an important role to prevent the novel coronavirus from the community. The medical officer, other officers, public health inspectors (PHIs), frontline health workers and field staff from Nintavur MOH office, and Doctors and Nurses from hospital and all other paramedic staff from Nintavur Base Hospital and Ayurvedic Hospital were contributed for protecting people from coronavirus disease in Nintavur. Thus, this study particularly focused on the role of Nintavur MOH in identification, prevention and vaccination for Covid-19.

Nintavur MOH have done numerous activities for controlling the spread of this virus. Public awareness on Covid-19 was carried out throughout the MOH area using loudspeakers. Issuing handbills and hanging banners in public places to raise awareness of the seriousness of Covid-19 pandemic. Continuous discussions were conducted with stakeholders (Pradeshiya Sabha, Divisional Secretariat, Mosque and Temple federation and trustees, youth organizations, sports clubs and other civil societies) on the current situation, actions and precautionary measures for preventing the spread of coronavirus. This kind of discussion is continuously arranged by the MOH office. An interview had with PHI (from PHI Area II of Nintavur MOH), he stated that;

‘There are many strategies followed by the MOH office to

control the spread of Covid-19 from the community. We have continued awareness about the Covid-19 and its seriousness among the public. Mainly advised them to maintain social distance, wear a face mask properly (covering mouth and nose clearly) and wash their hands frequently using soap or sanitizer. During 2nd wave outbreak as it was festival period, the health officers were highly engaged in the field observation by visiting every shop and other public places, and executed the testing of PCR and RAT broadly. To implement preventive measures, the other organizations namely, Grand Jummah Mosque, Pradeshiya Sabha and Divisional Secretariat which are highly supported and assisted by finance, provide vehicles and transportation arrangements for preventing this virus. Further, Sri Lankan Army, Police, social service organizations, some private and non-governmental organizations were also supported in an acceptable manner to fight with public health emergencies (Interview 1, with PHI – Area II).

Disinfecting the important places where many people are moving and gathering. MOH facilitated other organizations and formed Covid-19 village committee with the support of graduate trainees and volunteers from sports clubs and civil societies. Circulated guideline and information to all Mosques and Temples in Nintavur division in order to make public announcements through loudspeaker. Mosques are advised to announce five times (five prayers time) per day. Promote the public to maintain essential health guidelines such as wearing masks, washing hands with soap or sanitizer frequently and maintain physical or social distance.

Moreover, arrangements were made for religious activities by adopting strict health guideline issues by the MOH and Department of Cultural and Religious Affairs. The support of MOH was highly significant in this matter. Frequently testing PCR and RAT in a sufficient level in order to observe the current situation of virus spreading and control the prevalence. Through these all efforts taken by the MOH office, the situation in Nintavur has been observed as normalized.

5. Vaccination

There are three types of vaccines permissible or used in Nintavur MOH office, under the guidance of Kalmunai RDHS and direction of Ministry of Health, such as;

1. AstraZeneca
2. Pfizer, and
3. Sinopharm

The Covid-19 vaccination procedure is scheduled like 1st dose, 2nd dose and 3rd Booster Dose in Sri Lanka. Vaccination activities performed in Nintavur MOH area based on age as per priority concern. The details of vaccination (till December 15, 2021) given in the following table 2.

Table 2
Covid-19 Vaccination in Nintavur MOH area

Age	Vaccination
Age 60 and above	3,661
Age 30-59	10,522
Age 20-29	1,381
Age 6-19	-NA-
Age 5 and below	-NA-
Total	15,564

Source: MOH Office, 2021

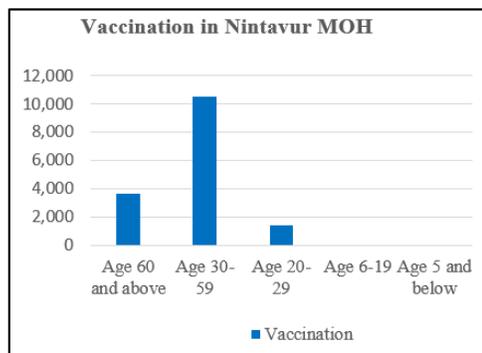


Fig. 3. Vaccination in Nintavur MOH

Even though the government MOH has taken many efforts to vaccinate the people against Covid-19, some people are still not taking at least two doses of the vaccine. It has been observed that recent corona death victims were reported not vaccinated. So, vaccination is an essential matter in the new normal.

An interview had with PHI (of PHI area-I in Nintavur MOH), denotes that;

The first week of the vaccination program, males were not interested in getting the 1st dose of vaccine as they work in many places and rumors about vaccines and some other reasons. Although men participated at a few levels in the vaccination process, after a few weeks, they actively participated and cooperated at a higher level to get the vaccine. In Nintavur, almost all women are interested to engage positively in the vaccination schedules. The vaccination programs have been scheduled and conducted in each school in Nintavur MOH area. So, people were able to visit any nearest school for their vaccination. Moreover, the vaccination schedule was also undertaken as ‘mobile vaccination’ for those who suffer from chronic illness, elderly and pregnancy. The PHIs, Midwives and field staff were actively involved in the mobile vaccination program. In the initial vaccination period, people have had different opinions on various vaccines and associated issues. Subsequently this situation has changed, and a recent report shows that Kalmunai RDHS declared Nintavur MOH is one of the leading public health entities for carrying out vaccination programs (Interview 2, with PHI – Area I). Numerous efforts were taken by the government and public health institutions to provide responsive service to the community and control this health hazard. The role of Nintavur MOH is also to be noted as an effective and noteworthy contribution to ensure the public health from dangerous (different variants of) coronavirus outbreak.

1) Challenges faced by the Nintavur MOH

In the beginning of the coronavirus epidemic, the health staff and people were struggling due to poor knowledge and lack of awareness on the virus. This sudden disaster occurred in Nintavur region during October 2020. Before that people were not serious about it, and they did not expect the arrival of this virus into their own place, but it knocked the door and alerted each and every person on the severity and danger of this infection. People in Nintavur were not aware about it before

October 27, 2020, till the first infected case was confirmed.

Through an in-depth interview with the Senior Public Health Inspector (SPHI), he stated that;

'In Nintavur, Covid-19 spread in three waves. And now the fourth wave is also starting up. Early days Kalmunai RDHS office was identified Nintavur MOH area was non-Covid-19 zone while other MOH areas such as, Akkaraipattu, Kalmunai, Sammanthurai and Addalaichenai were seen as red zones of Covid-19. Covid-19 first and second wave infection in Nintavur MOH area was tested positive for those who work outside Nintavur and those who go for market in the nearest towns like Kalmunai and Akkaraipattu. However, the third wave of covid-19 has observed a sudden outbreak in Nintavur 9th division, which shows 18 infected cases in one day, through testing of PCR and RAT. Meanwhile, other divisions were reported with only a few (one or two) infected cases. Conversely, it was so difficult for identifying infected cases during 2nd and 3rd wave as people were denied to have tests in terms of collecting samples. And also we have only one vehicle, thus we hired three-wheelers for testing PRC and RAT. Yet, the endemic virus has been controlled in Nintavur MOH area at present' (Interview 3, with SPHI).

The people were not supported by public health officers and field workers prior to the first reported case. Even though some cases were confirmed in Nintavur, people were not maintaining any health protocol, and subsequently their movement also was not restricted till the lockdown and curfew enforced by the government.

Another interview had with field staff, who stated that;

'People do not understand the severity of this pandemic and they do not recognize the dedication and commitment of health staff and field workers who are fighting for controlling the spread of this virus. And the health staff were criticized by most of the people (without any medical and or scientific knowledge) in the initial period; this PCR and RAT are not producing reliable results, most tested results are fault-positive, and these tests are not useful and reliable. And some local people alleged that health staff are lying about the infection of the virus, we do not have corona, and health staff have self-benefits when collecting more samples from PCR and RAT. These are scientifically wrong, but In fact, all public health staff and frontline workers have dedicated and sacrificed their life for safeguarding the society from this health emergency' (Interview 4, Field Staff).

Most importantly, fear and tension are other important factors that created many challenges to handle the coronavirus epidemic. Compulsory quarantine for 14 days at the centers established in the outside the district in the early stage (after a few months, the isolation ward or quarantine center was established in Palamunai, Maruthamunai areas in the close proximity). So, people think that if a breadwinner of a household goes for 14 days quarantine that will make financial burden to the family. And also they were afraid to go to the quarantine centers thus most of the people were frightened to inform the health authority about symptoms including fever, cough, runny nose etc. as a result they planned to hide the persons who have such symptoms and also isolated themselves

in their home. When health workers visit and inquire about a particular person, they respond to them 'we do not know', 'we do not have any contact with them' and 'we do not have good communication with them for a long time'. This kind of challenge was also faced by the health staff during the pandemic (the health authority MOH also sent the infected patients to the isolation ward or in the quarantine center established far away from their own place).

Another bitter truth is 'forced cremation' which threatens every person in Sri Lanka especially minorities, particularly Muslims and Christians. Pathetically, this forceful guideline did not permit Muslims, Christians and other religious groups to bury their dead bodies (as death occurred due to Covid-19) and those were cremated forcefully. This violation of human rights also played a crucial role in fear about coronavirus and quarantine, this fear is not medical, but it is associated with psychological, religious and sentimental problems among the public. In fact, forced cremation is the major factor among all communities particularly Muslims in the study area for not informing their illnesses and other health issues during the first and second wave of the coronavirus outbreak.

After many fights, protests, discourse and international pressures, the government stopped the forced cremation for Covid-19 victims by issuing a revised guideline in February 2021, and latterly, separate location or burial ground in Majma Nagar, Oddamavadi, Batticaloa district has been identified for smooth burial of all Covid-19 victims. However, people were cooperate with public health workers after implementing new health guidelines for burial the bodies. And the revised health guideline on home quarantine policy also noted as an important factor that contributes to advancing the higher degree of participation of the local community in the Covid-19 prevention and vaccination activities in the study area.

6. Conclusion

Sri Lanka has been affected by the global outbreak of Coronavirus. Nintavur MOH area also experienced the infection, prevention and implication of this Covid-19 pandemic. Many people in Nintavur MOH area also have suffered from this virus and been victimized in terms of infection, isolation, hospitalization and death. The MOH office, as a responsible public health institution, has taken many initiatives and formulated various approaches to prevent this health disaster from the society. This study revealed that Nintavur MOH entity executed awareness program; continuous stakeholder meetings; conduct discussion with other organizations including civil societies; sufficient testing of both PCR and RAT which randomly and purposively performed; information gathering, tracing out Covid-19 contacts, carrying out quarantine and self-isolation, sending special ward those under difficult condition and handling Covid-19 death. These all efforts have been undertaken well with the direction of MOH and the commitment and dedication of public health staff and field workers.

The public health sector faced a lot of challenges in handling Covid-19 prevalence in the early stages during 1st and 2nd wave of coronavirus rampant. However, after strict lockdown,

travel restriction and commencement of vaccination schedule, the situation became normal. In the new normal, people were advised by the MOH to adhere to health guidelines, maintain social or physical distance, wash hands frequently and wear masks properly in the public and private sphere, in order to prevent and completely eradicate this health calamity from the entire region. This study also has been undertaken to address the prevalence, prevention, vaccination and challenges of Covid-19 encountered in the history of Nintavur MOH. Further, this is an initial study that needs to be documented as a primary information to the future generation and for future researchers.

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