ORIGINAL ARTICLE ASIAN JOURNAL OF MEDICAL SCIENCES

Epidemiological study of COVID-19 in Mizoram, India: Meta-analysis of sociodemographic determinants, risk factors, and outcome

Gracy Laldinmawii[1], Pachuau Lalmalsawma[2], Rebecca Lalngaihzuali[3], Swagnik Roy[4], Zomuanpuii Colney[5], Gabriel Lalchandama[6], Praseena K[7], Jacinta Lalhmunsangi[8], Vanlalhming Thanpuii[9], Lalrinpari Sailo[10], Lalfakzuala Pautu[11], Yogesh Malvi[12], John Zohmingthanga[13], Jane Ralte[14]

[1,8]Assistant Professor, [3,9]Demonstrator, [4]Professor and Head, Department of Microbiology, Zoram Medical College, Falkawn, Mizoram, [2]State Nodal Officer, [11]State Entomologist, [12]State Microbiologist, Integrated Disease Surveillance Programme, Ministry of Health and Family Welfare, Government of India, New Delhi, [5,10]Research Scientist, Viral Research and Diagnostic Laboratory, Zoram Medical College, Falkawn, [6]Assistant Professor, Department of Geography, Pachhunga University College, Aizawl, Mizoram, [7]Biostatistician, Father Muller Research Centre, Father Muller Medical College, Mangaluru, Karnataka, [13]Director, [14]Registrar, Zoram Medical College, Falkawn, Mizoram, India

Submission: 08-11-2022 Revision: 03-12-2022 Publication: 01-01-2023

ABSTRACT

Background: The impact of COVID-19 pandemic has shifted the livelihood of the global community including Mizoram which is located in the north-east region of India. Universal preventive measures have been implemented to reduce the spread of the virus. **Aims and Objectives:** The aim of this study is the epidemiological and clinical characterization of patients infected with SARS-COV-2. The aim of the study was to examine the sociodemographic determinants and risk factors of the disease severity with COVID-19 patients. **Materials and Methods:** A multi-center and cross-sectional study on patients who have been diagnosed and confirmed of SARS CoV2 infection of the Mizo Community. The data were collected by professionals from April 2020 to May 2022. Sociodemographic determinants, clinical presentation, comorbidities, livelihood, alcohol, and tobacco consumptions were described. All data were analyze using SPSS 22 version. The association of the variables with ct value (≤ 25 and >25) of COVID-19 was examined using Chi-square and logistic regression model and $P<0.05$ as statistically significant. **Results:** A total number of 19,25,885 samples were tested among which 2,27,849 cases were diagnosed with COVID-19 from March 24, 2020, to May 12, 2022, in Mizoram. The mean ± SD age of the analytic population was 30.10 ± 19.64 years. Female was more infected and patients between the age of 16–30 years represent the most frequent age group in the population study. About 55.2% were symptomatic patients with mortality rate at 0.30% as of May 12, 2022. **Conclusion:** In this cross-sectional study, a wide range of sociodemographic risk factors, including socioeconomic status, racial/ethnic minority status, household composition, and environmental factors, was significantly associated with COVID-19 incidence and mortality. To address inequities in the burden of the COVID-19 pandemic, these social vulnerabilities and their root causes must be addressed.

Key words: SARS Cov-2; Sociodemography; COVID-19; Risk factors; Mizoram

Access this article online

Website: http://nepjol.info/index.php/AJMS

DOI: 10.3126/ajms.v14i1.49514

E-ISSN: 2091-0576

P-ISSN: 2467-9100

INTRODUCTION

The ongoing COVID-19 pandemic has affected and reached every niche of the globe for the past 2 years. The SARS-CoV-2 virus causing the outbreak was first identified in Wuhan City, China, in 2019. It led to a series of events such as flu like illness, gastrointestinal. and psychological symptoms infecting over 500 million individuals worldwide.

Address for Correspondence:
Dr. Swagnik Roy, Professor and Head, Department of Microbiology, Zoram Medical College, Falkawn, Mizoram, India.
Mobile: +91-7001851547. **E-mail:** swagnik.roy1442@gmail.com

It was declared a public health emergency of international concern by the World Health Organization on January 30, 2020.[1-3]

The tragic event has been documented in various literature.[4-7] In India, the first case of COVID-19 was detected on January 30, 2020 in Kerala and soon after spread throughout the country including the hilly suburban state of Mizoram in the North-east region of India. The first COVID-19-positive case in Mizoram was also detected on the March 25, 2020, after his return from Amsterdam. Initially, mass public health interventions such as face mask were adopted, social distancing, small or large gathering, and inter and intra city commute were imposed by the Government of Mizoram. Soon after, total lockdown was imposed and task force along with other non-governmental organization was formed to contain the spread of the infection.

The health and socioeconomic state also continue to grow in the midst of the pandemic. Understanding the disease is a crucial part of improving and managing the pandemic including optimization of supplies and resources allocations to high risk and severe patients. Few studies on single-center and hospitals were reported;[8-10] hence, more study is needed for evidence support and to strengthen public awareness. This article was intended to provide a larger scale data analysis on the sociodemographic characteristics and risk factors of patients infected with SARS-COV-2 within the Mizo community of North-east India.

Aims and objectives

To study the epidemiological and clinical characterization of patients infected with 28SARS-COV-2. To examine the sociodemographic determinants and risk factors of the disease severity with COVID-19 patients.

MATERIALS AND METHODS

The present study is a descriptive and cross-sectional study which was conducted on COVID-19 patients across the state of Mizoram. The demographic data were collected by trained personals at the time of sample collection from the period of March 24, 2020–May 12, 2022. Individuals were also interviewed using telephone on questionnaire based to elicit required information about the livelihood such as food habit, tobacco, and alcohol consumptions as a risk factor for SARS-CoV-2 infections of the people of the Mizo community.

The state of Mizoram is located in the north-east region of India sharing three state borders with the Seven Sister States, namely, Tripura, Assam, and Manipur and two international borders in the west with Bangladesh and east with Myanmar. Mizoram occupies an area of 21.087 sq.km with variegated hilly terrain and has a population of 1,091,014 which is the second least populous state in India. The literacy rate 91.85% higher than national average. About 1/3 of the population reside in Aizawl district which is the capital of the State. Individuals who were suspected and laboratory confirmed COVID-19 test were prospectively recorded by the health professionals under the guidelines of ICMR and WHO and also registered in the National Registry of COVID-19 which was established in March 2020.[2,3]

Variables

Patient clinical details include age, gender, blood group, recent travels, clinical presentation (fever, cough, anosmia, dysgeusia, diarrhea, chest pain, shortness of breath, comorbidities (obesity, diabetes mellitus, malignancies, malnourished, hypertension, chronic kidney diseases, and immunosuppressive) prone to respiratory infections, and history to exposure to tuberculosis were collected. Other sociodemographic details such as family income, food habits, exposure to smoking, and alcohol consumption were also documented.

Statistical analysis

Descriptive statistics (absolute number and percentage) were used to show the characteristics of the study population. The Chi-squared test was performed to analyze the association of the patients' characteristics with the clinical presentation and livelihood. Risk factors associated with clinical presentation, comorbidities, lifestyle, and respiratory infections were explored by fitting the multivariate logistic regression model to the data. All estimates were examined using IBM SPSS Statistics, version 22 (IBM Corp., Armonk, N.Y., USA), and the significance level was set at $\alpha<0.05$.

The Institutional Ethics Committee approved this study and due to the retrospective nature of the study informed consent was waived. The authors confirm that all methods were carried out in accordance with relevant guidelines and regulations, including the Declaration of Helsinki.

RESULTS

Results of COVID-19 test status in Mizoram, India, as per report by IDSP, Government of Mizoram are summarized in Table 1. Out of 19,25,885 samples, 2,27,849 (11.83%) were tested and confirmed with SARS-COV-2 infection tested using various methods such as fluorescent immunoassay, rapid antigen test, real-time RT-PCR, and TrueNat from March 24, 2020, to May 12, 2022.[11] According to data, the

Table 1: Detailed summary of COVID-19 test status in Mizoram, India, as per report by IDSP, Mizoram

COVID-19 test status in mizoram dated May 12, 2022	Frequency	Percentage
1. Cumulative no. of passengers screened at entry	3, 22,571	16.7
2. Samples tested		
a. Samples tested outside Mizoram	5	
• NICED Kolkata	12	
• Guwahati medical college	41	
• Silchar medical college	58	0.003
Total	13997	0.72
b. FIA test	1445774	75.01
c. Rapid antigen test	373212	19.37
d. RT-PCR	92844	4.8
e. TruNat- PCR Mizoram		
Total cumulative (a+b+c+d+e) samples tested	1925885	
Cumulative no. of positive	227849	11.83
No. of deaths	697	0.31

FIA: Fluorescent immunoassay

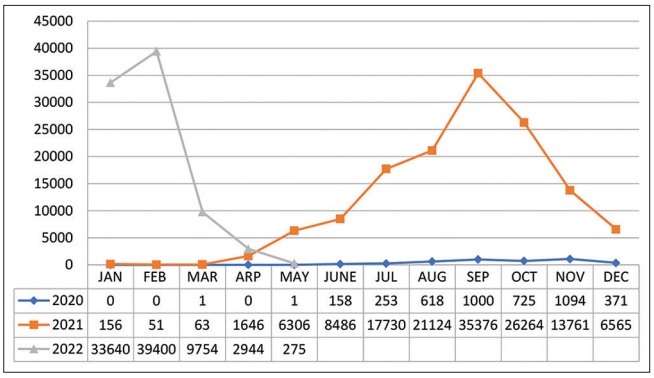

Figure 1: Graph showing number of yearly positive SARS-COV-2 cases

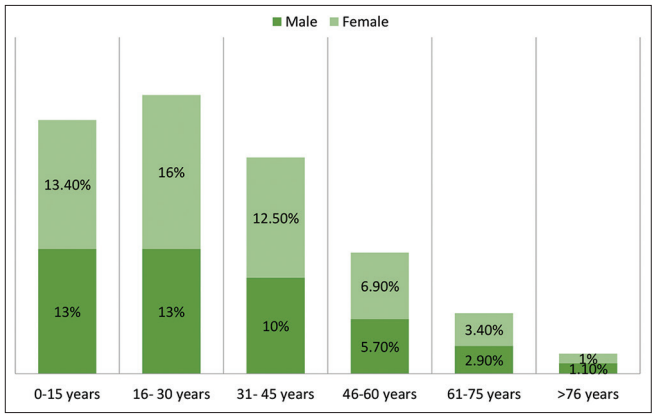

Figure 2: Graph showing distribution of age group among gender in SARS-COV-2 infection

State of Mizoram has experienced two major surges of COVID-19 cases in which the highest peak was observed in February 2022 as shown in Figure 1. The mean±SD age of the analytic population was 30.10±19.64 years (median 28 years). Age group distribution among genders is shown in Figure 2. Female patients were 53.1% which was higher than male and age group of 16–30 years represent the most frequent age group in this study.

About 55.2% of the study population were symptomatic having cold, cough, fever, anosmia, dysgeusia, and shortness of breath. During the time of infection, 28.7% were vaccinated patients and 0.23% of individuals were registered as frontline workers. The mortality rate was 0.30% as of May 12, 2022, in which majority was observed in older age. The infectivity and mortality rate of different district are shown in the illustrated map of Mizoram Figures 3 and 4.

In this cross-sectional study, we have conducted a retrospective telephonic interview during March–April 2021 on a total of 634 patients who were diagnosed with COVID-19. Minors were consented by their parents and supervised during the interview. Among the participants, female 336 (53.4%) were more than male and age group between 31 and 45 years were the highest at 28%.

Detailed results comparing between the association of variables and the cycle threshold (Ct) values of RT-PCR for SARS-COV-2 are shown in Table 2. The logistic regression (univariate and multivariate) analysis was also performed to ascertain the effects of age, gender, clinical presentation, comorbidities, dietary habits, lifestyles, and past tuberculosis infection on the likelihood of severity of COVID-19. The multilogistic regression model was statistically significant, $\chi^2(4)=92.128$, $P<0.0005$. The model explained that 18.7% (Nagelkerke R^2) of the variances in coronavirus disease and correctly classified 68.4% of cases. Fever and anosmia were 2.509 and 2.160, respectively, and were likely to exhibit SAR-COV-2 symptoms than other clinical presentation Table 3.

DISCUSSION

The study was carried out to examine the impact of SARS-COV-2 infections in the Mizo Community located

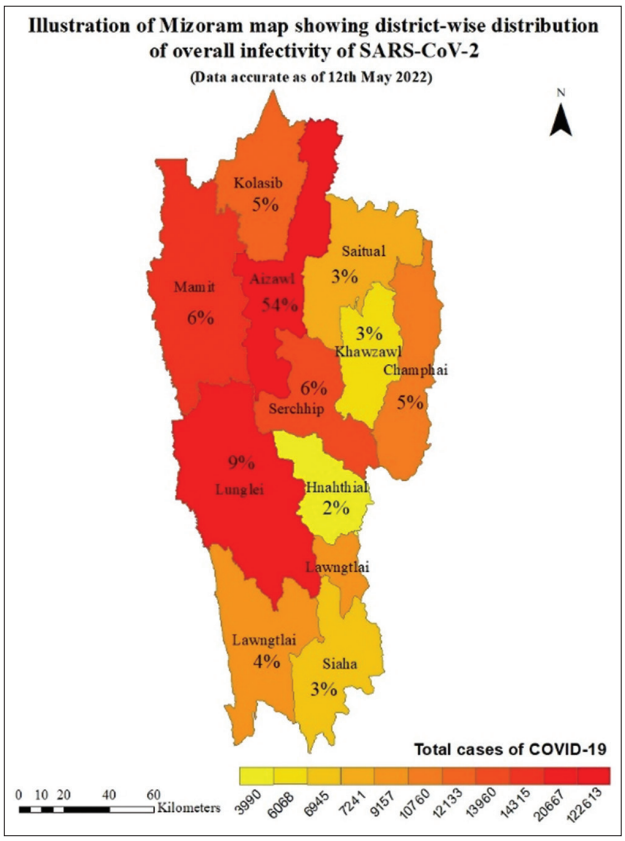

Figure 3: Map showing district-wise distribution of overall infectivity of SARS-COV-2

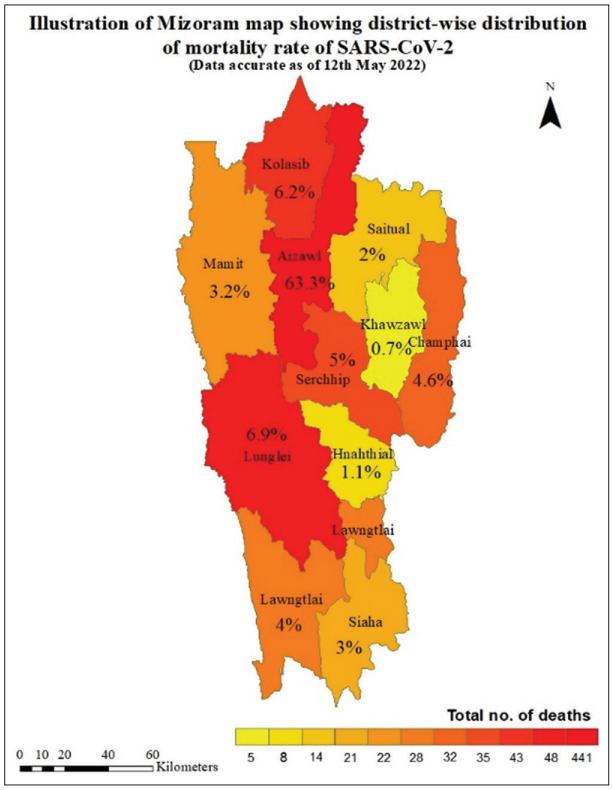

Figure 4: Map showing district-wise distribution of overall infectivity of SARS-COV-2

Table 2: Frequency distribution of the independent variables included in the study

Variables	Frequency	Percentage
Age		
0–15	134	21.1
16–30	188	29.7
31–45	180	28.4
46–60	93	14.7
>60	39	6.2
Gender		
Female	341	53.8
Male	293	46.2
Blood group		
A	89	14
AB	24	3.8
B	158	24.9
O	157	24.8
Recent travels		
No	533	84.1
Yes	101	15.9
Clinical presentation		
Fever	248	39.1
Cough	181	28.5
Anosmia	242	38.2
Dysgeusia	94	14.8
Diarrhea	64	10.1
Chest pain	24	3.4
Shortness of breath	33	5.2
Comorbidities		
Obesity	364	57.4
Diabetes mellitus	34	5.4
Malignancies	4	0.6
Chronic kidney disease	2	0.3
Malnourished	2	0.3
Immunosuppressed	3	0.4
Hypertension	62	9.8
Family income		
<20,000	371	58.5%
>20,000	263	41.4
Food habits (junk food)		
None	185	29.2
Little	280	44.2
Average	116	18.3
Heavy	52	8.2
Non-vegetarian		
None	80	12.6
Little	193	30.4
Average	303	47.8
Heavy	58	9.1
Smoked food (local cuisine)		
None	95	15
Little	136	21.5
Average	141	22.2
Heavy	262	41.3
Vegetarian		
None	37	5.8
Little	129	20.3
Average	278	43.8
Heavy	190	30.0
Alcohol		
None	533	84.1
Little	54	8.5
Average	37	5.8
Heavy	10	1.6
Exposure to smoking		
Occasionally	446	70.3
Continuously	188	29.7
Prone to respiratory infections		
Prone	59	9.3
Sometimes	133	21
Very prone	52	8.2
Past tuberculosis infection		
Yes	31	4.9
No	603	95.1

at the suburban hilly state of Mizoram in the North-east region of India. Our findings show (n=2,27,849) 11.83% positivity out of which 75% of the samples were tested using rapid antigen test and 19.5% using RT-PCR. Before the establishment of the COVID-19 testing laboratory in the state, a total of 58 samples were outsourced Table 4.

Patient's age group in the study was ranging from a few days old to 106 years with mean age of 30.10±19.64 years indicating that there was younger age group infected in the study population which may not be in accordance with other findings.[7] In a recent study, it was reported that pediatric patients age <5 years were more symptomatic and transition was observed from first wave to second wave.[10] Another study reports that older patients with diabetes were high risk of mortality in association with coronavirus disease and CRP may be useful as a test to draw out patients who were at risk of dying during hospitalization.[12] Comorbid patients having immunosuppression, diabetes, and malignancies should be monitored closely.[6,7,13,14] In the present study, clinical symptoms such as fever, cough, anosmia, and dysgeusia were the significant cause of SARS-COV-2 infection and obesity was also observed as a risk factor.

Table 3: Comparison between the association of independent variables and CT value of RT-PCR for SARS-COV-2

Variables	CT value frequency (%)		P=value
	≤25	>25	
Clinical presentation			
Fever	200 (49.1)	46 (20.6)	<0.001
Cough	139 (34.2)	38 (17)	<0.001
Anosmia	191 (46.9)	50 (22.4)	<0.001
Dysgeusia	72 (17.7)	21 (9.4)	0.005
Comorbidities			
Obesity	254 (62.4)	108 (48.4)	<0.001
Vegetarian diet			
None	20 (4.9)	14 (6.3)	0.032
Little	96 (23.6)	35 (15.7)	
Average	181(44.5)	94(4.2)	
Heavy	110 (27.0)	80 (35.9)	
Exposure to smoking			
Rarely	276 (67.8)	169 (75.8)	0.036
Continuously	131 (32.2)	54 (24.2)	
Prone to respiratory infection			
None	267 (65.6)	121 (54.3)	0.014
Mild	77 (18.9)	55 (24.7)	
Moderate	25 (6.1)	26 (11.7)	
Severe	38 (9.3)	21 (9.4)	

Ct: Cycle threshold, P≤0.05

As Zoram Medical College was the only dedicated COVID-19 treating Hospital in Mizoram, it was reported that approximately 71.11% were transferred to the intensive care unit (ICU) and 1.8% died due to coronavirus disease complications.[8] Mortality was observed in patient with the upper age and symptomatic which was observed by Sangzuala et al., and also correlates with the findings of Karagiannidis et al.,[9,15] and Ruan et al.,[16] Shah et al., report that there is no correlation between ct values and severity or mortality with COVID-19 patients.[17] Another study reports that SpO_2 below 90%, hypotension, and tachycardia, at the time of admission in ICU, were considered as predictors of in-hospital ICU mortality in patients infected with SARS-COV-2.[9,11] The oxygen saturation level was relatively low on patients residing in higher elevated areas and huge rise in demand for supplemental oxygen was observed which was also the case in Mizoram is also located in the bed of the Himalayas.[18] Moreover, the risk and severity of the disease vary for each community as it is highly dependent on the lifestyle, personal habits, nutritional status, and comorbidities.[19] In regards to severity of the disease and dietary habits, the gut microbiome is highly susceptible

Table 4: Logistic regression model of independent variables and the Ct- value of COVID-19

Variables	Ct value		Univariate		Multivariate	
	≤25	>25	P-value	OR	P-value	OR
Clinical presentation						
Fever	200 (49.1)	46 (20.6)	<0.001	3.718	<0.001	2.509
Cough	139 (34.2)	38 (17)	<0.001	2.525	0.057	1.614
Anosmia	191 (46.9)	50 (22.4)	<0.001	1.825	<0.001	2.16
Dysgeusia	72 (17.7)	21 (9.4)	0.006	2.067		
Comorbidities						
Obesity	254 (62.4)	108 (48.4)	0.001	1.768	0.212	1.288
Exposure to smoking						
Rarely	276 (67.8)	169 (75.8)	0.036	1.485	0.03	0.636
Continuously	131 (32.2)	54 (24.2)				
Prone to respiratory infection						
Mild	77(18.9)	55 (24.7)	0.029	0.634	0.649	1.183
Moderate	25 (6.1)	26 (11.7)	0.006	0.436	0.09	1.761

Ct: Cycle threshold, OR: Odd ratio

and likely to have an effect on the immune system. Hou et al., report that the upper age patients having severe COVID-19 symptoms were more adherent to vegetarian diet while in another subgroup, other older patients with non-vegetarian diet have higher risk of contracting critically severe issues.[19] Our findings show that vegetarian has a significant association with the Ct-value ≤25 of RT-PCR for SAR-COV-2 but did not predict dietary habits as the risk factor. The lower social economic population were more affected by the pandemic as shown by our data. Earlier study shows that smoking has severe conditions with SARS-COV-2; however, recent studies reveal a protective effect against both blood oxygen saturation level and death in COVID-19 patients.[20] Alcohol and other substance use have increase during the pandemic.[21] Ismael et al., report that there is no association for of active phase of COVID-19 and pre-COVID tobacco use. It was reported that alcohol consumption was associated with clinical presentation such as anosmia or dyseugia and congestion.[22]

As the capital district, Aizawl has highest quarantine facilities (388) and capacity (5825) for treating COVID-19 cases with 54% infectivity rate as shown in the map (Figure 3).[11,23] Three type of quarantine facilities were establish, namely, government, community, and hotel or paid QF. Other QF available in the state of Mizoram was described by Zothantluanga et al.[4,5]

Limitations of the study

In this present study many important laboratory parameters that may predict disease outcome were not evaluated. COVID-19 treatment and follow up also not documented. Further monitoring and follow up of the patients will add valuable data to the study.

CONCLUSION

The raw data have been extracted and relied on various sources of existing data; therefore, the assessment of factors associated with the outcome of COVID-19 patients was limited to available information. It is important to note with caution stating the nature of the present study to draw conclusion about the outcome. However, the present study is the first large-scale and cross-sectional study resulting in a more dependable interpretation. More investigations are required due to the lack of scientific evidence and also to determine public health strategies that focus on vulnerable groups along with creating awareness for physicians.

ACKNOWLEDGMENT

The authors would like to acknowledge the Pu Ruatkima, Minister of Information and Public Relations, Government of Mizoram for providing the necessary data. The authors would like to acknowledge the Dr. R. Lalthangliana, Minister of Health and Family Welfare, Government of Mizoram for facilitating the our research.

REFERENCES

1. World Health Organization. Timeline: WHO's COVID-19 Response. Geneva: World Health Organization; 2020. Available from: https://www.who.int/emergencies/diseases/novelcoronavirus-2019/interactive-timeline [Last accessed on 2022 Mar 28].
2. World Health Organization. Naming the Coronavirus Disease (COVID-19) and the Virus that Causes it. Geneva: World Health Organization; 2020. Available from: https://www.who.int/emergencies/diseases/novel-coronavirus2019/technical guidance/naming-the-coronavirus-disease-(covid-2019)-and the-virus-that-causes-it [Last accessed on 2020 Feb 11].
3. World Health Organization. Coronavirus Disease (COVID-19) Pandemic. Geneva: World Health Organization. Available from: https://www.who.int/emergencies/diseases/novel coronavirus-2019 [Last accessed on 2021 Jun 14].
4. Directorate of Information and Public Relations. Mizoram Statistics. Mizoram: Directorate of Information and Public Relations. Available from: https://www.mcovid19.mizoram.gov.in [Last accessed on 2022 Mar 28].
5. Zothantluanga JH, Lalthanzara H, Shakya A and Lalmawizuala JH. COVID-19 incidence in Mizoram, India. Sci Vis. 2020;20(3):93-105.
6. Zothantluanga JH, Lalthanzara H, Shakya A and Chetia D. The Outbreak of COVID-19 in Mizoram, India. Assam, Rizug; 2020. Available from: https://www.researchgate.net/publication/347947640_the_outbreak_of_COVID-19_in_Mizoram_India [Last accessed on 2022 Dec 25].
7. Li J, Huang DQ, Zou B, Yang H, Hui WZ, Rui F, et al. Epidemiology of COVID-19: A systematic review and meta-analysis of clinical characteristics, risk factors, and outcomes. J Med Virol. 2021;93(3):1449-1458.
https://doi.org/10.1002/jmv.26424
8. Sohrabi MR, Amin R, Maher A, Bahadorimonfared A, Janbazi S, Hannani K, et al. Sociodemographic determinants and clinical risk factors associated with COVID-19 severity: A cross-sectional analysis of over 200,000 patients in Tehran, Iran. BMC Infect Dis. 2021;21(1):474.
https://doi.org/10.1186/s12879-021-06179-4
9. Zuala S, Vankhuma C, Varte Z , Anusuya GS and Pachuau L. A retrospective analysis of COVID-19 positive patients admitted in a tertiary care hospital wards in Mizoram, India. Asian J Med Sci. 2022;13(4):11-17.
https://doi.org/10.3126/ajms.v13i4.42750
10. Sailo L, Lalnundiki, Sailo S, Zodinpuia M, Anusuya GS, Lalramthara I, et al. Factors associated with mortality among COVID-19 patients admitted in an intensive care unit at a tertiary care setting: A retrospective study from Mizoram, India. J Clin Diagn Res. 2022;16(1):UC22-UC26.
https://doi.org/10.7860/JCDR/2022/52500.15860
11. Fanai EL, Khiangte Z, Chhakchhuak L, Anusuya GS, Patki SM, Ralte JL, et al. Retrospective study of COVID-19 positive paediatric patients admitted in a tertiary care hospital, Mizoram, India. I J Neo Med Res. 2022;10(2):PO01-PO05.
https://doi.org/10.7860/IJNMR/2022/54854.2333
12. Chen Y, Yang D, Cheng B, Chen J, Peng A, Yang C, et al.

Clinical characteristics and outcomes of patients with diabetes and COVID-19 in association with glucose-lowering medication. Diabetes Care. 2020;43(7):1399-1407.

https://doi.org/10.2337/dc20-0660

13. Nikpouraghdam M, Farahani AJ, Alishiri G, Heydari S, Ebrahimnia M, Samadinia H, et al. Epidemiological characteristics of coronavirus disease 2019 (COVID-19) patients in Iran: A single center study. J Clin Virol. 2020;127:104378.

    https://doi.org/10.1016/j.jcv.2020.104378

14. Sinha V, Kalita PP, Dutta AJ, Sarma P, Dutta H, Sarma P, et al. Epidemiological and clinical profile of Covid 19 patients in a tertiary care hospital: A retrospective analysis. IOSR J Dent Med Sci. 2020;19(11):16-23.

    https://doi.org/10.9790/0853-1911061623

15. Karagiannidis C, Mostert C, Hentschker C, Voshaar T, Malzahn J, Schillinger G, et al. Case characteristics, resource use, and outcomes of 10 021 patients with COVID-19 admitted to 920 German hospitals: An observational study. Lancet Respir Med. 2020;8(9):853-862.

    https://doi.org/10.1016/S2213-2600(20)30316-7

16. Ruan Q, Yang K, Wang W, Jiang L and Song J. Clinical predictors of mortality due to COVID-19 based on an analysis of data of 150 patients from Wuhan, China. Intensive Care Med. 2020;46(5):846-848.

    https://doi.org/10.1007/s00134-020-05991-x

17. Shah S, Singhal T, Davar N and Thakkar P. No correlation between Ct values and severity of disease or mortality in patients with COVID 19 disease. Indian J Med Microbiol. 2021;39(1):116-117.

    https://doi.org/10.1016/j.ijmmb.2020.10.021

18. Hawkins D. Social determinants of COVID-19 in Massachusetts, United States: An ecological study. J Prev Med Public Health. 2020;53(4):220-227.

    https://doi.org/10.3961/jpmph.20.256

19. Hou YC, Su WL and Chao YC. COVID-19 illness severity in the elderly in relation to vegetarian and non-vegetarian diets: A single-center experience. Front Nutr. 2022;9:837458.

    https://doi.org/10.3389/fnut.2022.837458

20. Vardavas CI and Nikitara K. COVID-19 and smoking: A systematic review of the evidence. Tob Induc Dis. 2020;18:20.

    https://doi.org/10.18332/tid/119324

21. Murthy P and Narasimha VL. Effects of the COVID-19 pandemic and lockdown on alcohol use disorders and complications. Curr Opin Psychiatry. 2021;34(4):376-385.

    https://doi.org/10.1097/YCO.0000000000000720

22. Ismael F, Zaramella B, Battagin T, Bizario JC, Gallego J, Villela V, et al. Substance use in mild-COVID-19 patients: A retrospective study. Front Public Health. 2021;9:634396.

    https://doi.org/10.3389/fpubh.2021.634396. Erratum in: Front Public Health. 2021;9:703562.

23. Directorate of Information and Public Relations. District Daily Report on Status of Government Quarantine Facilities as on 01-08-2020 Time: 4:00pm. Mizoram: Directorate of Information and Public Relations; 2020. Available from: https://www.dipr.mizoram.gov.in/post/district-daily-report-on-status-of-government-quarantine-facilities-as-on-01-08-2020-time-400pm

Authors' Contributions:
GL- Study design, data acquisition, data analysis, data interpretation, and manuscript writing manuscript editing; **PL-** Concept, study design, data analysis, data interpretation, manuscript editing, and manuscript finalization; **RL-** Concept, study design, data analysis, data interpretation, manuscript writing, manuscript editing, and manuscript finalization; **SR-** Study design, data interpretation, manuscript writing, and manuscript editing; **ZC-** Data acquisition, data analysis, and manuscript writing; **GL-** Data analysis; **PK-** Data analysis; **JL-** Concept, study design, data analysis, data interpretation, manuscript editing, and manuscript finalization; **VT-** Concept, study design, data analysis, data interpretation, manuscript writing, manuscript editing, and manuscript finalization; **LS-** Study design, data interpretation, manuscript writing, and manuscript editing, **LP-** Data acquisition, data analysis, and manuscript writing; **YM-** Data acquisition, data analysis, and manuscript writing; **JZ-** Data acquisition, data analysis, and manuscript writing; and **JR-** Data acquisition, data analysis, and manuscript writing.

Work attributed to:
Department of Microbiology, Zoram Medical College under VRDL project sanctioned by ICMR DHR, India.

Orcid ID:
Pachuau Lalmalsawma - https://orcid.org/0000-0002-4674-8108
Rebecca Lalngaihzuali - https://orcid.org/0000-0002-3080-219X
Swagnik Roy - https://orcid.org/0000-0001-8087-969X
Praseena K - https://orcid.org/0000-0003-4768-6567
Jacinta Lalhmunsangi - https://orcid.org/0000-0002-7458-3056
Lalrinpari Sailo - https://orcid.org/0000-0002-7677-4884
Lalfakzuala Pautu - https://orcid.org/0000-0003-4889-5985
Yogesh Malvi - https://orcid.org/0000-0003-2078-6859
Jane Ralte - https://orcid.org/0000-0002-4671-2201

Source of Support: Nil, **Conflict of Interest:** None declared.