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Pharmacology

KNOWLEDGE ABOUT COVID-19 MEDICATIONS: A PRE-ADMISSION ANALYTICAL STUDY IN CORONA SCREENING CENTRE

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ABSTRACT

OBJECTIVE: This study aimed to assess the knowledge of newly diagnosed COVID-19 positive patients about the medications in the management of COVID-19 and and to evaluate their level of anxiety and the mental health status.

METHODOLOGY :This observational study was done with newly diagnosed COVID-19 patients attending Outpatient Department of a Covid screening Centre, Chennai for a period of 2 months from November to December,2020. .Individuals who fulfilled the inclusion criteria were selected and they were assessed for their knowledge about medications in the management of COVID-19 using a questionnaire through telephonic conversation. Graph Pad prism 7 was used for descriptive analysis.kruskal wallis test was used to to compare and determine which group dominates the other.

RESULTS : Majority of patients were having adequate knowledge about COVID-19 through mass media(48%)and Health care workers(35%). Higher educational status of participants were associated with better knowledge scores(p<0.01).All participants were having <3 in Covid severity scoring. Of the total 200 patients, high proportion of patients were aware of kabasura kudineer and multivitamin tablets containing zinc supplements as they were issued to them by healthcare workers .Among them 39% answered that siddha medicines are the best choice in the management of COVID-19 and 55%answered that taking multivitamin tablets containing zinc supplements aids in the improvement of health status. About 35% were aware of antibiotics such as Azithromycin and 19% of patients answered that there is no need of any medications for COVID-19.Few invalid responses related to the use of herbal food products like garlic were noted. Using GAD-7 scoring, among the newly diagnosed COVID-19 positive patients, 69% felt anxious.

CONCLUSION: As COVID-19 is a pandemic, it is essential to improve the knowledge about medications among general public for proper management of illness. Most of the participants are having average knowledge about basic management of the illness, which reflects the responsibilities and steps taken by Health care workers, government and media.

KEYWORDS : COVID-19,healthcare workers, knowledge, medications, anxiety

INTRODUCTION:

The global pandemic of novel corona virus disease caused by severe acute respiratory syndrome corona virus 2 (SARS-CoV-2) was initially reported to WHO on December,2019[1].Since then, a no. of drugs continued to be investigated and developed. A number of studies has been done to assess the knowledge of public about the prevention and spread of COVID-19.The knowledge about drugs which are prescribed for COVID-19 affected patients and the importance of taking those drugs is assessed in this study. On 5th January, 2021, more than 83 million reported cases and nearly 1.8 million deaths have been reported in more than 200 countries[2].

The entire globe is facing a dangerous pandemic due to the corona virus disease (COVID-19). The medical and scientific community is trying to figure out and adopt effective strategies that can lead to preventing virus expansion, identifying medications for the management of critical care and reducing rates of mortality. More than 300 active clinical treatment trials including medications such as Chloroquine. remdesivir and lopinavir / ritonavir are underway[3].

A basic pillar to facilitate obtaining excellent results in pharmacotherapy lies in adequate knowledge of patients regarding their own pharmacological treatment. Because of this, patients´ knowledge on their medication is a key part to minimize the appearance of Negative results associated with medications.In addition to the pathological and medical fatalities , economic consequences, the psychological dimension of the COVID-19 pandemic is also discussed increasingly and is visible in public life

With this background, this study aimed to assess the knowledge of newly diagnosed COVID-19 positive patients about their medications and to evaluate their level of anxiety and the mental health status.

METHODS :
Study Design and Study population :

An Observational study was conducted to assess the knowledge of newly diagnosed COVID-19 positive patients about their medications in the management of COVID-19.The study population was all patients attending OPD of a Covid Screening Centre and those who fulfilled the inclusion criteria.

Study variables :

The dependant variables were questionnaires and scales to assess the knowledge and level of anxiety. The independent variables were Age,Sex,education status, History of smoking and other symptoms of COVID-19.

Inclusion Criteria :
- Positivity at Reverse Transcriptase –Polymerase Chain reaction(RT-PCR) per SARS_CoV2 (nasopharyngeal swabs)
- Consent to participation to the study and to the processing of personal data
- COVID-19 Severity Score < 3
- Patient able to take oral drugs
- 18 years and older
- Patients who are stable as an outpatient or have no evidence of oxygen requirement or pneumonia by imaging can generally be managed with supportive care alone.

Exclusion Criteria:
- Age</= 18
- Those who are not willing to give informed consent.
- Those who are not willing to undergo any intervention ,though they need therapy

Sample Size and Sampling Technique :
The sample size was calculated for a minimum expected difference in a parameter, dyspnea as 7.84%(Minping Zhang et.al; An emerging marker predicting the severity of COVID-19: Neutrophil-Lymphocyte Count Ratio; DOI: https://doi.org/10.21203/rs.3.rs-28850/v1). For a

power of 90%.significance level 5%,10% attrition, we required a sample size of 99.taken as 200.The sample size was calculated by openepi.com.

Ethical Consideration :
This study was conducted after getting approval from Institutional Ethics Committee, Govt. Stanley medical college, Chennai. The participants recruited to the study were informed about the objectives of the study. Informed consent forms written in regional language were given to every patient, who were willing to participate in the study.

Data collection procedure:
Demographic data (Age,sex,educational status) , clinical data(History of smoking,cough,expectoration,headache,sorethroat,fever, weakness,anosmia,diarrhea) and laboratory parameters (SpO2, Neutrophil Leucocyte Ratio, Chest X-ray) were collected from patients screening form. COVID-19 Severity Scoring was done for newly diagnosed COVID19 positive patients- min value 1 ("no limitation of activities), max value 8 ("death"). Higher scores mean worse outcome The data were collected by the structured questionnaires by asking through telephonic conversation. The questionnaire was first prepared in English ,then was translated into local language to collect the data.

The knowledge questionnaire is prepared based on the 'Awareness Material' regarding COVID-19 being propagated by the Ministry of Health and Family Welfare, Government of India[4]. Each question was provided with three options, 'True/False/Do not know'.The Generalized Anxiety Disorder-7(GAD-7) has been validated as a diagnostic tool and a severity assessment scale, having good diagnostic sensitivity and specificity. Greater GAD-7 scores correlate with more functional impairment[5].

Data analysis and Interpretation :
After data collection, the responses were entered into Microsoft Excel and cross checked for presence of any error to maintain its accuracy.
• Descriptive statistics was applied to calculate proportions and frequencies.
• Kruskal wallis test was used to compare and determine which group dominates the other with significance of *$p<0.005$
• The study results were presented by using tables and graphs.

RESULTS :
Demographic Characteristics of the study participants:
A total of 200 COVID positive patients participated in the study. The age of the participants ranged from 19 to 69years.Majority of the participants were in the age group of 21 to 30years.Among them, 67% were males and 33% were females. All patients were having <3 in the COVID severity scoring. Regarding the educational status of the participants, majority were graduates(n=64,32)followed by matric, higher secondary, postgraduates and illiterates. Demographic characteristics of participants are detailed in Table 1

Table -1:Demographic characteristics of patients

| VARIABLES	CATEGORIES	PERCENT(%)
Age(years)	18-20	10
	21-30	33.5
	31-40	19.5
	41-50	18
	>50	20.5
Gender	Male	67
	Female	33
Educational status	Postgraduate	7
	Graduate	40
	Educated up to 12th standard	21
	Educated up to 10th standard	23.5
	Illiterate	4
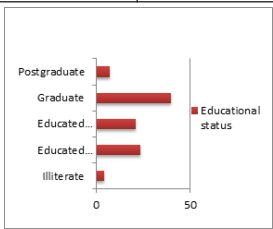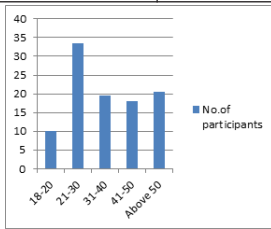
Fig-1:Age distribution   Fig-2:Educational status

Source of information :
Participants were also inquired about the source of valid and reliable information about medications in the management of COVID-19. The main sources of information was social media (Face book, WhatsApp, YouTube, Instagram) (n = 96 , 48%) followed by information from Health Care Workers ,news media (TV/video) .Remaining participants reported that they got the information through print media (magazines, newspapers), and other sources. Details of above mentioned sources of information are represented in Fig. 3
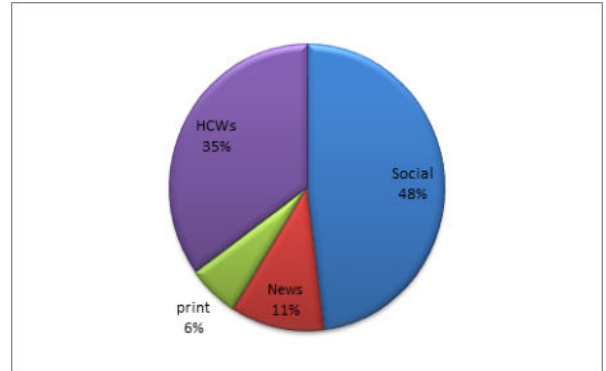
Fig-3:Source of information

Table-2:Clinical findings of participants at the time of diagnosis

VARIABLES		NO.OF PARTICIPANTS	PERCENT(%)
Smoking habit		130	65
H/O Cough		107	53.5
Expectoration		73	36.5
Sore throat		55	27.5
Headache		42	21
Fever		88	44
weakness		170	85
Anosmia		154	77
Diarrhoea		67	33.5
CXR	WNL	59	29.5
	BVM	80	40
	Infiltrations	36	18

Table-3:clinical parameters of newly diagnosed covid patients

VARIABLES	MEAN+/-S.D
SpO2	98+/-0.9
Neutrophils	3.22+/-1.45
Lymphocytes	1.55+/-0.75
NLR	2.34+/-1.24

Assessment of Knowledge:
The subsequent questionnaire illustrates the knowledge of the participants about novel COVID infection, medications and preventive measures.

Questions	True (%)	False (%)	Do not know(%)
1)People with corona virus disease have fever, tiredness, dry cough, shortness of breath	90	3	7
2)People can catch the infection from others who have the virus	86	14	-
3)You can catch the corona virus, if you touch the face,eye,nose,mouth after touching objects and surfaces where corona virus is present	53	42	5
4)Taking Multivitamin tablets along with Zinc can supplement in the improvement of health	55	34	11
5)Taking Antibiotics will be the best choice in the management of COVID-19	35	50	15
6)Taking Siddha medicines will be the best choice in the management of COVID-19.	39	47	14
7)At present there is no vaccine/effective treatment for COVID-19	34	44	22
8)There is no need of any medications	19	80	1

| 9)Do you think that regular Hand washing, and use of masks can protect you from corona virus | 89 | 11 | - |
| 10)Avoiding Crowded places and maintaining a minimum distance of 1m from others can prevent the spread of corona virus | 91 | 9 | - |

90% of patients were having knowledge about clinical features of COVID-19. 53% were aware of modes of transmission of the virus.

Participants beliefs towards COVID-19 medications:
About 80% of patients were aware that medications are necessary in the management. We got some invalid responses other than that asked in questionnaire also ,depicted in figure 5
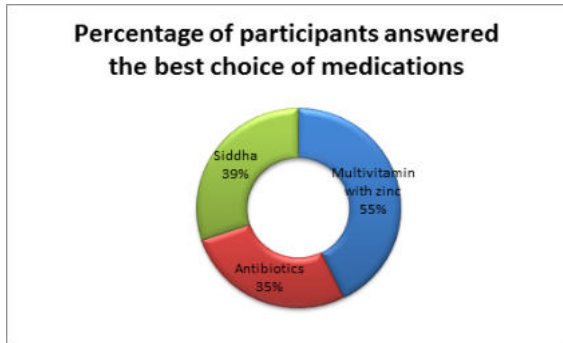
Fig-4:Percentage of participants answered their best choice of medications
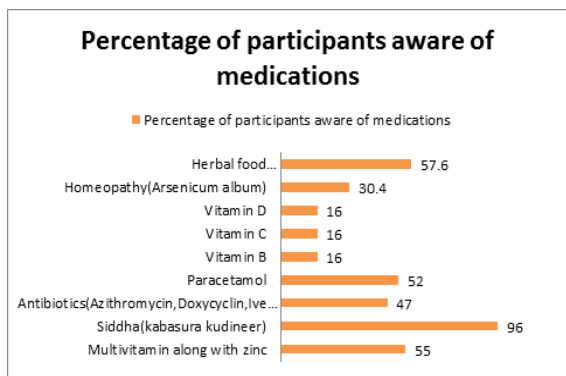
Fig-5:percentage of participants aware of medications

Among them,55% of patients were aware that taking multivitamin tablets with zinc supplement the improvement of their health.47% were aware of antibiotic usage and 35% of patients answered that best choice of management will be antibiotics .96% of patients were aware of siddha medicines(kabasura kudineer) and 39% of them were sure that Siddha medicines are the best mode of management.

57% were taking home made herbal foods such as garlic, turmeric ,ginger, etc., for improving their immunity.52% were knowing that paracetamol was used in the symptomatic patients.30% of patients were taking homeopathy medicines(arsenicum album) prophylactically.

Out of 200 patients,19%(n=38)were not aware of medications and they were having an opinion that there is no need of any medications for COVID-19 symptoms.
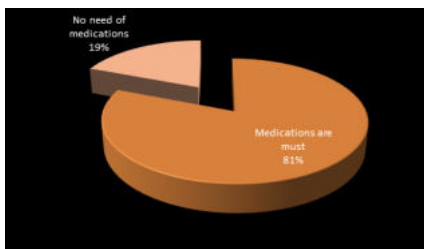
Fig-6:Percentage of participants having opinion that there is need of any medications

Fig-7: showing overall correct rate for the questionnaire used here as 81%,which was calculated as Overall correct rate =8.1/10*100=81%(Total knowledge mean score is 8.1±0.9)
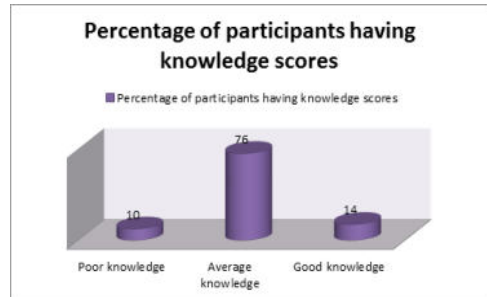
Fig-8:Bar diagram showing percentage of participants having knowledge scores.

Out of 200 patients ,10% were with poor knowledge (Total knowledge score≤4),76% were having Average knowledge(Total knowledge score 5-7) and 14% were having Good knowledge about medications (Total knowledge score8-10).
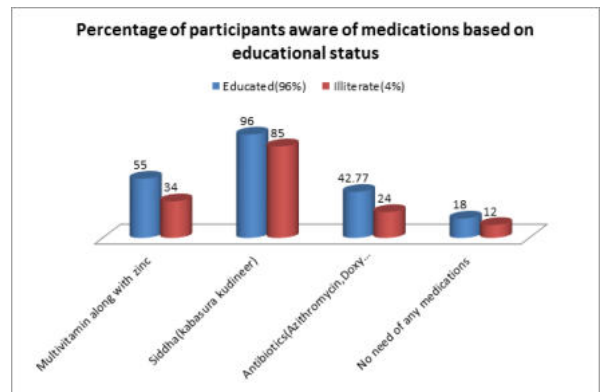
Fig-9: showing knowledge about the use of medications among the participants and compared with their educational status.

Table-4 :Group wise means and the results of the Kruskal-Wallis test on the differences

Educational status	Knowledge scores(Mean± SD)	
Illiterate	3.5±0.2	P value 0.0006
Educated upto 10th std	6.9±0.6	
Educated upto 12th std	7.5±0.2	
Graduate	8±0.9	
Postgraduate	8.5±1.2	

As shown in the table, there is significant difference in knowledge scores across participants with different educational status.

Assessment of level of anxiety:
GAD-7 questionnaire was used to assess the level of anxiety among participants.69% of patients were having higher scores indicating their level of anxiety.
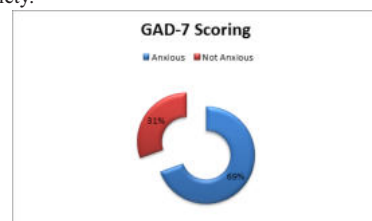
Fig-10:Assesement of anxiety level using GAD-7 scores of the participants.

DISCUSSION:

Focusing the global burden and the greater attention on COVID-19, the present study has been designed to assess the knowledge about medications in the management of COVID-19.

Out of 200 patients,67% were males and 33% were females. Majority of them were in the age group 21-30(33.5%),above 50(20.5%) followed by 31-40(20%) .41-50(18%) and 18-20(10%).

All patients were having less than 3 in the COVID severity scoring which indicates that all patients included in this study were having mild illness , are ambulatory and not in need of hospitalization.

As per the District Human development report, the literacy rate of Chennai is 93.7% as the average Gross Enrollment Ratio at primary education is 100.19% across all zones of the city and our study was conducted in an urban residency, where literates contribute about 96%. Most of the patients were educated up to graduation(40%), 10th standard(23.5%), 12th standard(21%) and postgraduation(7%).About 4% were illiterates.

Our study discovered that, the majority of participants obtained knowledge about COVID-19 from social media 48% and Health care workers(35%)followed by news (11%) and print (6%) . Similarly a study carried out by Bhagavathula AS et al revealed main source of information was social media(61%) and government (33%)[6] .Here, majority of patients comes under the age interval 21-30years and most of them were educated people, their main source of information is social media, which is an unauthenticated source of obtaining evidence about the disease. They should be informed about the authentic sources of information as provided by global health authorities and health ministry of our country.

Large proportion of participants had general knowledge about symptoms(90%) and modes of transmission(86%) of COVID .A study carried out by Abdel hafiz AS et al. stated that 95.9% respondents correctly recognized the transmission modes[7]. Around 53% were clearly understood that corona virus infection can spread by touching face,eyes,nose,mouth after touching objects and surfaces where corona virus present

Regarding knowledge about medications,55% of patients were aware that taking Multivitamin tablets along with Zinc supplements aid in the improvement of health. About 47% patients were aware of antibiotics and 35% of them were in support for taking antibiotics such as azithromycin as their best choice in the management of COVID-19. Siddha medicines such as kabasura kudineer were known to 96% of patients and 39% of them chose this as the best choice. On the other hand ,a study conducted in Bangladesh by Iftekhar Ahmed et al. stated these findings as 24.8% , 31% and 57.6% respectively[8,9].

Since, this study was conducted in the time ,when COVID-19 vaccines were under development, which will be available in the immediate future. Around 44% of patients, predominantly involving graduates and postgraduates were aware that there are effective vaccines for COVID-19 under development. This is in line with the results of a study conducted in Greece by Dimitrios papagiannis stating that among 43% were aware of vaccines[10].There was increase in frequency of positive answers about COVID-19 vaccines observed towards the end of the study.

Out of 200 participants ,19% were saying that there is no need of any medications for illness.

Few invalid responses related to the use of home made herbal food products such as garlic,ginger,turmeric were also noted with 57.6% of the participants. Most of the educated people (30.4%)were taking homeopathy medicines such as arsenicum album as prophylaxis. A study conducted by panyod et al., concludes that dietary therapy and herbal medicine could be a complementary preventive therapy for COVID-19[11].

Majority of participants,89% were aware of preventive measures such as regular hand washing, using masks,avoiding crowded places and 91% patients were aware of maintaining minimum distance of 1m from others can prevent the spread of the disease. This finding is in line with studies conducted among health care workers, where the reported rate is 85.6% and 98.31%[12] respectively.

Using the questionnaire, the knowledge of the patients was poor (<4),average(4-7) and good(8-10)among 10%,74% and 14% of the patients. This is in accordance with a study conducted by Rimesh pal et al., with the knowledge of patients as poor(14%),average(74%) and good(12%)[13]

The overall correction rate of the self-made questionnaire used in this study was 81% based on total knowledge scores of the participants.

By comparing the educational status of the patients with their knowledge, out of 96%(n=192) educated patients,55%(n=106) ,96%(n=184) and 42.775(n=82) patients were aware of multivitamin along with zinc supplements ,siddha medicines(kabasura kudineer) and antibiotics respectively.18%(n=36)were in opinion that there is no use of any medications.

Out of 4%(n=8) illiterate patients,34%(n=3),85%(n=6) and 24%(n=2) were having knowledge about multivitamin along with zinc supplements ,siddha medicines(kabasura kudineer) and antibiotics respectively.12%(n=1)were in opinion that there is no use of any medications.

Kruskal wallis test is a non-parametric test used here to determine the dominance of educational status across knowledge scores. Higher educational status of participants were associated with better knowledge scores(*p<0.005)

Out of 200 patients,69%(n=139) were anxious about the COVID-19 infection, as they were all very much aware of its course and complications. A study conducted in Turkey among the public reports that Fear is the most important factor associated with adoption of necessary preventive measures at higher level[14]

CONCLUSION:

As COVID-19 is a pandemic , it is essential to improve the knowledge about medications among general public. Most of the participants with different educational background are having average knowledge about basic medications in the management of the illness, which reflects the responsibilities and steps taken by Health care workers, government and media. Our study finding also highlights the specific aspects of knowledge and perception where the partial or incorrect responses were noted and these areas should be addressed in future through news media ,leaflets and educational campaigns to improve understanding and to correct the myths about COVID-19.

LIMITATIONS:

- Responses of the patients were assessed by questionnaire through telephonic conversation, which may be affected by both interviewers bias and recall bias.
- This was conducted in one Corona screening centre in Chennai. Same results cannot be obtained in other areas especially rural areas.
- The participants of this study were residing in an urban area. on the contrary,66% of native population lives in rural India.[15]

Contribution of authors:

Dr.Tamilmathy E collected the data, performed the analysis and wrote the paper. Dr. Kalaimathi B was the corresponding author collected the data.Dr.Kulandaiammal Ravindren M was the guide of the study ,designed the analysis, gave fruitful discussions, suggestions in the manuscript, Dr.Sharmila B gave suggestions in the manuscript.

REFERENCES:
1) Zhu N, Zhang D, Wang W, et al; China Novel Corona virus Investigating and Research Team. A novel corona virus from patients with pneumonia in China, 2019. N Engl J Med. 2020;382(8):727-733. Doi:10.1056/NEJMoa2001017PubMedGoogle Scholar Cross ref
2) COVID-19 Weekly Epidemiological Update; Data as received by WHO from national authorities, as of 3 January 2021, 10 am CET
3) Ader F; Discovery French Trial Management Team. Protocol for the DisCoVeRy trial: multicentre, adaptive, randomised trial of the safety and efficacy of treatments for COVID-19 in hospitalised adults. BMJ Open. 2020 Sep 21;10(9):e041437. Doi: 10.1136/bmjopen-2020-041437.
4) Ministry of Health and Family Welfare, Government of India. COVID19 India. [Online] Available from: https://www.mohfw.gov.in/ (last accessed on 14th May 2020)

5) R.L. Spitzer, K. Kroenke, J.B.W. Williams, B. Löwe.A Brief Measure for Assessing Generalized Anxiety Disorder: The GAD-7.Arch Intern Med, 166 (10) (2006), pp. 1092-1097

6) Bhagavathula AS, Aldhaleei WA, Rahmani J, Mahabadi MA, Bandari DK. Knowledge and Perceptions of COVID-19 Among Health Care Workers: Cross-Sectional Study. JMIR Public Health Surveill. 2020 Apr 30;6(2):e19160. Doi: 10.2196/19160. PMID: 32320381; PMCID: PMC7193987.

7) Abdelhafiz AS, Mohammed Z, Ibrahim ME, Ziady HH, Alorabi M, Ayyad M, Sultan EA. Knowledge, Perceptions, and Attitude of Egyptians Towards the Novel Coronavirus Disease (COVID-19). J Community Health. 2020 Oct;45(5):881-890. doi: 10.1007/s10900-020-00827-7. PMID: 32318986; PMCID: PMC7173684.

8) Iftekhar Ahmed , Maruf Hasan , Rahima Akter , Bidduth Kumar Sarkar , Marufa Rahman , Md Samun Sarker , Mohammed A. Samad . Behavioral preventive measures and the use of medicines and herbal products among the public in response to Covid-19 in Bangladesh: A cross-sectional study.2020 August; doi: https// doi. org/ 10. 1101/ 2020. 08. 15.20175513;

9) Haque T, Hossain KM, Bhuiyan MMR, Ananna SA, Chowdhury SH, Islam MR, et al. Knowledge, attitude and practices (KAP) towards COVID-19 and assessment of risks of infection by SARS-CoV-2 among the Bangladeshi population: An online cross sectional survey. 2020.

10) Papagiannis, D.; Malli, F.; Raptis, D.G.; Papathanasiou, I.V.; Fradelos, E.C.; Daniil, Z.; Rachiotis, G.; Gourgoulianis, K.I. Assessment of Knowledge, Attitudes, and Practices towards New Coronavirus (SARS-CoV-2) of Health Care Professionals in Greece before the Outbreak Period. *Int. J. Environ. Res. Public Health* 2020, 17, 4925. https://doi.org/10.3390/ijerph17144925

11)) Panyod S, Ho C-T, Sheen L-Y. Dietary therapy and herbal medicine for COVID-19 prevention: A review and perspective. Journal of Traditional and Complementary Medicine. 2020. doi: https://doi.org/10.1016/j.jtcme.2020.05.004.

12) Saqlain M,Munir MM,Rehman SU.Knowledge,attitude,practice and perceived barriers among health care professionals regarding COVID 19:a cross-sectional study from Pakistan.J Hosp Infect.2020;105(3):419-423. https// doi. org/ 10. 1016/ j. jhin. 2020. 05. 007.

13) Rimesh Pal a , Urmila Yadav b , Sandeep Grover c , Banshi Saboo d , Anmol Verma a , Sanjay K. Bhadada .Knowledge, attitudes and practices towards COVID-19 among young adults with Type 1 Diabetes Mellitus amid the nationwide lockdown in India: A cross-sectional survey.Diabetes research and clinical practice.0168-8227.https://doi.org/10.1016/j.diabres.2020.108344.

14) Apisarnthanarak A, Apisarnthanarak P, Siripraparat C, Saengaram P, Leeprechanon N, Weber DJ. Impact of anxiety and fear for COVID-19 toward infection control practices among Thai healthcare workers. Infection Control & Hospital Epidemiology. 2020:1-2. Epub 06/08. doi: 10.1017/ice.2020.280.

15) Rural population (% of total population). [Internet]. [cited 2020 May 12]. Available from: https://data.worldbank.org/ indicator/SP.RUR.TOTL.ZS.

16) World Health Organization. Clinical management of severe acute respiratory infection when COVID-19 is suspected. Updated March 13, 2020. Accessed March 18, 2020. https://www.who.int/publications-detail/clinical-management-of-severe-acute-respiratory-infection-when-novel-coronavirus-(ncov)-infection-is-suspected

17) Minping Zhang et.al; An emerging marker predicting the severity of COVID-19: Neutrophil-Lymphocyte Count Ratio; DOI: https://doi.org/10.21203/rs.3.rs-28850/v1

18) Huang C, Wang Y, Li X, Ren L, Zhao J, Hu Y, Zhang L, Fan G, Xu J, Gu X, Cheng Z, Yu T, Xia J, Wei Y, Wu W, Xie X, Yin W, Li H, Liu M, Xiao Y, Gao H, Guo L, Xie J, Wang G, Jiang R, Gao Z, Jin Q, Wang J. Page 11/14 Cao B.Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. Lancet. 2020;395(10223):497–506. DOI: 10. 1016/S0140-6736 (20)30183-5.

19) Cataudella E, Giraffa CM, Marca SD, Pulvirenti A, Alaimo S, Pisano M, Terranova V, Corriere T, Ronsisvalle ML, Quattro RD, Stancanelli B, Giordano M, Vancheri C, Malatino L. Neutrophil-ToLymphocyte Ratio: An Emerging Marker Predicting Prognosis in Elderly Adults with CommunityAcquired Pneumonia. J Am Geriatr Soc. 2017;65(8):1796–801. DOI:10.1111/jgs.14894.

20) Ali I, Alharbi OML. COVID-19: Disease, management, treatment, and social impact. Sci Total Environ. 2020;728:138861-. Epub 04/22. doi: 10. 1016/ j. scitotenv. 2020. 138861. PubMed PMID: 32344226.