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Awareness of COVID-19, Preventive Strategies for the same and Factors affecting Immunity in Adult Community Dwellers with No Medical Background- A Questionnaire Based Study

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ABSTRACT

Background: COVID-19 was declared as pandemic in March 2020. There has been steep rise in the number of cases since then. It's definitely taking more time to get its spread under control than it was anticipated. As there is no specific treatment or vaccine available to help prevent or cure COVID-19, the best way is slow down the transmission of disease by strictly following social distancing, respiratory etiquette and proper hand hygiene.
Objective: The objective was to evaluate the awareness about COVID-19 pandemic, preventive strategies implemented against the same and also factors contributing to immunity in adult community dwellers without any medical background.
Methodology: A questionnaire comprising all three domains was designed using Google forms. It was then circulated among various contacts. Data was collected over a period of one month. Prior informed consent was taken from the participants. The data was then analyzed and represented as descriptive statistics.
Results: 657 forms were submitted in the stipulated time frame and were used for analysis. Overall, the study participants had good knowledge or awareness about COVID-19; preventive strategies that have been implemented against the same and factors that may have an influence on immunity.
Conclusion: Although the awareness about all three domains of the study was found to be good in the study participants, there are certain important aspects like mask disposal technique, over the counter medication, affection of pets etc, which needs to be further emphasized in order to provide better understanding about measures against COVID-19.

Keywords: Awareness, Covid-19, Preventive strategies, Immunity boosters, Questionnaire

INTRODUCTION

Coronavirus belongs to a large family of viruses that can cause illness in humans and animals. Several coronaviruses have been known to cause respiratory infections which range from common cold to more severe diseases like Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS). COVID 19 is an infectious disease which is caused by recently discovered coronavirus, which was unknown before the outbreak began in Wuhan, China in December 2019. This novel coronavirus was named as the severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2, 2019-nCoV) due to its high homology (~80%) to SARS-CoV, which caused acute respiratory distress syndrome (ARDS) and high mortality during 2002–2003 year .Due to its rapid and massive spread, it was declared to be a public health emergency of international concern on 30th January 2020

and later was declared as a pandemic on 11th March 2020. [1]

As per the Indian Ministry of Health and Family Welfare, the first case of COVID-19 in India was reported on 30 January 2020. According to the statistics on official site of the Government of India, on July 08, 2020, the total number of active cases in India was 264944, the number of cured/ discharged cases were 456830, total of 20642 deaths and 1 migrated case. Maharashtra remains to be one of the worst affected states with total number of confirmed cases being 217121.

The time between the exposure to COVID-19 and the onset of symptoms is usually around five to six days but can range from 1-14 days. The most common symptoms of COVID -19 are reported to be fever, dry cough and tiredness. Other reported but less common symptoms include body aches and pain, nasal congestion, headache, conjunctivitis, sore throat, diarrhea, new loss of taste or smell or skin discoloration of fingers and toes. These symptoms are usually mild and develop gradually. Most people develop mild symptoms and recover from the disease without needing hospitalization. Around 1 out of every 5 patients who gets infected with COVID-19 develops serious symptoms including difficulty in breathing. Elderly and people with pre existing medical conditions like hypertension, heart and lung conditions, diabetes, cancer are at a higher risk of developing serious illness, although everyone is at risk of catching COVID-19 and developing serious illness. [1]

The most common mode of spread of this disease is droplet transmission. These droplets can settle on objects and surfaces like tables, doorknobs, handrails and so on. People can catch infection after coming in contact with such surfaces. Hence washing hands regularly with soap and water or using alcohol based hand rub is of prime importance. These droplets are relatively heavy, do not travel too far and sink to the ground. Owing to this reason, maintaining safe distance, social distancing and wearing of mask have been implemented as important strategies against COVID-19. COVID-19 is mainly spread from patients who are symptomatic, but there are reports that indicate asymptomatic transmission too, though exact mechanism is not yet known. [1] Therefore practicing good hand and respiratory hygiene are the most important preventive strategies. Social distancing is also of prime importance. It means maintaining safe distance at least of 1 meter from others. This measure has been proposed and emphasized to be strictly followed by everyone irrespective of being infected or not.

Self isolation is to be followed by patients having mild COVID – 19 symptoms, which do not require continuous medical attention. But in case of worsening of symptoms these patients might need hospitalization. These patients need to follow strict respiratory and hand hygiene techniques as well as maintain proper distance from others in order to avoid further transmission of virus. Self or home quarantine is to be followed by individuals who don't exhibit symptoms but have been exposed to someone with COVID-19. During this period strict monitoring of symptoms and following apt respiratory, hand hygiene and distancing from others is essential. Self quarantine for at least a period of 14 days is advised. [1]

World Health Organization strongly recommends the use of mask by all heath care workers, people with symptoms or those taking care of patients infected with COVID-19. However it is a wise idea to strictly wear a mask, when you step out of your house. Proper disposal of used masks is crucial. They need to be discarded in closed bins and treated according to the protocols set by government. There have been some western, traditional and many home remedies that have been proposed to provide some relief of COVID-19 symptoms. But no medication or vaccine has been proven to be effective in preventing or curing COVID-19 yet. WHO does not recommend self medication or

taking over the counter medications against COVID -19.

It is not very clear yet if there are chances of recurrence of COVID-9 in a person who has already been infected once. It is also yet unclear, if animals or pets can transmit the disease to humans. So it is advisable to follow all precautions while and after handling animals or their food.

Several researches are going on to determine the direct effect of our lifestyle habits on immune system. But following healthy lifestyle will surely help and boost one's immunity. Several factors that can affect immunity are smoking, unhealthy diet, lack of exercise or physical activity, lack of sleep, stress and so on. [2] Acute exercise has been determined as an important immune system adjuvant that helps to stimulate the ongoing exchange of leukocytes between circulation and tissues. [3] Several epidemiologic studies have suggested that regular physical activity is associated with decreased mortality and lower influenza and pneumonia incidence rates. [4]

Currently there is no specific treatment or vaccine available to help prevent or cure COVID-19. Hence the best way to slow down its progression is to try and slow down the transmission of disease. The best way to achieve this goal is by strictly following social distancing, respiratory etiquette and proper hand hygiene techniques.

Health care professionals being on the forefront do realize gravity of the situation and follow all the necessary precautions. But community dwellers with no medical background might not realize the seriousness of this issue unless they encounter it firsthand. As this pandemic will prevail for a long time than it was anticipated, it is of utmost importance to educate community dwellers about the impact COVID-19 can have and also the preventive strategies that should be strictly followed to fight against this pandemic. They should also be made to realize that good immunity is our only weapon against COVID 19. Hence, every possible measure that will help and enhance immunity should be followed.

In order to reach this goal, it is first essential to evaluate the awareness of these issues in non health care professionals or people with no medical background, which in turn will help plan and implement specific strategies for creating awareness. Thus, this study aims to assess the awareness about COVID-19 and the preventive strategies against the same in community dwellers with no medical background.

Many studies have been done to evaluate the awareness of COVID 19, preventive strategies in health care professionals, effects of lock down on psychological and physical activity status. However there is dearth of literature in regards to awareness about COVID 19, its preventive strategies and factors affecting immunity in community dwellers with no medical background. The results of such studies will in turn help to design and implement specific strategies to educate people regarding this pandemic.

The objective of this study was to evaluate the awareness about COVID-19 pandemic, preventive strategies implemented against the same and also factors contributing to immunity in adult community dwellers without any medical background.

MATERIALS AND METHODS

This was a cross sectional study with community being the study setting. The study population involved adult (between age group 18-60 years) community dwellers with no medical background and able to understand English language. Adults with health care background were excluded from the study. Institutional Ethics committee clearance was sought in order to conduct the proposed study. Questionnaire comprising questions to evaluate the awareness about COVID-19 pandemic, preventive strategies planned and implemented against the same and also factors contributing to immunity

was designed using Google form. The awareness domain about COVID -19 included questions regarding the causative agent, modes of transmission, incubation period, specific symptoms, people at risk of developing it, if over the counter medication was advisable, asymptomatic transmission, if this disease was fatal in all cases, availability of an effective remedy, chances of recurrence and if it can be transmitted via pets or animals. Preventive strategies domain included questions on self isolation, home quarantine, social distancing and its importance, respiratory and hand hygiene techniques, mask etiquette and precautions to be followed in case of shopping for essentials. The answers to all these questions were based on the guidelines provided by World Health Organization. [1] Immunity domain included questions regarding the factors that can improve or boost immunity and whether the study participants felt if good immunity was the only weapon we have against COVID -19. The factors included were sleep, nutritious food, sugar intake, water consumption or hydration, supplements, stress and exercise. All the questions were framed in simple English, avoiding medical terms, to enable the study participants understand and answer appropriately. The questionnaire was validated for face validity. As the data collection process was done in the period of lockdown, implemented by the government, the questionnaire had to be circulated via electronic media. All the participants were provided with the subject information sheet and also the informed consent form before filling up the questionnaire. Only those who consented to participate in the study were included. Data collection was done over a period of one month; from May 21 2020 to June 21 2020.All the forms received during this period were considered for data analysis.

Statistical Analysis

Data was analyzed using Excel Office-Version 2019. Continuous variables expressed in terms of mean ± standard deviation. Categorical variables expressed in terms of frequencies and percentage.

RESULTS

Total 657 adults meeting the inclusion criteria participated in the study. Out of the total study participants, 350(53.27%) were males, 306(46.57%) were females and 1(0.15%) participant belonged to the other category. The average age in males was 35.72±13.46 and in females was 34.08±13.39.Table 1 shows the educational qualification of the study participants and Table 2 shows the occupational distribution of the study participants.

Table 1: Distribution of educational qualification of the study participants

Educational Qualification	Number of study participants	Percentage of study participants
Higher secondary education	52	7.91
Diploma	36	5.48
Graduation	336	51.14
Post graduation	225	34.25
PhD	8	1.22

Table 2: Distribution of study participants on the basis of occupation

Occupation	Number of study participants	Percentage of study participants
Student	216	32.88
Homemaker	49	7.46
Employee	300	45.66
Entrepreneur	92	14.00

Awareness about COVID-19 domain: 646 of the 657(98.33%) participants answered correctly that COVID- 19 is caused by a virus and 524 (79.76%) participants answered droplet transmission to be the main mode of COVID-19 transmission. The participants were asked about various symptoms of COVID -19. Figure 1 displays the views of study participants regarding the symptoms in terms of yes and no.

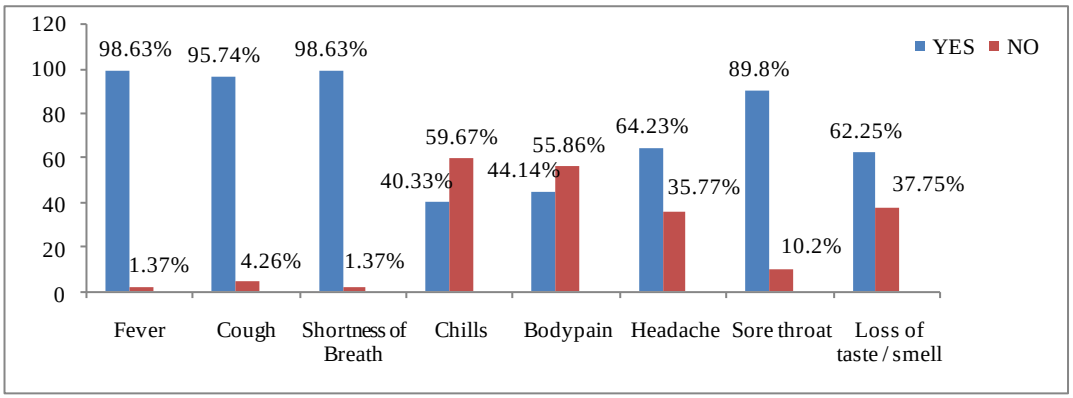

Figure. 1 Distribution of various symptoms of COVID-19

323 (49.16%) participants said that over the counter medication is not advisable for COVID-19 symptoms, whereas 151(22.98%) said it's advisable and 183(27.85%) were not sure if its recommended. 480(73.06%) of the total study participants said that everybody is at risk of developing COVID – 19 and not just infants or elderly or immune compromised. 588(89.50%) of the participants said that people can be asymptomatic even after exposure to Coronavirus, while 18(2.74%) said they can't be asymptomatic and 51(7.76%) were not sure about it. 16(2.44%) participants said that COVID-19 infection results in death in all cases, whereas 623(94.82%) said it's not fatal in all cases and 18(2.74%) were not sure. 633(96.35%) of the participants answered the question regarding incubation period of Coronavirus correctly. When asked about availability of any vaccine or cure for prevention or treatment of COVID-19, 535(81.43%) said that there is no assuring vaccine available, 89(13.55%) and 33(5.02%) said yes and not sure respectively. In case of chances of recurrence, 484(73.67%) said there are chances, 48(7.31%) said there is no chance of recurrence and 125(19.03%) were not sure. 215(32.72%) of the study participants said that pets can get affected by COVID-19 too, 242(36.83%) said no and 200(30.44%) were not sure about the pets getting affected.

Preventive strategies domain: When asked if "self isolation", "home quarantine" and "social distancing" mean the same, 519(79%) said it's not the same, 122(18.57%) said they are same and 16(2.44%) were not sure about it. 615(93.61%) participants said social distancing is an effective strategy in limiting the spread of COVID-19, 16(2.44%) said it's not and 26(3.96%) were not sure. Whether social distancing should only be followed by infected individuals, 577(87.82%) participants said that it should be followed by everyone, not just infected individuals, 76(11.57%) said it should be followed only by infected individuals and 4 (0.61%) of them were not sure. When asked about how frequently they left house to buy essentials, 31(4.72%) participants left home everyday to buy essentials, 182(27.70%) left home once in three days, 309(47.03%) left home once in a week and 135 (20.55%) did not leave home at all as they had someone else to do it for them. The participants were asked about their view on certain respiratory and hand hygiene techniques which have been recommended to minimize the spread of COVID-19; like strictly wearing mask while leaving house, 635(96.65%) participants thought it was necessary to follow it, 642(97.72%) participants thought it was necessary to wash hands with soap and water often. 636(96.80%) participants thought it is necessary to have and use sanitizers in public settings. 622(94.67%) participants said it is necessary to follow hygiene and not touch nose, mouth , face often. When asked about using tissue to cover nose, mouth while sneezing,

coughing, 644(98.02%) participants thought it was necessary to follow this etiquette. When asked about what kind of mask they thought was effective against COVID-19 spread, 346(52.66%)thought mask of any kind would suffice the purpose, 256(38.96%) said N95 mask was effective, 47(7.15%) thought cloth mask was effective and 8(1.22%) participants thought surgical mask was effective. 424(64.54%) participants knew the correct technique of mask disposal. The participants were asked about certain strategies to be followed while shopping for essentials; 654(99.54%) participants thought it was necessary to follow social distancing, 553(84.17%) thought cashless payment should be followed wherever possible, whereas 104(15.83%) participants thought it was not necessary. 630(95.89%) participants thought limiting store visit was essential. 470(71.54%) were in favor of shopping online and 187(28.46%) were not in favor of online shopping. 632(96.19%)participants thought it was necessary to follow proper sanitization of purchased goods.

Immunity domain: The participants were asked if they thought immunity was affected by the given set of factors. Figure 2 represents the response of study participants about these various factors.

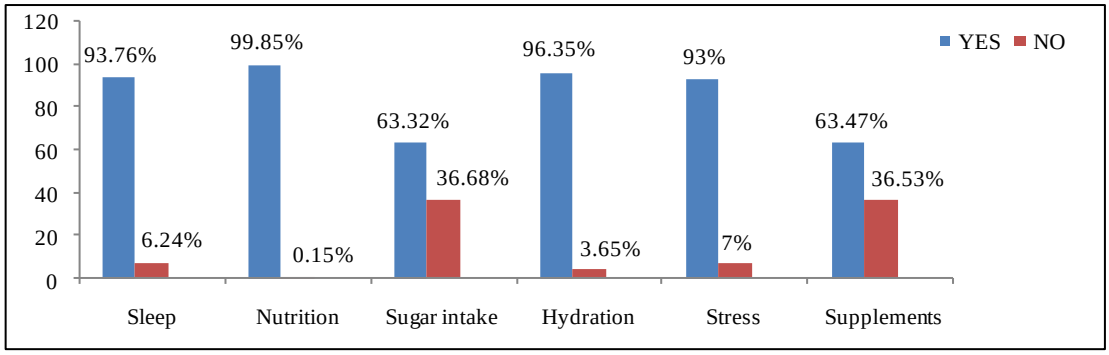

Figure.2 Distribution of various factors that can affect immunity

617 (93.91%) study participants were of an opinion that regular exercise can improve immunity, whereas, 13(1.98%) and 27 (4.11%) said exercise cannot improve immunity and were not sure, respectively. The participants were asked if they felt, good immunity is our only weapon in this fight against COVID-19, 408(62.10%) said yes, 155(23.59%) said no and 94(14.31%) were not sure.

DISCUSSION

The results of this study, broadly gives an impression of good knowledge and awareness about COVID-19 pandemic in the study population. In awareness about COVID-19 domain, almost everybody thought of virus being the causative agent of COVID -19 infection. Other aspects that were answered correctly by majority of the participants include details about incubation period, if this infection was fatal in all case, at risk population of developing COVID-19 and the symptoms presented by COVID-19 positive patients.

In case of preventive strategies domain, 615(93.61%) of the study participants thought that social distancing is an effective strategy against the spread of COVID-19. Further, more than 95% of the study participants agreed and thought that all the strategies implemented by Government to curb or minimize the spread of COVID-19 like maintaining social distancing, following strict hand hygiene and respiratory etiquette, wearing mask every time one steps out of the house are very necessary. Most of them were also in agreement of the precautions advised by the government in regards to shopping of essentials, like maintaining social or physical distancing at every point, opting

for cashless payment wherever possible, online shopping wherever possible and thorough sanitization of all the purchased goods. Guidelines regarding grocery shopping emphasize on maintain social distancing , avoid touching your eyes, mouth and nose, practice proper hand hygiene after shopping and also after handling and storing purchased goods. Also to try and sanitize handles of shopping trolleys or baskets before use.

In case of Immunity and related factors domain, majority of them knew about the various factors that can affect our immunity like sleep, nutrition, stress and good hydration. 93.91% of the study participants thought that regular exercise can have a positive effect on our immunity. It has been shown that each exercise bout improves the antipathogen activity of tissue macrophages, results in an enhanced recirculation of immunoglobulins, anti-inflammatory cytokines and so on which cumulatively enhances the immunity and metabolic health. [4]

On the other hand, in the awareness about COVID-19 infection domain, 392(59.67%) study participants did not think of chills as a presenting symptom of covid-19, also 248(37.75%) and 235(35.77%) of the study participants did not think new loss of taste and smell and headache as COVID-19 symptoms. 334(50.83%) of the study participants said they can take or it is advisable or were not sure about taking over the counter medication for COVID-19 symptoms. 442(67.27%) said that pets cannot be infected by COVID-19 or they were not sure. According to WHO or doctors who have been treating COVID-19 patients, it is not at all advisable to take over the counter medication for COVID-19 symptoms, individuals need to approach hospitals or medical facilities in case of any symptoms and not go for over the counter medication. It is also yet unclear if pets can be affected or can transmit the infection to humans. Therefore it is very essential to follow all the hand and respiratory hygiene techniques before, while and after handling pets or their food.

In preventive strategies domain, 138(21%) participants thought "social distancing", "self isolation "and "home quarantine" was the same or were not sure about it. But there is surely difference between these terms and also the criteria by whom it should be followed and the dos and don'ts of each strategy. Also 80(12.17%) study participants thought that social distancing needs to be followed only by infected individuals or were not sure about it, which is so not true. So measures need to be taken for educating community dwellers in this aspect. 233(35.46%) of the total study participants were not aware about the proper techniques of mask disposal, which can be hazardous to many.

In case of Immunity and related factors domain, more than 35% of the study participants did not know about the influence of sugar intake and supplements on immunity, so this can also be propagated which will help people improve their immunity. Supplements should be taken after proper consultation with certified medical doctors. Also only 408(62.10%) of the study participants thought that good immunity is our only weapon in the fight against COVID-19.As there is no definite preventive or curative medicine or vaccine available, having good immunity can help protect us against COVID-19 or at least reduce the severity of infection in case we get infected.

A survey was conducted in order to evaluate the awareness, attitude and actions related to COVID-19 among adults with diverse conditions in United States of America. It was a questionnaire-based study. It concluded that there is a lack of knowledge of COVID-19 in study participants and despite of it, majority of them were not ready to bring in any change in their routine or habits. [5] Modi P et al conducted a study to assess the awareness of COVID-19 in healthcare workers of Mumbai region. This was a questionnaire-based study and they concluded that there

is a need for regular educational interventions for COVID-19 awareness across healthcare professionals. [6] A survey study has also been performed on Indian population which included individuals from various backgrounds and of all ages. This study concluded that there is need for conducting various awareness programs regarding COVID-19 pandemic. [7]

Even though majority of our study participants had good awareness about COVID-19 and its preventive strategies, there are certainly some areas that need to be emphasized to further help the understanding of it and thereby adherence to these measures. Electronic and social media has played a crucial role in educating people about COVID-19.There have been various programs, telephone recordings , notifications and so on that might have contributed to good awareness in the study participants about COVID-19.

As there is no definite treatment of COVID-19 as of yet, following preventive strategies implemented by the government is the only way to curb or minimize the spread of COVID-19. The most effective ways recommended by WHO as preventive measures against COVID-19 include thorough hand and respiratory hygiene, avoid touching eyes, mouth and nose and maintaining safe distance of at least one meter from others. Also, improving immunity is the second way that can prevent or at least reduce the severity of COVID -19. Proper nutrition, adequate sleep and hydration, minimizing stress and regular exercise can help in boosting the immunity. Our immune system is very responsive to exercise. The intensity and duration of exercise reflect the degree of physiological stress imposed on the body. Some of the mechanisms by which regular exercise of moderate intensity can improve immunity are reduction in inflammation, maintenance of thymic mass, enhanced immunosurveillance and amelioration of psychological stress. [8] Thus regular exercise will surely serve to be an important immunity booster.

Strengths

There are many studies that are being done to evaluate the awareness or strategies practiced by health care professionals while dealing with this pandemic. But this study focuses on people with no medical background, which form a large part of our society and will be responsible for the outcome of various strategies that are planned and implemented by the government.

Limitations

As this study was conducted in the period of lock down, it was not possible to personally reach out to people, in order to include people from various strata in the study. Only those who could be reached by electronic media were included in this study.

Clinical Implication

The results of this study might help in further emphasizing certain points which have not been clearly understood by the people, which in turn will help to minimize the spread of COVID-19.

CONCLUSION

Majority of the study participants were aware about COVID-19, preventive strategies implemented against the same and also immunity with the factors that can affect it. There were only some areas like avoiding over the counter medication proper mask disposal technique or difference between social distancing, self isolation and home quarantine that needs to be emphasized and explained to the public which will help them follow and adhere by it in a better way.

Future Scope

Similar studies can be conducted in different age groups and various strata of society.

Conflict of Interest

The authors declare that they have no conflict of interest relevant to this article.

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