Knowledge, Attitude and Practices Regarding "Reverse Quarantine" during COVID 19 Pandemic among Senior Citizens in an Urban Area of Kerala – A Longitudinal Study

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ABSTRACT

BACKGROUND

Elderly people especially those with co-morbidities are considered to be more at risk to suffer from serious infection and complications due to corona virus disease - 19 (COVID 19) infection. The concept of reverse quarantine which ensured minimum contact of vulnerable individuals with others was put forward even from early days of the pandemic. How much the vulnerable individuals were aware of the concept, its practice and the apparent outcome is of interest. This information could be used in designing infection prevention measures.The purpose of this study was to determine the knowledge, attitude & practice regarding "reverse quarantine" among senior citizens.

METHODS

A longitudinal study was conducted in the urban area of Kollam district in Kerala from June 1st 2020 to May 31st 2021 (1 year). The study subjects included 128 individuals above 60 years, residing in the area.

RESULTS

Majority of study subjects had good knowledge and the right attitude regarding reverse quarantine. Regarding correct practices, 70 % of them were following good practices on reverse quarantine. None of them received any assistance from health care providers in ensuring reverse quarantine.

CONCLUSIONS

Improving the practice of reverse quarantine will bring about further protection of vulnerable groups, even after being fully vaccinated.

KEY WORDS

COVID – 19, Risk - Group, Senior Citizens, Self-Protection, Reverse Quarantine.

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BACKGROUND

The world is witnessing today one of the worst public health emergencies in recent times. The report of a cluster of pneumonia cases from Wuhan, Hubei province in China in December 2019 heralded the onset of the pandemic that is wrecking across the world now. Corona viruses are a family of respiratory viruses, named for the crown-like spikes on their surface. They are notorious to mutate quickly and acquire new qualities**.** Commonly, people get infected with human corona viruses 229E, NL63, OC43, and HKU1. Coronaviruses can cause diseases ranging from the common cold to life threatening pneumonitis/ lower respiratory tract infection (LRTI) especially in vulnerable population.[1]

The novel corona virus outbreak (2019-nCov) was declared by the World Health Organization as a public health emergency of international concern (PHEIC) on 21st January 2020. Concerned by the spread, severity and alarming levels of infection, the WHO made an assessment that COVID19 can be characterized as a pandemic.[2]

The causative organism has been identified and named as severe acute respiratory syndrome corona virus2 (SARS Cov2) on 11th February 2020 by the international committee on taxonomy of viruses. The mode of transmission is considered to be via the respiratory route, mainly by droplet infection. The symptoms may appear 2 - 14 days after exposure and may vary in severity. Symptoms include mainly fever, cough with a few having difficulty in breathing or diarrhea. Chest radiographs may show invasive pneumonic infiltrates in both lungs. Severe acute respiratory syndrome, kidney failure or death can occur. On the basis of a case definition requiring a diagnosis of pneumonia, the currently reported case fatality rate is approximately 1.4 % to 2 % amongst patients with wide spectrum of disease severity. This suggests that the overall clinical consequences of COVID19 may ultimately be more similar to that of a severe seasonal influenza (which has a case fatality rate of approximately 0.1 %) and not like that of a disease similar to SARS or middle east respiratory syndrome (MERS), with case fatality rates of 9 to 10 % and 36 %, respectively.[3]

No curative treatment is available. Even fully vaccinated individuals are found to contract the disease even if in a milder form. Based on currently available scientific data, prevention of spread of COVID 19 is considered to be possible through three main measures – using an effective mask, maintaining a distance of at least 6 feet from other individuals and using sanitizer/soap & water to disinfect the hands frequently.[3]

The additional precautions laid down include

1. Follow the culture of 'Namaste'
2. Follow respiratory hygiene / cough etiquette (see above)
3. Maintain safe food practices, i.e eat well-cooked food which has been prepared hygienically
4. Avoid travel, especially international travel unless really necessary.

In addition to these measures, "reverse quarantine" of at-risk individuals is also considered effective. Reverse quarantine aims at keeping individuals who are vulnerable and capable of developing severe disease/death, away from the general public. The vulnerable individuals includes elderly, people with diabetes, hypertension, lung disease, kidney disease, and immunocompromised people.[3]

The elderly constitute 16.5 % of the total population of Kerala. This is the highest proportion among all the Indian states.[4] Their age and the morbidities found commonly in that group make them a high-risk category as far as COVID 19 infection is concerned.[5] The disease tends to be more severe in these individuals. Complications are more. So, we were interested in finding out the awareness of the senior citizens regarding the prevention measures, especially reverse quarantine, and to what extent they are able to practice the quarantine measures.

Objective

To determine the knowledge, attitude and practices regarding 'reverse quarantine' during COVID 19 pandemic among senior citizens of an urban area of south Kerala.

METHODS

This longitudinal study was conducted in an urban area in Kollam district of Kerala from 1st June 2020 to 31st May 2021. The sample size included adults above 60 years who are residents of the study area for the previous one year. Out of the 55 municipal wards, 12 come under the field practice area of Travancore Medical College, Kollam. Out of that, 4 wards were selected randomly for the study.

Sample Size

A pilot study was conducted by the investigators in among 20 households located near the hospital. Practice of reverse quarantine by elderly population was found out as 44 %. Based on this, the sample size was calculated as 128, using the formula: 4pq/d2.

Sampling Technique

32 individuals had to be selected from each ward. As this is an urban area, associations are active in all the places. The residents association functioning in each of these wards were contacted. Since it is a pandemic situation, direct collection of data by visiting households was not possible. So, the contact numbers of all the houses with residents above 60 years of age were collected from the resident's address directories. This was done for all the four selected wards and lists were prepared. Then 32 houses were selected randomly from each of these four wards. If no response was got, the immediate next contact number was reached and data collection was done by the investigator over phone.

Inclusion Criteria

- Persons aged 60 years or more
- Resident of the area for at least past 1 year

Exclusion Criteria

- Not willing to participate in the study.
- People having issues with hearing, speech, seriously ill persons, mentally challenged individuals.

Data Collection

The subjects were contacted over phone and were interviewed by using a pre tested structured questionnaire. They were followed up over phone every 3 months for a period of 1 year.

Follow up was done to find out whether anyone in the study grouo developed COVID – 19 during the 1 year period.

All the participants got 2 doses of Covishield vaccine also during the 1 year period.

2 of the participants developed COVID 19 in1 year period. This was before they got any dose of the vaccine.

1 of them died. That individual had multiple co-morbidities.

All the participants got 2 doses of Covishield vaccine also during the 1 year period.

Statistical Analysis

Data entry was done in Microsoft Excel. Analysis was done using Statistical Package for Social Sciences (SPSS). Frequencies & percentages were calculated. Significance test was done by using Chi square test. A p value of < 0.05 was considered significant.

For assessing the knowledge, attitude and practice score, correct response to at least 80 % of the questions was considered as "good", correct response to at least 50 % of the questions was considered "moderate" and correct response to less than 50 % questions was considered "poor".

Due clearance from the Institutional Ethical Committee (IEC) was obtained and after taking informed consent from the subjects, the study was conducted.

RESULTS

In this study, most (60 %) of the subjects belonged to the 70 - 79 age group. 55 % were graduates. Majority (70 %). 80.4% had one or more morbidities. 5 persons (4 %) were bed ridden individuals.

21 % of the subjects failed to take regular medications even when 98.3 % claim to have had no difficulty in accessing the drugs. As far as ailments are concerned, 65.5 % never had to visit a doctor during the 1-year study period.

Variable	Frequency	Percentage
Age Distribution		
60 - 69	20	15
70 - 79	76	60
80 and above	32	25
Gender Distribution		
Male	49	37.9
Female	79	62.1
Marital Status		
Married	128	77.4
Widowed	29	22.6
Educational Status		
Illiterate	9	7
Primary	33	26
Secondary	18	14
Higher secondary	13	10
Graduate	55	43
Occupational Status		
Never employed	96	75
Previously working & retired now	32	25
Ration card		
White	73	56.9
Blue	35	27.6
Pink	20	15.5
Type of Family to Which They Belong		
Extended	90	70.9
Nuclear	38	39.3
COVID Status at the Start of the Study		
Positive	9	6.9
Negative	119	93.1
Close Contact with COVID Patients		
No	110	86.2
Yes	18	13.8
Co-morbidities among the Participants		
With no co-morbidity	12	19.6
With one co-morbidity	44	34.4
With multiple co-morbidities	72	56
Mobility of Participants		
Bed ridden	5	4
Needs help to move inside the house	12	9
Needs help to move outside the house	28	21.6
Totally independent	83	65.4
Total	**128**	**100**

Table 1. Sociodemographic Characteristics of the Study Population

Variable	Frequency	Percentage
Having Regular Medications		
Yes	101	79
No	27	21
Any Problem in Getting Medications		
Yes	2	1.7
No	126	98.3
Any Problem in Getting Treatment		
Yes	8	6.4
No	120	93.6
Need for Hospitalization in the Past 6 Months		
Yes	31	24.1
No	97	75.9
Need to Visit a Doctor for Minor Ailments in the Previous 6 Months		
Yes	44	34.5
No	84	65.5
Number of Visits to the Doctor		
Never visited	84	65.5
Visited once	28	22
Visited more than once	16	12.5
Total	**128**	**100**

Table 2. Health Care Needs of Study Participants during the Pandemic

Variable	Frequency	Percentage
Place of Reverse Quarantine		
Home	126	98.3
Old age care institution	2	1.7
Number of Members in the House Hold		
1	2	1.7
2	26	20.7
3	22	17.2
4	31	24.1
5 or more	47	36.3
Separate Room		
Yes	113	87.9
No	15	12.1
Separate Bathroom		
Yes	102	79.3
No	26	20.7
Care Taker Present		
Yes	53	
No	75	
Assistance from Health Care Providers		
No	128	100
Yes	0	0
Total	**128**	**100**

Table 3. Facilities for Reverse Quarantine

For 98.3 % subjects, the place of reverse quarantine was their home itself. Majority had the facility of a separate room and bathroom. Care taker was available for 41.4 % of the subjects. Interestingly, none of them reported of any assistance from health care providers during their reverse quarantine.

Variable	Frequency	Percentage
Feeling lonely/sad		
No	82	63.8
Yes	57	36.2
Feeling social isolation		
No	71	55.2
Yes	57	44.8
Total	**128**	**100**

Table 4. Mental Issues during Reverse Quarantine

63.8 % reported feeling sad and 44.8 % felt socially isolated.

Variable	Frequency	Percentage
Correct knowledge of what reverse quarantine means		
Correct	124	96.6
Incorrect	4	3.4
Mode of transmission of covid		
Correct	55	43.3
Incorrect	73	56.7
Entertaining visitors during reverse quarantine		
Correct	119	93.1
Incorrect	9	6.9
Keeping social distance form family members		
Correct	99	77.6
Incorrect	29	22.4
Wear mask while talking to family members		
Correct	71	55.2
Incorrect	57	44.8
Proper reverse quarantine measures during meal time		
Correct	53	41.4
Incorrect	75	58.6
Proper quarantine measures for children as well		
Correct	93	72.4
Incorrect	35	27.6

Table 5. Knowledge of the Study Participants Regarding Reverse Quarantine

Grade of Score	Frequency	Percentage
Good	77	60.3
Moderate	51	39.7
Poor	0	0
Total	**128**	**100**

Table 6. Grades of Knowledge Score

60.3 % of the participants showed good knowledge regarding reverse quarantine measures.

Variable	Frequency	Percentage
Reverse quarantine as a measure to control the pandemic		
Positive attitude	124	96.6
Negative attitude	4	3.4
Reverse quarantine as an effective tool in reducing the personal risk of exposure		
Positive attitude	124	96.6
Negative attitude	4	3.4
Willingness to receive COVID vaccine		
Positive attitude	106	82.8
Negative attitude	22	17.2
Need to continue reverse quarantine even after receiving COVID vaccine		
Positive attitude	106	82.8
Negative attitude	22	17.2
Total	**128**	**100**

Table 7. Attitude of the Study Participants Regarding Reverse Quarantine

Variable	Frequency	Percentage
Good	77	60.4
Moderate	49	37.9
Poor	2	1.7
Total	**128**	**100**

Table 8. Grades of Attitude Score

The attitude to reverse quarantine measures was right in the case of 60.3 % of the participants.

Variable	Frequency	%
Any contact with family members who go out frequently		
No	46	36.2
Yes	82	63.8
Social distancing with family members who go out frequently		
Always	57	44.8
Mostly	33	25.9
Sometimes	22	17.2
Never	16	16
Social distancing with outsiders		
Always	90	70.5
Mostly	38	29.5
Wearing mask while coming into contact with family members who go out frequently		
Always	57	44.8
Mostly	33	25.9
Sometimes	22	
Never	16	
Wearing mask while coming into contact with outsiders		
Always	90	70.5
Mostly	38	29.5
Frequent use of sanitizers/washing hands with soap & water		
Always	68	53.4
Mostly	40	31
Sometimes	16	12.1
Never	4	3.4

Table 9. Practices of the Study Population Regarding Reverse Quarantine

Grade	Frequency	Percentage
Good	89	70
Moderate	26	20.2
Poor	13	9.8
Total	**128**	**100**

Table 10. Grades of Practice Score

A larger proportion of participants were following the correct practices regarding reverse quarantine (70 %) when compared to the proportion having correct knowledge and correct attitude.

All the subjects were vaccinated with 2 doses of Covishied vaccine during the period of I year follow up.

2 subjects out of 128 (1.6 %) developed COVID infection during the study period of 1 year. This was after they received both the doses of vaccine.

One person who had multiple co-morbidities, died of the infection. The other person suffered from a mild infection of COVID 19.

DISCUSSION

Our study found out that only 79 % were taking medicines for their co-morbidities, even though 98.3 % claimed to have faced no difficulty in accessing essential medicines. In a study on the elderly done in Singapore by Cong Ling Teo, Miao Li Chee et al.[6] 88.6 % of the participants had taken their medications regularly during the pandemic period.

Majority of the participants in our study had a separate room and bath room and 41.4 % had a care -giver. In a study conducted by M. Q. Al Sabbagh et al. in Jordan, only 52.4 % of the participants could afford to have a separate room and bath room. Care giver was available for 56 %.[7]

We observed an interesting fact in our study. None of the participants reported as getting help from any health care personnel during their period of reverse quarantine in their homes. On the other hand, a study done by Sulaiman K. M, Muhammed Rishad et al. in Kerala, they found that 96 % of the elderly people in reverse quarantine received adequate help and guidance from the health care personnel.[8]

Even when the physical necessities were met, a considerable degree of mental anguish and unhappiness were experienced by the subjects. In our study, 63.8 % reported

feeling sad. 44.5 % felt socially isolated. Similarly, a study done in Italy by Rodolfo Rossi et al. found out that 53.1 % suffered from a feeling of sadness and 31.7 % felt socially isolated.[9]

In our study, we have included components like mode of transmission of COVID 19, social distancing, contact with many persons, wearing masks inside their homes, measures with children in the house, meal time measures in assessing their knowledge. 60.3 % of the study participants expressed correct knowledge regarding various aspects of the disease. This is impressive, considering the fact that all our study participants are senior citizens.

In a study conducted by A. V Rajendran Jayadevan et al. it was noticed that the attitude score of the study group turned out to be moderately desirable in 70 % of the participants.[10] The study was conducted in rural North Kerala. In our study, 60.3 % scored good with regards their attitude regarding COVID 19 prevention measures. Since our study was conducted in an urban area, it can be assumed that, this better score is due to the better exposure of the individuals in this area to information.[11]

As regards practice, 70 % of the participants are practicing the correct measures of prevention. It is interesting to note that even though their knowledge and attitude regarding prevention measures is good only in 60.3 % of the subjects, 70 % is practicing the prevention measures in the required manner. This is to be appreciated, as all our participants are senior citizens who are vulnerable to get severe COVID 19 infection and complications. Studies conducted by Zhonggen Sun, Binquing Yan et al. in elderly Chinese population agrees with our findings.[12] The high compliance with correct practices by the elderly was observed in other studies like those conducted by Cao, Y, Zhang et al. in China and Chai H C et al. in Melbourne, Australia underlines this finding especially with the urban elderly.[13,14]

CONCLUSIONS

60.3 % of senior citizens had good knowledge and exhibit correct attitude towards preventive measures. It is interesting to note that 70.3 % follow correct practices of prevention measures. This could be improved to 100 % by enhanced application of appropriate IEC measures.

The involvement of health care workers was found to be meagre during the reverse quarantine period. This problem has to be given consideration when more and more people are quarantined.

Data sharing statement provided by the authors is available with the full text of this article at jemds.com.

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