Original Research Article

Perceptions and practices of COVID-19 among the elderly in rural India: A cross-sectional study during the pandemic lockdown

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A B S T R A C T

Background: During the COVID-19 pandemic, the elderly were the worst affected due to their co-morbidities and social and financial dependency. Limited access to resources contributed to the problem.

Objectives: To assess the perceptions and practices regarding COVID-19 in the elderly attending the outpatient department of a government hospital and to assess the socio-cultural problems faced by the geriatric population due to the change in social situation as a result of the ongoing COVID-19 pandemic.

Materials and Methods: A cross-sectional study was carried out using an interviewer administered schedule to assess knowledge, attitude and practices of COVID-19 among 124 elderly who visited the hospital in the study period for various reasons.

Results: The mean age of the subjects was 67.65 years +/- 7.04. Hypertension and diabetes were present among 40.8% and 32.0% respectively. Awareness of common symptoms of COVID-19 was present among 80.6%, awareness of mode of spread among 79.8% and preventive measures among 97.5%. Knowledge of mask as a preventive measure was present among 49.2% of the subjects, reusing the masks was done by 94.3% and covering both nose and mouth was performed by only 57.2%. 78.2% firmly believed that treatment for the disease does not exist. 71.0% felt that social distancing is difficult to accomplish. Vaccine hesitancy was also an important factor unearthed by our study.

Conclusion: Our study found that most of the elderly attending the outpatient clinic were aware of government recommended guidelines concerning COVID -19 safety precautions, but were not following them as per recommendations. We recommend a three-pronged model addressing the issues of citizens, raising awareness on guidelines of COVID-19 prevention and prevention of overcrowding.

1. Introduction

As the COVID-19 pandemic envelopes the globe, a frantic search for a cure has been the goal. But in the meantime, research and data regarding the characteristics of the disease, the target population and preventive methods that decrease infection and improve morbidity and mortality are essential. A lack of knowledge about the disease and strong socio-cultural beliefs has since contributed to disease spread and a subsequent increase in mortality. Due to the highly contagious nature of the disease and the variable period between infection and the onset of symptoms, observing preventive measures, especially isolation and lockdown would be essential.[1] The elderly population and those with pre-existing conditions are more vulnerable to the wrath of this disease. As the epidemiological characteristics of the disease in question were similar to other respiratory virus outbreaks, other pandemics in history were examined, such as the H1N1 pandemic in 2010. In a study[2] done on risk perception and the health seeking behaviour of the general

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population regarding H1N1, only 18% of the population felt that the pandemic directly posed a risk to them, and therefore, were less informed of control measures such as respiratory measures and a vaccine to prevent spread of the disease and reduce the complications.

The population of India above the age of 60 years make up 19% of those affected with COVID-19.63% of the case fatalities due to COVID-19 are above the age of 60 years and 86% of the fatalities in India occurred in individuals with diabetes, hypertension, heart and kidney disease.[3] As the incidence of complications and risk of mortality is higher in the elderly population, it is imperative to know about the level of awareness of COVID-19 disease among this group. Additionally, as this group is a predominantly dependent population, information about their social situation could give us insight into the general attitude and difficulties faced during the pandemic.

2. Methodology

2.1. Study setting and population

The Government District Hospital serves a total population of 5,17,575. Around 10% of the population are expected to be elderly. These elderly access the services of the hospital for both, outpatient and in-patient services for illnesses, follow-up of non-communicable diseases, access to national programmes for tuberculosis (TB) or HIV/AIDS and COVID-19 diagnosis and management. The objectives of our study were to assess the perceptions and practices regarding COVID-19 in the elderly attending the outpatient department of the hospital and to describe problems faced by the geriatric population due to the change in social situation as a result of the ongoing COVID-19 pandemic

2.2. Sample size

We estimated a sample size of 100 by assuming that 50% of our recruited participants would have adequate knowledge of COVID-19, with an absolute precision of 10% the estimated sample size was 100. Participants were selected from the outpatient department of the hospital by consecutive sampling. Patients above or equal to 60 years of age were selected to participate in the study. We excluded those who presented with critical conditions and those who could not comprehend the questionnaire. We interviewed a total of 124 elderly in this study.

3. Ethical Approval

Written permission for conducting the study was obtained from the Administrative Medical Officer of the Study Hospital. Written informed consent was taken from all participants who enrolled in the study. Participants were informed of the anonymity of the information provided by them as well as the results of the study. They were assured that their participation in the study would by no means affect the quality of care they would receive at the hospital.

3.1. Data collection

A face-validated, pre-structured interview schedule was administered to the elderly (≥60 years) attending the outpatient department of the District Hospital. The questionnaire included 3 parts:

1. Socio-demographic details.
2. Clinical details including any co-morbidities, medications for the same.
3. Questions measuring knowledge, attitudes and practices concerning COVID-19.

The responses to the interview schedule for knowledge and practices were assessed as 'acceptable' and 'unacceptable' based on the Information, Education and Communication (IEC) materialprovided by the Government of India[4] and correspondingly scored (1 for every 'acceptable' response and 0 for every 'unacceptable' response) with a total score tallied (maximum score = 13 for knowledge and 5 for practice) at the end.

3.2. Data handling

The data was collected and subsequently collated into a data sheet using Microsoft Excel. Analysis was done using IBM Statistical Package for Social Sciences (SPSS) version 20.0 Continuous variables were described as means and standard deviations and categorical variables as percentages and proportions. Chi-square and 't' tests were performed to assess differences in the characteristics between males and females for the categorical and continuous variables, respectively. Odds ratios (ORs) and 95% confidence intervals (95% CIs) were calculated for the explanatory factors and adjusted for confounding factors. The outcome variables (knowledge and practices of COVID-19 in the elderly) were associated with various socio-demographic factors using relevant tests of significance, after testing for normality of data.

4. Results

The following are the results as per the various sub sections of our face-validated semi structured questionnaire.

4.1. Socio-demographic characteristics of the study population

A total of 124 subjects were interviewed (N=124) in our study with an equal number of males and females. The mean age was 67.65 years with a standard deviation (SD) of 7.064. Majority of the subjects (60%) had completed their secondary schooling and 37.9% were obtaining their monthly income via pension while 29.0% were daily wage

workers, even past the age of 60 years. The median monthly per capita income of our subjects was ₹1000 (one thousand Indian Rupees), thus putting the majority of them into lower class by the modified BG Prasad Socioeconomic status scale.[5] 50.0% of our study population were married, while the rest did not have a partner.

4.2. Clinical profile of the study population

Since the study is a hospital based study, hypertension and diabetes were present among 40.8% and 32.0%. 28.0% of the elderly population interviewed did not have any comorbidities. Musculoskeletal conditions, bronchial asthma, epilepsy, cardiac and renal conditions were present only in a few. Adequate control of these conditions has been shown to be protective in patients contracting COVID-19. Medication adherence is paramount to this, which was supported by 25.6% stating medication refill as their reason for hospital visit. However, a majority (68.8%) presented to the out-patient clinic with symptoms of illness (Table 1).

Table 1: Socioeconomic and clinical characteristics of our study participants (N=124).

Variables	Sex N(%)	
N=124	**Female** (N=62)	**Male** (N=62)
Age(in years)		
60-75	55(50.9)	53(49.1)
76-85	4(30.8)	9(69.2)
>85	3(100.0)	0(0.0)
Marital status		
Married	33(53.2)	29(46.8)
Other (widow/ widower/ unmarried)	29(46.8)	33(53.2)
Education		
No formal education	40(54.8)	33(45.2)
Any education	12(29.3)	29(70.7)
Employed		
Yes	45(60.8)	29(39.2)
No (unemployed/ retired/pensioner)	17(34.0)	33(66.0)
Socioeconomic status (B.G Prasad)		
Lower class (V)	49(48.0)	53(52.0)
Any other class (I-IV)	13(59.1)	9(40.9)
Comorbidities		
Yes	50(56.2)	39(43.8)
No	12(34.3)	23(65.7)
Hypertension		
No	32(43.8)	41(56.2)
Yes	30(58.8)	21(41.2)
Diabetes		
No	40(47.6)	44(52.4)
Yes	22(55.0)	18(45.0)

4.3. Knowledge of COVID-19

In this subsection, we aimed at assessing the level of knowledge of some of the currently known facts about the disease and its epidemiology. Most of the study population were aware of the common symptoms of COVID-19 (80.6%) as well as the mode of spread (79.8%) and preventive measures (97.5%) to be taken against it. 46.7% of them were able to identify vulnerable age groups affected by this disease and 79.8% received their information from credible sources such as government posters in hospitals and public places, the COVID-19 helpline number, national news and radio broadcasts and from healthcare workers. However, only 24.1% knew that COVID-19 pneumonia most commonly presents with mild or no symptoms at all. While 39.5% were aware of the government recommended social distancing protocol, only 60.0% were aware of the government helpline information number and 3.2% were aware of the presence of a fever clinic for symptomatic patients. 37.0% also believed that the virus is killed on sun exposure. A small proportion (22.6%) believed that hand sanitiser was more effective than soap and water. When asked about the knowledge of the COVID-19 vaccine, 81.5% were not aware of the vaccine.

4.4. Attitude toward COVID-19

Wearing a mask alone is not enough to prevent the spread of COVID-19. However, 49.2% of the subjects believed that wearing a mask meant that they would not acquire the infection at all. Social distancing is also extremely important and 71.0% felt that social distancing, especially in the village and home setting, is a difficult feat to accomplish. Most of them (78.2%) firmly believed that treatment for the disease does not exist, while 21.0% were not sure. However, when asked whether they would receive the COVID-19 vaccine, only 44.3% were ready to get vaccinated, while 18.5% were not sure if they would receive the vaccine, raising an important vaccine hesitancy issue.

4.5. Practices regarding COVID-19

Practices concerning the disease were measured as a proportion of people following recommended practices as opposed to those who were not and those with positive approaches to maintaining hygiene. Mask practices were sub-par in the subjects interviewed. Only 57.2% seem to be covering both mouth and nose with the mask. When asked about the inconsistency of mask use, 59.0% pointed out that it was uncomfortable, while 41.0% and 19.0% did not adhere to it due to increased sweating and difficulty breathing respectively. A vast majority (94.3%) were re-using masks, while some (93.5%) also washed the mask before re-use. To add to this, only 2.4% would consciously avoid touching their face and mask. Although 17.7% practiced inadequate cough hygiene, 72.5% were

maintaining adequate social distancing. The practice of handwashing with soap was done by most of the 124 subjects interviewed (90.3%), although the reasons for handwashing do not seem to depend on the pandemic situation but instead only daily activities such as after using the toilet (66.9% of 112 who wash with soap) and before meals (30.3% of those who wash with soap). Only (1.5%) were using hand sanitizer.

In addition, our study was able to identify some of the problems faced by the elderly in this pandemic situation with decreased access to food (83.0% of total) and healthcare (62.0% of total) being the largest problems voiced by the study subjects. Loss of jobs and income has been a huge burden on the lower socioeconomic classes. A large percentage also stated that the primary barrier to accessing health care was the lack of transport due to the lockdown (61.0% of the 77 people who stated there was a barrier to accessing healthcare). During the course of the study, we also imparted health education and carried out a diabetes and hypertension screening for all study subjects. The above results are summarised in (Table 2).

Table 2: Knowledge, attitude and practices related to COVID-19 in the study population (N=124)

Variables (N=124)	Frequency (n)	Percentage (%)
Knowledge		
Spread	99	79.8
Symptoms	107	80.6
Prevention of spread	121	97.5
Minimum distance	49	39.5
Vulnerable population	58	46.7
Attitude		
Find it difficult to maintain social distancing	88	71.0
Think definite treatment for COVID-19 exists	97	78.2
Will take vaccine	55	44.3
Practices – mask use		
Cover both mouth and nose	117	94.3
Consciously avoid touching face	113	91.5
Consciously avoid touching mask	71	57.2
Practices – preventive measures		
Use a mask for prevention	94	75.8
Visit doctor for symptoms	107	86.3
Adequate social distancing practiced	90	72.5
Cough hygiene	22	17.7

5. Discussion

COVID-19 pandemic affected India, and all necessary measures were taken in order to minimize morbidity and mortality. As per a study conducted by Prashant et al.,[6] a three-pronged approach targeting: (i) governments (building the knowledge base to inform holistic decision-making in the best interests of the public and the economy); (ii) built spaces (improving ventilation in places such as hospitals, schools etc.); and (iii) the public (protecting individuals from infection via personal protective measures) are necessary to control the pandemic. Our study subjects were well informed in most aspects of the disease such as symptoms, transmission, etc. This is in part due to a good educational initiative taken up by the government which included TV broadcasts, posters at public places, mobile phone messages etc. However, they were not well informed about mask practices, the importance of social distancing and hand sanitization. We also found that facilities such as a government helpline and fever clinic for the symptomatic patients were not well-known among the community, and could potentially further transmission of the disease due to delayed diagnosis. As for the national control measures, an interesting model called the SEIR (Susceptible, Exposed, Infectious and Removed) compartmental model, was implemented by the government of Malaysia. The objective of the SEIR model is to monitor the COVID-19 projection in order to study the effectiveness of the strategy carried out by the Malaysian government and it did so with great accuracy.[7] This could also be considered in order to achieve greater control of the pandemic.

A study by J.F. Daoust et al,[8] systematically surveyed elderly, including measures of attitudes and self-reported behaviours related to COVID-19. The two attitudes were prospective self-isolation and willingness to isolate. The study found that the elderly people are not systematically more responsive in these attitudes and they are not more disciplined in terms of compliance with preventive measures, especially with wearing a face mask when outside their home. This is in accordance with our study, where poor mask practices were prevalent. We also often found that the subjects would not wear a mask in public places, but would only do so when entering the outpatient clinic. Due to the fact that COVID-19 is a highly contagious disease with a Ro (reproduction number) estimate between 1.4 to 2.5 (meaning that every person infected could infect between 1.4 and 2.5 people),[8] we propose reducing the need to repeatedly visit hospitals during the pandemic, by encouraging tele-consultations and house-to-house visits for providing medications and recording blood pressure and blood sugar values for long term non communicable disease patients, while observing the necessary precautions for COVID-19.

We found that awareness regarding the vaccine was poor among the subjects, while less than half agreeing to take the vaccine when it became available. This gives us an early insight into the concept of vaccine hesitancy, which was also seen in other pandemics throughout our history. In a Lancet

published study[9] conducted in France at a similar time, they found that only 26% of respondents stated that, if a vaccine against SARS-CoV-2 becomes available, they would not use it. In addition, this attitude was more prevalent among young women aged 18–35 years (36%), low-income population (37%), and among people aged older than 75 years (22%). This is particularly relevant in our study, as two of the latter groups make up a large portion of our study population.

Droplet and aerosol precautions should be implemented in hospitals and crowded places, which include social distancing, mask use, sanitization of surfaces regularly etc. Our interviews were conducted by observing all the necessary standard operating protocols for COVID-19. Hospitals are a hotspot for COVID-19 infection and patients are urged to stay at home. This has been made possible largely due to home delivery of medicines and tele-consultations. A wider coverage for medicine delivery is desired as many of our study subjects (25.6%) stated medication refill as the reason for the hospital visit.

Our study found that most of the elderly attending the OPD at the government hospital were aware of government recommended guidelines concerning COVID-19 safety precautions, but were not following them as per recommendations. This was in part due to factors such as low income (re-using masks), overcrowding (belief that it is difficult to follow social distancing), inadequate knowledge about proper mask use, sanitization and COVID-19 specificities (such as sunlight kills the virus). With regard to a possible vaccine, government measures such as vaccine information sources explaining the benefits of the same, easy availability for all, especially the vulnerable groups and dissolving the possible myths and taboos related to the vaccine are critical for a successful vaccination campaign. The issues regarding lack of food and transport need to be addressed, with emergency transport services being readily available for any emergencies and the availability of safe and hygienic food for all. That being said, we would like to emphasise on the three-pronged model mentioned earlier, in targeting government strategies, citizens and crowded spaces in our preventive efforts against COVID-19.

A limitation of our study was that we did not assess the mental health of the elderly subjects during the pandemic. Literature shows that mental health of the elderly population during the pandemic has been affected, as is seen in a study by D. Banerjee et al. in Bengaluru, India[10] which states that social isolation of the elderly is a serious public health concern due to their bio-psycho-social vulnerabilities. Social distancing, though a major strategy to fight COVID-19, is also a major cause of loneliness, particularly in settings like nursing-care or old-age homes which is an independent risk factor for depression, anxiety disorders and suicide. As our study only included subjects from an outpatient clinic, we were likely to have faced a social desirability bias.

6. Source of Funding

7. Conflict of Interest

The authors declare no conflict of interest.

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