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Original Article

A community response survey on an ABCD scoring system for patient's self assessment with symptoms of COVID-19

Kunal Nandy [a], Anant Dhanwate [b], Abhijeet Ashok Salunke [c, *], Tanmay Tank [d], Keval Patel [c], Subodh Kumar Pathak [e], Prem Menon [f], Sachin Upadhay [g], Sassendar Shanmugasundaram [h], Chirag Bhirud [c], Ankit Sharma [c], Pritam Patil [i], Shivhar Sonawane [j], Shashank Pandya [a]

[a] Gujarat Cancer and Research Institute Ahmedabad, Gujarat, India
[b] Department of Anatomy GMC Akola, India
[c] Department of Surgical Oncology Gujarat Cancer and Research Institute Ahmedabad, Gujarat, India
[d] Department of Anaesthesia Gujarat Cancer and Research Institute Ahmedabad, India
[e] Department of Orthopaedics MMIMSR, MM Deemed to be University, Mullana, Ambala, India
[f] Department of Orthopaedics Government Medical College, Thiruvananthapuram, Kerala, India
[g] Department of Orthopaedics Netaji Subhash Chandra Bose Medical College, Jabalpur, India
[h] Department of Orthopaedics Appolo Hospital, Oman
[i] Department Plastic Surgery Gujarat Cancer and Research Institute Ahmedabad, Gujarat, India
[j] Department of Paediatrics, Bethany Hospital, Mumbai, India

1. Introduction

Coronavirus disease 2019 (Covid-19), caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is now a worldwide pandemic. The most common symptoms of COVID-19 are fever, cough, and myalgia [1]. Its outburst first started in China in December 2019 and gradually it spread across the globe taking the shape of a global pandemic. Management of a patient infected with coronavirus is a challenging task considering the unpredictable nature and course of the disease. Despite this, the case fatality rate has improved with time because of increased awareness and knowledge about the disease. It is now well known

that morbidity and mortality in COVID-19 infections are linked with associated comorbidities like Diabetes mellitus, hypertension, chronic obstructive pulmonary disease, chronic kidney disease and cancer [2–4]. It has now become imperative to identify the high-risk patients who are at risk of serious events and keep them under strict observation. Identifying the deterioration at the earliest is a crucial part of management to initiate directed symptomatic treatment at the earliest to stop or derail the disease progression.

Because of increased awareness and prolonged lockdown, not just healthcare professionals but also the general population has gained knowledge about the disease which has led to early identification of critical signs like falling saturation even by non-

* Corresponding author.
E-mail addresses: id-kunalnandy@gmail.com (K. Nandy), id-drabhijeetsalunke@gmail.com (A.A. Salunke).

medical population. At a time when our country is reporting around 90000 cases per day with overburdened hospitals, it is very essential to identify patients with severe symptoms requiring admission and promoting the concept of home isolation for asymptomatic or for patients with mild symptoms.

Based on these concepts, an ABCD scoring system was proposed for evaluation at home by the patients to follow a color-coded triage system based on the final score [5]. Our scoring system helps the patients and relatives to identify the high-risk symptoms and makes them self-aware about their disease progression. We conducted this survey to study the popularity of this scoring system across the country and its usefulness in deciding the need for hospitalization and home isolation.

2. Methods

2.1. Conceiving the survey

The idea of developing this simple yet very useful scoring system was the brainchild of AAS. The concept behind the development of this scoring system is to enable the people using it to decide for themselves their disease severity and need for hospitalization at a time when healthcare workers and hospitals are overburdened in this pandemic. Mild cases (Green) as per the scoring system do not require hospitalization and just need to be kept under observation at home. Moderate cases (Yellow) require consultation with a doctor managing COVID patients with the final call to be taken by the doctor (Fig. 1) [5]. Severe cases (Red) need to be hospitalized on an urgent basis. The key questions to be included in the survey were prepared by AAS (Table 1). It was then converted into an online e-form and circulated amongst the general public including medical professionals during the period of 1st September to 15 September 2020.

2.2. Data collection and analytical techniques

The specified questionnaire in e-form was made available to the physicians through email and social media. The completed questionnaire received were automatically tabulated in an excel sheet. The target was to collect more than 200 responses and perform their in-depth analysis. Data was collected and analysed in the Microsoft Excel.

2.3. Role of the funding source

There was no funding source for this study. The corresponding author had full access to all the data in the study and had final responsibility for the decision to submit for publication.

3. Results

A total of 241 responses were received at the end of the survey out of which 70.4% were healthcare professionals and 29.6% were non-medical population (Fig. 2a).

97.5% of respondents were aware of the ongoing pandemic and were conscious of the fact that their family could also be affected by the virus (Fig. 2b).

The 97.9% of respondents were aware of the various symptoms of COVID-19(Figs. 2c) and 84.2% were aware that fever, cough, body ache, and diarrhea can occur in COVID-19 (Fig. 3a).

After the relaxation of lockdown 54.2% of respondents had either had COVID-19 patient contact or had an infection in their family (Fig. 3b).

96.3% of respondents were aware of the possible association of disease severity with comorbidities like diabetes mellitus, hypertension, COPD, CKD and cancer (Fig. 3c).

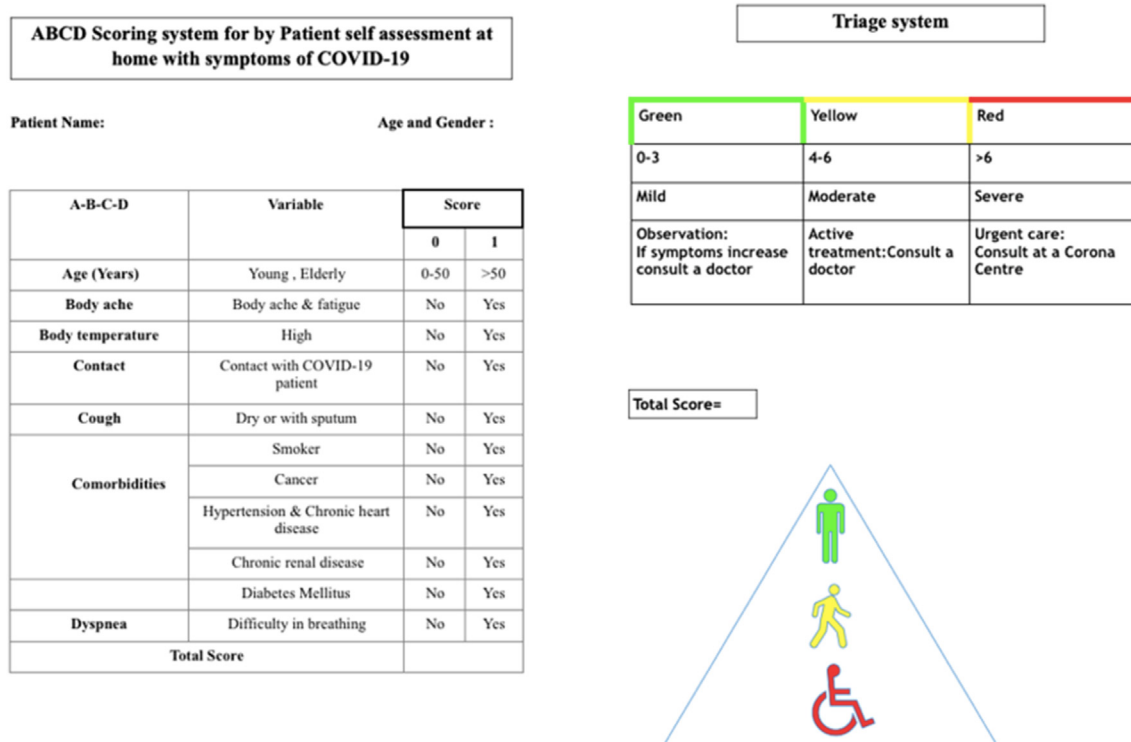58.8% of respondents acknowledged the problem of

Fig. 1. ABCD scoring system for patient's self assessment at home Scoring system with symptoms of COVID-19.

Table 1

Questionnaire used a community response survey on a ABCD scoring system for patient's self assessment with symptoms of COVID-19.

Question	Answer
Are you a Healthcare Professional	A. Yes B. No
Are you aware about ongoing COVID-19 pandemic and do you think it may affect you or your Family?	A. Yes B. No
Are you aware of various symptoms of COVID-19 ?	A. Yes B. No
Which are the common symptoms of COVID-19	A. Fever B. Cough C. Body ache D. Diarrhea E. All of the above F. None of the above
Have you been in contact with COVID -19 patient or had your family member been exposed to COVID-19?	A. Yes B. No
Are you aware that medical comorbidities like Diabetes, Hypertension, Chronic obstructive pulmonary disease, Chronic renal disease, Cancer may worsen the course of COVID-19 disease.	A. Yes B. No
Do you know a method or system that can help you for self assessment at home with symptoms of COVID-19	A. Yes B. No
Our proposed ABCD scoring system is having various medical terminologies. Are you aware of these terms?	A. Yes B. No
Do you think that the Color code using Traffic signal colours: Green, Yellow and Red makes this ABCD scoring method easy to understand?	A. Yes B. No
Is this ABCD Score for patient's self assessment at Home easy to understand and does it help in choosing you a correct treatment option	A. Yes B. No
Would you recommend or suggest this "ABCD score for patient self assessment at home with symptoms of COVID-19" to your friends and family	A. Yes B. No
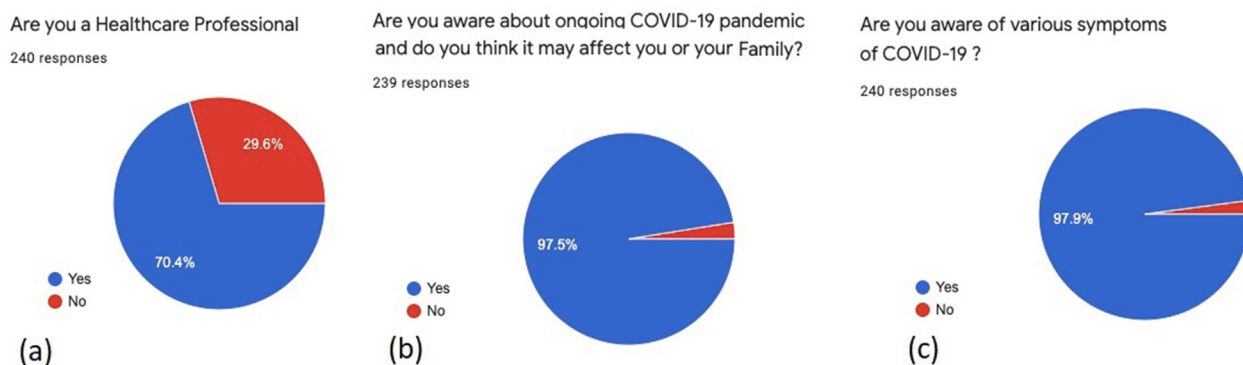
Fig. 2. (a)Pie diagram showing that the response to survey was provided by 70.4% were healthcare professionals and 29.6% were non-medical population. (b) Pie diagram showing that the 97.5% of survey respondents were aware of the ongoing pandemic and its effect on them and their family. (c) Pie diagram showing that the 97.9% of respondents were aware of the various symptoms of COVID-19.
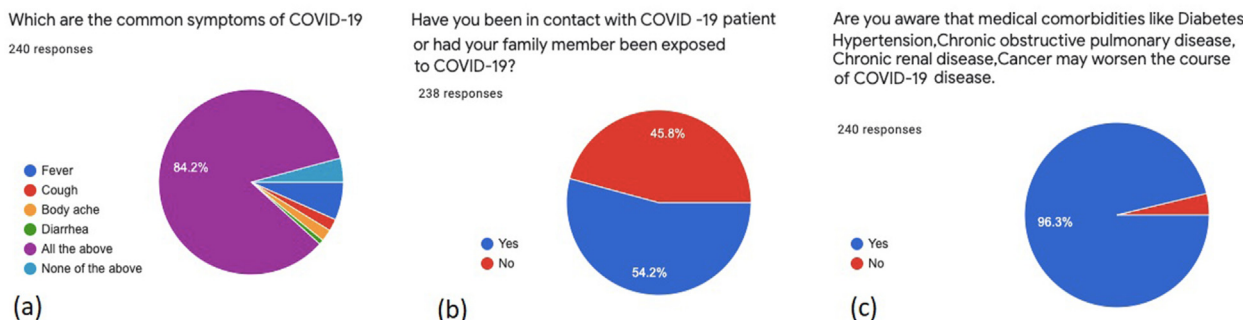
Fig. 3. (a) Pie diagram showing that the 84.2% of respondents were aware of the common symptoms of COVID-19 which included fever, cough, body ache, diarrhea. (b) Pie diagram showing that 54.2% of respondents had either had COVID patient contact or had an infection in their family. (c) Pie diagram showing that 96.3% of respondents were aware of the possible association of disease severity with medical comorbidities.

overburdened healthcare system due to rising caseloads daily and the need for a scoring system for stratification (Fig. 4a).

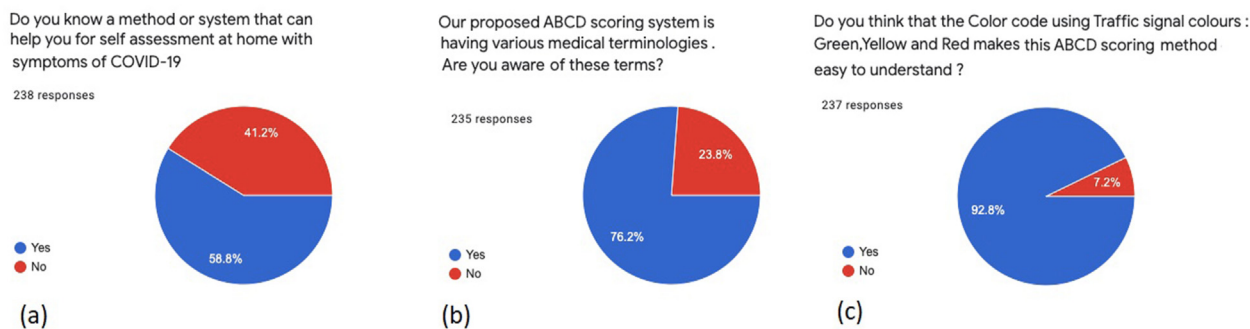76.2% of respondents understood the medical terms used in our scoring system (Fig. 4b).

92.8% of people found that color coding in our scoring system makes it easy to understand and interpret even for non medical respondents (Fig. 4c).

95.8% of respondents said that ABCD score for patient's self assessment at home is easy to understood and would help them in choosing a correct treatment (Fig. 5a) and 96.6% of people consider

our scoring system very useful and helpful for home self-assessment and they recommend this system (Fig. 5b).

4. Discussion

To best of our knowledge, this would be a first community response survey on an ABCD scoring system for patient's self assessment with symptoms of COVID-19. In the current survey, we included 11 questions with 241 respondents with a 170 were healthcare professionals and 72 were non-medical respondents.

Fig. 4. (a) Pie diagram showing that 58.8% of respondents acknowledged a method or system can help for the self assessment at home with symptoms of COVID-19. (b) Pie diagram showing that 76.2% of respondents understood the medical terms used in the current scoring system. (c) Pie diagram showing that 92.8% of respondents found that color coding in our scoring system makes it easy to understand.

Fig. 5. (a) Pie diagram showing that 95.8% of respondents said that ABCD score for patient's self assessment at home is easy to understood an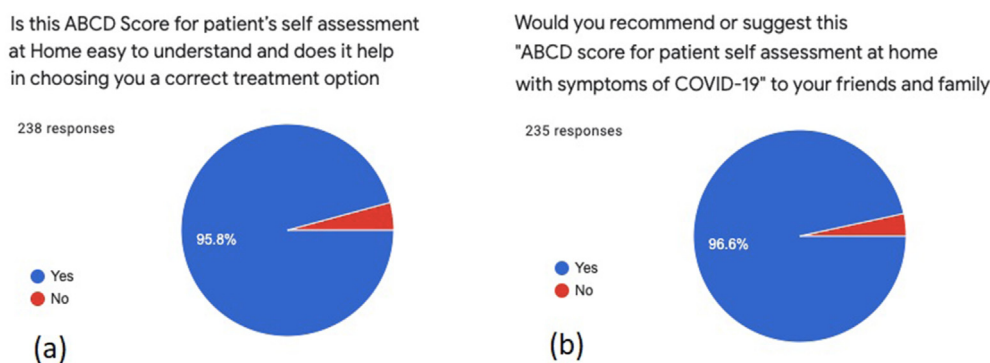d would help them in choosing a correct treatment. (b) Pie diagram showing that 96.6% of people consider our scoring system useful and would recommend it to their friends and family.

The majority of respondents were aware of the various symptoms of COVID-19. More than 95% of respondents were aware of the various symptoms and which were most common symptoms of COVID-19. Also, more than 95% respondents were aware of the possible association of disease severity with comorbidities like diabetes mellitus, hypertension, COPD, CKD and cancer. Around half of the respondents including medical and non medical had replied that they were have contact with COVID-19 patients.

Coronavirus disease 2019 (COVID-19), caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is now a worldwide pandemic with the most common symptoms being fever, cough and myalgia [1]. The most challenging part about this virus is its high infectivity. Most of the patients have mild symptoms or are asymptomatic but 5–10% of patients develop severe symptoms like falling saturation requiring oxygen or ventilator support. Serious events are commonly seen in patients with comorbidities like diabetes mellitus, hypertension, chronic kidney disease, chronic obstructive pulmonary disease and cancer [2–4,6]. During the initial phase of the pandemic, there was widespread use of hydroxychloroquine across the world but few meta-analysis proved that there was no role of it in the management of COVID-19 and its use was associated with increased mortality [7,8]. Management of COVID-19 has improved with time with better understanding about cytokine storm in its pathogenesis. Incorporation of steroids and antivirals like Favipiravir, Remdesivir, immunomodulators like IL-6 inhibitors like Tocilizumab and convalescent plasma have improved survival when started at appropriate times without delay [9–13]. Remdesivir was most effective when initiated early during moderate symptoms like with falling oxygen saturation. Thus it became crucial to identify these patients because many

times they had silent hypoxia or 'happy hypoxemia' that is falling oxygen saturation without breathlessness and then they suddenly collapse landing directly on invasive ventilator support with severe ARDS leading to high mortality [14]. With our country reporting approximately 90000 new cases daily, it is not possible to admit all the patients and overburden our already stressed healthcare system. It is thus extremely important to identify patients who require hospital admission at an early stage to benefit the most [15]. The promotion of the concept of home isolation for asymptomatic and mild symptoms is very important to reduce the burden on hospitals. Salunke et al. had described a score based on use of clinical features and radio-pathological findings in patients who have been tested positive for COVID-19 [16].

This scoring system was designed to segregate patients on their own at home into three groups based on color-coding. Green coded were advised for home isolation and take symptomatic medications at home. Yellow coded were asked to consult a doctor and advised home isolation but to remain cautious and monitor symptom progression, vitals and saturation in time. Red coded were immediately advised to consult a doctor and get hospitalized. Our survey was responded by not just healthcare workers (70.4%) but also general non-medical respondents (29.6%). More than 95% of respondents were aware of the ongoing pandemic and are following its developments regarding the symptomatology, disease progression and its association with various comorbidities. People understand regarding the high infectivity of the SARS-CoV-2 and are aware of the fact that with more than 90,000 cases reported each day in India, the already stressed out healthcare system will collapse. More than 50% of people understand the need for a scoring system for better patient stratification so that only the red

coded patients get hospitalization and green coded remain in home quarantine under self-observation. More than 90% of people accept our scoring system and recommend it. They found it useful and easy to understand.

5. Conclusion

Based on the survey, we recommend our scoring system for a self home assessment. This scoring system helps the patient at home in understanding the disease severity and to seek appropriate treatment if required or undergo home quarantine and self monitor the symptoms and reassess the condition using this scoring system.

Funding

NIL.

Declaration of competing interest

NIL.

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